

## The History Programs Publish *Physics Entrepreneurship and Innovation*

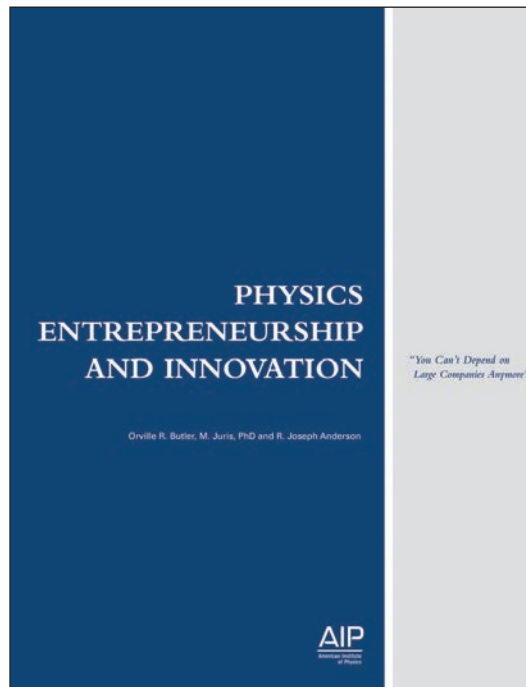
By R. Joseph Anderson, Director, Niels Bohr Library & Archives

We completed our most recent study of physicists working in the private sector at the end of 2013, and the final report, *Physics Entrepreneurship and Innovation*, is now available both in print and online. While the physicists in the study don't fit the conventional model of hard-driving, risk taking entrepreneurs, physics-based entrepreneurship plays a vital role in innovation and the ongoing transformation of American industry in just about every business sector.

For much of the 20th century, technological innovations that drove U.S. economic growth emerged from "idea factories" housed within large companies—research units like Bell Labs or Xerox PARC that developed everything from the transistor to the computer mouse. In recent decades, however, many large high-tech companies have eliminated or downsized in-house research programs, turning instead to startup companies as their primary source of breakthrough innovations.

*Physics Entrepreneurship and Innovation* is based on extensive interviews with 140

PhD physicists and other professionals who co-founded and work at some 91 startup companies in 14 states that were established in the last few decades.



The physics that is being done by the companies in the study offer the potential for major breakthroughs and new technologies in areas as diverse as medical devices, superfast and nano transistors, optical switching, alternative

energy sources, and laser sensors and communications, along with a variety of new manufacturing tools.

The four-year study is focused on investigating the structure and dynamics of physics entrepreneurship and understanding some of the factors that lead to the success or failure of new startups, including funding, technology transfer, location, business models, and marketing. We have also considered ways that the companies can work with private and public archives to preserve historically valuable records so that future researchers can understand today's technology and economy. Our findings include:

- No national standard of entrepreneurship and innovation exists, despite efforts to create regional clusters modeled on the successes of the Silicon Valley and the greater Boston area.
- Startups in the study can be broadly divided into two business models that we call "market-pull" and "technology-push." Market-pull

(Continued on page 2)

### In this issue...

<b>The History Programs Publish</b>		
<i>Physics Entrepreneurship and Innovation</i> .....	1	<b>Love, Literature, and the Quantum Atom</b> .....
<b>Paul Forman Book Digitization Project</b> .....	2	<b>New Valentine Telegdi Photo Collection</b> .....
<b>On the Road with Heisenberg</b> .....	3	<b>Grants-in-Aid Support Scholarly Endeavors</b> .....
<b>Found in the Stacks: "Facts About the Automobile"</b> .....	4	<b>New Minority Book Titles</b> .....
<b>The Bohrs: Physics Runs in the Family</b> .....	5	<b>Physics Heritage &amp; Promise: Special Initiatives Campaign</b> .....
<b>Feynman's Hughes Lecture Notes Now Online</b> .....	6	<b>The Second AIP Early-Career Conference</b>
<b>Inside the Papers of Karl K. Darrow</b> .....	7	<b>on the History of the Physical Sciences</b> .....
<b>The Legacy from Segre's Camera</b> .....	9	<b>Recent Publications of Interest</b> .....
<b>Shelving Replacement in the Archive Stacks</b> .....	10	<b>Documentation Preserved</b> .....
<b>Teachers Guide on African-American Physicists</b> .....	10	<b>Friends of the Center for History of Physics</b> .....
<b>History of the American Center for Physics</b> .....	11	
<b>The Role of the Archival Assistant</b> .....	12	
<b>Papers of Rotblat, Richardson, and Grad</b>		<b>Cover Image:</b>
<b>Now Accessible to Researchers</b> .....	12	<i>Cover photo of Physics Entrepreneurship and Innovation, available in print by contacting <a href="mailto:nbl@aip.org">nbl@aip.org</a> and online at <a href="http://goo.gl/toXTf2">goo.gl/toXTf2</a>.</i>

*(“Entrepreneurship”, continued from page 1)*

startups tend to improve upon existing technologies. Technology-push companies work to spin out new, game-changing technologies from university research for undeveloped markets.

- Funding is a critical factor in the success or failure of new companies. Venture capital/angels and government funding through the Small Business Innovative Research (SBIR)/ Small Business Technology Transfer (STTR) programs have played critical roles in funding startups, but their roles have changed significantly over the course of time.

- Participants found problems with government funding and venture capital, although they typically saw both as critical to their business' overall success.
- Perhaps because most of the startups in the study are not yet commercially profitable, tax policies were not a major concern. However, interviewees saw current immigration policies and International Traffic in Arms Regulations as hostile to American high-tech competitiveness.
- The study also found potential mechanisms for preserving historically valuable records.

This material is based upon work supported by the National Science Foundation under Grant No 0849616, as well as the Avenir Foundation and the American Institute of Physics. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation or the other funders.

For a free print copy of *Physics Entrepreneurship and Innovation*, call us at +1-301-209-3165 or e-mail [chp@aip.org](mailto:chp@aip.org). The full report is also available on our website at [goo.gl/toXTf2](http://goo.gl/toXTf2). ■

## Paul Forman Book Digitization Project

*By Elaina Vitale, Assistant Librarian*

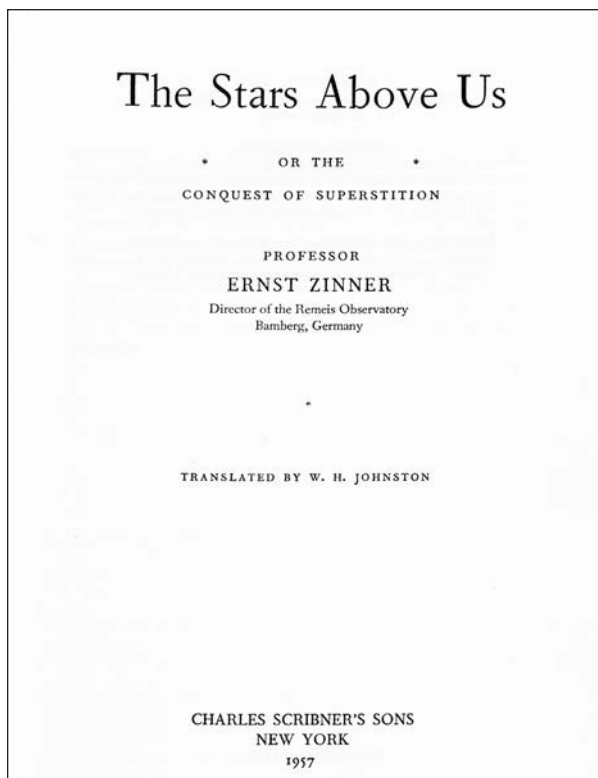
In 2011, historian of science Paul Forman donated a collection of historic German texts to the Niels Bohr Library and Archives. Forman's 1971 "Forman thesis" argued that the culture of Weimar Germany greatly influenced early interpretations of quantum mechanics. His thesis was significant

for challenging established notions of rationalist philosophies of science, as well as challenging the notion of German national identity. Forman's donation, which includes important and rare German mechanics texts from the late nineteenth and early twentieth centuries, is a critical and exciting documentation of his thesis. Of additional interest are Forman's useful and careful annotations throughout the collection. The texts are in various physical conditions, and many are unfortunately printed on acidic and brittle wood-pulp paper.

In 2014, to best preserve Forman's donation, staff at the NBLA will make digital use copies of 44 books from his donated collection using the Library's new Zeutschel book scanner. Digital use copies will ensure the immediate preservation of Forman's sources, and will be available for in-library use to interested

parties. The Forman pilot project will also allow staff to gather statistics of scanning time as well as staffing and supply needs. Upon completion, the Library will not only have preserved a vital historical collection, ensured a collection's future safety and use, but also have determined appropriate further scanner uses and projects.

The preservation assistant and librarian will scan approximately one book per week and scanning began in January of 2014. Complying with current archival standards, the Forman collection will be saved in tif file formats. The preservation assistant has 3–6 hours per week dedicated to scanning, and this will allow suitable time for scanning, file cleanup and quality control. The books will be scanned in publication order, from oldest to newest. After the completion of the project, NBL&A staff will provide digital copies of these fair use scans to online communities. It is hoped that the Forman pilot project will be completed by the end of 2014. ■



*The Stars Above Us or the Conquest of Superstition by Ernst Zinner. Part of the Forman collection at the Niels Bohr Library & Archives. Photo courtesy Niels Bohr Library & Archives.*

“  
Declare the past, diagnose the present, foretell the future.  
”  
Hippocrates

## On the Road with Heisenberg

By Greg Good, Director, Center for History of Physics

After the defeat of Germany in 1945, ten German scientists and engineers were interned at an English estate, Farm Hall, for over six months to find out how close the Third Reich had come to the development of a nuclear weapon. Werner Heisenberg, Otto Hahn, Max von Laue, Carl von Weizsäcker, and the others were housed, fed, and given the opportunity to talk among themselves—all the while being secretly recorded. Although most of those recordings were lost and the original shellac disks destroyed, transcripts of some of those conversations were made for British intelligence and ultimately sent to General Leslie Groves in the United States. They were declassified and released in 1992.

On May 7, as part of the Lyne Starling Trimble Science Heritage Lecture Series, AIP sponsored a staged reading of a play inspired by these transcripts in Santa Fe, New Mexico. The playwright is historian of physics David Cassidy, who is the

2014 recipient of the APS Abraham Pais Prize for History of Physics. Cassidy's play, "Farm Hall," has had two previous public readings, including one at the 2013 APS April Meeting in Baltimore. It also saw a limited-run stage production in New York in summer 2014. Cassidy is best known for his scholarly biography of Heisenberg, *Uncertainty: The Life and Science of Werner Heisenberg* (1993), which won both the Pfizer Award of the History of Science Society and the AIP Science Communication Award. He has also published a popular biography of Heisenberg, books about J. Robert Oppenheimer, and a history of 20th-century physics.

Our thanks go out to Peter Pesic, who recruited the actors, and to Brian Schwartz, chair of the APS Forum on the History of Physics. Their efforts were invaluable in bringing about this event. The impressive cast was comprised of student actors from St. John's College in Santa Fe, several of them freshmen.

Rory Gilchrist, a St. John's student himself, directed the reading and played the British army officer who was charged with chaperoning the German scientists at Farm Hall.

Evan Coral played the lead role as physicist Werner Heisenberg while Anthony Risolio II played von Weizsäcker, Jamison Gilmour played Walter Gerlach, Zachary Thomas played Kurt Diebner, Conner Groat played Otto Hahn and Samuel Goudsmit, Jane Vick played Elisabeth Heisenberg, and Brett Ethridge was the voice of the BBC reporter who announced the explosion of the atom bomb over Hiroshima. The students involved all managed a superb performance on top of finishing the requirements of the academic year!

After the play, the audience asked many questions: about Heisenberg, about events during and after the war, and about the process of the historian

*(Continued on next page)*



David Cassidy and student actors from St. John's College present a staged reading of *Farm Hall*. Photo courtesy of AIP.



Audience members enjoy a staged reading of David Cassidy's "Farm Hall." Photo courtesy of AIP. (Heisenberg, cont'd from previous page)

turned playwright. As a historian, Cassidy has dedicated most of his career to getting the facts straight and telling the stories of physics faithfully and in detail. But that does not make good drama. Drama needs character, conflict, and catharsis. He referred to Aristotle's theory of drama as shaping his own transition. Characters in drama must be good, appropriate, realistic, and consistent. That leaves room for invention not allowed in history. Hence, conversations may be shifted in chronology in a play and

sometimes may even be shifted from one person to another if it adds to the story. Historians don't have that freedom. No matter how much creativity the playwright exercises, however, the story and the characters must ring true. Heisenberg is still Heisenberg. Diebner is still Diebner. And the bomb was still developed by the Manhattan Project and not by the Germans.

The night after the performance, AIP held a reception for some of Santa Fe's

and Los Alamos' many supporters of the AIP History Programs. Under the guidance of our Chief Development Officer, Richee-Lori Smith, and the AIP Development Board, we have launched a two-million-dollar "Physics Heritage & Promise" campaign. As part of this campaign, we are getting to better know our many friends and supporters around the country. See page 17 of this newsletter for more information.

Taking this play "on the road" allowed us to successfully highlight the Lyne Starling Trimble public lecture outreach effort. We are grateful to Development Board member Ruth Howes and her husband Bob for opening their century-old adobe house to us and hosting this reception. We also thank former AIP Governing Board Chair Hans Frauenfelder for his welcoming remarks, personal stories, and warm support of AIP's History Programs and this campaign to fully endow critical elements of these programs.

This staged reading of "Farm Hall" and the evening reception in Santa Fe have set a high standard for future History Programs events. ■

## Found in the Stacks: "Facts About the Automobile"

By Elaina Vitale, Assistant Librarian



Cover of "When the Wheels Revolve: Facts about the Automobile." Photo courtesy Niels Bohr Library & Archives.

When the Wheels Revolve: Facts about the Automobile is a slim and beautiful 1935 publication of the General Motors Corporation unearthed recently in the Niels Bohr Library & Archives stacks. This pamphlet was written to "clear up some of the mystery which has grown up about the operation of the automobile," and is meant to engage readers of all ages. In 21 illustrated pages, the authors briefly describe the history of automotive engineering and illuminate the varied and complicated mechanical processes involved in the simple act of starting a car's engine. Though undoubtedly an endorsement of GM's superior motors masquerading as a celebration of the internal combustion engine, this pamphlet is a sleek example of the ways that physics

and engineering surround us at all times. Most of the tips and processes remain relevant to even the newest car models, which serves as a reminder to modern readers that many elements of physics and mechanical processes are often simply timeless. Browse this volume and others like it in the Niels Bohr Library & Archives.

General Motors Corporation. *Facts about the Automobile (When the Wheels Revolve)*. Detroit, Michigan: General Motors Corp., 1935. C3:1 GEN.

For more examples of GM's historic propaganda, visit their Heritage Center website at <http://www.gmheritagecenter.com/gm-heritage-archive/historical-brochures.html>. ■

## The Bohrs: Physics Runs in the Family

By Greg Good, Director, Center for History of Physics

On January 15, 2014 the American Institute of Physics hosted the first Lyne Starling Trimble Science Heritage Lecture of 2014 at the American Center for Physics. Dr. Vilhelm Bohr presented a very personal view of his grandfather in his lecture, "Niels Bohr: Life Behind Physics." The attentive audience of 92 was treated to insights from Vilhelm Bohr's childhood experiences with his remarkable grandfather and especially with his grandmother, Margrethe (Nørlund) Bohr.

Physics runs in the Bohr family. Niels Bohr famously proposed his atomic model 101 years ago in 1913. For this he received the Nobel Prize in 1922, "for his services in the investigation of the structure of atoms and of the radiation emanating from them." His father before him was a professor of physiology. His brother was a mathematician. His son Aage received the Nobel Prize in Phys-

ics in 1975. (Three other sons became a medical doctor, a lawyer, and an engineer. Niels and Margrethe had six sons, two of whom died young.)

His grandson Vilhelm, our speaker, with doctoral degrees in medicine and science, is branch chief at the NIH National Institute on Aging. His brother Tomas is a physics professor in Copenhagen, and Vilhelm's sons are interested in physics. Vilhelm Bohr spoke eloquently about his grandfather and about the remarkably accomplished family that surrounded him, but especially about Margrethe, constant confidant and advisor of Niels.

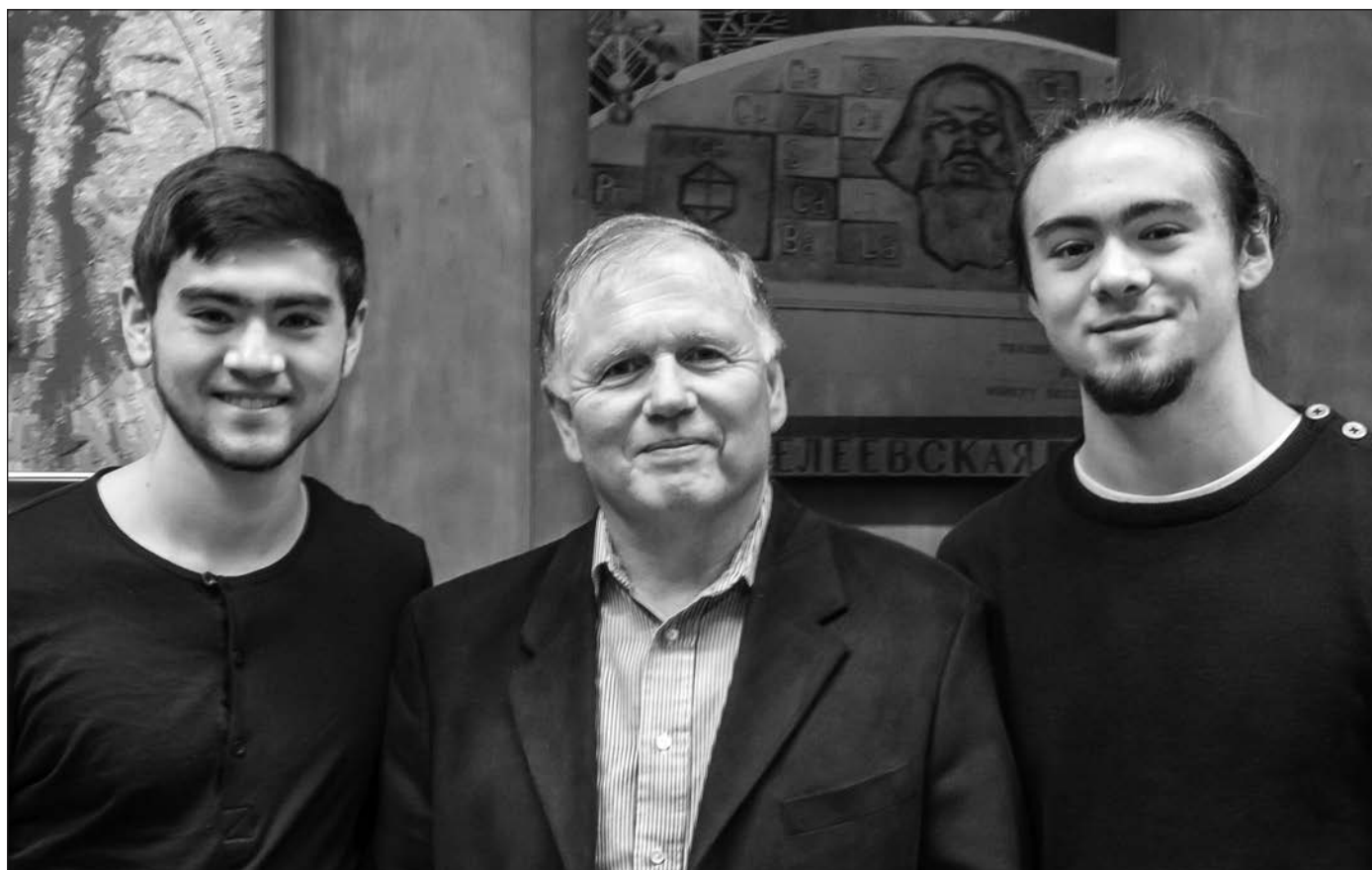
Margrethe Nørlund and Niels Bohr married in 1912 outside of the Danish Lutheran Church in a civil ceremony. They were both uneasy about the official status of the religion. Niels' mother, Ellen (Adler) Bohr, came from a prominent Danish-

Jewish banking family, and it is well known that Niels and Margrethe helped many Jewish scientists escape German authorities. Ultimately, they, too, escaped to the United States via Sweden.

Last year was of course a very big year in Denmark, in observance of the centenary of Bohr's theory of the atom. In June, a conference on the history of physics convened in the assembly hall of the Danish Academy of Science. There were art exhibits, a performance of the play "Copenhagen," a conference on quantum physics, and lastly, a high-level, wide-ranging conference that focused on Bohr's concept of "An Open World."

Vilhelm Bohr related to us the great enthusiasm produced by all of these events and the hopes they raise for the future. Another "Open World" conference is being planned to take place in

*(Continued on next page)*



Vilhelm Bohr with his sons, Kenneth (left) and Eliot. Eliot is an undergraduate physics major at the University of Maryland. Vilhelm's daughter, Christina, studies medicine in Los Angeles. Photo courtesy of AIP.



Bohr (right) stops for a few questions after his lecture at ACP. Photo courtesy of AIP.

*(The Bohrs, cont'd from previous page)*

Brazil, and a new “Open World Letter” will be presented to the United Nations, carrying forward the ideals expressed by Niels Bohr in his 1950 open letter to the UN. Another result will perhaps not appear in headlines but will have a direct connection to AIP. The Niels Bohr

Institute in Copenhagen has the Niels Bohr Archive, now consisting mainly of the papers and correspondence of Niels Bohr. The archive’s board (of which Wilhelm is chair), however, intends to broaden the collection and to elevate the archive to become a more active center for scholarly exchange. Fred

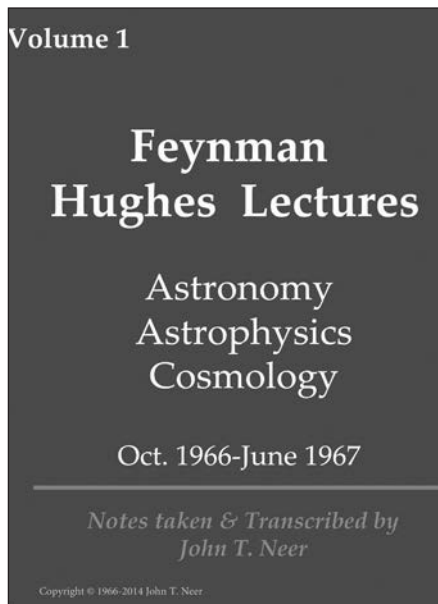
Dylla, AIP’s CEO, toured the archive in 2013 with its director, Finn Aaserud. The History Programs at AIP—the Center for History of Physics and our similarly named Niels Bohr Library & Archives—look forward to exploring ways that our two institutions can work together to take advantage of new opportunities in the years ahead.

AIP was fortunate to have this opportunity to host Dr. Vilhelm Bohr and his family and to provide a forum for putting his memories and dreams before a larger public.

At the time of this writing, one more Lyne Starling Trimble lecture was held at AIP. On November 3, 2014 Angela Creager, professor of history at Princeton University and president of the History of Science Society, presented a talk titled, “Atomic Tracings: Radioisotopes in Science and Medicine.” We will report on this lecture in our first newsletter of 2015. For more information on future events and programs, visit our website at [www.aip.org/history-programs](http://www.aip.org/history-programs). ■

## Feynman’s Hughes Lecture Notes Now Online

By Amanda Nelson, Associate Archivist



Cover of “Feynman Hughes Lectures, Astronomy, Astrophysics, Cosmology.” Photo courtesy Niels Bohr Library & Archives.

John Neer has posted notes of lectures that Richard Feynman presented at the Hughes Aircraft Corp. from 1966 to 1971 on the web at <http://www.thehugheslectures.info/>. The notes were taken by Neer and consist of about 400 hours (ca. 1,000 pages) of lectures covering:

- Astronomy, Astrophysics, and Cosmology
- Electrostatics, Electrodynamics, Relativity
- Quantum Mechanics and QED
- Microbiology
- Mathematical methods in Physics and Engineering

The notes have been scanned into PDF format with bookmarks to make

the downloading and reading easier. They are available for non-commercial educational use only.

John Neer earned his BS in physics from Ohio State University in 1965 and his MS in physics from the University of California, Los Angeles (UCLA) in 1967. He participated in 5 years of the Feynman lectures at the Hughes Malibu Research Labs, augmenting his Masters studies at UCLA. Find out more about him and the collection at <http://www.thehugheslectures.info/about/>.

If you know of a collection regarding the history of physics and its allied fields not currently in our catalog that you’ve used and find interesting, please let us know at [nbl@aip.org](mailto:nbl@aip.org). ■

## Inside the Papers of Karl K. Darrow

By Sandy K. Johnson, Guest Archivist



*Karl K. Darrow in Tuscaloosa, AL in 1938. Credit: J. H. Coulliette, Birmingham-Southern College, courtesy AIP Emilio Segrè Visual Archives, Darrow Collection.*

It is rather intimidating to write about the papers of Karl K. Darrow (1891–1981). Dr. Darrow was a 20th century intellectual and lived most of his very refined life in Manhattan. He was a physicist, a prolific writer, a gifted and witty speaker, a world traveler, an ardent patron of the arts, a connoisseur of fine food, and a guardian of decorum and proper manners. Thus, were he to be displeased with any of this effort, he would not hesitate to let the writer know—most often with subtle humor and, at times, with more than a little sarcasm.

The Darrow Papers are one of the broader collections in the Niels Bohr Library & Archives. While there is a great deal to satisfy any serious historian of physics, there is much to be learned and observed about what could be called the intellectual and/or cultural history of mid-century America and Europe. Some topics of interest include: everyday life and social interaction in Manhattan; women's issues at the time of World War II and after; international travel, as well as travel throughout the

U.S. at that time; the arts in New York including the New York Philharmonic, the Metropolitan Opera, Broadway theater, and saving Carnegie Hall in the late 1950s; Darrow family genealogy and correspondence, including a few letters of famed trial lawyer Clarence Darrow, who was Karl's uncle.

There are also two unique aspects of this collection. One is that Dr. Darrow kept a diary throughout most of his life, starting at the age of ten, and most of these volumes are included. They start in 1902 and go through 1976 and include some account books and travel journals. There are a few missing years and a significant gap

from 1929–1934. Otherwise, they are all there to offer a glimpse into the life of developing writer and intellect.

The other unique aspect of the collection is that much of the correspondence is two-way. Dr. Darrow typed most of his letters, and he kept carbon copies of nearly all of them. Therefore, both sides of the conversation are included. It offers a rare glimpse into written conversations, which in that time were a primary means of communication in both business and in social life.

Karl Kelchner Darrow was born in Chicago in 1891. His father, Edward Everett Darrow had been sent to Europe for his education in the late 19th century and was a high school

teacher in the Chicago public schools. His mother, Helen Kelchner Darrow, was an early graduate of the University of Chicago and was a pianist and organist. Karl married Dora Elizabeth Marcy, a professor of botany at Hunter College, in 1943.

He earned his B.S. from the University of Chicago in 1911 and he continued his study of physics there under Robert A. Millikan, earning his Ph.D. in 1917. He did graduate work at the University of Paris in 1911 and at the University of Berlin during 1912.

He began his career as a research physicist at Western Electric in New York City in 1917. When the company incorporated as Bell Laboratories in 1925, he continued his employment there as a science writer through his retirement in 1956. He produced more than 200 articles for professional and technical journals, including many for the Bell Laboratories Technical Journal. He also wrote numerous critical reviews, obituaries of scientists, encyclopedia entries and four books, one being *Atomic Energy* (1948), which was a result of his work during World War II when

*(Continued on next page)*



*Darrow outdoors with his bicycle circa 1900. Credit: J. H. Coulliette, Birmingham-Southern College, courtesy AIP Emilio Segrè Visual Archives, Darrow Collection.*



*Darrow with his wife, Dora Elizabeth Marcy Darrow in 1943. Credit: J. H. Coulliette, Birmingham-Southern College, courtesy AIP Emilio Segrè Visual Archives, Darrow Collection.*

he abstracted classified literature for the Metallurgical Laboratory of the University of Chicago.

While all of these accomplishments and experiences were the foundation for Dr. Darrow's sophisticated and stimulating life, it was his role as secretary of the American Physical Society from 1941 to 1967 that put him at the center of the physics community and much of the intellectual world in which he lived. He corresponded at some point with nearly every physicist of the day.

His influence on the physics community can also be observed in other collections held here at the Niels Bohr Library & Archives, such as the extensive Records of the American Physical Society, the American Institute of Physics, the papers of George Pegram, Lawrence Cranberg, Henry A. Barton, and Elmer Hutchisson and others. He arranged most of the APS Meetings which afforded him acquaintances with hotels, restaurants, and various purveyors of travel services. He traveled to meetings all over the world.

He and Mrs. Darrow had a long-term lease on a home in Switzerland and spent alternating summers there and in San Francisco where they owned a home. The descriptions of their travels, before airplanes, and the varied post cards from friends around the world are another unique and enlightening part of the collection.

Karl Darrow knew and experienced a broad array of subjects in the sciences, the arts and humanities. He was a true 20th century Renaissance man, and the collection of his papers is a fascinating example of a life well lived. He died in June 1982 at the age of 90. ■

*Information on this and many other collections held at the Niels Bohr Library & Archives can be found in our online catalog at <http://www.aip.org/history/icos>. To see more images of Karl K. Darrow, visit [photos.aip.org](http://photos.aip.org).*

## Seeking Your Book Donations!

At the Niels Bohr Library & Archives, we aim to preserve and make known the history of modern physics and its allied fields. The legacy of this hard work is visible in our robust archival, photographic and book collections, available to researchers across the world. These strong collections wouldn't exist without generous materials donations from physicists, historians of science and their families. We're grateful to our many 2013 book donors for helping us fill in the gaps in our collection. We received more than 1500 books from donors in 2013—a record year for us!

We continue to seek unique book donations. Your donation will help us document the history of the physical sciences from the 19th and 20th centuries. Our collection additionally covers astronomy, optics, vacuum science, institutional histories and social aspects of the scientific community. Within these subjects, we collect textbooks, laboratory manuals, instruction manuals, conference proceedings, instrument catalogs, published correspondence and biographies. We have a particular interest in usefully annotated books. ■



*Attendees of the Shelter Island Conference on Low Temperature Physics (at Shelter Island, New York). Darrow is in the first row, holding a file. Some of the other attendees are: Donald H. Andrews, Henry A. Boorse, J.G. Daunt, C.T. Lane, Fritz London, Duncan A. MacInnes, John C. Slater, Laszlo Tisza, Henry C. Torrey. June 1, 1948. Credit: photo courtesy AIP Emilio Segrè Visual Archives, Darrow Collection.*



## The Legacy from Segrè's Camera

By Fred Dylla, Executive Director and CEO of AIP

Personal photo collections have become ubiquitous over the last few decades. Many of us have even abandoned “real” cameras for the convenience offered by our cell phones to take and store a large amount of images. Nevertheless, managing our voluminous cache to keep only quality images requires time, and the whole exercise is nearly useless without preservation. New technical capabilities in recording for our posterity require new responsibilities to maintain them. Will the most important of our writings and photos currently inscribed onto silicon or magnetic media survive anything like the longevity of Roman era frescoes or medieval era ink on parchment? Dealing with the storage and accessibility problem is one of the key responsibilities of the archival community.

AIP's Niels Bohr Library & Archives is internationally renowned for preserving historical materials and making them widely accessible. The most popular resource from our archive is the Emilio Segrè Visual Archives (ESVA). Our website for the Segrè collection is one of the most visited sites within the AIP web environment and is used by a wide audience of students, teachers, professionals, and the public.

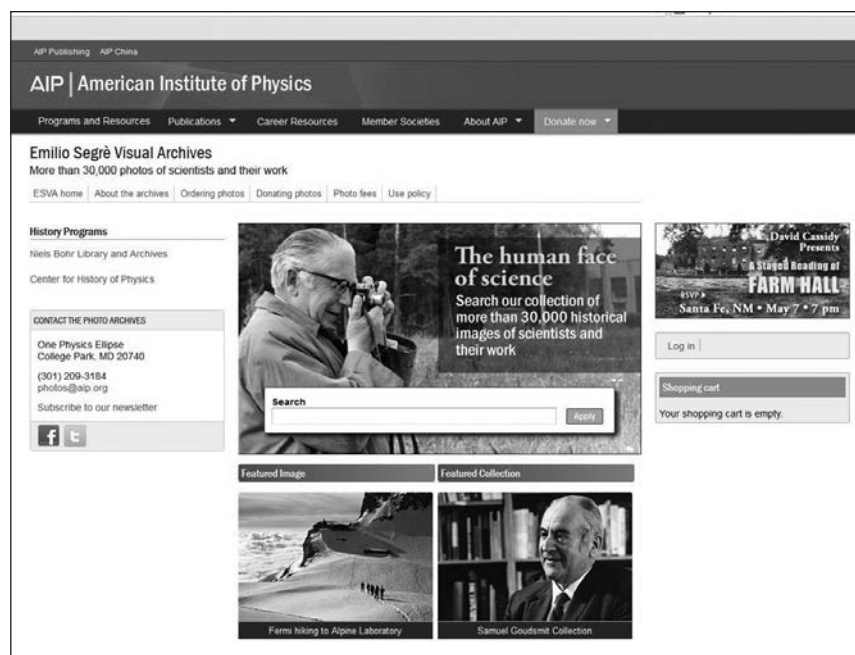
The ESVA now houses over 30,000 images, making it the world's largest database of visual images pertaining to physics. We have recently revamped this online resource and improved the search tool so that visitors can easily browse images for study, presentations,

exhibitions, and publications. ESVA offers free downloads of low-resolution images for classroom use, and modest charges for high-resolution images help to underwrite our services. The new search tool allows users to search by keywords, categories, and dates, and also allows readers to link and aggregate their search results. For frequent users an online account can be set up that will store images previously purchased.

One of the most popular collections of photos in the Segrè Archive is from the

at the end of World War II to uncover the extent of the Nazi nuclear weapons program. In 2009, Ronald Mickens donated to the archive his collection of photos of African-American physicists, which had its genesis with an important exhibit created by the National Society of Black Physicists. AIP's Center for History of Physics had a summer team in 2014 researching and producing a Teachers Guide on the history of African Americans in the physical sciences. This guide draws on images in the Mickens Collection and generally on the Segrè Visual Archives.

The photo archive's namesake, Emilio Segrè, is best known for his many contributions to nuclear and particle physics, including the Nobel Prize he shared in 1959 with Owen Chamberlain for the discovery of the antiproton. Segrè was also a historian of physics and an amateur photographer. Over 300 of his photos documenting physics and physicists from the 1920s through the



Home page of the new Emilio Segrè Visual Archives website. View and buy thousands of images at [photos.aip.org](https://photos.aip.org).

Manhattan Project. This collection was bequeathed to us by the Department of Energy in 2007 for our care and stewardship. Other collections of note include the W.F. Meggers Gallery of Nobel Laureates. In 1958, William Meggers donated his collection of photographs of 33 Nobel laureates (many of which were signed), and our archives has since kept this collection current for all winners of the physics prize. Samuel Goudsmit donated more than 300 photos to the archive, along with his papers describing his prolific career as a physicist, editor of *Physical Review*, and scientific leader of the Alsos mission

1980s were donated for our stewardship, along with a generous bequest from Segrè's second wife, Rosa, to support the archives. ■

Visit the new and improved Emilio Segrè Visual Archives at <https://photos.aip.org>. Questions or concerns? E-mail the photo librarian at [photos@aip.org](mailto:photos@aip.org).

“ Truth comes out of error more readily than out of confusion. ”

Francis Bacon  
Novum Organum, 1620

## Shelving Replacement in the Archive Stacks

By Amanda Nelson, Associate Archivist, and Melanie Mueller, Assistant Director

For two months this summer, the archive stacks at the Niels Bohr Library & Archives went through a transformation. After twenty years of solid use, our shelving system had begun to show its age, and it was becoming increasingly difficult to move the hand-crank mechanism to access our records. With the support of the American Center for Physics (ACP) board, we were able to embark on replacing our shelving and the work began on May 15th.

The work was done in two phases. In each phase, half of the archive was emptied, gutted to the floor, the system was replaced, and the shelving was reconstructed. The two-phase construction allowed us to keep the records in the building during the replacement project. First, archives staff draped the processing area with plastic to protect expensive preservation supplies and set up a temporary processing space in the storage area of the archives which is normally used to house new donations. Temporary storage locations were identified around our building and large wooden storage carts were used to move the necessary collections.

During construction additional plastic sheeting was draped over the records and journals remaining in the archives. Then the Spacesaver construction team began breaking down the metal shelving to expose the broken carriages and track system on the floor. The old carriages and track parts were removed and disposed of, while the metal shelving units were saved and reused after the new electric track system was installed. One half of the archive at a time was gutted to expose the bare concrete floor before the new electric track system could be installed. The new tracks were then installed and the metal shelving was reconstructed. Once the first half of the shelving system replacement was complete, the process was repeated on the other half of the archive.

The whole archive was completed by July 1st and we are currently repainting the walls and installing new flooring in both our archive stacks and the processing area. We expect this work to be completed by the end of September, 2014. We thank our researchers and patrons for your patience while we had limited access to our collection and we look forward to having you return soon and showing off our updated area during tours and to our co-workers at ACP. ■



New mechanical shelving system in the Niels Bohr Library & Archives stacks. Credit: photo courtesy Melanie Mueller.

“The only truly new knowledge we ever get is scientific knowledge, which is the sum of all the facts that have ever surprised human beings by turning out to be different from what was expected: the whole point of experiment and observation is to see something nobody has seen before in the past. Only by devoting itself to the past, to what has already happened and thus cannot be revised according to our wishes, does science come to know new things.”

Frederick Turner

## Teachers Guide on African-American Physicists

The Center for History of Physics at AIP in 2013 began a multi-year project to produce a series of Teachers Guides on topics related to the history of women and under-represented minorities in physics, astronomy, and related sciences. This project brings interns and research assistants to AIP for ten weeks in the summer to research and write teachers guides, which we publish on our web site at <http://www.aip.org/history-programs/physics-history/materials-teachers-students>.

The 2013 team produced material relating to women in physics, including 20 lesson plans, a bibliography, a guide to online resources, and much more. The 2014 team produced similar materials related to the history of African Americans in physics, astronomy, and related sciences. The goal of the project is to help science teachers introduce real stories of real people into the classroom. Because these stories focus on the human side of science, these materials can also be useful across the curriculum, in history and other classes. ■

Search 30,000+ images online at the Emilio Segrè Visual Archives

<http://photos.aip.org>

## History of the American Center for Physics

By Molly Marcusse, Archives Assistant



*Stakeholders walking through field where ACP would eventually be located. Credit: Photo courtesy Niels Bohr Library & Archives.*

2013 marked twenty years in the American Center for Physics for the American Institute of Physics (AIP), American Physical Society (APS), American Association of Physics Teachers (AAPT), and American Association of Physicists in Medicine (AAPM). In 2013 the NBLA also processed and made available the records of AIP's former treasurer Arthur Bent (1989-1997), which includes a series of records relating to AIP's move from New York City, NY to College Park, MD and the creation of the American Center for Physics. These records from the Office of the Treasurer provide a glimpse into the efforts required to make the headquarter move successful.

Before settling on College Park as the site, visits were made to locations in Northern Virginia, Philadelphia, and Baltimore. Prince George's County in particular was favored because AAPT was already located on Berwyn Road in College Park. Other factors which were considered when choosing the new headquarters location were the cost of land, timetable of development and construction, density and nature of existing buildings and control over new buildings, presence of hotel and other nearby services, and proximity to a Metro station, the Beltway, and a university.

AIP, APS, and the ACP steering committee were all interested in a site which had the ability to make a statement for

physics with the new headquarters. Arthur Bent in particular preferred ACP's current location on River Road because of its location, availability of public transportation, and because he felt this site had the most potential to bring other related scientific, engineering, and educational organizations to the building.

Once the site was selected, the Oliver Carr Company was chosen as the development agent and Skidmore, Owings & Merrill was chosen as the architect. The building was designed to get as much air and natural light as possible into offices, to be energy conscious, and to preserve the natural beauty of the site. The NBLA was designed as the architectural focus of the building. The ACP steering committee tasked Skidmore, Owings & Merrill "To design a crisp, fresh, modern appearance symbolizing Physics as the science of discovery." The building was also designed to allow for future expansion on-site; it is estimated that the current land will allow for expansion to quadruple the current usable office space if needed.

As construction proceeded, the ACP steering committee had a number of decisions to make. "Physics Ellipse" was the committee's first choice for the name of ACP's street, which was accepted by the Post Office. If this was not an option, "Physics Loop" and "Physics Way" had been offered as alternatives. A new logo for ACP was proposed by Richard Giegengack as a potential flag design based on a truncated version of the AIP logo designed by Michael Donovan. The steering committee liked the truncated logo so much that they adopted it as the logo for the building overall. The former AAPT offices on Berwyn Road had been named the Homer L. Dodge Building in honor of their first President; in addition to his work for AAPT, Homer Dodge was involved in both APS and AIP. The Berwyn Road building is still named after Homer Dodge but a plaque in his honor has been moved to the AAPT offices in the American Center for Physics.

AIP's previous headquarters on 45th Street in NYC was sold to the Republic of Korea for use by the Korean Mission to the U.N. Occupation of ACP began October 15, 1993, although the College Park Metro station did not open until December 1993. The American Center for Physics was dedicated on the evening of April 22, 1994. ■



*Sign on AIP's New York headquarters building being taken down. Credit: Photo courtesy Niels Bohr Library & Archives.*

## The Role of the Archival Assistant

By Molly Marcusse, Archives Assistant



*Molly Marcusse working in the processing area. Credit: Photo courtesy Niels Bohr Library & Archives.*

My name is Molly Marcusse and I work as the archival assistant in the Niels Bohr Library & Archives (NBL&A). I have been in this position for about a year and a half and I really enjoy the work that I do here. I graduated with my Master of Library Science from University of Maryland with a concentration in archives and records

management in December 2013. As the archival assistant, I am here to support the work of the full-time archivists and librarians in a variety of ways. This position also gives me the opportunity to gain hands-on experience in conjunction with the theories that I have learned in my classes. My main projects at the NBL&A have been to process archival collections and digitize the minutes of AIP Governing Board and Executive Committee meetings.

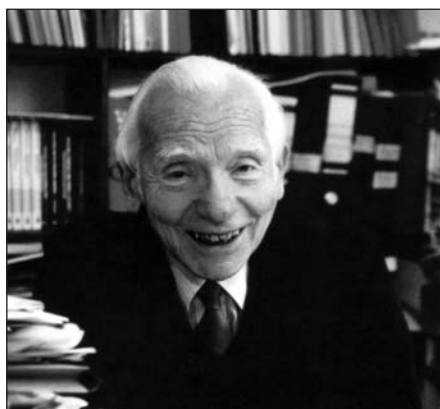
Digitizing the minutes involves using Optical Character Recognition (or OCR) on PDFs of the minutes. I then use Adobe Dreamweaver to do the HTML and javascript coding before the minutes are published to the Library's website. The Governing Board minutes are available through the end of 1988 and the Executive Committee minutes are updated as they are completed, with the goal of making all minutes through the end of 1988 available online.

Processing archival collections prepares them for use by researchers. This involves re-housing the records to acid-free folders and boxes to prevent deterioration of the paper. Ideally, when collections arrive at the NBL&A they will be in folders with titles. When

this happens, I use the original folder titles; when this is not the case, I have to create a folder title which concisely and accurately describes the records in the folder. Quality folder titles help researchers decide if a folder contains relevant records without having to spend time actually looking at the records. I also remove any staples or paper clips that are damaging the paper and photocopy paper which is already decaying. (Early fax paper is the worst!) Processing also involves writing a finding aid which describes the collection, who created the records, how the records are organized, and contains a folder title list. Many of our finding aids are available online. This allows researchers to assess a collection's usefulness before they ever step foot in the NBL&A.

Working at the NBL&A has given me the opportunity to learn from our historical materials. For example, one of the archival collections I processed was primarily records about quantum physics, an area that I never thought I would find interesting. By working directly with the records I was able to gain a new appreciation and understanding of concepts like Schrödinger's cat and Young's interference experiment. As a member of the Library staff, the best part about getting to learn while at work is sharing my excitement about the history of physics with others. ■

## Papers of Rotblat, Richardson, and Grad Now Accessible to Researchers



*Physicist and Nobel peace laureate Joseph Rotblat in 2010, age 102. Credit: Pugwash Conferences on Science and World Affairs, courtesy AIP Emilio Segrè Visual Archives.*

In 2013 the AIP History Programs awarded grants of \$10,000 each to three archives to help organize and catalog the professional papers of two Nobel laureates, Joseph Rotblat and Owen Richardson, and of mathematician Harold Grad.

Documenting Rotblat's work as a nuclear physicist and a cofounder and secretary general of the Pugwash Conferences, the Rotblat papers make up the largest of the three collections. Rotblat shared the 1995 Nobel Peace Prize with Pugwash for its work on

nuclear disarmament. Richardson was "one of the outstanding pure scientists" in the development of radio, television, and related applications, and his papers are rich in correspondence with other top physicists of the 1920s through the 1940s. Grad's papers are an important resource on mathematical formulations of plasma physics.

All three collections will be described in our International Catalog of Sources. Visit our website for information on our grant programs for archives, including a list of past recipients and researchers. ■

## Love, Literature, and the Quantum Atom

By Savannah Gignac, Photo Librarian

In August of 1910, Niels Bohr proposed marriage to Margrethe Nørlund. After completing his doctoral work in 1911, Bohr went to Cambridge and Manchester to continue his studies with J.J. Thomson and Ernest Rutherford. Niels and Margrethe married on Niels's return to Copenhagen in August 1912. During Bohr's stay in England, he faithfully wrote to his fiancée, who was living in Denmark.

The book *Love, Literature and the Quantum Atom*, by Finn Aaserud and J.L. Heilbron, looks at the letters between Bohr and his family during his studies. The reader receives a glimpse of what Bohr was experiencing while involved in his studies in England, which would lead him to apply quantum theory to Rutherford's atomic structure in 1913. The letters also reveal another side of Bohr, documenting the influence Margrethe and Bohr's family had on him during his early development as a scientist.

Here is a Johann Goethe poem Niels Bohr quoted in a letter to Margrethe, followed by his own writing:

“Weite Welt und breites Leben,  
Langer Jahre, redlich Streben,  
Stets geforscht und stets gegründet,  
Nie geschlossen, oft geründet,  
Ältestes bewahrt mit Treue,  
Freundlich aufgefasstes Neue,  
Heitern Sinn und reine Zwecke:  
Nun, man kommt wohl eine Strecke.

### English translation:

Spacious world, capacious life,  
Years with honest effort rife,  
Tireless searching, firmly founded,  
Never ended, often rounded,  
Old traditions, well respected,  
innovations not rejected,  
noble aim, with cheer professed:  
Well, we're sure that we've progressed.

*My own little darling, while you are here,  
then I would so much like to ask you  
whether you will help me, whether you  
will help me try to lead a great and active  
life. My head is so full of plans, and they  
are all, all of them, based on you.”*

Niels and Margarethe were married for 50 years until Niels' death in 1962. To find out more about this incredible love story



A young Niels Bohr and Margrethe Nørlund at the beginning of their marriage. Credit: Photo courtesy AIP Emilio Segrè Visual Archives, Margrethe Bohr Collection.

the book is available in the reading room at the Niels Bohr Library & Archives or find it at your local library. ■

## New Valentine Telegdi Photo Collection

By Savannah Gignac, Photo Librarian

In May, 2014, the Emilio Segrè Visual Archives received a generous donation from Judith Goodstein. This donation includes slides, photographic prints, and negatives from the Hungarian-American physicist, Valentine Telegdi's personal photographic collection. Goodstein served as the archivist at the California Institute of Technology for 41 years, and during that time, Telegdi was a frequent visitor to the archives. Over the years, Goodstein became friends with Dr. Telegdi and his wife, Lia. Mrs. Telegdi gifted the collection to Goodstein several years ago.

Dr. Valentine Telegdi was the Enrico Fermi Distinguished Service Professor of Physics at the University of Chicago

[www.aip.org/history](http://www.aip.org/history)

before moving to ETH Zürich University. After retiring from ETH he divided his time between CERN and the California Institute of Technology. From 1981 to 1983, Telegdi chaired CERN's scientific policy committee. In 1991 he shared the Wolf prize with Maurice Goldhaber.

The images in the Telegdi collection share Telegdi's home life and world travels. At the celebration of Val's 65th birthday at CERN in Geneva, Victor Weisskopf shared this story:

*One day he asked me whether my wife and I would like to have dinner with him. ... The dinner was better than we ever expected. I do not know whether this event was a kind of test, but the*

*fact is that his marriage was a great success. ... All of us who are acquainted with Lia know about her intelligence, charm, and other qualities, but all of us who are acquainted with Val know that her great art of cooking did not play a secondary role.\**

It is fitting that many of the pictures in the collection include the Telegdis hosting a dinner party for friends and family; with their two cats not too far away. ■

\*Source: <http://rsbm.royalsocietypublishing.org/content/55/291.full.pdf>

Visit us online at  
[www.aip.org/history-programs](http://www.aip.org/history-programs)

## Grants-in-Aid Support Scholarly Endeavors

4 April 2014

Layne Karafantis  
Department of History of Science and Technology  
The Johns Hopkins University  
3400 N. Charles Street, Gilman Hall 301  
Baltimore, MD 21218

Dr. Gregory A. Good  
The Spencer Weart Director  
Center for History of Physics  
American Institute of Physics  
One Physics Ellipse  
College Park MD 20470

Dear Dr. Good,

Thank you (and the Center) for providing support which enabled me to attend "Global Science, Global Technology, Global Impacts: The Second Early-Career Conference for Historians of the Physical Sciences" at the American Institute of Physics from 31 March - 1 April 2014. You and the Center's staff were delightful and thoughtful hosts, and my research has been enriched as a result of attending this conference.

I was provided with a forum in which to share the progress of my dissertation; I presented my third chapter, which examines the construction of NORAD's Alternate Command Post in Cheyenne Mountain. I received invaluable feedback from conference attendees that has since influenced my reworking of the chapter. Attendance at this conference also enabled me to become familiar with work being conducted by my colleagues, which further assisted the development of my research by virtue to allowing me to situate my story within contemporary discussions.

I look forward to further interactions with the American Institute of Physics, and again, my deepest thanks for the support which enabled my presence.

Sincerely,  
Layne Karafantis

## New Minority Book Titles

---

The Niels Bohr Library and Archives is actively working to fill gaps in the subject of minority physics and history of science titles. A brief selection of new titles now available in the NBLA:

Bystydzienski, Jill M. *Removing barriers: women in academic science, technology, engineering and mathematics*. Indiana University Press, 2006.

Campbell, George, ed. *Access denied: race, ethnicity, and the scientific enterprise*. Oxford University Press, 2000.

Carey, Charles W. *African Americans in science: an encyclopedia of people and progress*. ABC-CLIO, 2008.

Creager, Angela N., ed. *Feminism in twentieth-century science, technology, and medicine*. University of Chicago Press, 2001.

Haber, Louis. *Black pioneers of science and invention*. Harcourt, Brace & World, 1970.

Hammond, Richard. *Chien-Shiung Wu: pioneering nuclear physicist*. Chelsea House Pub., 2009.

Kessler, James H. *Distinguished African-American scientists of the 20th century*. Greenwood, 1996.

Klein, Aaron E. *The hidden contributors: Black scientists and inventors in America*. Doubleday, 1971.

Manning, Kenneth R. *Black Apollo of science: the life of Ernest Everett Just*. Oxford University Press, 1985.

Pearson, Willie. *Black scientists, white society, and colorless science: a study of universalism in American science*. Associated Faculty Press, 1985.

Pursell, Carroll W. *A hammer in their hands: a documentary history of technology and the African-American experience*. MIT Press, 2006.

Sinclair, Bruce. *Technology and the African-American experience: needs and opportunities for study*. MIT Press, 2004.

Warren, Wini. *Black women scientists in the United States*. Indiana University Press, 2000.

Westling, Lynn. *Reweaving the fabric of physics: a feminist critique of science*. VDM Verlag, 2010.

Williams, Clarence G. *Technology and the dream: reflections on the black experience at MIT, 1941–1999*. MIT Press, 2001.

# Give Us Your Dirty Old Books!

The Niels Bohr Library & Archives at the American Institute of Physics is looking for book donations that will help our goal of documenting the history of physics, astronomy and geophysics from the 19th and 20th centuries.

## What type of books do we collect?

- Textbooks
- Laboratory manuals and other instructional materials
- Physical science monographs
- Conference proceedings
- Instrument catalogs
- Published correspondence
- Biographies and history of science monographs

## What subjects does the collection cover?

- The history of physics and its allied sciences (astronomy, optics, acoustics, geophysics, vacuum science, rheology, crystallography and physics in medicine.)
- Biography, institutional history and social aspects of the scientific community

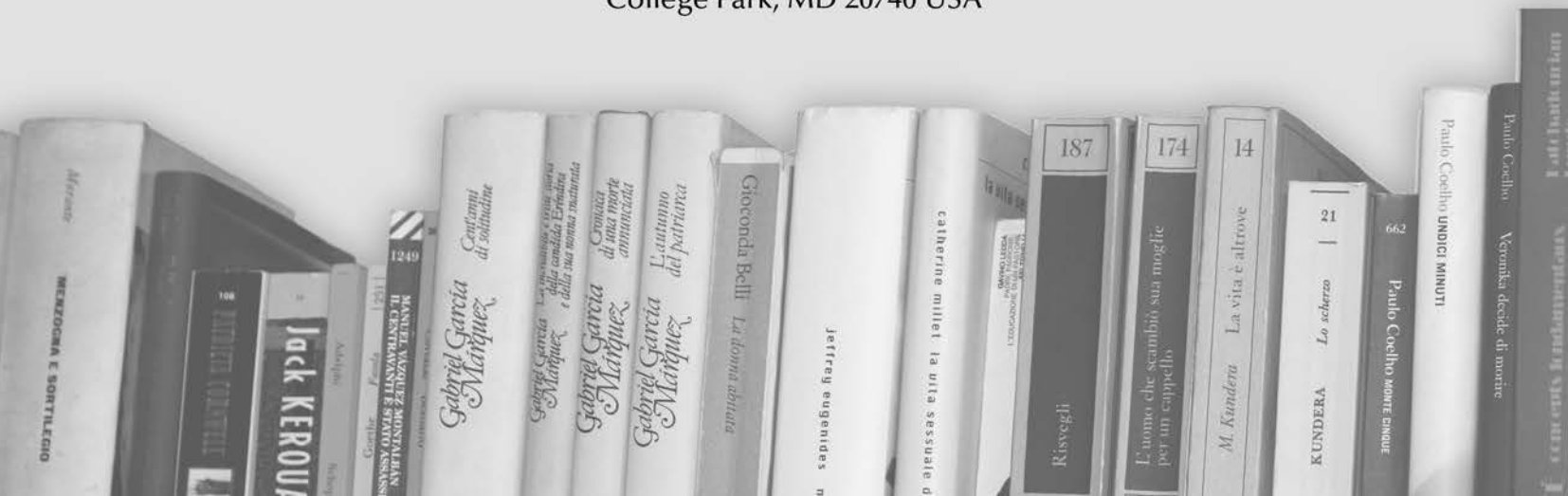
Successive editions of texts and conference proceedings are particularly important to us.

Through collecting books that document the history of science, the Niels Bohr Library & Archives aims to preserve this valuable information for future generations and to provide access for researchers who wish to study it.

We appreciate your help in preserving historical documentation and we will reimburse shipping costs.

**Please contact Greg Good at [ggood@aip.org](mailto:ggood@aip.org) or Joe Anderson at [janderso@aip.org](mailto:janderso@aip.org) if you have any questions or books you wish to donate. Fax: 301-209-0882.**

Niels Bohr Library & Archives  
American Institute of Physics  
One Physics Ellipse  
College Park, MD 20740 USA





## Physics Heritage & Promise: Special Initiatives Campaign

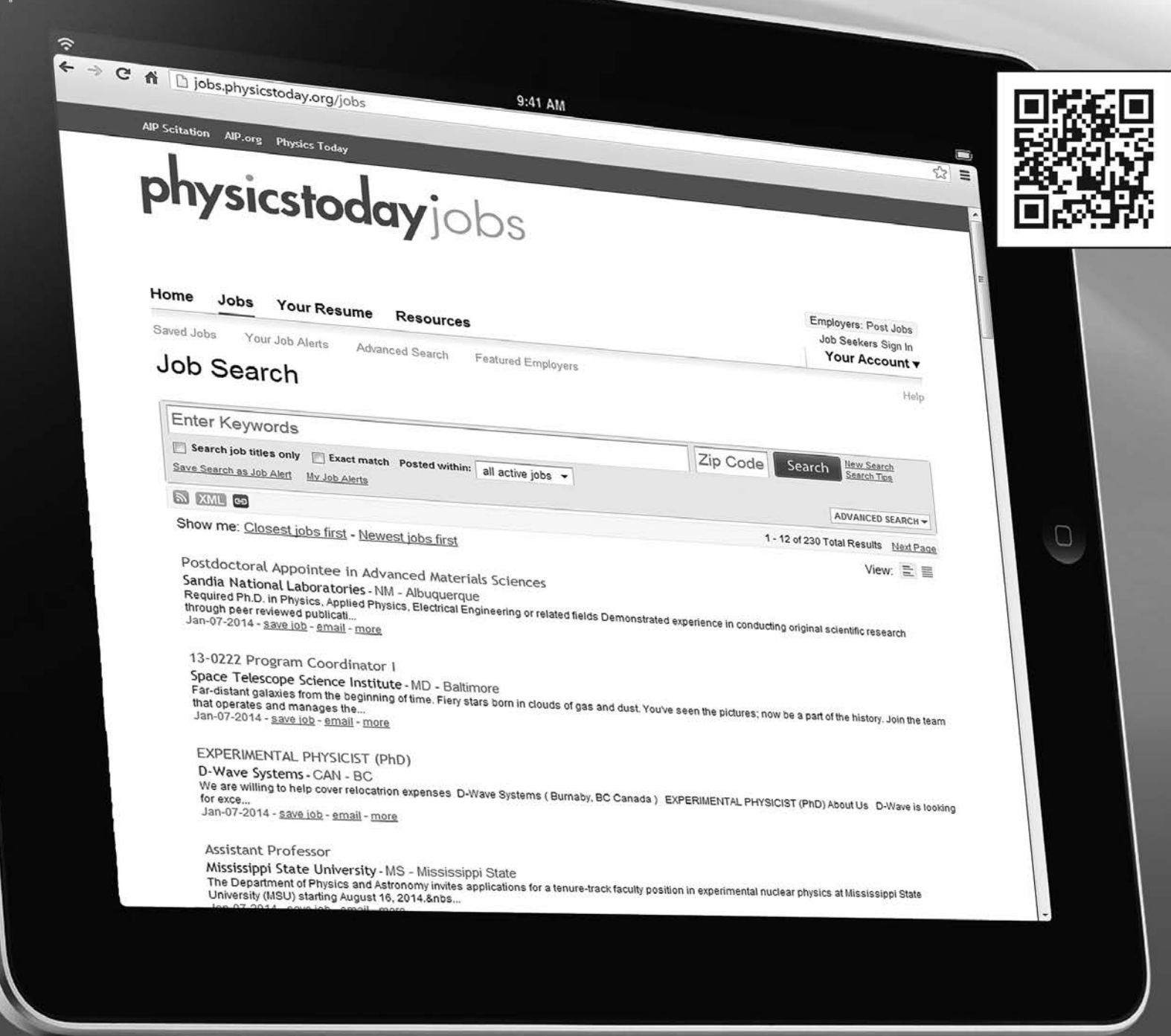
**The History Programs of AIP are seeking to raise \$2,000,000 to build capacity by strengthening programs** that currently have partial support, and to ensure the sustainability of these programs for the long term. The programs include the Science Heritage Public Lecture Series, Grants-in-Aid, Grants-to-Archives, and the New Technologies Fund.

- AIP History Programs intend to use a portion of the funds toward fully endowing the **Lyne Starling Trimble Science Heritage Lecture Series**. The series was partially endowed at \$100,000 from Dr. Virginia Trimble and will be fully endowed at \$500,000. The lecture series is an important step in disseminating a humanistic perspective on science.
- The **Grants-in-Aid and Grants-to-Archives programs** fund research in the history of physics and allied sciences (such as astronomy, geophysics, and optics) and their humanistic interactions. These programs have assisted more than 250 scholars to produce over 45 publications and helped archives make 69 major collections available for research. They are partially funded by AIP. The Institute aims to complete the endowment of these programs through this campaign.
- The **New Technologies Fund** allows AIP History Programs to keep current with digital technologies that are emerging at an ever-increasing rate. The goal is to support projects such as the in-house digitization of the rarest and most fragile books, allowing researchers around the world to access the information housed within AIP History Programs' collections.

Why are these projects important? We have developed an international reputation as a model for preserving and making known the history of physics, astronomy, and allied sciences. AIP History Programs support the community of historians and science writers who produce books, films, and other media products, and they provide interesting and authoritative science information for the public. These special programs embody the core of how we remain successful at supporting the history and the future of the physical sciences for both scholarly and popular audiences.

Why now? The AIP History Programs celebrated our 50th anniversary in 2012. During our first 50 years, we amassed great contributions to the physical and the allied sciences within the walls of the Niels Bohr Library & Archives—and that was just the beginning. Our most formidable challenge is preserving, presenting, researching, digitizing, disseminating, exhibiting, and expanding them. These initiatives help us preserve YOUR legacy into the next century.

**Continue helping us preserve the past and fuel the future. Donate today to the Physics Heritage & Promise campaign.** For your convenience, you may use the attached envelope. For more information on our various funds and naming opportunities, please contact the AIP Development Office at [development@aip.org](mailto:development@aip.org) or at **301-209-3139**.



**Simplify your search.** Visit **Physics Today Jobs** on your computer, tablet, or mobile device to browse jobs anytime, from anywhere!

[www.physicstoday.org/jobs](http://www.physicstoday.org/jobs)

partner in the AIP Career Network

## The Second AIP Early-Career Conference on the History of the Physical Sciences: Global Science, Global Technology, Global Impacts, March 30 to April 1, 2014

By Gabriel Henderson, Ph.D., Post-doc at University of Aarhus, Denmark

Early-career historians of the physical sciences once again converged on the American Center for Physics at the end of March for a three-day conference, sponsored by AIP's Center for History of Physics. The second of such conferences, this year's theme was "Global Science, Global Technology, Global Impacts." This meeting attracted speakers from around the world. Seventeen speakers came from ten countries, including Brazil, the US, Canada, and seven European countries. This conference was co-sponsored by the Philadelphia Area Center for History of Science and provided the venue for the 2014 Joint Atlantic Seminar in History of Physical Sciences (JASHOPS).

The unique feature of the conference was the way it was organized. This meeting was by and for early-career historians of physics. The organizing committee members included Gabriel Henderson (US), L. Ruth Rand (US), Indianara Silva (Brazil), Christian Joas (Germany), Thiago Hartz (Denmark), and Joe Martin (US). They wrote the call for papers, selected the papers to be presented, and developed the program. Their efforts were assisted by Greg Good, Stephanie Jankowski, and the wonderful staff at the AIP. The Center's goal is to reinvigorate the community of historians of physics and to make this a broadly international community.

The presentations covered a wide range of topics from the development of Cold War technologies such as the invention of the Maser, laser fusion, and ultracentrifuges in the Netherlands, to space and seismological research in Europe and the United States. There was a session on the development of quantum mechanics in Europe, one on meteorology in Norway and Canada, and another on popular and interdisciplinary aspects of physics.

Conference attendees broke into small groups for tours provided by Joe

Anderson and the staff of the Niels Bohr Library & Archives. Although they had heard of NBLA's collections before, many attendees did not realize just how rich the collections are. We hope that by introducing young historians to NBLA in person, we will transform them into long-term users and supporters of the library. The participants were also treated to a tour of the archives of the Carnegie Institution for Science, a particularly auspicious occasion because the building—which originally was the Department of Terrestrial Magnetism—was built exactly a century earlier in 1914.

Two keynote talks were given. Elena Aronova (Max Planck Institute for the History of Science) spoke on data management practices within World Data Centers during the Cold War, particularly during and after the end of the International Geophysical Year (1957-58). Alex Wellerstein (AIP) examined the development of laser fusion technology during the 1970s, and specifically highlighted how government-sponsored research agendas clashed with private attempts to create a profitable industry built on fusion technology. The Center

for History of Physics also sponsored a Trimble Lecture by historian of science Richard Staley. Entitled "The Guiding Hand of History," he traced how Austrian physicist Ernst Mach's views on philosophy and physiology contributed to a reconsideration of Newtonian mechanics and set the stage for early 20th century developments in special and general relativity.

A special thanks goes out to long-term supporters of CHP who accepted invitations to comment on papers presented: Kristine Harper, Joan Bromberg, Richard Staley, Alexei Kojevnikov, and David DeVorkin. Their presence made this an intergenerational conference and provided some extra continuity in scholarship. The conference closed with a round-table discussion of potential opportunities for early-career scholars to more readily communicate with both the general public and academic community about the myriad of historical resources available at the AIP.

After a rigorous and lively exchange of ideas for three days, all our visitors went home with fond memories of their time in College Park. 'Til the next time! ■



*Researchers and historians of science from all over the world gathered together for the second conference for early-career scholars at AIP.*

## Recent Publications of Interest

Compiled by Alex Wellerstein

This is our usual compilation of some recently published articles on the history of modern physics, astronomy, geophysics, and allied fields. Note that these bibliographies have been posted on our Web site since 1994, and you can search the full text of all of them (along with our annual book bibliography, recent Catalog of Sources entries, exhibit materials, etc.) by using the “Search” icon on our site index: [www.aip.org/history/s-index.htm](http://www.aip.org/history/s-index.htm).

To restrict your search to the bibliographies, enter in the box:  
[your search term(s)] and “recent publications”

### Archive for History of Exact Sciences

**Vol. 68, No. 2:** Larrie D. Ferreiro, “The mutual influence of aircraft aerodynamics and ship hydrodynamics in theory and experiment.”

### British Journal for the History of Science

**Vol. 47, No. 2:** Melinda Baldwin, “‘Keeping in the race’: physics, publication speed and national publishing strategies in Nature, 1895–1939.”

### Centaurus

**Vol. 56, No. 1:** Steffen Ducheyne, “s Gravesande’s Appropriation of Newton’s Natural Philosophy, Part I: Epistemological and Theological Issues.”

### CERN Courier

**Vol. 53, No. 9:** “The multifaceted life of Pontecorvo.”

### Historical Studies in the Natural Sciences

**Vol. 43, No. 4:** Indianara Silva and Olival Freire Jr, “The Concept of the Photon in Question: The Controversy Surrounding the HBT Effect circa 1956–1958”; Rachel Rothschild, “Environmental Awareness in the Atomic Age: Radioecologists and Nuclear Technology.”

**Vol. 44, No. 1:** Helge Kragh, “Naming the Big Bang.”

**Vol. 44, No. 2:** Aaron Sidney Wright, “The Advantages of Bringing Infinity to a Finite Place: Penrose Diagrams as Objects of Intuition.”

### Isis

**Vol. 104, No. 3:** Frans H. van Lunteren and Marijn J. Hollestelle, “Paul Ehrenfest and the Dilemmas of Modernity”; R. Joseph Anderson, “The Organization and Description of Science Archives in America.”

### Notes and Records of the Royal Society

**Vol. 67, No. 4:** Faidra Papanelopoulou, “Louis Paul Cailletet: The liquefaction of oxygen and the emergence of low-temperature research.”

### Physics in Perspective

**Vol. 15, No. 3:** Peter Pesic, “Helmholtz, Riemann, and the Sirens: Sound, Color, and the ‘Problem of Space’”; Massimiliano Badino, Bretislav Friedrich, “Much Polyphony but Little Harmony: Otto Sackur’s Groping for a Quantum Theory of Gases; Harvey R. Brown, “The Theory of the Rise of Sap in Trees: Some Historical and Conceptual Remarks.”

**Vol. 15, No. 4:** Peter Kosso, “Void Points, Rosettes, and a Brief History of Planetary Astronomy”; Robert P. Crease, Vladimir Shiltsev, “Pomor Polymath: The Upbringing of Mikhail Vasilyevich Lomonosov, 1711–1730”; Simón Reif-Acherman, “Heike Kamerlingh Onnes and the Nobel Prize in Physics for 1913: The Highest Honor for the Lowest Temperatures”; Lucy Veys, “Joseph Rotblat: Moral Dilemmas and the Manhattan Project.”

**Vol. 16, No. 1:** Cássio Leite Vieira, Antonio Augusto Passos Videira, “Carried by History: Cesar Lattes,

Nuclear Emulsions, and the Discovery of the Pi-meson”; Catherine Westfall, “Engineering the Big Chill: The Story of JLab’s Central Helium Liquefier”; Israel Belfer, “Informing Physics: Jacob Bekenstein and the Informational Turn in Theoretical Physics.”

### Physics Today

**Vol. 66, No. 9:** Cyrus C. M. Mody, “Santa Barbara, physics, and the long 1970s”; Frank von Hippel, “Gorbachev’s unofficial arms-control advisers.”

**Vol. 66, No. 11:** Daniel R. Altschuler and Christopher J. Salter, “The Arecibo Observatory: Fifty astronomical years.”

**Vol. 66, No. 12:** Richard Staley, “Ernst Mach on bodies and buckets.”

**Vol. 67, No. 1:** Anatoly Svidzinsky, Marlan Scully and Dudley Herschbach, “Bohr’s molecular model, a century later”; Dirk van Delft, “Paul Ehrenfest’s final years.”

**Vol. 67, No. 2:** Wolfgang Bietenholz and Lilian Prado, “Revolutionary physics in reactionary Argentina.”

**Vol. 67, No. 4:** Pierce S. Corden and David Hafemeister, “Nuclear proliferation and testing: A tale of two treaties.”

### Studies in History and Philosophy of Modern Physics

**Vol. 44, No. 4:** Tom Scheiding, “Building the scholarly society infrastructure in physics in interwar America.”

**Vol. 45, No. 1:** Alberto De Gregorio, “Bohr’s way to defining complementarity.”

**Vol. 46, Part B:** Amit Hagar, “Squaring the circle: Gleb Wataghin and the prehistory of quantum gravity.” ■

“Declare the past, diagnose the present, foretell the future.”

Hippocrates

## Documentation Preserved

Compiled by Melanie Mueller

Our report of new collections or new finding aids is based on our regular survey of archives and other repositories. Many of the collections are new accessions, which may not be processed, and we also include previously reported collections that now have an online finding aid available.

To learn more about any of the collections listed below, use the International Catalog of Sources for History of Physics and Allied Sciences at [www.aip.org/history/icos](http://www.aip.org/history/icos). You can search in a variety of ways including by author or by repository.

Please contact the repository mentioned for information on restrictions and access to the collections.

### NEW COLLECTIONS

**American Philosophical Society, Library, 105 South Fifth Street, Philadelphia, PA 19106, USA**

**Carl Barus autobiography.** Collection dates: undated. Size: 1.0 microfilm reel.

**Robert Fitzroy papers [microfilm].** Collection dates: 1843–1865. Size: 1.0 microfilm reel.

**Arnold Guyot collection.** Collection dates: 1857–1882. Size: 0.25 linear feet.

**Luna Bergere Leopold papers.** Collection dates: circa 1909–2006 (bulk 1931–2006). Size: 30 linear feet.

**Francis Albert Rollo Russell papers.** Collection dates: 1858–1928. Size: 0.25 linear feet (circa 60 items).

**Emilio Segrè autobiography.** Collection dates: undated. Size: 1 volume (circa 450 pages). Restrictions: Access is restricted; written permission from Segrè is necessary.

**Arizona State University. Libraries, Arizona Collection. P.O. Box 871006, Tempe, AZ 85287-1006, USA**

**Arizona-Nevada Academy of Science records.** Collection dates: 1952–2004. Size: 34.5 linear feet (23 boxes). Restrictions: This collection has not been processed in full and can be viewed only by appointment. Contact the repository for more information.

**John M. Cowley papers.** Collection dates: 1964–2004. Size: 18 linear feet (11 boxes). Restrictions: This collection has not been processed in full and can be viewed only by appointment. Contact the repository for more information.

**Philo T. Farnsworth and George Everson papers.** Collection dates: 1914–1999. Size: 6 linear feet (12 boxes).

**California Institute of Technology. Institute Archives. 1201 East California Blvd. (Mail Code 015A-74), Pasadena, CA 91125, USA**

**Physics Bone books.** Collection dates: 1926–1969. Size: 1.5 linear feet.

**Edwin Dennison papers.** Collection dates: undated. Restrictions: Collection is currently unprocessed.

**Oral history interview with Murray Gell-Mann.** Collection dates: 1997 July 17 and 18. Size: Transcript: 64 pages.

**National Geographic Society—Palomar Observatory Sky Survey [NGS-POSS].** Collection dates: 1949–1958. Size: 1872 photographic prints.

**Palomar Mountain Observatory Park photographs.** Collection dates: 1935. Size: 1 ring binder.

**Oral history interview with Linus Pauling.** Coll. dates: 1984 May 10. Size: Transcript: 37 pages. Audio recording: 1 cassette.

**Wallace L. M. Sargent papers.** Collection dates: undated. Size: 3 linear feet.

**Oral history interview with Homer J. Stewart.** Collection dates: 1982 October to November and 1993 November 3. Size: Transcript: 137 pages.

**DePauw University. Archives of DePauw University and Indiana United Methodism. Roy O. West Library, Greencastle, IN 46135, USA**

**Joseph Percival Allen, IV papers.** Collection dates: 1967–1999. Size: 0.2 linear feet (1 document case).

**Malcolm Correll papers.** Collection dates: 1952–1992. Size: 0.02 linear feet (1 file folder).

**DePauw University Minshall Laboratory records.** Collection dates: circa 1902–1998. Size: 0.02 linear feet (1 file folder).

**Ernest H. Henninger papers.** Collection dates: 1974–1997. Size: 0.02 linear feet (1 file folder).

**Hugh Fort Henry papers.** Collection dates: circa 1958–2010. Size: 0.02 linear feet (1 file folder).

**Margery Simpson Hufferd papers.** Collection dates: circa 1920–1925. Size: 0.02 linear feet (1 file folder).

**Ralph W. Hufferd papers.** Collection dates: circa 1920–1925. Size: 0.02 linear feet (1 file folder).

**Jonathan S. Lee papers.** Coll. date: circa 1940. Size: 0.02 linear feet (1 file folder).

**Ethel M. Chapin Morgan papers.** Collection date: circa 1944. Size: 0.02 linear feet (1 file folder).

**Joseph P. Naylor papers.** Collection dates: circa 1891–1910. Size: 0.02 linear feet (1 file folder).

*(Continued on next page)*

Duke University. Archives. 341 Perkins Library, Duke University, Durham, NC 27706, USA

**Horst Meyer papers.** Collection dates: 2003–2012. Size: 0.25 linear feet (18 items).

**Organization for Tropical Studies records.** Collection dates: 1962–1974. Size: 10.5 linear feet (10,000 items). Restrictions: In off-site storage; 48 hours advance notice is required for use.

---

Duke University. Rare Book, Manuscript, and Special Collections Library. P.O. Box 90185, Durham, North Carolina, 27708, USA

**William Ferrel papers.** Collection dates: 1857–1899. Size: 208 items.

**Thomas C. Mendenhall papers.** Collection dates: 1884–1887. Size: 4 items.

---

Hoover Institution on War, Revolution and Peace. Archives. Stanford University, Stanford, CA 94305, USA

**Alexander Breese papers.** Collection dates: undated. Size: 0.4 linear feet (1 manuscript box).

**Urbain Joseph Kinet papers.** Collection dates: 1938–1989. Size: 4 linear feet (9 manuscript boxes and 1 oversized box).

**Ludwik Kowalski papers.** Collection dates: 1946–2011. Size: 2.8 linear feet (7 manuscript boxes). Restrictions: Contact the repository for access restrictions on audiovisual material.

---

United States Army Air Forces Weather Service reports. Coll. dates: 1942–1945. Size: 0.8 linear feet (2 manuscript boxes).

Iowa State University. Parks Library. Archives of Women in Science and Engineering. Ames, Iowa 50011-2140, USA

**E. Gail de Planque papers.** Collection dates: circa 1970s–1990s. Size: 50 cubic feet.

**Darleane C. Hoffman papers.** Collection dates: 1947–2011, undated. Size: 7.14

linear feet (17 document boxes and 1 map case folder).

**Gertrude Rempfer papers.** Collection dates: 1961–2010. Size: 23 boxes. Restrictions: Contact repository for access information.

**Oral history interview with Gertrude Rempfer.** Collection date: 2001. Restrictions: Contact repository for access information.

---

New York Public Library. Rare Books and Manuscripts Division. Fifth Avenue and 42nd Street, New York, NY 10018, USA

**Benjamin Apthorp Gould papers.** Collection dates: 1855–1867. Size: 0.21 linear feet (1 box).

---

Scripps Institution of Oceanography. Archives. Mail Code C-075-C. La Jolla, CA 92093-0175, USA

**Acoustic Thermometry of Ocean Climate Project records.** Collection dates: 1990–1998. Size: 42 manuscript boxes.

**Charles Carpenter Bates papers.** Collection dates: 1944–1982. Size: 1 manuscript box.

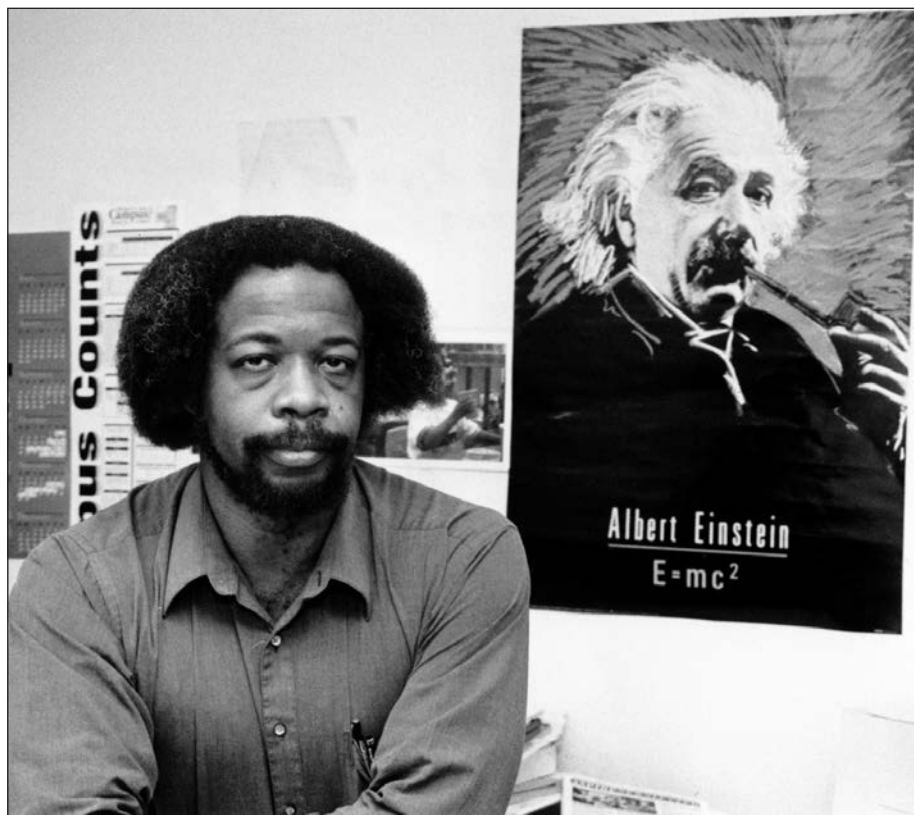
**Jacob Aall Bonnevie Bjerknes charts.** Collection dates: 1880–1959. Size: 272 charts and maps.

**North Pacific Experiment Office of the Program Administrator records.** Coll. dates: 1967–1985. Size: 17 manuscript boxes, 1 half manuscript box, 1 record carton, 2,017 slides, 14 films, photographs.

---

Smith College. Archives. Northampton, MA 01063, USA

**John Tappan Stoddard papers.** Collection dates: 1877–2001. Size: 0.5 linear feet (1 box).



Sylvester Gates sits for a photo with an Albert Einstein poster on the wall behind him. Credit: AIP Emilio Segrè Visual Archives, Ronald E. Mickens Collection.

Stanford University. Department of Special Collections and University Archives. Stanford, CA 94305, USA

**Douglas Dean Osheroff papers.** Collection dates: 1969–1987. Size: 3 linear feet.

**Anthony Edward Siegman papers.** Collection dates: 1916–2013. Size: 36 linear feet.

University of Arizona. Library. Special Collections. Tucson, AZ 85721, USA

**Michael J. Drake papers.** Collection dates: 1972–2008 (bulk 1973–1986). Size: 8.75 linear feet.

**Charles P. Sonett papers.** Collection dates: 1962–2010 (bulk 1973–1997). Size: 2.5 linear feet.

University of California, Los Angeles. University Research Library. Department of Special Collections. Los Angeles, CA 90024-1575, USA

**A. Theodore Forrester papers.** Collection dates: 1985–1987. Size: 1.5 linear feet.

**Leon Knopoff papers.** Collection dates: 1890–2010 (bulk 1955–2003). Size: 17.25 linear feet (17 cartons, one half document box).

**Hermann Minkowski mathematical notebooks.** Collection dates: 1886–1905. Size: 4 linear feet (8 boxes). Restrictions: Partially processed collection. Unavailable for use. Inquiries regarding these materials should be directed, in writing, to the Manuscripts Librarian, UCLA Department of Special Collections.

**Daniel M. Popper papers.** Collection dates: 1930–1999. Size: 42.2 linear feet (42 cartons, 2 document boxes, 1 flat box). Restrictions: Advance notice required for access.

University of California, Los Angeles Astronomy Department publications. Collection dates: 1887–1977. Size: 1.6 linear feet (4 boxes). Restrictions: Advance notice required for access.

University of California, Los Angeles Physics Department publications. Collection dates: 1950–1989. Size: 0.6 linear feet (2 boxes). Restrictions: Advance notice required for access.

University of California, Los Angeles School of Engineering and Applied Science Nuclear Energy Laboratory records. Collection dates: 1959–2002. Size: 18.4 linear feet (46 boxes). Restrictions: Advance notice required for access. Portions of the collection are restricted. Contact the repository for more information.

University of Chicago. The Joseph Regenstein Library. Department of Special Collections. 1100 East 57th Street, Chicago, IL 60637, USA

**Minerva records.** Collection dates: 1962–1968. Size: 16.5 linear feet (33 boxes).

**Thorfin R. Hogness papers.** Coll. dates: 1945–1959. Size: 5 linear feet (1 box).

**Clyde A. Hutchison, Jr. papers.** Collection dates: 1913–2000. Size: 8.5 linear feet (14 boxes).

**Kirtley Fletcher Mather papers.** Collection dates: 1943–1946. Size: 0.5 linear feet (1 box).

University of Cincinnati. Libraries. Archives and Rare Books Department. Blegen Library. PO Box 210113, Cincinnati OH 45221-0113, USA

**Isay Balinkin papers.** Collection dates: 1950–1971. Size: 42.5 linear feet (32 boxes).

**Paul Herget papers.** Collection dates: 1935–1987. Size: 0.4 linear feet (1 box).

University of Illinois at Urbana-Champaign. University Archives. 1408 West Gregory Drive, Urbana, IL 61801, USA

University of Illinois at Urbana-Champaign Geography Department administrative subject file. Collection dates: 1925–1976. Size: 9.3 cubic feet.

University of Illinois at Urbana-Champaign Physics Department reading files. Collection dates: 1925–2006. Size: 39 linear feet.



St. Vincent College honored alumnus Greg Good, Director of the AIP Center for History of Physics, with an honorary Doctorate of Humane Letters. The award is presented to those who become accomplished in areas outside of their field of study. Greg received his bachelor's in physics from St. Vincent and went on to receive his PhD in history of science from the University of Toronto. During his honors convocation address, he holds up a photograph of students receiving honors at the 1974 St. Vincent College graduation ceremony. Photo credit: Saint Vincent College..

*(New Collections, cont'd from previous page)*

**University of Illinois at Urbana-Champaign Physics Department subject file.** Collection dates: 1925–2006. Size: 32 cubic feet.

**University of Minnesota. Charles Babbage Institute. Center for the History of Computing. University of Minnesota Libraries, Minneapolis, MN 55455, USA**

**Arnold A. Cohen papers.** Collection dates: 1946–1988. Size: 9 cubic feet (9 boxes).

**Bruce Gilchrist papers.** Collection dates: 1960–1973. Size: 1.6 cubic feet (4 boxes).

**University of Chicago, Department of Meteorology numerical weather**

**prediction survey records.** Coll. dates: 1955–1956. Size: 0.1 cubic feet (1 box).

**University of North Carolina at Chapel Hill. Library. Manuscripts Department. Southern Historical Collection. Wilson Library CB# 3926, Chapel Hill, NC 27599-3926, USA**

**Joseph W. Straley papers.** Collection dates: 1936–2002. Size: 1.5 linear feet.

**University of Oregon. Library. Eugene, OR 97403, USA**

**James Martin Benade and Miriam Benade papers.** Collection dates: 1923–1975. Size: 5.25 linear feet (14 containers).

**University of Oregon Department of Physics.** Collection dates: 1966–1970. Size: 0.5 linear feet (1 container).

**Pine Mountain Observatory records.** Collection dates: 1963–1997. Size: 1.5 linear feet (1 container).

**University of Texas at Austin. Center for American History. University Archives. Austin, TX 78713, USA**

**Frank N. Bash papers.** Collection dates: circa 1962–2006. Size: 41.5 feet.

**Gérard Henri de Vaucouleurs papers.** Coll. dates: undated. Size: 7 linear feet.

**Cécile DeWitt-Morette papers.** Collection dates: 1946, 1983–2007. Size: 0.7 linear feet.

**James N. Douglas papers.** Collection dates: undated. Size: 4 linear feet.

**Alexander Macfarlane collection.** Collection dates: 1900–2006. Size: 0.1 linear feet.

**Hans Mark papers.** Collection dates: 1961–1987. Size: 78 linear feet.

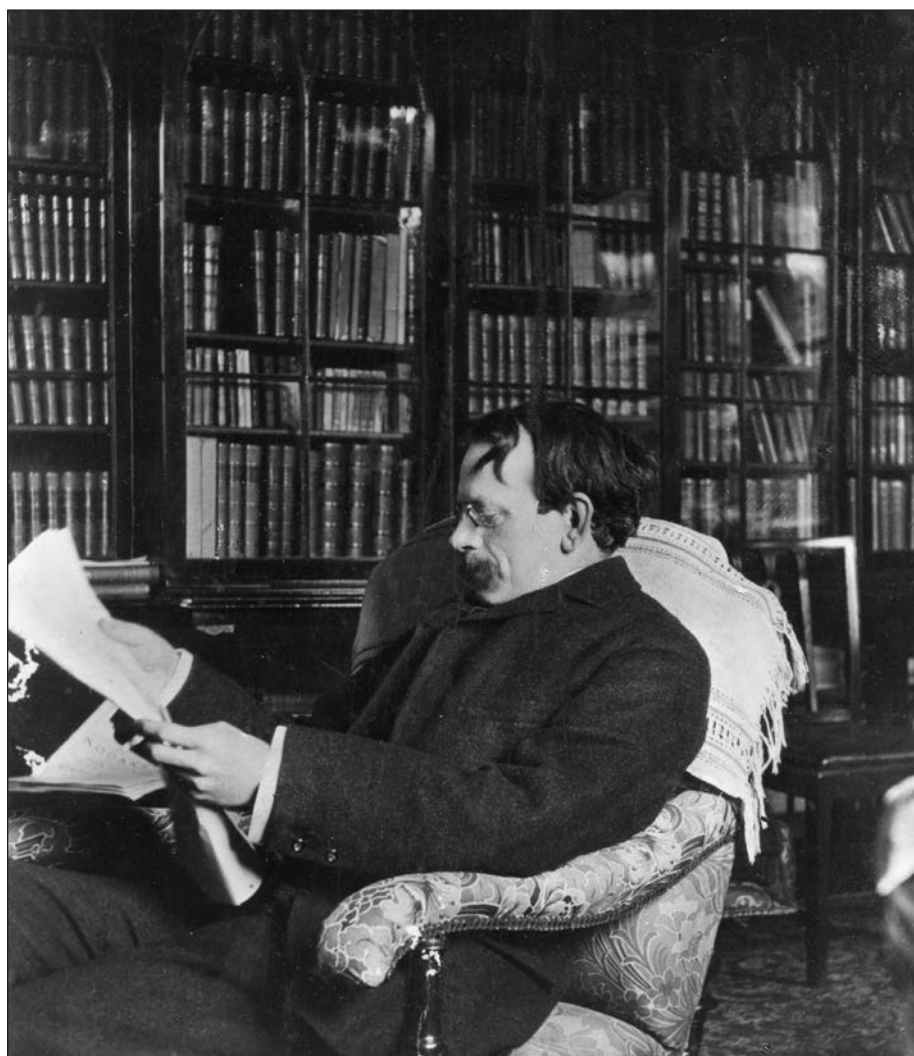
**McDonald Observatory records.** Collection dates: 1971–1999. Size: 4 linear feet.

**John Von Neumann collection.** Collection dates: 1913–1925, 1942–1956, 1989–1992. Size: 0.5 linear feet.

**Washington University. Libraries. University Archives. Campus Box 1061, One Brookings Drive, St. Louis, MO 63130-4899, USA**

**Robert M. Walker papers.** Collection dates: undated. Size: 22 boxes. Restrictions: There is restricted material in this collection. For details, contact the repository.

**Washington University cyclotron records.** Collection dates: circa 1940–1985. Size: 14 linear feet.



*J.J. Thomson sits at home in his study in 1899. He is sitting in a chair that had belonged to James Clerk Maxwell, whose theory of electromagnetism is still regarded as one of physics' most remarkable achievements. Credit: Robert A. Millikan, courtesy AIP Emilio Segrè Visual Archives.*



## NEW FINDING AIDS

**American Philosophical Society Library.** 105 South Fifth Street, Philadelphia, PA 19106, USA

**Robert M. Patterson papers.** Collection dates: 1775–1853. Size: 0.5 linear feet (circa 450 items).

**Edward Piggott letterbook.** Coll. dates: 1802–1806. Size: 1 volume (16 pages).

**Adolphe Quetelat correspondence.** Collection dates: 1822–1872. Size: 2 microfilm reels.

**Erwin Schrodinger correspondence to Wilhelm Wien.** Collection dates: 1925–1927. Size: 0.25 linear feet (17 items).

**W. H. Smyth correspondence.** Collection dates: 1820–1864. Size: 0.25 linear feet (123 items).

---

**California Institute of Technology. Institute Archives.** 1201 East California

Blvd. (Mail Code 015A-74), Pasadena, CA 91125, USA

**Caltech Department of Astronomy records.** Collection dates: 1929–1949. Size: 3.5 linear feet (8 boxes).

**Beno Gutenberg papers.** Coll. dates: 1916–1959. Size: 25 linear feet (55 boxes).

**Gerry Neugebauer papers.** Size: 10 linear feet (21 boxes). Restrictions: Materials relating to LIGO closed until 2015.

---

**DePauw University. Archives of DePauw University and Indiana United Methodism.** Roy O. West Library. Greencastle, IN 46135, USA

**Paul Kissinger papers.** Coll. date: 1975. Size: 6 tapes, 1 folder (0.59 linear feet).

---

**Duke University. Rare Book, Manuscript, and Special Collections Library.** P.O. Box 90185, Durham, North Carolina, 27708, USA

**Craven-Pegram family papers.** Collection dates: 1785–1966 (bulk 1892–1958). Size: 6,565 items (11.4 linear feet).

---

**Hoover Institution on War, Revolution and Peace. Archives.** Stanford University, Stanford, CA 94305, USA

**Paul Kirkpatrick papers.** Collection dates: 1955–1958. Size: 1 folder.

**Operation Epsilon, Farm Hall transcripts.** Collection dates: 1945. Size: 1 box.

---

**Arthur E. Ruark papers.** Collection dates: 1885–1979. Size: 24.4 linear feet (61 manuscript boxes).

---

**Iowa State University. Parks Library. Archives of Women in Science and Engineering.** Ames, Iowa 50011-2140, USA

**Professional Women in ANS (American Nuclear Society) Committee records.** Collection dates: 1978–1994. Size: 0.5 linear feet (4 folders).



L-R: Aage Bohr and his father, Niels Bohr, inspect a camera in Israel. 1953. Credit: Niels Bohr Archive, courtesy AIP Emilio Segrè Visual Archives.

**L. A. Willson papers.** Collection dates: 1974–2009, undated. Size: 6.3 linear feet (15 document boxes).

---

**Library of Congress Manuscript Division. James Madison Memorial Building, First Street and Independence Ave SE, Washington, DC 20540, USA**

**Edward Lindley Bowles papers.** Collection dates: 1869–1990 (bulk 1920–1982). Size: 36.8 linear feet. Restrictions: Access restricted, classified (in part).

**James McKeen Cattell papers.** Collection dates: 1835–1948 (bulk 1896–1948). Size: 76 linear feet (49,000 items; 189 containers plus 1 oversize; 7 microfilm reels).

**Lee De Forest papers.** Collection dates: 1884–1955. Size: 375 items (1.6 linear feet).

**Noel Deisch manuscript.** Collection dates: 1910–1937. Size: 150 items (0.2 linear feet).

**C.S. Draper papers.** Collection dates: 1773–1978 (bulk 1939–1973). Size: 16,800 items (19.2 linear feet).

**John W. Draper family papers.** Collection dates: 1777–1951. Size: 16,100 items (18.4 linear feet).

**Benjamin Franklin papers.** Collection dates: 1726–1907 (bulk 1770–1789). Size: 8000 items (12 linear feet).

**Lawrence E. Glendenin papers.** Collection dates: 1939–2009 (bulk 1945–1975). Size: 850 items (1.2 linear feet).

**William T. Golden papers.** Collection dates: 1950–1989 (bulk 1950–1951). Size: 0.2 linear feet (21 items).

**Herman Hollerith papers.** Collection dates: 1850–1982 (bulk 1910–1927). Size: 11,700 items (13.6 linear feet).

**Stanford Caldwell Hooper papers.** Collection dates: 1899–1955 (bulk 1918–1945). Size: 14,000 items (13.2 linear feet).

**Benjamin S. Loeb papers.** Collection dates: 1945–1999 (bulk 1961–1971). Size: circa 6000 items (6.8 linear feet).

**Edward N. Lorenz papers.** Collection dates: circa 1895–2009. Size: 17.6 linear feet (44 containers plus 12 oversize, 1 vault container and electronic files). Restrictions: Restrictions may apply to unprocessed material.

**Cornell Mayer papers.** Collection dates: 1940–2005 (bulk 1943–1990). Size: 450 items (2.4 linear feet).

**Byron S. Miller papers.** Collection dates: 1941–1946. Size: 100 items (1.6 linear feet).

**National Committee on Atomic Information records.** Collection dates: 1945–1948. Size: 29,500 items (39.2 linear feet).

**Seth MacFarlane collection on Carl Sagan and Ann Druyan.** Collection dates: 1860–2004 (bulk 1962–1997). Size: 690.6 linear feet (595,00 items: 1,705 containers, plus 1 classified, 38 oversize, and electronic files). Restrictions: Restrictions may apply to unprocessed material; classified, in part.

**Harold Sunde papers.** Collection dates: 1925–1948. Size: 5 linear feet (440 items).

**George Von Békésy papers.** Collection dates: 1928–1972 (bulk 1955–1970). Size: 51,300 items (119 containers).

**Wernher Von Braun papers.** Collection dates: 1796–1970 (bulk 1950–1970). Size: 20,000 items (22.8 linear feet).

---

**Lowell Observatory. 1400 West Mars Road, Flagstaff, Arizona 86001, USA**

**John S. Hall papers.** Collection dates: 1894–1991. Size: 29 linear feet. Restrictions: Researchers wishing to use the collections of the Lowell Observatory should make an appointment in advance.

**Arthur A. Hoag papers.** Collection dates: 1918–1999. Size: 9 linear feet. Restrictions: Researchers wishing to use

the collections of the Lowell Observatory should make an appointment in advance.

---

**Rockefeller Archive Center. 15 Dayton Ave., Pocantico Hills, North Tarrytown, NY 10591-1598, USA**

**Mark Kac papers.** Collection dates: 1938–1984. Size: 25.83 cubic feet.

**Rockefeller University Office of the President records of Frederick Seitz.** Collection dates: 1929–1979. Size: 84.36 cubic feet (188 boxes).

---

**Scripps Institution of Oceanography. Archives. Mail Code C-075-C. La Jolla, CA 92093-0175, USA**

**Willard Bascom papers.** Collection dates: 1938–2000, undated. Size: 24 manuscript boxes, 12 record cartons, 2 oversize boxes, 4 35 millimeter slide cases, 310 films and audio recordings.

**Deep Sea Drilling Project records.** Collection dates: 1961–1987 (bulk 1966–1987). Size: 356 records boxes, 40 manuscript boxes, 15 tubes (oversized drawings and charts).

**Denis Llewellyn Fox papers.** Collection dates: 1924–1983 (bulk 1924–1983). Size: 7.5 linear feet.

**Wadysaw Jozef Gorczynski papers.** Collection dates: 1926–1941 (bulk 1939–1941). Size: 1.25 linear feet.

**Norris W. Rakestraw papers.** Collection dates: 1921–1974. Size: 1 record box, 6 manuscript boxes, 1 map case folder.

**J. G. Sclater papers.** Collection dates: 1972–1991. Size: 13 manuscript boxes.

**The Position of the Scripps Institution of Oceanography in the University, the State and the Nation [sound recording].** Collection date: 1951. Size: 17 7-inch reel-to-reel audio tapes, 1 transcript.

**George G. Shor papers.** Collection dates: 1954–1999. Size: 15 record cartons, 1 manuscript box.

**Joshua I. Tracey papers.** Collection dates: 1957–1967. Size: 2 manuscript boxes.

---

**Stanford University. Department of Special Collections and University Archives.** Stanford, CA 94305, USA

**Marvin Chodorow papers.** Collection dates: 1929–1993 (bulk 1943–1974). Size: 67 linear feet.

**William W. Hansen lecture notebooks.** Coll. dates: 1941–1944. Size: 4 volumes.

**Henry S. Kaplan papers.** Collection dates: circa 1960–1983. Size: 35 linear feet.

**Charles Frederick Park papers.** Collection dates: 1950–1987. Size: 20.75 linear feet.

**Gerald Leondus Pearson papers.** Collection dates: 1934–1987. Size: 6.5 linear feet.

**William Shockley papers.** Collection dates: 1860–1988 (bulk 1940–1988). Size: 260 linear feet. Restrictions: Restricted: for more information contact the University Archivist.

**William E. Spicer collection on William Shockley and eugenics.** Collection dates: 1965–1970. Size: 0.25 linear foot.

**Stanford University Center for Computer Research in Music and Acoustics records.** Collection dates: 1962–2001. Size: 40 linear feet. Restrictions: Electronic media and audio-visual materials currently not available for use.

**W. W. Hansen Laboratories of Physics klystron reports and patents.** Collection dates: 1936–1949. Size: 0.75 linear feet.

---

**Union College. Schaffer Library. Special Collections.** Schenectady, NY 12308, USA

**Ernst Fredrik Werner Alexanderson papers.** Collection dates: 1901–1975. Size: 45 linear feet.

**University of Arizona. Library. Special Collections.** Tucson, AZ 85721, USA

**Gerard P. Kuiper papers.** Collection dates: 1927–1974. Size: 74.5 linear feet. Restrictions: Access restricted.

---

**University of California, Los Angeles. University Research Library. Department of Special Collections.** Los Angeles, CA 90024-1575, USA

**University of California, Los Angeles Department of Physics administrative files of the department chairs.** Collection dates: 1923–1987. Size: 23.6 linear feet (59 boxes).

---

**University of Oregon. Library Eugene,** OR 97403, USA

**J. Hugh Pruett papers.** Collection dates: 1928–1954. Size: 5 linear feet (9 containers).

---

**University of Rochester. Rush Rhee Library, Dept. of Rare Books, Manuscripts and Archives.** Rochester, NY 14627, USA

**University of Rochester Department of Physics records.** Collection dates: 1929–1946. Size: 3 boxes.

---

**University of Texas at Austin. Center for American History. University Archives.** Austin, TX 78713, USA

**Harlan Smith papers.** Collection dates: 1953–1991. Size: 80 linear feet. ■



*Black and white photograph of Gilbert Plass at six months of age with his mother, Annette, at the gates of Harvard University, late 1920. Plass was a Harvard class of 1941 alumnus. Credit: AIP Emilio Segrè Visual Archives.*

2013 Donors

We gratefully acknowledge the support of many Friends whose contributions have helped to preserve and make known the history of physics and allied sciences. This list is our public acknowledgment of Friends who contributed in 2013 to the Center for History of Physics. Patrons contributed \$2,500 or more; Sponsors contributed \$1,000 to \$2,499; Colleagues contributed \$500 to \$999; Associates contributed \$250 to \$499; and Members up to \$249. Bookplate Donations honor or memorialize a colleague while supporting the purchase or conservation of rare books. ★ Designates our Physics Heritage Donors, who have given each year for the past seven years or more. ‡ Designates a recently-deceased donor. If you would like to join the Friends in supporting the Center for History of Physics, please write to us at: One Physics Ellipse, College Park, MD 20740-3843, call 301-209-3006, e-mail [development@aip.org](mailto:development@aip.org), or visit our Web page at [www.aip.org/donate](http://www.aip.org/donate).

**SPONSORS**

Marc H. Brodsky★  
 Robert R. Doering  
 Michael L. George  
 Esther M. Goudsmit  
 Roderick M. Grant★  
 Brian J. Kiefer  
 Gordon P. Riblet  
 Theodore T. Wall★

H. Frederick Dylla★  
 Kenneth W. Ford★  
 Hans Frauenfelder★  
 Bernard Gottschalk★  
 Bill Hassinger★  
 Kenneth R. Hogstrom★  
 Daniel Kleppner★  
 Alan D. Krisch★  
 Arlo U. Landolt★  
 James S. Langer  
 Victor W. Laurie  
 Harry Letaw

Spencer R. Weart★  
**ASSOCIATES**  
 Peter Almond  
 Robert Arns  
 George F. Bing★  
 John C. Blackmore★  
 John W. Cook★  
 Peter Cziffra★  
 Jan and Lynn W. Dash  
 David DeVorkin  
 Larry and Judith V. East  
 Guy T. Emery

Judy C. Holoviak  
 Hans Keithley★  
 Toichiro Kinoshita★  
 Miles V. Klein★  
 Rikio Konno★  
 Bruce A. Kowert  
 Harry Landon ‡  
 Christopher H. Marshall★  
 David K. McCarthy★  
 John L. McClure★  
 Jonathan Mersel

Lowell L. Anderson  
 Howard Andrews  
 Michael W. Arenton  
 Dewayne A. Backhus  
 Brian G. Bagley  
 George J. Baier  
 R. C. Bailey  
 Albert Bartlett ‡  
 Marcia Frances Bartusiak  
 Gordon A. Baym  
 Irene A. Beardsley  
 and Dan Bloomberg

**COLLEAGUES**

Leo L. Beranek★  
 Lewis M. Branscomb★  
 William F. Brinkman  
 Edward K. Conklin  
 Daniel and Frieda Crischkowsky  
 Russell J. Donnelly  
 Loyal Durand★

Rex D. Pendley★  
 Robert K. Rader  
 Steven R. Riedhauser  
 John S. and Diana W. Rigden★  
 Elizabeth Roemer★  
 Keith Runge  
 Andrew Sessler ‡  
 James L. Smith★

William E. Evenson★  
 Edwin R. Fuller★  
 Theodore and Frances H. Geballe★  
 Joshua N. Goldberg  
 Shaun Hardy★  
 Frank J. Harmon  
 Warren Heckrotte★  
 Charles H. Holbrow

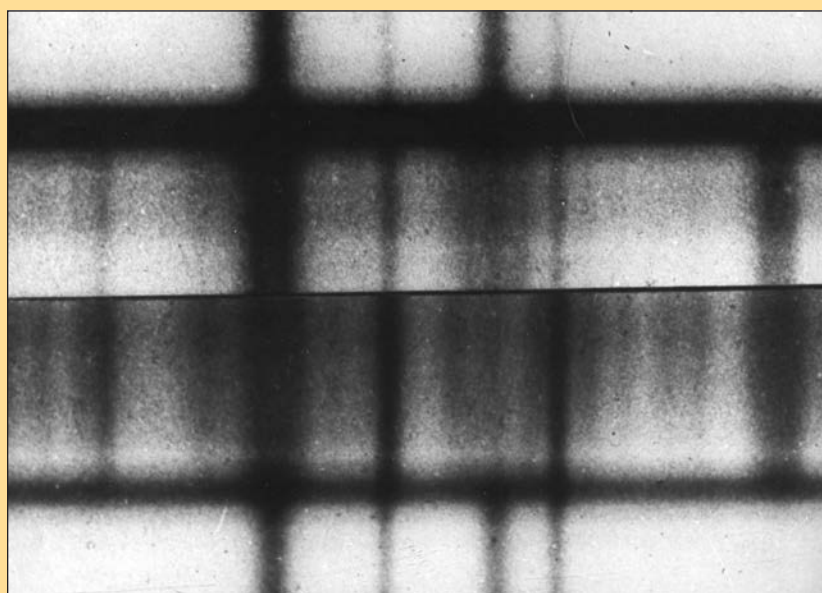
Anthony V. Nero  
 John M. Palms  
 William F. Pickard★  
 Derek L. Pursey  
 Randolph A Reeder★  
 Jane Repko  
 John E. Rhoads★  
 R. G. Robertson  
 Gary W. Sjolander★  
 Robert F. Stewart★  
 Richard D. Taylor★  
 Jean-Francois S. Van Huele  
 Adrienne H. Wootters

John Bechhoefer  
 Stephen A. Becker  
 Frederick and Eva E. Bergmann★  
 Joseph P. Bevak  
 Ignacio and Jennifer Birriel  
 Nirendra N. Biswas  
 John B. Blottman  
 David Bodansky ‡  
 Charles A. Bordner  
 Jacqueline Braunstein  
 Donald W. Brill  
 Laurie M. Brown  
 Rodney D. Brown

**MEMBERS**

Koichi Abe  
 S. C. Abrahams★  
 Louis W. Adams★  
 Mercedes M. Agogino★  
 David G. Agresti  
 Leif Anderson Ahrens  
 Harvey A. Alperin★  
 E. D. Alyea★  
 B. Jeffrey Anderson  
 Gordon W. Anderson  
 Weston A. Anderson

Stephen G. Brush★  
 James H. Burgess  
 Patricia V. Burke★  
 Earl F. Burkholder★  
 Bruce M. Burnett  
 Nancy A. Burnham★  
 Stephen H. Burns★  
 Warren E. Byrne★  
 David O. Caldwell  
 Jerrold L. Caplin  
 Robert E. Carter★  
 David C. Cassidy★  
 Diego J. Castano★



Iron doublet (6301-72) and triplet (6302-71) in two spot spectra, showing field strengths of 2900 and 4500 gauss, respectively; Fig. 7. From 'Solar Vertices and Magnetic Fields' presented to Royal Institution of Great Britain Weekly Evening Meeting, Friday May 14, 1909. Credit: The Hale Observatories, courtesy AIP Emilio Segrè Visual Archives.

## Friends of the Center for History of Physics

Joseph Cerny★	Philip Lewis Dreike★	Mary Katharine	James E.	Sammuel C. Kao
Thomas M.	Alexandria Dunlap	Gaillard★	Hammerberg★	Boris and Susan Kayser
Christensen★	Stanley L. Ehrlich	Robert T. Garcia	Richard Hanau★	Thomas Kelsall
Donald D. Clayton	Robert S Ehrlich	Judith A. Gates	Jorgen L. Hansen★	Kern Kenyon★
James R. Clynych★	Theodore L. Einstein★	Katharine B. Gebbie	Wesley H. Harker★	Daniel J. Kevles
Ezechiele G. Cohen	Fred T. Erskine III★	Sam H. Ghaleb	Marguerite Harning	Charles H. King★
James A Cole	Kelly Falkner	Ivar Giaever★	Alan W. Harris	John King
Jack H Colwell★	Donald C. Faust	Joseph A. Giordmaine	Frederick A Harris★	Paul I. Kingsbury
Robert C. Cook★	Steven R. Federman★	Alexander J. Glass	Michael J. Harrison	Aleksander Klauson
Leon N Cooper★	Bonnie F. Feldman	Maurice Glicksman★	Michael Hauser	Adrienne and
Vera-Anne V. Corwin	Richard B. Feren★	Robert P. Godwin★	Jo N. Hays★	Rocky Kolb
Hans Courant	Joe and	Albert Goldstein	Jeffrey C. Hecht★	Harwood G. Kolsky★
Patrick Crane	Jean L. Ferguson	Edwin L. Goldwasser	Leon Heller	Victor Korenman★
Stephen Craxton★	William Fickinger★	Gregory A. Good	George A Herbert	Thomas A Koster
John R. Cunningham★	Carl C. Fields	Gordon L. Goodman	William B.	Michael A. Kriss
Gerald Cuzelis	Arvel L. Fincher	Leon Gortler★	Herrmannsfeldt	John Kronholm★
Philip Danielson	Michael E. Fisher	Harvey A. Gould	Arthur N Hicks	Arlin J. Krueger
Paul O. Davey★	Philip C. Fisher★	Walter T. Grandy	Lillian H. Hoddeson	William H. Kuhlman
Lloyd Davis	Judith Flippen-	Michael Grasso★	Ronald Hofmann	Roger O. Ladle★
Charles S. De John	Anderson	Alexander R. Grone	Gerald Holton★	Arno Laesecke★
Luis de la Pena★	Allen Flora★	Thomas H Groves★	Charles E. Horton	Kenneth Lakin
Robert L. De Zafra★	Mark Fonstad	Sol M. Gruner	John L. Hubisz	Vasudevan
Samuel Derman★	Paul Forman	William J. Gunning★	Karl Hufbauer★	Lakshminarayanan
Dolores C. Derrington	John Fournelle	Rajendra Gupta	Allen I. Janis	Neal F. Lane
John L. Deutsch	Kenneth Fowler★	Mark E. Hagen	James S. Jarratt★	Kenneth Langley
Ruth A. Dickinson	Laurence W. Fredrick	Melvyn L. Halbert★	Hugh Jeanette★	Louis J. Lanzerotti
Alexander K. Dickison	Klaus Fritsch	Paul Halpern	Lawrence W. Jones★	Michel L Lapidus
Jim Dorman	Wendy W.	Gilmor S. Hamill★	Michael D Jones★	Anthony J. LaRocca
Richard G. Dower	Fuller-Mora★	D. A. Hamlin★	Richard R. Joyce	James D. Larson
Richard J. Drachman	Stephen A. Fulling★	Philip W. Hammer	H J. Juretschke★	Robert G Luttman★



*Left to right: Mitchell Feigenbaum, John Guckenheimer, and others enjoy a boat ride on a break from FSU-USA Chaos Conference, Woods Hole, Massachusetts, July, 1993. Credit: AIP Emilio Segrè Visual Archives, Physics Today Collection.*

## Friends of the Center for History of Physics

A. C. Lawson★	John Michel★	William H. Orttung★	William A. Reupke	David R. Stover
Harvey S. Leff	Herman L. Miller	Geraint and	Richard A. Robie	Alan J. Strauss
Joel Leventhal	Mark B. Moffett★	Ruth Owen★	Howard K. Rockstad★	Bertram Strieb
Garry Levman★	Louis Monchick	Alfred Owyang	Elizabeth Rogan	Harry Stuckey★
Braxton Lewis	Kurt R. Moore★	Lyman Alexander	Edward John Rojek★	Folden B. Stumpf★
David A. Liberman★	Frederic R.	Page★	Nancy G. Roman★	Keith R. Symon ‡
Elinor Lichtman★	Morgenthaler	Chrys E. Papadopoulos	Kenneth L. Rose	Takao Tanikawa★
Donald H. Liebenberg	Robert A. Morse★	William and	Carl Rosenfeld★	J. Patrick Tatum★
Kurt M. Liewer	Steven A.	Janice Parker	Robert A. Rosenstein	Howard S. Taylor
Marvin M. Litvak	Moszkowski★	Robert W. Peele	Lawrence G. Rubin★	Joseph S. Tenn
Chelcie B. Liu	George P. Mueller★	Neil K. Perl★	Mike Ruby★	Dennis J. Teskey
C. D. Livengood★	Mark R. Mueller★	Peter Pesic	Akira Sakai★	George Tessler★
Gloria Lubkin	John S. Muentner★	Julia M. Phillips	Roberta P. Saxon★	Christopher H. Tong
David D. Lynch★	Djafar Mynbaev	David Pines	Morton Schagrin	Carol-Ann Tripp
Richard H. Lyon	Taoufik Nadji	Michael Plett	Robert and	Benjamin M. Tsui
Maura and Michael J.	Mark Nagumo★	Monroe S. Rabin	Barbara Schneider★	William L. Unger★
Mackowski★	Richard W. Nichols	Jack Rallo	Jack Schneps★	Bjarne E. Ursin
Robert Leroy Maher	Richard J. Noer★	Joseph T. Ratchford	Richard F. Schwartz	Randy C. Van Vranken
Mark L. Maiello★	George T. O'Brien	R. Ronald Rau★	Brian B. Schwartz★	Michael Vaughn★
Robert H. March	Jan H. Oelering	Richard D. Ray	Silvan S. Schweber★	Robin and
John V. Martonchik	Goetz K.H. Oertel	Albert J. Read	Jan V. Sengers	Antoinette Verdier★
Mike Maurer	Tonis Oja★	Joseph Reader	Frederick D. Seward★	Ronald J. Versic★
Charles W. McCutchen	J. G. O'Keefe	George Redlinger	Howard Shafer★	Thomas Von Foerster
John L. McKnight	Robert and	Antonio Redondo	Wesley Shanholtzer	James P. Wade
Ellen Metzger	Dolores Olness	Douglas T. Reilly★	Alan E. Shapiro	Kameshwar C. Wali



Carolyn Shoemaker stands next to an 18" Schmidt Telescope. Credit: Astronomical Society of the Pacific, courtesy AIP Emilio Segrè Visual Archives, Physics Today Collection.

Joseph C. Shields★	William Wallace
Melvin Siedband	David L. Wallach
Daniel M. Siegel★	Ronald A. Walton
Rolf H. Siemssen	Charlotte Ward
Robert H. Silliman	George D. Watkins★
Henry J. Simon★	Bill Weaver★
F. L. Slick	Leonard R. Weisberg
David L. Smith★	Samuel A. Werner
Eugene R. Smith	Emily Wheland
Luther W. Smith★	John A. and
Benjamin B. Snavely	Rebecca White
James L. Snelgrove	Stephen H. White★
Arnold L. Snyder★	Ralph M. Wilcox★
Jorge O. Sofó	Donald Wilke
Charles M. Sommerfield	Step O. Williamson
Grace M. Spruch★	Brenda and Manfred
Frieda A. Stahl★	Winnewisser★
Robert W. Standley★	Lincoln Wolfenstein★
Walter A. Stark	James F. Woodward
Richard D. Stenerson★	Paul P. Woskov
Richard B. and	Bradford L. Wright★
Barbara J. Stephens	Glenn R. Young
David P. Stern	Louise G. Young
Frank Stern★	Clyde S. Zaidins★
James R. Stevenson	Carl R. Zeisse
James H. Stith★	Kenn K. Zhang
Ian E. Stockdale	John W. Zwart★
Truman S. Storvick	

# Academic Partners of the Center for History of Physics

**Amherst College**  
Department of Astronomy

**Brandeis University**  
Department of Physics

**Brigham Young University**  
Department of Physics and Astronomy

**California Institute of Technology**  
Physics, Math and  
Astronomy Department

**Carleton College**  
Department of Physics

**Case Western Reserve University**  
Department of Physics

**Columbia University**  
Department of Astronomy

**Cornell University**  
Department of Physics

**Duke University**  
Department of Physics

**Emory University**  
Department of Physics

**Hampton University**  
Department of Physics

**Harvard University**  
Department of Physics

**Harvard University**  
School of Engineering  
and Applied Science

**Ithaca College**  
Department of Physics

**Massachusetts Institute of Technology**  
Department of Physics

**North Carolina State University**  
Department of Physics

**Northeastern University**  
Department of Physics

**Ohio State University**  
Department of Physics

**Ohio State University**  
Department of Astronomy

**Pennsylvania State University**  
Department of Physics

**Princeton University**  
Department of Physics

**Rice University**  
Department of Physics  
and Astronomy

**Stanford University**  
Department of Physics

**Southeast Missouri State University**  
Department of Physics  
and Engineering Physics

**SUNY Stony Brook University**  
Department of Physics

**Syracuse University**  
Department of Physics

**Transylvania University**  
Physics Program

**University of Houston**  
Department of Physics

**University of Louisville**  
Department of Physics and Astronomy

**University of Maryland**  
Department of Physics

**University of Massachusetts Dartmouth**  
Department of Physics

**University of Michigan**  
Department of Physics

**University of Minnesota**  
Department of Physics

**University of Mississippi**  
Department of Physics  
and Astronomy

**University of Tennessee**  
Department of Physics  
and Astronomy

**University of Wisconsin, Eau Claire**  
Department of Physics and Astronomy

**University of Wisconsin, Madison**  
Department of Physics

**Washington University in St. Louis**  
Department of Physics

**Wellesley College**  
Department of Physics

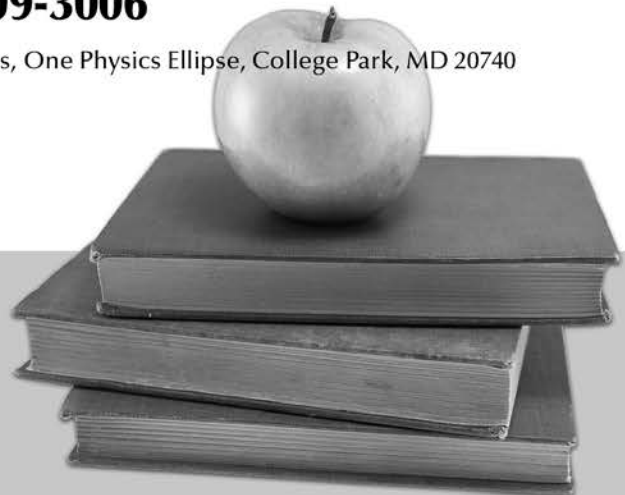
**West Virginia University**  
Department of Physics

**Worcester Polytechnic Institute**  
Department of Physics

**Yale University**  
Department of Physics

To become a partner, visit [www.aip.org/academicpartners](http://www.aip.org/academicpartners)  
or call 301-209-3006

Center for History of Physics, American Institute of Physics, One Physics Ellipse, College Park, MD 20740



Center for History of Physics  
American Institute of Physics  
One Physics Ellipse  
College Park, MD 20740-3843

Non-Profit Org.  
U.S. POSTAGE  
**PAID**  
College Park, MD  
Permit No. 2321

---

## History Newsletter

A publication of the American Institute of Physics

### STAFF MEMBERS

Gregory A. Good, *Director, Center for History of Physics*  
R. Joseph Anderson, *Director, Niels Bohr Library & Archives*  
Melanie Mueller, *Assistant Director, Niels Bohr Library & Archives*  
Stephanie Jankowski, *Senior Administrative Secretary*  
Ada Uzoma, *Web Specialist*  
Teasel Muir-Harmony, *Post-Doctoral Fellow*  
Elaina Vitale, *Assistant Librarian*  
Chip Calhoun, *Technical Services Archivist*  
Amanda Nelson, *Associate Archivist*  
Savannah Gignac, *Photo Librarian*  
Nancy Honeyford, *Senior Library Assistant*  
Mary Romanelli, *Senior Photo Archives Assistant*  
Molly Marcusse, *Archival Assistant*

This Newsletter is a biannual publication of the Center for History of Physics, American Institute of Physics, One Physics Ellipse, College Park, MD 20740; phone: 301-209-3165; fax: 301-209-0882; e-mail: [chp@aip.org](mailto:chp@aip.org) or [nbl@aip.org](mailto:nbl@aip.org). Editor: Gregory A. Good. The Newsletter reports activities of the Center for History of Physics and Niels Bohr Library & Archives, and other information on work in the history of physics and allied fields.

Any opinions expressed herein do not necessarily represent the views of the American Institute of Physics or its Member Societies. This Newsletter is available on request without charge, but we welcome donations (tax-deductible) to the Friends of the AIP Center for History of Physics ([www.aip.org/donate](http://www.aip.org/donate)). The Newsletter is posted on the Web at <http://www.aip.org/history/newsletter>.



Center for History of Physics  
One Physics Ellipse  
College Park, MD 20740  
301 209 3165  
[www.aip.org/history](http://www.aip.org/history)