

Growth of a New Repository: National Radio Astronomy Observatory Archives

By Ellen N. Bouton

The National Radio Astronomy Observatory (NRAO), founded in 1956, is a facility of the National Science Foundation (NSF), operated for NSF by Associated Universities, Inc. Headquartered in Charlottesville, VA, NRAO has offices, employees and radio telescopes in multiple states and in Chile. We operate the Green Bank Telescope (GBT), the Jansky Very large Array (JVLA), the Very Long Baseline Array (VLBA), and are a partner in the nearly completed

Atacama Large Millimeter/submillimeter Array (ALMA). In the Spring 2004 issue of this Newsletter I wrote about our newly-created Archives. At that time, we had completed a Web resource describing Nanniellou Hepburn Dieter Conklin's career as the first American woman working in radio astronomy, had begun processing of the papers of Grote Reber and John W. Findlay.

Since then, even with very limited staff (one professional and one assistant, two days/week each, plus occasional temporary student assistants), we have made immense progress. In spring 2005 we moved into a dedicated 1400 sq. ft. space in the new addition to our Charlottesville

headquarters building, and materials began to come to us from both NRAO staff and from sources outside NRAO. Our processed collections now extend to ~435 linear feet and include papers of Ronald N. Bracewell, Bernard F. Burke, Marshall H. Cohen, John W. Findlay, Mark A. Gordon, David S. Heeschen, David E. Hogg, Kenneth I. Kellermann, John D. Kraus, Grote Reber, Arthur M. Shalloway,

A. Richard Thompson, and Paul A. Vanden Bout. Processing of NRAO records is ongoing, as materials are transferred to the Archives from the Director's Office and from other NRAO sites. We also have Web resources on the work of Harold I. (Doc) Ewen and on early radio astronomy

courses. The papers of the late Donald C. Backer are a recent acquisition, but they have not yet been processed. We are grateful for the grant from the Center for the History of Physics which funded 2007 processing work on the NRAO Director's Office records for 1951–1978. A gift from the Reber Foundation allowed us to process the entire Reber collection and digitize most of the Reber documents and photos.

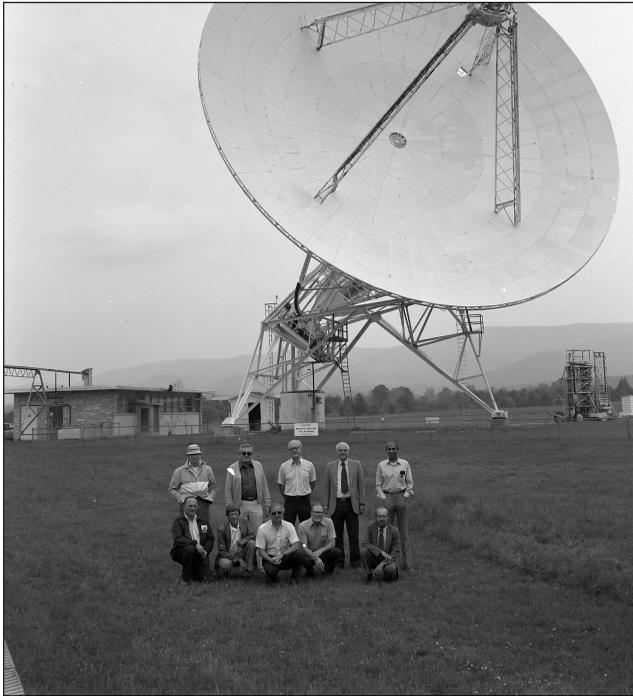
One of our most exciting recent acquisitions is the collection donated by Professor Woodruff T. Sullivan III.

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The Howard E. Tatel Telescope, used in Frank Drake's 1960 Project Ozma, the first search for extraterrestrial intelligent life, and part of the Ozma team. Photo taken at the Ozma 25th anniversary symposium. Front row left to right: Bob Viers, Dewey Ross, Bill Meredith, Troy Henderson, Bob Uphoff. Back row left to right: George Grove, Fred Crews, Omar Bowyer, Frank Drake, Kochu Menon. NRAO/AUI photo.

His book, *Cosmic Noise: A History of Early Radio Astronomy* (Cambridge University Press, 2009) is a history of radio astronomy from its beginning in 1933 through 1953, and represents 30 years of intensive research by Dr. Sullivan. In 2010 he donated his book research materials to the NRAO Archives, including the 188 audio tapes and related paperwork for the extensive set of interviews he conducted between 1971 and 1988 with 255 radio astronomers around the world. These interviews are a unique resource for the history of radio astronomy, as Sullivan talked to nearly everyone who had published at least one paper in the field of radio astronomy before 1960. The 2011 Pollock Award from Dudley Observatory funded a summer intern who digitized all of the aging tapes, worked on getting permissions from interviewees or their heirs/next of kin, and created a set of Web pages for the interviews. In summer 2012 she returned to work on transcribing interviews and scanning the approximately 50 interview transcripts Sullivan had made. We hope eventually to find funding to mount the transcripts on the Web.

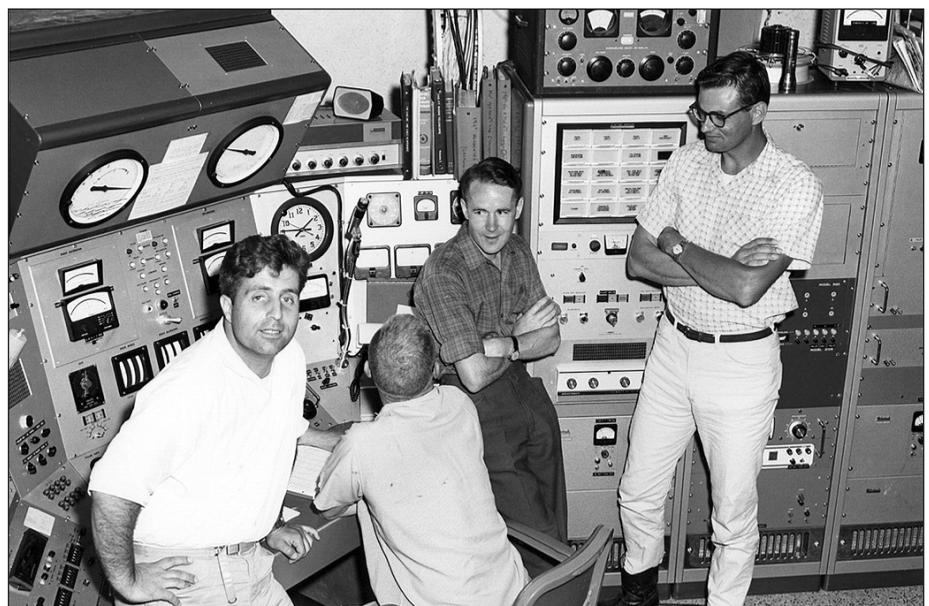
We have created Web pages for finding aids and folder/item listings, all linked from the Archives home page, <http://www.nrao.edu/archives/>. We have an online catalog (<http://jump.cv.nrao.edu/textbase/archivesearch.htm>) which has served us well, but we are currently evaluating Archon, software from University of Illinois to manage information on archival materials and publish it on the Web, as a potential way of combining finding aids with the catalog's search capabilities. Our holdings are, of course, listed in CHP's ICOS.

We have had excellent support from NRAO staff members, some of whom have been instrumental in persuading other radio astronomers or their heirs to donate papers. The NRAO Archives continue to grow, and has become the de facto archive for radio astronomy in the U.S. We encourage visits or inquiries from researchers! ■

The Sound of the Bomb

Film and videos of nuclear explosions are almost always dubbed. What does a nuclear explosion actually sound like to a person on the ground? Postdoctoral Historian Alex Wellerstein of the Center for History of Physics has found and posted on his "Restricted Data" blog rare footage from a Cold War nuclear test that addresses this question directly. The footage of the March 17, 1953, "ANNIE" test has murky visuals, but crisp, unedited audio, unlike most nuclear test films (which are usually dubbed in post-production).

With a good pair of headphones on, one can hear murmurs of soldiers and newsmen before the blast countdown starts. The camera "sees" the explosion about 30 seconds before the audible blast wave arrives, because the camera is 11 kilometers away from the explosion. As the fireball is rising, a sharp "bang" can be heard, followed by a long, thundering roar as the blast wave echoes off of the nearby mountains. The crowd can then be heard to shout out spontaneous expressions of awe. The footage is a rare example where the sound of the blast has not been edited to be simultaneous with the actual explosion, giving a more realistic impression of the on-the-ground experience. The article and footage can be found in the July 13, 2012 post at www.nuclearsecrecy.com. ■



Peter Mezger, Troy Henderson, Bertil Höglund, and Neil Albaugh in the NRAO 140 foot telescope control room, 27 July 1965, a few weeks after their discovery of radio recombination lines. NRAO/AUI photo.

Telstar and Fifty Years of Connectivity

Guest column by Louis J. Lanzerotti, editor of *Space Weather* (published by AGU), distinguished professor at the New Jersey Institute of Technology, and AIP Governing Board chair; and Gregory A. Good, director, Center for History of Physics

This morning, without a second thought, people around the world checked their email on some smart phone, or watched a live TV broadcast on some news channel from someplace where the Sun sets when it is rising here. Our daily lives and worldwide commerce depend on and are utterly shaped by hundreds of satellites. Couldn't we always see hurricanes from above? Couldn't we always conduct business around the clock? Didn't we always have GPS direction guidance? Couldn't we always measure radiation and electromagnetic fields in space and anticipate the possible effects of solar events on our lives and our technologies? Satellites enhance the senses of the human race, and they link us ever more inextricably together.

More than fifty years ago, on July 10, 1962, the United States launched Telstar, the first active-communications satellite. Last July, a celebration of the anniversary brought together a number of scientists, engineers, and others involved in this achievement at Alcatel-Lucent Bell Laboratories. (See the synopsis video on YouTube.) One of the authors of this article, Louis Lanzerotti, joined Bell Laboratories in 1965 because he was attracted by the opportunity to analyze Telstar data and to work on the design and implementation of a Bell Laboratories radiation detection instrument. This device would be incorporated in the first NASA test communications satellite at geosynchronous orbit, ATS-1, launched in December 1966.

Telstar's anniversary celebration belonged at Bell Labs, which was central in the conception, design, build, launch, and follow-up of the project. Telstar was funded by the AT&T Company and built by Bell Laboratories; AT&T reimbursed NASA for the launch costs. Telstar used the latest transistors (all discrete components!) and maser amplifiers, a new technology. Telstar received signals, amplified them, and retransmitted them.

The first public images transmitted across the Atlantic in 1962 were of the Statue of

Liberty and the Eiffel Tower, followed by part of a Philadelphia Phillies vs Chicago Cubs baseball game. Telstar had started a new age of communications. By 1965, half a dozen similar satellites were actively relaying signals. More Telstars were orbited in the 1980s, 1990s, and on. The die was already cast for CNN and ESPN!

Telstar also, however, carried solid-state detectors with different levels of shielding for detecting electrons of different energies in orbit. These were designed and included to specifically study the effects of the space environment on transistors. Unknown to the Bell scientists and engineers who built Telstar, the United States launched one of its last near-space nuclear tests on July 9, the day before the satellite's launch. Project Starfish Prime exploded a hydrogen bomb 250 miles (400 km) above Earth's surface, a thousand times more powerful than the bomb used at Hiroshima. The blast created an electromagnetic pulse much larger than expected, damaging electrical and communications infrastructure in both Hawaii and New Zealand. It also produced an artificial radiation belt approximately 100 times the natural Van Allen Belt intensities and soon degraded the electronics on Telstar, leading ultimately to its failure in February 1963. Its life spanned a mere six months. Nevertheless, the takeaways endure and led the way to modern communications.

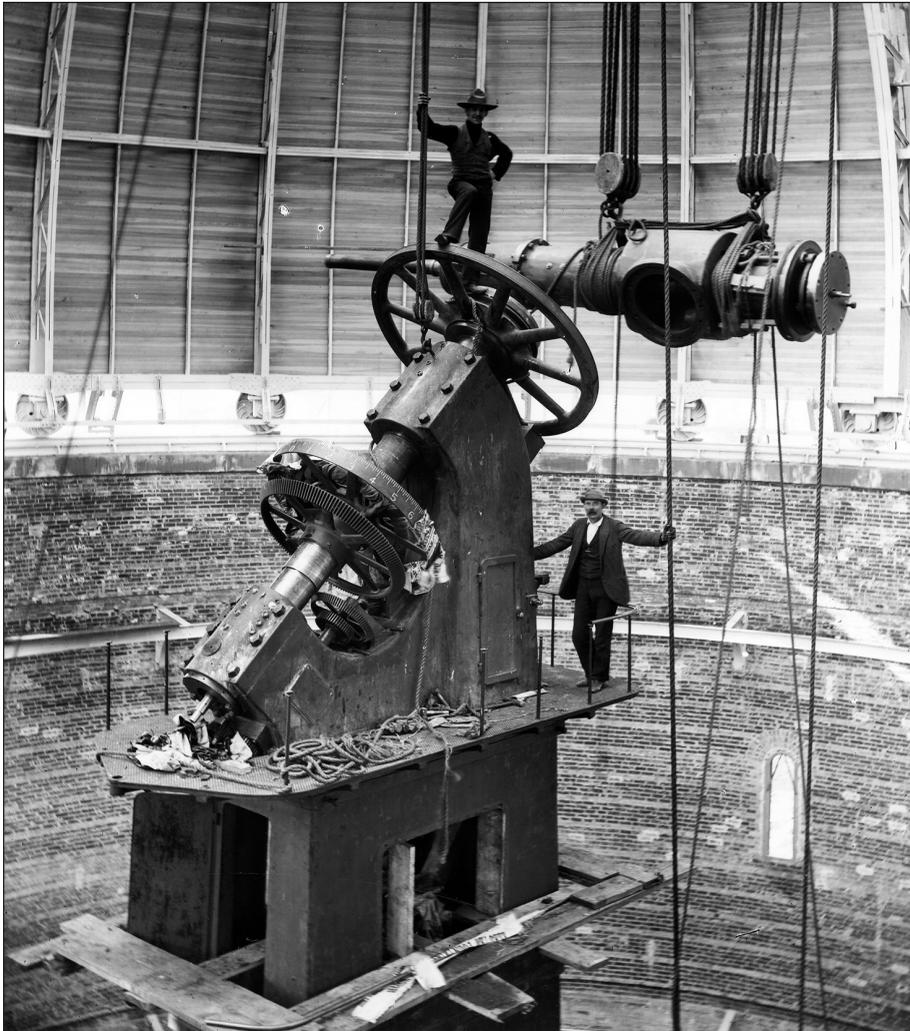
One Bell researcher who attended the 50th anniversary of Telstar, physicist Walter Brown, led the efforts at Bell Labs to "harden" the transistors and other

electronics that were used in Telstar. As a result, Brown was well positioned to study the lifetime of high-energy electrons produced by Starfish Prime. His results are still used today. Ironically, the confluence of Starfish Prime and the various satellites led to important conclusions regarding radiation in low-Earth orbit. Seven oral history interviews in AIP's Niels Bohr Library & Archives discuss Telstar and Starfish Prime.

Lest one think that satellites are now safer because we ban nuclear tests in space, the story of Telstar 401 provides a cautionary tale. Telstar 401 launched in 1993. In 1997 it was destroyed by a magnetic storm, a space weather event caused by a coronal mass ejection from the Sun. Knowledge of such events is still critical background to the design of satellites and other electrical and communications infrastructure here on Earth. ■



Breeder reactor in operation at Oak Ridge National Laboratory in Tennessee. Credit: Union Carbide Corporation's Nuclear Division, courtesy AIP Emilio Segrè Visual Archives, Physics Today Collection.



The polar axis of the Yerkes Observatory 40-inch refractor being lowered into position, October 1896. The foreman is in the lower right. The man standing on top is not identified. Note absence of safety belts and hand rails. Credit: Yerkes Observatory, University of Chicago, courtesy AIP Emilio Segrè Visual Archives.

Scan on Demand Service at NBL&A

The Niels Bohr Library & Archives offers a “Scan on Demand” service to provide digital copies of our primary source materials to our researchers. For the same nominal fee (20 cents a page) we charge for photocopies, we will email scans to researchers all over the world. Note that very large scanning requests (multiple boxes or series of collections) may exceed the capacity of our staff. In those cases, we will contact the patron regarding outsourcing the work to a vendor. Vendor costs will be charged to the patron.

Once we have scanned material for a researcher we can also use those scans for other purposes. If we have or if we can secure the appropriate legal rights, we

will be able to put the material on the library’s website. We will also keep these scans for digital preservation. Scanning projects always require a good amount of staff time and effort, and by repurposing items scanned for patron requests, we can ensure that we focus our time and attention on items that researchers are interested in.

We are currently developing an image viewer that will allow us to share our scanned and digital items on the website. This is being adapted from a viewer that was developed in house for the Samuel Goudsmit papers, which were scanned in their entirety and put online in 2011. We’ll be sharing more information on this project in the next newsletter. ■

History of Science Society Establishes Physical Sciences Forum

By Catherine Westfall

The Physical Sciences Forum met for the first time at the 2012 HSS meeting in San Diego. At this inaugural meeting, Catherine Westfall was elected chair and she selected Joe Martin and Greg Good to serve with her on the Steering Committee. At the meeting those assembled also laid out three plans for the next year, and identified committees to implement each plan.

Greg Good is spearheading the effort for an annual meeting, the first to be held in spring 2013, that will provide an additional forum for early career scholars on the history of the physical sciences. With the help of Westfall, David Kaiser, and Suman Seth, PSF also plans to sponsor a Distinguished Lecture at the 2013 HSS meeting. At the meeting, the forum also plans a session that will discuss future directions in the history of the physical sciences. The associated committee members are Seth, Amy Fisher, and Don Howard.

The general aim of the PSF is to further scholarship in the history of the physical sciences as broadly understood, including but not limited to: physics; earth, space, and atmospheric science; astronomy; and materials science. It will help forge a more coherent community for those with a core specialty in these sub-fields with a particular emphasis on developing the connections linking these sub-fields and exploring their resonance with wider scholarship. For further information, contact Catherine Westfall at westfa12@msu.edu.

Complementing the Forum will be a new Humanities and Social Sciences Net (H-Net) list, which will serve as a communication channel providing announcements, calls for papers, book reviews, and job postings in addition to promoting discussion about current research and the state of the field. For further information on H-Net, contact Joe Martin, mart1901@umn.edu. ■

Rutherford's Nuclear World

By Dr. Gregory A. Good, Director, Center for History of Physics

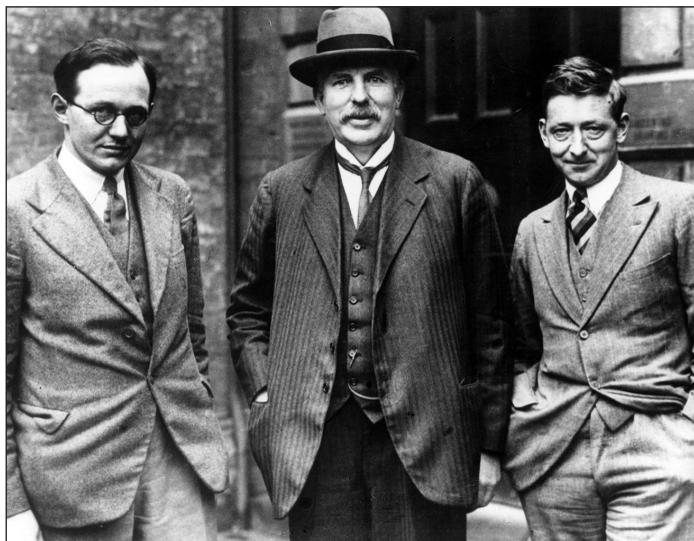
"In 1911, 40-year-old Ernest Rutherford discovered the nucleus of the atom. That is the usual, simple, factual statement most science students know quite well. The story of this discovery, however, involves more than one person, research over several decades, and a very human story."

So begins the new web exhibit, Rutherford's Nuclear World, on the website of the Center for History of Physics of the American Institute of Physics. Since the 1990s, AIP's History Programs have been path breakers in the use of the internet to "preserve and make known" the history of physics. The new Rutherford exhibit joins a dozen others, on topics ranging from Albert Einstein and Marie Curie to the transistor and the laser.

The original goal of the new exhibit was to get beneath the surface of the 1911 discovery of the nucleus. I started out to tell how the discovery occurred, to challenge both newcomers to the history of physics and old hands to reevaluate simple discovery. I was surprised to find one of Rutherford's students from that time, Edward Andrade, say that there was no excitement about the discovery of the nucleus in 1911. Andrade wrote "...the nuclear theory of the atom attracted hardly any attention. Its immense significance was not realized." Even Rutherford reflected back in 1932, in a letter to his old colleague Hans Geiger of Manchester days, "Those were happy times in Manchester, and we wrought better than we knew."

As often happens in historical research, I too discovered that the story of 1911 could not be told in isolation from the rest of Rutherford's career. Ernest Rutherford was one of those historical fig-

ures, large and powerful and dominating, whose whole life infused his work. From his early days exploring radioactivity in Montreal, through the work with scattering alpha particles in Manchester and the disruption of the nucleus at the Cavendish Laboratory in Cambridge, England, Rutherford explored the atomic



John Cockcroft, Rutherford, and Ernest Walton, in 1932, shortly after they accelerated protons against a lithium target, splitting the lithium nucleus into two alpha particles, i.e., helium nuclei. This demonstrated not only the "transmutation" of elements, but also Einstein's formula $E=mc^2$, since a slight loss of mass produced energetic alpha particles. Credit: UK Atomic Energy Authority, courtesy AIP Emilio Segrè Visual Archives.

world with an unparalleled experimental passion. To tell the story of 1911, I felt compelled to tell the broader story of Rutherford's nuclear world.

The production of Rutherford's Nuclear World rested on the historical research of three undergraduate interns of the summer intern program of the Society of Physics Students: Mary Mills, Fidele Bingwa, and Ryan M. Barley. The interns read Rutherford's original publications, his letters, and the oral history interviews that AIP conducted with Rutherford's students in the 1960s and 1970s. They had to learn the physics, but they also learned how to evaluate and use historical evidence. Their joy of discovery helped take the web exhibit in directions I had not anticipated. The other essential person in producing the exhibit was Ada

Uzoma, our web designer. Her crisp, simple design pulls the reader deeper into the story.

This exhibit is built firmly on resources in AIP's Niels Bohr Library and Archives. The exceptional book collection includes every edition of Rutherford's marvelous

Radio-activity, which he updated as phenomena became known. It also includes important and now neglected works by historians such as Thaddeus Trenn on Rutherford and Soddy, or John Heilbron on H.G.J. Moseley. The most important resources, however, are the archival ones, such as the oral history interviews and photographs. AIP now has over 850 oral history transcripts on our website, where they are available to the world. Among Rutherford's students and colleagues represented in this collection are Edward Andrade, James Chadwick, John Cockcroft, and Niels Bohr. AIP's Emilio Segrè Visual Archives provided most of the

photographs. All the staff of AIP's History Programs contributed to this exhibit.

In one way, AIP's newest web exhibit differs from earlier ones. Rutherford's Nuclear World will continue to grow, as I and future SPS interns explore new parts of the story. We will explore, for example, "radiations" from Rutherford's achievements, such as the development of particle accelerators and the use of radiation in medicine. We will also add animations as they are developed. We will explore historical themes, such as the participation of women in nuclear physics. We will explore ways to interact with our readers, who come from every corner of the globe. Rutherford's Nuclear World provides us the opportunity to share the wealth of AIP's History Programs with students and "the curious" everywhere. ■

Listening to Voices from the Past: An Adventure in the Archives

By Rebecca Hopman, Intern at the Niels Bohr Library & Archives

The American Institute of Physics has many divisions, one of the most important being the Niels Bohr Library & Archives. The mission of the NBLA is to help preserve and make known the history of modern physics and allied sciences. To that end, the repository collects and makes accessible books, periodicals, photographs, oral history interviews, institutional records, and personal papers, among other materials.

During the past few months, I have been lucky enough to work in the archives as an intern. I am a graduate student in the College of Information Sciences at the University of Maryland, College Park, and as part of my degree program I need to complete 120 hours of practical experience in an archives. Most of my current work history is in college and uni-

versity archives, so I thought working in a nonprofit would prove a valuable experience. I admit my knowledge of physics and the history of physics is rather lacking (sorry Mr. Kupfer!), but I am a quick and enthusiastic learner.

For my internship, I curated an exhibit featuring the Oral History Interviews collection. This collection contains interviews with over 1,500 physicists, astronomers, and other scientists. Right now, staff at the archives are working to digitize all of the transcripts and make them searchable. They plan to have over 1,000 of the transcripts available online by June 2013, and want to highlight this valuable and unique research collection to their member societies and the public.

Like I mentioned, my knowledge of physics is rather slim, but reading these interviews is like taking a crash course. Yes,

the terms and concepts these men and women talk about are frequently beyond my comprehension, but often they focus on the human side of physics. My favorite part of researching this collection is seeing all the connections between these scientists. The physics world is like one big family tree: everyone is linked to each other by their teachers, students, colleagues, friends, spouses, and so on, until the en-

tire field is connected in one great web of scientists. Even though I still could not tell you the difference between a mass spectrometer and a cyclotron, I know and appreciate much more about these people and their work.

For the exhibit, I have chosen quotes from many different physicists' interviews, and paired them with photographs from the Emilio Segre Visual Archives. I have included information about oral histories and why they are such valuable resources to researchers and educators. I have also been able to include some of the original equipment used to record these oral histories, as well as the materials the interviews were recorded on. I hope the final result provides viewers with a greater appreciation for this amazing collection.

As part of this project, I also wanted to reach out to those people who will not be

able to see the exhibit in person, as well as to share materials I could not fit into the exhibit space. I decided to put together two social media campaigns on Facebook and Flickr to share these materials with a worldwide audience. Each Tuesday you can read why "Physicists Love Libraries!" on our Facebook page (www.facebook.com/AIPhistory). You can also check out photographs and quotes from famous physicists, and find links to audio clips in our "Voices From the Past" album on Flickr (www.flickr.com/photos/esva). Look out for these photos and quotes to be posted on our Facebook page every Thursday this year.

Working at AIP has been a great experience. The College Park office is an incredibly friendly environment, and I have enjoyed meeting many AIP employees. The Niels

Bohr Library & Archives is a beautiful space, and the librarian and archivists there are always happy to help find resources and answer research questions. In particular my supervisor, associate archivist Amanda Nelson, has been a wonderful source of support and guidance. She has been working with the Oral History Interviews collection for several years now, and is always able to point to an interview or name an interesting physicist to look into. I really appreciate all the help she and the other staff members have provided me with. I encourage you all to take advantage of the Niels Bohr Library & Archives and its staff in your future research and projects.

If you would like to learn more about the Oral History Interviews collection, or read transcripts from many of the interviews, please visit www.aip.org/history/nbl/oral-history.html. ■



L-R: Harvey Fletcher and Vern Knudsen laughing during an oral history interview, circa 1964. Credit: AIP Emilio Segre Visual Archives.

AIP's History Programs Receives \$3 Million Gift; Establishes Endowment Fund for Directorship of the Niels Bohr Library & Archives



Joe Anderson, for whom the newest endowment is named, is current director of AIP's Niels Bohr Library & Archives and associate director of the Center for History of Physics. Photo credit: AIP History Programs.

The American Institute of Physics (AIP) has received a \$3 million donation from the Avenir Foundation to establish the Endowment Fund for the R. Joseph Anderson Directorship of the Niels Bohr Library and Archives. This endowment will honor Anderson's two decades of service to AIP's history programs and provide vital resources to support AIP's leadership in preserving the heritage of modern physics. This marks the Foundation's third endowment to AIP, in support of its history programs.

"The Foundation is deeply interested in preserving and making known the history of physics and allied fields," said AIP Executive Director and CEO H. Frederick Dylla. "AIP is grateful for their generous support." The Foundation's first gift in May 2005 created an oral history endowment. In 2008, the Foundation endowed the Spencer R. Weart Directorship of the Center for History of Physics.

Joe Anderson, for whom the newest endowment is named, is current director of

AIP's Niels Bohr Library and Archives and associate director of the Center for History of Physics. During the past 20 years, he has dedicated himself to the preservation, documentation, and study of the history of physics. Anderson served previously as director of the Library and Archives at the Balch Institute in Philadelphia and as an archivist at Yale University in New Haven, Conn. He has published on a variety of archival topics and was elected a fellow of the Society of American Archivists in 2007.

In 1962, J. Robert Oppenheimer dedicated AIP's Niels Bohr Library and Archives, and over the past 50 years, AIP's history programs have become a significant resource for science historians around the world. In addition to preserving the history of modern physics, the library houses exemplary book, oral history,

and photograph collections, and preserves the historical records of AIP and its Member Societies. The library also works to preserve the papers of physicists at their home institution archives and serves as a clearinghouse for information on collections worldwide. In addition, The Center for History of Physics presents lectures, symposia, and workshops, and creates popular web exhibitions that receive millions of visits each year. (See aip.org/history/.)

Anderson remarked, "Major gifts from the Avenir Foundation and other donors are helping to build an endowment to ensure that the rich history of physics can be preserved and made available to the public and the physics community as an enduring resource." ■

Did you know?

Many of the photos shown in this newsletter are available for purchase from the Emilio Segrè Visual Archives.

Search 30,000+ images online at photos.aip.org

Niels Bohr Library & Archives Provides Grants to Three Archives

In 2012 the Niels Bohr Library & Archives, under the leadership of Joe Anderson, awarded grants to the following archives to make accessible collections in the history of physics and allied sciences:

Archive/Institution	Grant Amount	Project/Collection
Johns Hopkins University	\$10,000	Space Science Telescope Institute records
National Radio Astronomy Observatory	\$10,000	Woodruff T. Sullivan oral histories
Stanford University Archives	\$10,000	Karl Cohen, Martin Packard, and William Shockley papers

The grants are awarded annually as matching funds. For information on the 2013 grants and for a list of previous recipients, see http://www.aip.org/history/grants_guidelines.html.

Recent Additions to the Niels Bohr Library & Archives

The Niels Bohr Library & Archives and the Emilio Segrè Visual Archives acquire historically relevant and valuable materials through donations of archival records each year. As the official repository of the American Institute of Physics and its ten member societies, we welcome donations from these sources and again this year we have had many intriguing additions to our collections. We have also received additions to existing personal manuscript collections, new manuscript biographies and institutional histories, collections of photographs and books that are within our realm of collecting and add value to our holdings. While we often try to find homes for personal collections at repositories with stronger ties to particular individuals or subjects, the collections that remain in our care help round out the sources available when researching the history of physics, and these collections continue to grow.

ESVA and Audiovisual Materials

In addition to a new Photo Librarian, Lindsey Gumb, the Emilio Segrè Visual Archives (ESVA) was fortunate to welcome many donations this past year, bringing the total number of images

cataloged and available online to over 24,200. What are you waiting for? Start searching at <http://photos.aip.org>.

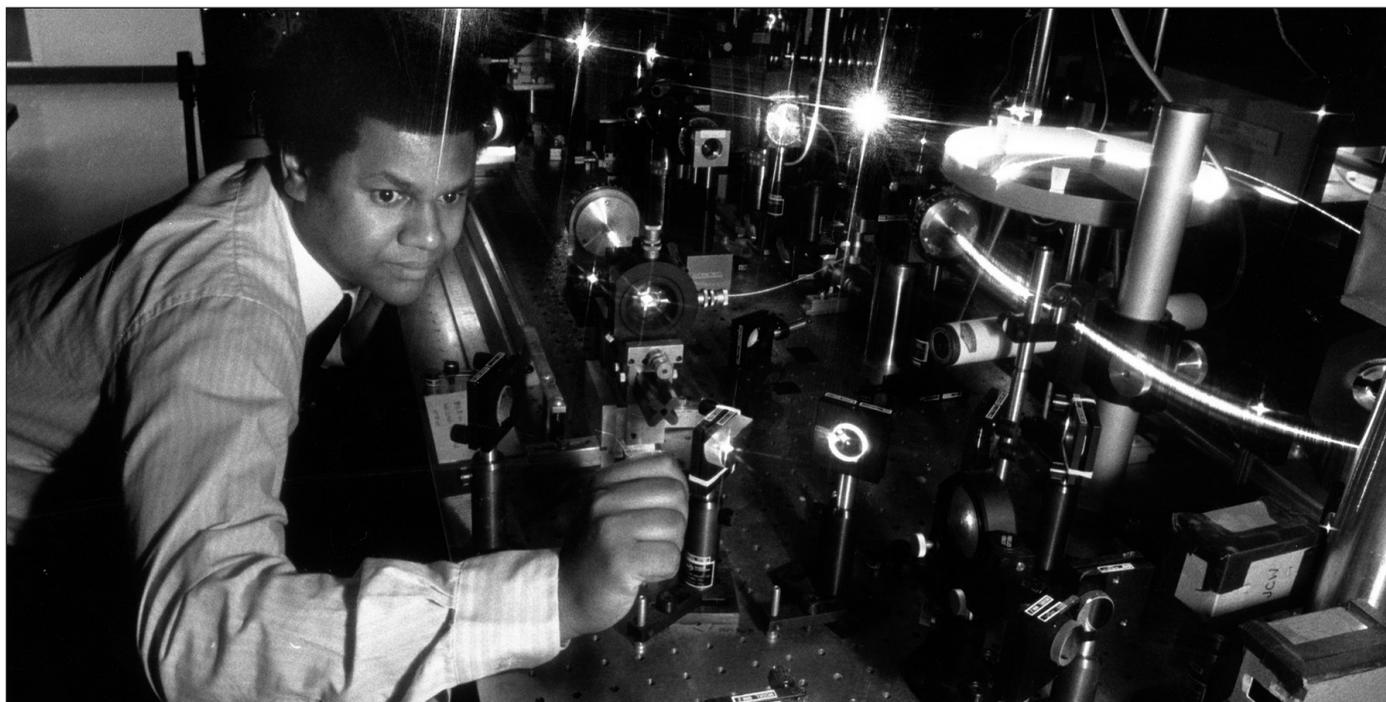
Previous donor **Jeff Hecht** donated 60 black and white prints of various sizes, largely used in his books 'City of Light' and 'Beam.' **Christine Erb** gave 13 images of her aunt, American physicist, Mildred Allen, spanning from childhood to her later years. A high school physics teacher, **Ernest Kuehl, Jr.** donated 4 prints of American physicist and science educator, Melba Phillips, during her later years. **Michael A. Duncan** donated 20 family photographs of his wife's aunt, American astronomer Charlotte Emma Moore Sitterly. ESVA recently scanned several AAS meeting photographs spanning back to the early 20th century, and **Jay M. Pasachoff** soon after offered us a more formal shot of the 19th AAS meeting held in Swarthmore, PA in August 1916. **Nicole Cranberg**, daughter of nuclear physicist Lawrence Cranberg, recently made a visit and donated an image of her and her brother with their father. Ms. Cranberg is in the process of gathering more images of her father to donate. **Malcolm Longair**, British physicist, donated 3 images of himself in July. Optical scientist

Jim Breckinridge, donated three images of Aden Meinel, an American astronomer who during his career was involved in the design and construction of several large telescopes. Photographer **Anil Kapahi** donated his image of Norbert Untersteiner, a pioneer in polar geophysics who passed away in March. **Rob** and **Jeroen Gerritsen** donated 5 photographs found tucked away in one of their father's (physicist A.N. Gerritsen) books, including one of Paul Ehrenfest and Hendrik Kramers.

Photographs of 2011 Nobel Prize winners **Brian Schmidt**, **Saul Perlmutter** and **Adam Riess** were all donated to ESVA and will be placed proudly among our gallery of Nobel Laureates.

ESVA would like to remind its followers that donating images is as easy as sending files via email; however, we encourage images to be scanned or created at a resolution of at least 300 dpi with a target size of 8 x 10 inches for the best reproduction and digital preservation standards!

As always we collect audio and video collections that document the history of



Anthony Johnson at work in a laser lab. Credit: AIP Emilio Segrè Visual Archives, Ronald E. Mickens Collection.

physics, especially from the physicists themselves. This year includes presentations sponsored by the **American Physical Society (APS)'s Forum on the History of Physics (FHP)** from the **APS March and April 2012 meetings** and acceptance speeches from the **American Crystallographic Association's (ACA) 2006 B. Warren Award** by Charles Majkrzak, **2009 M. J. Buerger Award** by Shih-Lin Chang, and the **2010 Fankuchen Award** by David Watkin. We also received an audio recording of Leo Szilard's "Inventor of the Atomic Bomb" where Szilard recollects his great discovery using the words "chain reaction" and "critical mass" for the first time, video recordings of an interview with **Reginald C. Augustine** by his daughter and background video for the **Transistorized!** program done in association with the Center for History of Physics.

Manuscript Collections

As in the past, this year we have received many collections from the American Institute of Physics (AIP) and its ten member societies. These include the records of the **American Col-**



Ronald McNair, mission specialist, plays the saxophone on Space Shuttle Mission 41-B, which launched from Kennedy Space Center, Florida, on February 3, 1984. Credit: NASA, courtesy AIP Emilio Segrè Visual Archives, Ronald E. Mickens Collection.

lege of Medical Physics (ACMP) that is now part of the **American Association of Physicists in Medicine (AAPM)**, a small donation from the **American Association of Physics Teachers' (AAPT) Center for the Teaching of Physics**, in addition to updating our collections of back issues of newsletters for each of the member societies and AIP divisions that are part of our **Miscellaneous Publications collections**

that each have their own online finding aid (<http://www.aip.org/history/ead/browse.html>). One of our largest accessions from the last few years, the **American Geophysical Union (AGU) records** are now processed and have a finding aid online (<http://www.aip.org/history/ead/20120413.html>) available for researchers. Furthermore, we received an addition to the **Hugh Everett papers** from **Ronald Mickens**, his collection on **African-American physicists**, and the 2011 and 2012 addition to the **Gravity Research**

Foundation (GRF) essay contest collection.

In addition to these larger collections, we continue to collect unpublished manuscript biographies, institutional histories and single or few item collections of "miscellaneous physics." These smaller collections make up a majority of our holdings and offer new ways of looking at historical events and people important to the physical sciences. This year, these include biographies of **Joseph P. Levinger**, **John P. Schiffer** and **Frank Elmore Ross**. In our institutional histories, information is now available on the early history of **AIP's Physics Today Division**, the **International Committee for Future Accelerators (ICFA)**, the background of the **Gaseous Electronics Conference (GEC)**, and the **Landau school and AIP translation program**. Along with these manuscript biographies and institutional histories, the additions to our "miscellaneous physics" collection include a bibliography on quantum mechanics compiled by **Alfred M. Bork**, course notes of **Victor Weisskopf's course on quantum mechanics** by **Isaac Halpern**, diplomas of **Edson Wolcott**, a draft of a possible textbook written by **George Gamow** titled "**Basic Theories of Modern Physics**" and a CD-ROM and installation guide for the first version of **Applied Physics Letters (APL) online.** ■



On September 6, 1985, the first laser lethality test was conducted for the Strategic Defense Initiative on the High Energy Laser System Test Facility (HELSTF) at White Sands Missile Range, New Mexico. Credit: Official Department of Defense Photograph, courtesy AIP Emilio Segrè Visual Archives, Physics Today Collection.

Recent Publications of Interest

Compiled by Alex Wellerstein

This is our usual compilation of some (by no means all) recently published articles on the history of modern physics, astronomy, geophysics, and allied fields. Note that these bibliographies have been posted on our website 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.

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

Annals of Science

Vol. 69, No. 4: Daniel Jon Mitchell, "Measurement in French Experimental Physics from Regnault to Lippmann. Rhetoric and Theoretical Practice"; Renée J. Raphael, "Printing Galileo's Discorsi: A Collaborative Affair"; Jean-François Gauvin, "The Instrument That Never Was: Inventing, Manufacturing, and Branding Réaumur's Thermometer During the Enlightenment."

Archive for History of Exact Sciences

Vol. 66, No. 4: Yaakov Zik, Giora Hon, "Magnification: how to turn a spyglass into an astronomical telescope."
Vol. 66, No. 5: Jean-Marc Ginoux, René Lozi, "Blondel et les oscillations auto-entretenues."

Berichte zur Wissenschaftsgeschichte

Vol. 35, No. 3: Helmut Pulte, "Rational Mechanics in the Eighteenth Century. On Structural Developments of a Mathematical Science."

British Journal for the History of Science

Vol. 45, No. 3: John Krige, "Hybrid knowledge: the transnational co-production of the gas centrifuge for uranium enrichment in the 1960s."

Centaurus

Vol. 54, No. 3: Stefano Bordoni, "Unearthing a Buried Memory: Duhem's Third Way to Thermodynamics."

Vol. 54, No. 4: Stefano Bordoni, "Unearthing a Buried Memory: Duhem's Third Way to Thermodynamics. Part 2."

CERN Courier

Vol. 52, No. 5: "Edoardo Amaldi and the origins of ESA."

Vol. 52, No. 6: "A discovery of cosmic proportions"; "Domenico Pacini and the origin of cosmic rays," "The discovery of air-Cherenkov radiation."

Vol. 52, No. 8: "The history of QCD."

Historical Studies in the Natural Sciences

Vol. 42, No. 3: Chen-Pang Yeang, "From Mechanical Objectivity to Instrumentalizing Theory: Inventing Radio Ionospheric Sounders"; Alex Wellerstein, "Nuclear Others."

Vol. 42, No. 4: Rebecca Slayton, "From a 'Dead Albatross' to Lincoln Labs: Applied Research and the Making of a Normal Cold War University"; Lisa M. Munday, "The Civilianization of a Nuclear Weapon Effects Test: Operation ARGUS."

Vol. 42, No. 5: Jessica Wang, "Physics, Emotion, and the Scientific Self: Merle Tuve's Cold War"; William Thomas, "Strategies of Detection: Interpretive Methods in Experimental Particle Physics, 1930–1950"; Nasser Zakariya, "Making Knowledge Whole: Genres of Synthesis and Grammars of Ignorance."

History of Geo- and Space Sciences

Vol. 3, No. 2: A. Egeland and W. J. Burke, "The ring current: a short biography"; J. K. Nielsen and S. Helama, "Christian Theodor Vaupell, a Danish 19th century naturalist and a pioneering developer

of the Quaternary geoscience"; R. G. A. Fricke and K. Schlegel, "100th anniversary of the discovery of cosmic radiation: the role of Günther and Tegetmeyer in the development of the necessary instrumentation."

History of Science

Vol. 50, No. 3: Josep Simon, "Secondary Matters: Textbooks and the Making of Physics in Nineteenth-Century France and England."

Isis

Vol. 103, No. 2: Matthew Stanley, "Predicting the Past: Ancient Eclipses and Airy, Newcomb, and Huxley on the Authority of Science."

Journal for the History of Astronomy

Vol. 43, No. 3: Helge Kragh, "Karl Popper on Physical Cosmologies."

Notes and Records of the Royal Society

Vol. 66, No. 3: Terje Brundtland, "Francis Hauksbee and his air pump."

Perspectives on Science

Vol. 20, No. 4: Thomas Pashby, "Dirac's Prediction of the Positron: A Case Study for the Current Realism Debate"; Kent W. Staley, "Dirac's 'Fine-Tuning Problem': A Constructive Use of Anachronism?"

Physics in Perspective

Vol. 14, No. 3: Kristel Wautier, Alexander Jonckheere, Danny Segers, "The Life and Work of Joseph Plateau: Father of Film and Discoverer of Surface Tension"; Paul Halpern, "Quantum Humor: The Playful Side of Physics at Bohr's Institute for Theoretical Physics"; Victor S. Alpher, "Ralph A. Alpher, Robert C. Herman, and the Cosmic Microwave Background Radiation."

Vol. 14, No. 4: Helge Kragh, "Zöllner's Universe"; Karl Hufbauer, "From Student of Physics to Historian of Science: T.S. Kuhn's Education and Early Career, 1940–1958"; Hans Christofer Børresen, "Flawed Nuclear Physics and Atomic Intelligence in the Campaign to deny Norwegian Heavy Water to Germany, 1942–1944."

Grant-in-Aid Research Experience at the Niels Bohr Library & Archives

By Peter Susalla, Ph.D. Candidate, University of Wisconsin

I visited the Niels Bohr Library & Archives (NBLA) in February on a Grant-in-Aid to conduct research for my dissertation on the history of modern cosmology. My project describes how cosmology, which intellectuals circa 1900 understood as part of metaphysics (and so part of philosophy), developed into a major branch of physics and astronomy research by the end of the century. As it did so, cosmology remained a field at the boundaries of acceptable research, as scientists, philosophers, religious thinkers, and educators all asked: “is cosmology even science?”

Cosmology did become part of science: about 20% of all astronomy graduate students in the 1980s worked in cosmology and cosmology-related research, based on data compiled by the AIP and available at the NBLA. These kinds of materials on scientific training and pedagogy are especially valuable to my project, as Thomas Kuhn and many historians since have emphasized that the techniques of the classroom are just as important in the formation and propagation of a new discipline as are the techniques of the laboratory.

Among the material housed at the NBLA, in addition to the AIP’s statistical information on graduate programs and original promotional materials from the individual programs themselves, the records of the Education Office of the American Astronomical Society were particularly important in helping me to understand how astronomers thought about science education in the 1960s and 1970s. This was a period when cosmology began to enter science curricula at all levels of education, and I was able to see how the AAS and its Committee for Education in Astronomy began to consider the place of cosmology in its education reform efforts.

However, one of my favorite “finds” at the NBLA relating to the development of cosmology pedagogy dates from an earlier time: a series of lecture notes taken by Lorenz Huff, a student in Richard C. Tolman’s course in general relativity at Caltech in 1929. Through Huff’s notes, we see Tolman and his class working through a variety of early cosmological models, including those of Albert Einstein, Willem de Sitter, and Georges

Lemaitre, and wondering about the implications of Edwin Hubble’s recently published discovery of a linear relationship between the redshifts and distances of extragalactic nebulae. That Tolman was aware of the work of his colleague at the nearby Mt. Wilson Observatory is not very surprising, but it was quite exciting to see this mixture of cosmological theory and observation brought into the classroom at such an early date.

A final word about the NBLA’s collection of oral history interviews: thanks to the amazing work of the NBLA staff, more and more of these interviews are now available online, yet a number are only accessible as typed transcripts or as physical audio recordings. Having electronic versions of interviews is a great help in searching for names or keywords, but working at the NBLA and listening to some of these recordings—such as a lecture series on cosmology by George Gamow in the final year of his life, or astronomer Jesse Greenstein’s frank opinions on the psychological attractions of cosmology research—was itself a remarkable experience for me. ■

(Recent Pubs, cont’d from previous page)

Physics Today

Vol. 65, No. 9: Christopher M. Graney, “Anatomy of a fall: Giovanni Battista Riccioli and the story of g .”

Vol. 65, No. 10: Ari Belenkiy, “Alexander Friedmann and the origins of modern cosmology.”

Vol. 65, No. 11: Bruce J. Hunt, “Oliver Heaviside: A first-rate oddity.”

Vol. 65, No. 12: Orville R. Butler and R. Joseph Anderson, “Risky business: A study of physics entrepreneurship.”

Studies in History and Philosophy of Modern Physics

Vol. 43, No. 3: Michel Janssen, “The twins and the bucket: How Einstein

made gravity rather than motion relative in general relativity”; Helge Kragh, “The isotope effect: Prediction, discussion, and discovery”; Ari Gross, “Pictures and pedagogy: The role of diagrams in Feynman’s early lectures”; Arianna Borrelli, “The case of the composite Higgs: The model as a “Rosetta stone” in contemporary high-energy physics.”

Vol. 43, No. 4: William Demopoulos, Melanie Frappier, Jeffrey Bub, “Poincaré’s

“Les conceptions nouvelles de la matière”; Germano D’Abramo, “The peculiar status of the second law of thermodynamics and the quest for its violation”; Giora Hon, Bernard R. Goldstein, “Maxwell’s contrived analogy: An early version of the methodology of modeling.”

Technology and Culture

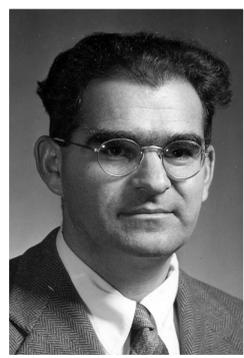
Vol. 53, No. 4: Thomas R. Wellock, “Engineering Uncertainty and Bureaucratic Crisis at the Atomic Energy Commission, 1964–1973.” ■

Did you know?

You can search our books and serials collection or peruse archival collections in our repository and throughout the world via the International Catalog of Sources (ICOS).

Visit our online catalogs at www.aip.org/history/icos

Record-Breaking Year for Book Donations



Pictured left: AVS member and Medard W. Welch Award winner Charles Duke. Pictured right: Physicist Victor Weisskopf (1908–2002). Photos courtesy AIP Emilio Segrè Visual Archives, Physics Today Collection.

The Niels Bohr Library & Archives had a record-breaking year for donations, receiving over 1000 books from 45 donors in the last 12 months.

Some of the larger book donations we received this year included the library of **Charles Duke**; nearly 200 books from **William Lanouette** that focus on nuclear physics and the life of Leó Szilárd; 174 titles in astronomy and astrophysics from **Charles J. Peterson**; over 100 quantum physics and general physics titles from **Kenneth W. Ford**; over 80 titles in geophysics and the history of science from History Center Director **Greg A. Good**; 60 titles from the library of **Dr. Harvey Casson**, donated by his wife, **Sophie Casson**; over 60 titles from **Paul Forman**, a collection rich in early twentieth-century German materials; 60 books from **Mark L. Montroll**; over 50 titles from the library of **Victor Weisskopf**, donated to the library by his wife **Duscha Weisskopf**; 32 textbooks and technical monographs, mostly in crystallography, from **John Higgins**; and 30 books in radiology and physics in medicine from the library of **Paul Rosenbaum**, gift of his wife **Joan Rosenbaum**.

We also received generous book donations from the following individuals and institutions:

David Bohlin	Dieter Hoffman	George Mueller	Charles E. Schmid
John A. Cape	Gerald Holton	Melvin Oakes	Benjamin Snavelly
Ugo Carpentieri	John L. Hubisz	Randolph Reeder	Joan Stirling
David Cassidy	David J. Lockwood	Sheila T. Rose	Alex Wellerstein
Leonard Dobrzanski	Jeffrey Marque	Carol Rossini	
Geoffrey G. Eicholz	John Moreschi	Marc Rothenberg	

American Association of Physics Teachers (AAPT)

American Geophysical Union (AGU)

Physics Today

In addition to the donations listed above, we received several titles from the libraries of physicists who have passed away, donated to the library by family members:

Alexander N. Gerritsen, Gift of Rob and Jeroen Gerritsen

Henry Kolm, Gift of Cornelia Cesari

Arthur L. Schawlow, Gift of Helen Schawlow Johnson and Edith Schawlow Dwan

Individual titles donated to the library by their authors and editors this year included:

- Sterken, Christiaan and John B. Hearnshaw, eds. *100 Years of Observational Astronomy and Astrophysics: A Collection of Papers on the History of Observational Astrophysics; Homage to Miklós Konkoly Thege (1842–1916)*. Brussels: Universitaire Stichting, 1999.
- Halpern, Paul. *Edge of the Universe*. Hoboken, N.J.: Wiley, 2012.
- Blackmore, John T., Ryoichi Itagaki, and Setsuko Tanaka. *Great Realists from Galileo to Planck*. Enfield, NH: Sentinel Open Press, 2011.
- Maushart, Marie-Ann. *Hertha Sponer: A Woman's Life As a Physicist in the 20th Century "so You Won't Forget Me."* Edited by Brenda P. Winnewisser. Translated by Ralph A. Morris. Additional material by Annette Vogt. Durham, N.C.: Dept. of Physics, Duke University, 2011. (Donated by Brenda P. Winnewisser).
- Bloembergen, Nicolaas. *Nelineinaia optika*. Moskva: Mir Publishers, 1966. (This is the Russian translation of Bloembergen's *Nonlinear Optics*, which was donated along with a Chinese translation).
- Pavlovic, Arthur S. *Physics at WVU: A History: 1896–1990*. [Morgantown, W. Va.]: A.S. Pavlovic, 2011.

We are grateful to all of our donors this year who have helped to strengthen and fill in the gaps in our collection with these contributions.

For information on donating books, contact Kim Hukill, Librarian, at 301-209-3182 or khukill@aip.org.

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. 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

Chemical Heritage Foundation. The Donald F. and Mildred Topp Othmer Library of Chemical History. 315 Chestnut Street Philadelphia, PA 19106, USA

Rudolph Pariser papers. Collection Dates: 1951–1995. Size: 4.5 linear feet.

Columbia University. Rare Book and Manuscript Library. Butler Library, 6th Floor East, New York, NY 10027, USA

Louis Planck Hammett papers. Collection Dates: 1921–1986. Size: 3 linear feet (6 boxes, 1 oversize folder). Restrictions: This collection is located off-site. You will need to request this material at least 24 hours in advance.

Marcus G. Langseth diaries. Collection Dates: 1955–1996. Size: 2.25 linear feet (2 record cartons). Restrictions: This collection is located off-site. You will need to request this material at least 24 hours in advance.

Fermilab. History and Archives Project Office, MS-109 PO Box 500, Batavia, IL 60510, USA

John Linsley papers. Collection Dates: 1946–2002 (bulk 1950–2002). Size: 33.5 linear feet (55 boxes, 3 oversize boxes, 3 cartons, 1 media carton, 1 flatfile). Restrictions: Portions of this collection are

restricted; wherever possible, surrogate copies are provided for patron use, as noted in the series listings. The remainder of the collection may be used by qualified readers in the Reading Room of the Fermilab History and Archives Project in Wilson Hall or the Archives House in the Fermilab Village. All collections are available for patron use only with advance notification; please consult the Archivist for the current retrieval schedule.

George Mason University. Special Collections & Archives Fairfax, VA 22030-4444, USA

Clarence E. Larson science and technology oral history collection. Collection

Dates: 1983–1993. Size: 3 linear feet (5 boxes). Restrictions: Collection is open to research.

Colin F. McClare papers. Collection Dates: 1960s–1970s. Size: 1 linear foot. Restrictions: Open.

Eugenie V. Mielczarek papers. Collection Dates: 1966. Size: 13.5 linear feet (38 boxes).

Harvard University. Archives. Pusey Library. Cambridge, MA 02138, USA

Oral history interviews with Lewis McArdory Branscomb. Collection Dates: 2009–2010. Size: 0.17 cubic feet (1 half-document box). Restrictions: Open for research.

Harry Mimno lecture notes for physics courses. Collection Dates: 1925–1928. Size: 0.1 cubic foot (1 folder).

Henry E. Huntington Library. 1151 Oxford Road, San Marino, CA 91108, USA

Albert R. Hibbs papers. Collection Dates: 1884–2009 (bulk 1931–1999). Size: 80 boxes.

(Continued on next page)



Experimental project in the country possibly near Ann Arbor, Michigan. L-R: Robert Parsons, Edwin Dennison, H. Richard Crane, Mrs. Dennison, David Dennison, Jr. David Dennison and Lawrence Hadley. Credit: AIP Emilio Segre Visual Archives, Crane-Randall Collection

(New Collections, cont'd from previous page)

Mount Wilson Observatory Optical Shop papers. Collection Dates: 1903–1938. Size: 931 items.

Mount Wilson Observatory legal papers. Collection Dates: 1903–1938. Size: 84 items (1 box).

Seth Barnes Nicholson papers. Collection Dates: 1914–1963. Size: 3 boxes (445 items).

Alexander Pogo papers. Collection Dates: 1952–1959. Size: 936 items.

Frederic Eugene Wright. Collection Dates: 1924–1961. Size: 6 boxes, 3 over-size folders (865 items).

Indiana University. Office of University Archives and Records Management. Bryan Hall 201, 107 South Indiana Avenue, Bloomington, IN 47405, USA

Frank K. Edmondson papers. Collection Dates: 1904–2003. Size: 95 cubic feet (95 records boxes).

Lawrence Berkeley National Laboratory. Archives and Records Office. One Cyclotron Road, Bldg. 69-107, Berkeley, CA 94720, USA

Lawrence Berkeley Laboratory (LBL) Chemical Sciences Division scientist files of Patricia Durbin. Collection Dates: 1941–1969. Size: 3.75 linear feet (3 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Life Sciences Division technical records of Robert K. Mortimer. Collection Dates: 1950–1999. Size: 6.25 linear feet (5 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Office of the Director administrative files of Donald Cooksey. Collection

Dates: 1946–1957. Size: 32.5 linear feet (26 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Office of the Director administrative files of Donald Cooksey. Collection Dates: 1958–1963. Size: 22.5 linear feet (18 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Office of the Director logbooks of Donald Cooksey. Collection Dates: 1945–1980. Size: 5 linear feet (4 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Office of the Director records of Edwin M. McMillan [microfilm]. Collection Dates: 1907–1991. Size: 5 linear feet (4 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division Group A (Louis Alvarez Group) logbooks. Collection Dates: 1961–1989. Size: 2.5 linear feet (2 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

Lawrence Radiation Laboratory Manhattan Engineering District records. Collection Dates: 1939–1946. Size: 52.5 linear feet (43 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Information and Computing Sciences Division records of Joseph G. Hamilton and the Biomedical Research Group [microform]. Collection Dates: 1943–1975. Size: 20 linear feet (16 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division Cosmic Background Explorer (COBE) records of George Smoot. Collection Dates: 1975–1995.

Size: 27.5 linear feet (22 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division oversize scientific files of George Smoot. Collection Dates: 1989. Size: 1.25 linear feet (1 records box). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division scientific papers of George Smoot. Collection Dates: 1975–2007. Size: 45 linear feet (36 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division technical documents of George Smoot. Collection Dates: 1980–1995. Size: 2.5 linear feet (2 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

North Carolina State University. Special Collections Research Center, NCSU Libraries. Box 7111, Raleigh, NC 27695-7111, USA

Raymond Leroy Murray papers. Collection Dates: 1948–1993. Size: 271.75 linear feet.

John S. Risley papers. Collection Dates: 1961–2002. Size: 66 linear feet (43 boxes, 2 oversized folders, 1 flat box).

Superconducting super collider publications collection. Collection Dates: 1986–1988. Size: 4 linear feet (8 boxes). Restrictions: Access to this collection is restricted until processed. Contact the repository for details.

Oregon State University. Libraries. Special Collections. Corvallis, OR 97331, USA

Jack Dunitz papers. Collection Dates: 1927–2009. Size: 30 linear feet (67 boxes). Restrictions: Portions of specified folders are restricted.

Princeton University. Department of Rare Books and Special Collections. 1 Washington Road, Princeton, NJ 08544, USA

Philip W. Anderson papers. Collection Dates: 1954–1980. Size: 13 linear feet. Restrictions: This collection is stored offsite. Please consult with the Department of Rare Books and Special Collections about having the collection recalled to Firestone Library for your use. This process normally requires 48–72 hours notice. The collection is open for research with the exception of the student files, which are closed due to FERPA restrictions.

Rice University. Fondren Library. Woodson Research Center. P. O. Box 1892, Houston, TX 77001, USA

Jean-Claude de Bremaecker manuscript, "Geophysics: The Earths Interior." Collection Dates: 1985. Size: 0.25 linear feet.

Eos, Transactions, American Geophysical Union records. Collection Dates: 1985–1989. Size: 3.75 cubic feet.

Arthur Few academic papers. Collection Dates: 1967–2006. Size: 10.5 linear feet (21 boxes).

John Wright Freeman papers. Collection Dates: 1965–1979. Size: 4.5 cubic feet.

Geophysical Research Letters editorial files. Collection Dates: 1985–1988. Size: 36 cubic feet (36 boxes).

Journal of Geophysical Research correspondence and article files. Collection Dates: 1965–1969. Size: 15 linear feet (15 boxes).

F. Curtis Michel academic papers. Collection Dates: 1963–1991. Size: 29 linear feet.

Rice University Vice President for Student Affairs records of Ronald Stebbings. Collection Dates: 1969–1985. Size: 1 linear foot (1 box).

Rice University Space Science Department records. Collection Dates: 1960s–1990s. Size: 1 linear foot (1 box).

Norman Ricker papers. Collection Dates: 1916–1978 (bulk 1922–1965). Size: 12 linear feet.

Fred Terry Rogers papers. Collection Dates: 1931–1956. Size: 9.5 linear feet (13 boxes, 25 bound volumes).

Albert Van Helden academic papers. Collection Dates: 1976–1989. Size: 1 linear foot (1 box).

Harold Wilson papers. Collection Dates: 1898–1963. Size: 2 linear feet (3 boxes).

Smithsonian Institution. National Air and Space Museum. Archives Division. MRC 322, Washington, DC, 20560, USA

Bellcomm, Inc Technical Library collection. Collection Dates: 1957–1972. Size: 230 boxes.

Jet Propulsion Laboratory publications collection. Collection Dates: 1947–1980. Size: 71 boxes. *(Continued on next page)*



Please help us contact...

...the individuals listed below or their heirs so we can put their oral history interview transcripts online. The Library's project to mount the transcripts of our most valuable oral histories on the web is close to being completed at the end of May, 2013.

Currently, one can read interviews with over 500 physicists and astronomers, including figures like Bohr, Bethe, Chandrasekhar, Gell-Mann, and Rabi, and listen to voice clips of Heisenberg, Gamow, and others, by clicking on the list of names at <http://www.aip.org/history/nbl/oralhistory.html>. For a full description of the project, which was funded by a grant from the National Endowment for the Humanities, see our Fall 2008 newsletter (<http://www.aip.org/history/newsletter/fall2008/oral-history.html>).

Contacting interviewees and heirs for permissions is one of the most important and most time consuming parts of the project, and you and other newsletter readers have been of enormous help in the past. We are counting on you now to help us include these important individuals in our new online archive. If you have contact or other information, please get in touch with Amanda Nelson at anelson@aip.org or 301-209-3172.

Brossel, Jean
Dollfus, Andouin
Eremeera, Alina
Fan, H. Y.
Fok, Vladimir A.
Grisdale, Richard O.
Grover, Frederick

Giulotto, Luigi
Harrison, Stanley M.
Herneck, Friedrich
Hoag, J. Barton
Hollingsworth, Anthony
Jensen, James O.
Laptij, Viktor

Lebedev, Vladimir
Morgan, Stanley O.
Mueller, Stephan
Mustel, Evald Rudolfovich
Neel, Louis
Nix, Foster Cary
Perrin, Michael W.

Powsner, Artjom
Priester, Wolfgang
Randall, Harrison
Reber, Grote
Rezanov, Igor
Stevens, Dorothy
White, Stephen

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

Samuel P. Langley papers. Collection Dates: 1866–1962, undated. Size: 65 boxes.

National Air and Space Museum sound archives. Collection Dates: circa 1950–1988. Size: 27 boxes.

National Air and Space Museum Glenn-Webb-Seamans Project oral history interviews. Collection Dates: 1985–1990. Size: 193 hours of interviews with 22 individuals. Restrictions: Access and use conditions range from public to permission required for access.

National Air and Space Museum Peenemünde Project records. Collection Dates: 1987–1990. Size: 39 hours of interviews with 13 individuals. Restrictions: Access and use conditions range from public to permission required for access.

National Air and Space Museum Rand History Project oral history interviews. Collection Dates: 1985–1990. Size: 104 hours of interviews with 29 individuals. Restrictions: Access and use conditions range from public to permission required for access.

National Air and Space Museum Space Astronomy Oral History Project. Collection Dates: 1981–1986. Size: 225 hours of interviews with 56 individuals. Restrictions: Access and use conditions range from public to permission required for access.

National Air and Space Museum Space Telescope History Project records. Collection Dates: 1983–1990. Size: 235 hours of interviews with 80 individuals. Restrictions: Access and use conditions range from public to permission required for access.

Homer Edward Newell, Jr. speech transcripts. Collection Dates: 1960–1973. Size: 2 boxes.

Peenemünde aerodynamics reports. Collection Dates: 1938–1945. Size: 5 boxes.

Peenemünde technical reports, Fort Bliss / Putkammer collection. Collection Dates: 1938–1945. Size: 4 boxes.

Richard Porter papers. Collection Dates: 1934–1996. Size: 22 boxes.

Science Service astronomy and astronautics files. Collection Dates: 1920s–1970s. Size: 114 boxes.

University of California, Santa Barbara. Library. Dept. of Special Collections. Santa Barbara, CA 93106, USA

Lawrence Badash papers. Collection Dates: circa 1921–1987. Size: 3 linear feet (2 records cartons). Restrictions: Collection is stored off-site; advance notice is required for retrieval.

Herbert P. Broida papers. Collection Dates: 1957–1979. Size: 6.7 linear feet (16 document boxes, 1 half-sized document box and 1 flat oversize box). Restrictions: Boxes 14–16 restricted pending staff review. Collection is stored off-site; advance notice required for retrieval.

Alan J. Heeger papers. Collection Dates: 1952–2003 (bulk 1980–2000). Size: 23.4 linear feet (58 document boxes and 1 half-sized document box).

Walter Kohn papers. Size: 41.2 linear feet (104 boxes).

University of Maryland. Hornbake Library. Archives and Manuscripts Department. College Park, MD 20742, USA

Mukul Kundu papers. Collection Dates: 1970–2010 (bulk 1980–2010). Size: 25.5 linear feet. Restrictions: This collection has several restricted folders and may require additional pre-screening before viewing. Please contact the Archives and Manuscripts Department for more information.

University of Michigan. Bentley Historical Library. Ann Arbor, Michigan 48109-2113, USA

Emmett N. Leith papers. Collection Dates: 1954–2005. Size: 12 linear feet. Re-

strictions: The collection is open to research.

Martha Ludwig papers. Collection Dates: 1974–2006. Size: 63 linear feet (92 boxes). Restrictions: The collection is open to research.

University of Michigan Department of Physics publications. Collection Dates: 1915–ongoing. Size: 1 linear foot. Restrictions: The records are open for research.

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

Russell K. Hobbie Computer Animation films. Collection Dates: 1974. Size: 1 box (4 items). Restrictions: Access to the collection is unrestricted.

University of Wisconsin--Madison. University Archives. Steenbock Library, Madison, WI 53706, USA

Kenneth L. Cashdollar class notes. Collection Dates: 1972–1973. Size: 11 volumes.

Charles H. Holbrow lab notebooks. Collection Dates: 1960–1962. Size: 2 notebooks.

University of Wisconsin-Madison Department of Astronomy Orbiting Astrophysical Observatory records. Collection Dates: 1959–1973. Size: 4 cubic feet.

Wisconsin Ultraviolet Photo-Polarimeter Experiment records. Collection Dates: 1982–1995. Size: 2 cubic feet.

Washburn Observatory logbook. Collection Dates: 1965–1986. Size: 1 volume (22 centimeters).

University of Wyoming. American Heritage Center. Dept. 3924, 1000 E. University Avenue, Laramie, WY 82071, USA

Sherwin F. Kelly papers. Collection Dates: 1938–1975 (bulk 1959–1975). Size: 1.35 cubic feet (3 boxes).

University of Wyoming Infrared Observatory records. Collection Dates: 1976–2004. Size: 3.83 cubic feet (5 boxes). Restrictions: There are no access restrictions on the materials for research purposes, and the collection is open to the public.

Yale University Library. Manuscripts and Archives. Box 208240, New Haven, CT 06520, USA

Robert E. Apfel papers. Collection Dates: 1973–2000. Size: 1.25 linear feet (2 boxes). Restrictions: Box 2 is restricted until 1 January 2033 by Yale University policy.

NEW FINDING AIDS

University of Alberta. University Archives. 1-19 Rutherford (South), Edmonton, Alberta, Canada T6G 2E2

A. B. Bhatia papers. Collection Dates: 1940–1987.

University of Toronto. University Archives. 120 St. George St., Toronto, Ontario M5S 1A5, Canada

Elizabeth J. Allin papers. Collection Dates: 1910–1989. Size: 1.32 metres.

David Dunlap Observatory records. Collection Dates: 1921–1970. Size: 0.91 linear meters (6 boxes).

Frank S. Hogg papers. Collection Dates: 1929. Size: 0.13 metres.

Kenneth G. McNeill papers. Collection Dates: 1940s–1980s. Size: 4.0 metres.

Ruth J. Northcott papers. Collection Dates: 1953–1968. Size: 0.60 metres (5 boxes).

University of Toronto Department of Astronomy records. Collection Dates: circa 1884–1953. Size: 4.0 linear meters.

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

Giovanni Valentino Mattia Fabroni correspondence. Collection Dates: 1770s–1875. Size: 8 linear feet.

Massachusetts Institute of Technology. Institute Archives and Special Collections. M.I.T. Libraries, Rm. 14N-118, Cambridge, MA 02139, USA

Atoms for Peace Award records. Collection Dates: 1944–1972. Size: 5 cubic feet. Restrictions: There are no restrictions on access to this collection. Materials are stored off-site. Advance notice is required for use.

Alfred L. Loomis papers. Collection Dates: 1926–1975. Size: 0.3 cubic feet (1 manuscript box). Restrictions: There are no restrictions on access to this collection. Retrieval requires advance notice.

MIT Radiation Laboratory records. Collection Dates: 1941–1991. Size: 2 cubic feet (1 record carton, 3 manuscript boxes). Restrictions: In accordance with MIT policy, there are restrictions on access to portions of this collection. Researchers

may request permission to use restricted materials. Consult the Institute Archivist for further information. Materials are stored off-site. Advance notice is required for use.

Physical Science Study Committee records. Collection Dates: circa 1958–1971. Size: 12.7 cubic feet (11 record cartons, 5 manuscript boxes, 1 CD box). Restrictions: This collection is unprocessed but it is open for research. In accordance with MIT policy, there may be restrictions on access to MIT records.

National Archives and Records Administration. Pacific Sierra Region. 1000 Commodore Drive, San Bruno, CA 94066, USA

Lawrence Berkeley Laboratory (LBL) Office of the Director records of Edwin M. McMillan. Collection Dates: 1907–1991. Size: 323.75 linear feet (259 records boxes). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Office of the Director records of Edwin M. McMillan. Collection Dates: 1940–1973. Size: 1.25 linear feet (1 records box).

(Continued on next page)



Russian scientists savor their success in making the first room-temperature conductor laser. From lower right, clockwise: Zhores I. Alferov, Vladimir I. Korol'kov, Dmitry Z. Garbuzov, Vyacheslav M. Andreev, and Dmitriy N. Tretyakov. Credit: Zhores I. Alferov, courtesy AIP Emilio Segrè Visual Archives, Hecht Collection.



Charlotte Moore Sitterly working in her office Credit: AIP Emilio Segrè Visual Archives, gift of Michael A. Duncan

Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division hydrogen bubble chamber logbooks. Collection Dates: 1953–1957. Size: 1.25 linear feet (1 records box). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division scientific logbooks of Owen Chamberlain, Emilio Segrè and Clyde Wiegand. Collection Dates: 1946–1954. Size: 1.25 linear feet (1 records box). Restrictions: This collection requires permission for access. Please contact the repository for more information.

LBL Physics Division technical records of Emilio Segrè. Collection Dates: 1942–1963. Size: 1.25 cubic feet (1 records box). Restrictions: This collection requires permission for access. Please contact the repository for more information.

Ohio State University. University Archives. 2700 Kenny Road, Columbus, OH 43210, USA

Oral history interview with Carl S. Benson. Collection Dates: 22 June 2001. Size: Sound recording: 3 cassettes. Transcript: 67 pages.

Interview with Donald L. Carpenter. Collection Dates: 2002. Size: Transcript: 52 pgs.
Oral history interview with John Kraus. Collection Dates: 2002. Size: Transcript: 18 pages.

Oral history interview with Arlo Landolt. Collection Dates: 10 April 2001. Size: Sound recording: 1 cassette. Transcript: 40 pages.

Oregon State University. Libraries. University Archives. Corvallis, OR 97331, USA

Melvin Cutler papers. Collection Dates: 1951–1958. Size: 0.05 cubic feet (1 box). Restrictions: Collection is open for research.

Rubin H. Landau papers. Collection Dates: 1966–2008, (bulk 1975–2005). Size: 19 cubic feet (20 boxes). Restrictions: Collection is open for research.

Victor A. Madsen papers. Collection Dates: 1964–1998. Size: 1.8 cubic feet (2 boxes). Restrictions: Collection is open for research.

Oregon State University Radiation Center photographs. Collection Dates: 1959–1965. Size: 0.01 cubic foot (2 boxes, 1 oversized box).

Princeton University. Department of Rare Books and Special Collections, 1 Washington Road, Princeton, NJ 08544, USA

Newton Lacy Pierce papers. Collection Dates: 1937–1950. Size: 2 linear feet (5 boxes).

Rutgers University. Libraries. Special Collections and Archives. New Brunswick, NJ 08903, USA

Consumers' Research, Inc. government war preparation general files on post-1945 national defense. Collection Dates: 1945–1980. Size: 3.5 linear feet. Restrictions: Stored offsite: advance notice required to consult these records.

Consumers' Research, Inc. science and engineering technical files on acoustics. Collection Dates: 1930–1980. Size: 2 linear feet. Restrictions: Stored offsite: advance notice required to consult these records.

Consumers' Research, Inc. science and engineering technical files on radioactivity. Collection Dates: 1946–1980. Size: 1.5 linear feet. Restrictions: Stored offsite: advance notice required to consult these records.

Smithsonian Institution. Archives. Capital Gallery, Suite 3000, MRC 507, 600 Maryland Avenue SW, Washington, DC 20024-2520, USA

Charles G. Abbot papers and records of the Smithsonian Astrophysical Observatory. Collection Dates: 1889–1973. Size: 30 linear meters and oversize. Restrictions: Series 4 partially microfilmed.

Charles G. Abbot papers and records of the Smithsonian Astrophysical Observatory. Collection Dates: 1891–1950s. Size: 6.5 cubic feet (6 record boxes).

Carl Barus papers. Collection Dates: 1891–1893. Size: 1 folder. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Center for Short-lived Phenomena publications. Collection Dates: 1968–1974. Size: 1.5 cubic feet (1 record box, 1 document box).

Center for Short-lived Phenomena records. Collection Dates: 1968–1974. Size: 3 linear meters.

Frank Wigglesworth Clarke papers. Collection Dates: 1873–1921. Size: 0.2 linear meter. Restrictions: (1) Some of the correspondence is written in French and German; (2) use of this record unit requires prior arrangement with the Archives staff.

Henry Helm Clayton papers. Collection Dates: 1877–1949 and undated. Size: 1.6 linear meters and oversize. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

David H. DeVorkin papers. Collection Dates: circa 1979–2002. Size: 3 cubic feet (3 record boxes). Restrictions: Until the death of the Donor, SIA will notify the Donor prior to, or within 7 days after, the materials have been accessed for research. Contact reference staff for details.

Richard H. Emmons papers. Collection Dates: circa 1935–1976, 1990–1995, 2005. Size: 4.5 cubic feet (4 record storage boxes, 1 document box).

Riccardo Giacconi papers. Collection Dates: 1955–2000. Size: 94 records storage boxes, 1 oversize box, 1 blueprint storage tube. Restrictions: Restricted for duration of Riccardo Giacconi's lifetime without written permission from Donor; contact reference staff for details.

Riccardo Giacconi papers. Collection Dates: circa 1958–1992, 2008. Size: 28 cubic feet (28 record boxes). Restrictions: Restricted for duration of Riccardo Giacconi's lifetime without written permission from Donor; contact reference staff for details.

Riccardo Giacconi papers. Collection Dates: circa 1971–2004. Size: 6.5 cubic

feet (5 record boxes, 2 oversize boxes). Restrictions: Restricted for duration of Riccardo Giacconi's lifetime without written permission from Donor; contact reference staff for details.

Robert H. Goddard papers. Collection Dates: 1917–1946. Size: 1 linear meter. Restrictions: (1) Record unit available on microfilm; (2) use of this record unit requires prior arrangement with the Archives staff.

Frederick Atwood Greeley papers. Collection Dates: 1920–1979. Size: 0.5 linear meters. Restrictions: (1) Additional materials on the SAO solar constant program and Greeley's reports and correspondence can be found in record unit 85; (2) use of this record unit requires prior arrangement with the Archives staff.

Bruce C. Heezen papers. Collection Dates: circa 1947–1981. Size: 42.5 linear meters and oversize. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Vioalle Hefferan papers. Collection Dates: 1943–1974. Size: 0.5 cubic feet (1 document box).

History of Science Society editorial manuscript files. Collection Dates: 1986–2003. Size: 55 cubic feet.

Imre G. Izsak papers. Collection Dates: 1961–1965. Size: 0.1 linear meters.

Harry Stephen Ladd papers. Collection Dates: circa 1915–1982, undated. Size: 1.2 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Mount Hopkins Department records. Collection Dates: 1966–1970. Size: 0.7 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Robert P. Multhau papers. Collection Dates: circa 1957–1987. Size: 2 linear meters.

National Academy of Sciences records. Collection Dates: 1863–1887. Size: 0.1 linear meter. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

National Air and Space Museum Office of Cooperative Programs program files. Collection Dates: 1987–1996. Size: 5 cubic feet (5 record boxes).

National Air and Space Museum Office of the Deputy Director records. Collection Dates: 1961–1988. Size: 10.3 linear meters. Restrictions: (1) Restricted; (2) use of this



Photograph taken on the Yerkes Observatory expedition to Santa Catalina Island, California to record the total solar eclipse of September 10, 1923. Identification key available upon request. Credit: Photograph by B. W. Harris, Yerkes Observatory, University of Chicago, courtesy AIP Emilio Segrè Visual Archives.

(Finding Aids, cont'd from previous page)

record unit requires prior arrangement with the Archives staff.

National Air and Space Museum Office of the Director records. Collection Dates: circa 1972–1989. Size: 13.5 linear meters. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.

National Air and Space Museum Department of Space History, Space Telescope History Project records. Collection Dates: circa 1968–1988. Size: 16 cubic feet (16 record boxes).

National Air and Space Museum Space History Division videohistory records. Collection Dates: 1985–1992. Size: 1 cubic foot (1 record box).

National Museum of History and Technology Division of Electricity and Modern Physics records. Collection Dates: 1886–1978. Size: 1.4 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

National Museum of History and Technology Office of the Director special project records. Collection Dates: 1953–1978. Size: 0.8 linear meter. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Radio Meteor Project records. Collection Dates: circa 1959–1971. Size: 44.86 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Radio Meteor Project records. Collection Dates: 1964–1969. Size: 54.5 cubic feet (54 record boxes, 1 document box).

Franco Dino Rasetti papers. Collection Dates: 1944–1965, undated. Size: 0.2 linear meter.

Richard B. Roberts notebook. Collection Dates: 1938–1939. Size: 1 volume. Restriction:

Use of this record unit requires prior arrangement with the Archives staff.

Science Service records. Collection Dates: 1921–1974. Size: 3 cubic feet (3 record boxes).

Irwin I. Shapiro papers. Collection Dates: circa 1960–1990. Size: 5 cubic feet (5 record boxes).

Keneth A. Simons papers. Collection Dates: circa 1957–1958. Size: 0 cubic feet.

Smithsonian Astrophysical Observatory Star Catalogue star charts. Collection Dates: 1967. Size: 6.16 cubic feet (16 blue-print storage tubes).

Smithsonian Astrophysical Observatory records. Collection Dates: 1893–1899. Size: 0.1 linear meter. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory records. Collection Dates: 1923–1954. Size: 2.9 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory records. Collection Dates: circa 1954–1966. Size: 26.5 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory website records. Collection Dates: 2011.

Smithsonian Astrophysical Observatory Assistant Director (Administration) subject files. Collection Dates: 1964–1973. Size: 1.6 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Assistant Director (Management) records. Collection Dates: 1956–1967. Size: 5 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Assistant Director (Science) records.

Collection Dates: 1961–1973. Size: 7.5 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Atomic and Molecular Physics Division records. Collection Dates: circa 1959–1986. Size: 1.25 cubic feet (1 record storage box) and (0.5 document boxes). Restrictions: This collection is open for research.

Smithsonian Astrophysical Observatory Central Engineering Department contract files. Collection Dates: 1978–1996. Size: 73 cubic feet (73 record boxes).

Smithsonian Astrophysical Observatory Division of High Energy Astrophysics records. Collection Dates: 1973–1985. Size: 0.8 linear meter. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Meteorite Photography and Recovery Project (Prairie Network) records. Collection Dates: circa 1962–1975. Size: 0.4 linear meter. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Moonwatch Division records. Collection Dates: 1956–1975. Size: 8.5 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Office of the Deputy Director records. Collection Dates: circa 1963–1983. Size: 15.2 linear meters. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Office of the Director records of Irwin I. Shapiro. Collection Dates: circa 1964–1994. Size: 86.5 cubic feet (86 record boxes, 1 document box). Restrictions: Accession 98-078 boxes 2, 23 and 25 contain materials restricted indefinitely; contact reference staff for details.

Smithsonian Astrophysical Observatory Optical and Infrared Astronomy Division departmental records. Collection Dates: 1957–1979, undated. Size: 3.5 cubic feet (3 record boxes, 1 document box).

Smithsonian Astrophysical Observatory Project Telescope records. Collection Dates: 1958–1968. Size: 2.6 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Radio and Geoastronomy Division records. Collection Dates: 1978–1983. Size: 1.2 linear meters. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Satellite Tracking Program Baker-Nunn films. Collection Dates: 1955–1969. Size: 8.61 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Satellite Tracking Program records. Collection Dates: 1957–1983. Size: 26.7 linear meters and oversize. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Satellite Tracking Station program records. Collection Dates: 1953–1968. Size: 10.9 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Astrophysical Observatory Senior Research Fellow correspondence of George B. Field. Collection Dates: 1982–1983, 1986–1994. Size: 1.5 cubic feet (1 record box, 1 document box).

Smithsonian Astrophysical Observatory Southwest Meteor Spectral Patrol records. Collection Dates: 1968–1972. Size: 0.2 linear meter. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Assistant Secretary for Research records. Collection Dates: 1985–1987. Size: 8.2 linear meters. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Assistant Secretary for Research records. Collection Dates: circa 1973–1990. Size: 7 linear meters. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Assistant Secretary for Science records. Collection Dates: 1963–1973. Size: 9.5 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Assistant Secretary for Science records. Collection Dates: 1963–1978. Size: 19.9 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Assistant Secretary for Science records. Collection Dates: circa 1963–1986. Size: 29.6 linear meters. Restrictions: (1) Restricted; (2)

use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Office of the Secretary correspondence of Samuel P. Langley. Collection Dates: 1887–1907. Size: 5.7 linear meters. Restrictions: Use of this record unit requires prior arrangement with Archives staff.

Smithsonian Institution Office of the Secretary records of Alexander Wetmore and Leonard Carmichael. Collection Dates: 1949–1964. Size: 42.9 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Office of the Secretary records of Charles D. Walcott, Charles G. Abbot, and Alexander Wetmore. Collection Dates: 1925–1949. Size: 29.1 linear meters. Restrictions: (1) Arrangement will be changed; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution Office of the Secretary records of S. Dillon Ripley. Collection Dates: 1972–1984. Size: 201.4 linear meters. Restrictions: (1) Restricted; (2) use of this record unit requires prior arrangement with the Archives staff.



Charlotte Moore Sitterly (third from right) sitting in the White House with a group of unidentified people talking with President Johnson (left). Credit: AIP Emilio Segrè Visual Archives, gift of Michael A. Duncan.

Smithsonian Institution Office of the Secretary records of the Research Corporation. Collection Dates: 1912–1959. Size: 1.6 linear meters. Restrictions: Use of this record unit requires prior arrangement with the Archives staff.

International Ultraviolet Explorer video-history collection [videorecording]. Collection Dates: 1990. Size: Videorecordings, 4 cassettes (6.7 hours); transcripts, 185 pages. Restrictions: To view videohistory projects, call or write the SIA, MRC 414, 900 Jefferson Drive, SW, Washington, DC, 202-357-1420.

Manhattan Project videohistory collection [videorecording]. Collection Dates: 1987–1990. Size: 29 videotapes, 18 transcripts. Restrictions: To view videohistory projects, call or write the SIA, MRC 414, 900 Jefferson Drive, SW, Washington, DC, 202-357-1420.

Manhattan Project videohistory collection. Collection Dates: 1987–1990. Size: 29 videocassettes (VHS): sound, color; 1/2 inch.

Rand Corporation oral history interviews [videorecording]. Collection Dates: 1987–1990. Size: 15 videotapes, 8 transcripts. Restrictions: To view videohistory projects, call or write the SIA, MRC 414, 900 Jefferson Drive, SW, Washington, DC, 202-357-1420.

United States National Museum Division of Mineralogy and Petrology correspondence. Collection Dates: 1932–1963. Size: 1.3 linear meters.

Vail family telegraph collection. Collection Dates: 1830–1898, 1912–1917. Size: 2.2 linear meters. Restrictions: (1) Some items cannot be reproduced on special order due to bindings; (2) use of this record unit requires prior arrangement with the Archives staff.

Smithsonian Institution. National Museum of American History. Archives Center. MRC 601, 12th Street and Constitution Avenue, NW, Washington, DC 20560, USA

Grace Murray Hopper papers. Collection Dates: 1944–1965. Size: 3.0 cubic feet.

James W. Queen & Company collection. Collection Dates: 1850–1952. Size: 3.5 cubic feet (7 boxes).

Harold Lyons collection on atomic clocks. Collection Dates: 1935–1991. Size: circa 2 cubic feet (6 boxes). Restrictions: Unrestricted research access on site by appointment. Unprotected photographs must be handled with gloves. Fees for commercial reproduction. Copyright transferred to Smithsonian Institution in Deed of Gift.

Whirlwind Computer Collection. Collection Dates: 1945–1949. Size: 10.3 cubic feet (31 boxes).

National Company (NATCO) atomic clocks records. Collection Dates: 1955–1968. Size: 5.5 cubic feet (15 boxes, 3 oversize boxes). Restrictions: Unrestricted research use on site, by appointment. Gloves required with unprotected photographs. Copyright restrictions. Contact staff for information.

Computer Oral History Collection. Collection Dates: 1969–1973, 1977. Size: 43.5 cubic feet (158 boxes). Restrictions: Some interviews may be restricted.

Superconducting Super Collider (SSC) Collection. Collection Dates: 1985–1992. Size: 4 cubic feet (8 boxes).

Society for the History of Technology, Technology and Culture records. Collection Dates: 1958–1992. Size: 95 cubic feet (285 boxes). Restrictions: Some correspondence and editorial reviews may be restricted.

Charles Sumner Tainter papers. Collection Dates: 1878–1919. Size: 2 cubic feet (6 boxes).

Paul G. Watson collection. Collection Dates: 1963–1965. Size: 1 cubic foot (2 document boxes).

Temple University. Libraries, Special Collections, Philadelphia, PA 19122, USA

François Joseph Jérôme Nicklès correspondence. Collection Dates: 1848–1869. Size: 1.2 cubic feet (3 boxes).

University of Iowa. Main Library. Archives. Iowa City, IA 52242-1420, USA

Harry F. Olson papers. Collection Dates: 1938–1966. Size: 0.25 linear feet.

University of Iowa Department of Physics records. Collection Dates: 1888–1997. Size: 40 linear feet. Restrictions: This collection is open for research.

University of Iowa Physics Department Space Exploration Artifacts collection. Size: 19.5 linear feet.

University of Nebraska-Lincoln. Libraries. University Archives. Room 308, Love Library. Lincoln, NE 68588-0410, USA

Theodore Townsend Smith correspondence. Collection Dates: 1953.

Joel Stebbins astronomy notebook. Collection Dates: 1900. Size: 1.0 item.

University of Notre Dame. Archives. 607 Hesburgh Library, Notre Dame, IN 46556, USA

Henry J. Bolger papers. Collection Dates: 1900–1964. Size: 2.5 linear inches. Restrictions: Contractual restrictions may apply.

Charles J. Mullin papers. Collection Dates: 1940–1960s. Size: 17.5 linear feet. Restrictions: Contractual restrictions may apply.

University of Notre Dame Department of Physics records. Collection Dates: circa 1955–1970s. Size: 18 boxes. ■

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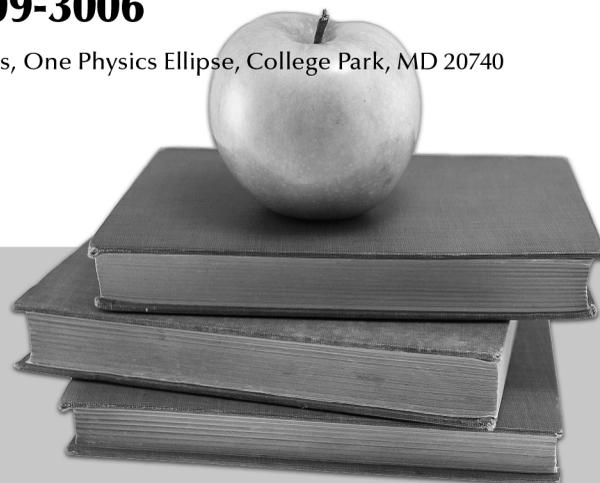
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