
Finding Aid for the H. Victor Neher Papers 1916-1994

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Descriptive Summary

Title: H. Victor Neher Papers,

Date (inclusive): 1916-1994

Collection number: 10049-MS

Creator: Neher, H. Victor (Henry Victor) 1904-1999

Extent: .75 linear feet

Repository: California Institute of Technology. Caltech Archives
Pasadena, California 91125

Abstract: The papers of H. Victor Neher (1904-1999), Caltech professor of physics, 1931-1970. Neher was one of Caltech's early PhDs in physics. He belonged to Robert A. Millikan's cosmic-ray research group at Caltech for 20 years and served on the Caltech faculty for over 40. His papers include correspondence, especially with and by Millikan; cosmic-ray data, slides and photographs of apparatus, and expedition journals; reprints; and an autobiography titled "Memories."

Physical location: Archives, California Institute of Technology.

Language of Material:

Languages represented in the collection:

English

Access

The collection is open for research. Researchers must apply in writing for access.

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Preferred Citation

[Identification of item], H. Victor Neher Papers, 10049-MS, Caltech Archives, California Institute of Technology.

Acquisition Information

Victor Neher donated his papers to the Caltech Archives beginning in the late 1980s through the mid-1990s. His daughter, Topsy Smalley, donated a number of reprints in 1999.

Biography

Born in 1904 in Kansas, Henry Victor ("Vic") Neher grew up in California's San Joaquin Valley. His mother's family had been early pioneers and owned extensive farmland in California. Neher attended Pomona College (AB in physics, 1926) and began graduate study at Caltech in 1928, receiving his PhD in physics in 1931. He was then invited by Robert A. Millikan (Nobel Prize, physics, 1923) and Ira Bowen to become part of the cosmic-ray research group Millikan was forming, which came to include Carl D. Anderson (Nobel Prize, physics, 1936), Seth Neddermeyer, and William Pickering, who later became director of the Jet Propulsion Laboratory. Beginning in 1922, Millikan and Bowen had begun launching high-atmosphere balloons equipped with instruments to measure the intensity of cosmic rays at various points in North America, from Texas to North Dakota. Neher's first such data-gathering trip took place in 1932 to the high latitudes of Canada, and he, along with Pickering, went with Millikan to India in 1939-1940. The balloon experiments were later transferred to airplanes. In the 1940s and 1950s Neher worked on determining the so-called latitude effect, which aimed to measure the intensity of cosmic radiation as a variant of latitude. In the course of this work he spent considerable time in and developed a love for Greenland and the arctic. It was eventually determined that the density of cosmic-ray bombardment was much greater at the earth's poles than at the equator and that it also varied with the sun's activity. A further outcome of Neher and Millikan's work was confirmation that the earth's magnetic center is 250 miles from its geographic center. Neher was appointed instructor and later professor of physics at Caltech. He retired in 1970.

During World War II Neher worked at the Radiation Laboratory at MIT (the "Rad Lab"), where he designed and built microwave vacuum tubes, including the K-band oscillator, otherwise known as the "Neher tube."

Scope and Content

The Neher papers form a small but interesting collection focused on cosmic-ray research, of which the bulk of material is correspondence. The most extensive files relate to Robert A. Millikan and include original correspondence between Neher and Millikan, plus correspondence about Millikan in preparation for Neher's 1964 lecture for the American Association of

Physics Teachers, "Millikan: Teacher and Friend." Additionally, some of Millikan's own data and letters from Arthur H. Compton, Millikan's chief rival in the cosmic-ray field, are included. Of chief interest among the miscellaneous material are: sets of glass slides depicting experimental apparatus and expedition locations; three handwritten journals, beginning with Neher's trip to Australia and India in 1939-40 in the company of Dr. and Mrs. Millikan and William Pickering, and continuing with two other journals covering multiple trips to Greenland, Europe, India, New Zealand, and eventually in his post-retirement period, to Russia and China (1983); and finally, Neher's 295-page autobiography, "Memories."

The collection is organized into the following series:

Series 1. Correspondence

Series 2. Cosmic-Ray Studies

Series 3. Biographical and Miscellaneous Material

Related Material

Related material in the Caltech Archives includes the oral history of H. Victor Neher (1982); the Historical File on H. Victor Neher; and the papers of Robert A. Millikan, Carl D. Anderson, and William Pickering.

Indexing Terms

The following terms have been used to index the description of this collection in the library's online public access catalog.

Subjects

California Institute of Technology

Millikan, Robert Andrews, 1868-1953

Cosmic rays

Microwave tubes

Physics

World War, 1939-1945--Technology

Occupations

Physicists

Series 1. **Correspondence**

Box 1, Folder 1

Correspondence 1945-1967

Scope and Content Note

Babcock, Helen 1954
Beckman, Arnold O. 1967
Bethe, Hans A. 1947
Dow, W. G. 1946
DuBridge, Lee A. 1946
Franklin, Bernard S. 1945
Ginzton, E. L. 1945-1946
Gustafson, W. A. 1949
Henke, Burton 1946
Johnson, Wallace 1949
Mitchell, Allan C. G. 1946
Montgomery, Carol G. 1946
North, Dwight O. 1946
Pickering, William 1946
Pope, N. 1945
Potter, J. G. 1946
Pritchard, S. B. 1945
Steuer, H. Guyford 1946
Strauss, L. L. 1954
Wilson, J. R. 1945

Box 1, Folder 2

Correspondence re "Millikan: Teacher and Friend," 1964-1965

Scope and Content Note

Bollman, Vernon L. 1965
Bonner, James 1964
Bradner, Hugh 1965
Burt, Eleanor 31 Mar [no year]
Cameron, G. Harvey 1964-1965
DuMond, Jesse 1965
Eagleson, Harvey 1965
Maxson, John H. 1965
Mouzon, J. C. 1965
Muskat, Morris 1965
Nielsen, J. Rud 1965
Richter, Charles F. 1965
Shankland, R. S. 1964

Series 2. **Cosmic-Ray Studies**

Box 1, Folder 3

Correspondence 1933-1955

Scope and Content Note

Air Corps 1933
Asquith, S. A. 1935
Banerji, S. K. 1936
Deputy Tahsildar 1936
Fleming, John A. 1934
Korff, Serge 18 Nov [no year]
Letter with multiple signatures 1936
Mathews, E. S. [with data sheets] 1936
Piccard, Jean 1934
Pickering, William 12 Aug [no year]
E. W. Reynolds and Company 1935
Royds, T. 1936
Sarabhai, Vikram A. 1955
White, Lewis C. 1955
Wollensak Optical Company 1935

Box 1, Folder 4

Millikan, Robert A., with Victor Neher 1932, 1934-1937, 1941-1942, 1945, undated

Box 1, Folder 5

Robert A. Millikan with other correspondents

Scope and Content Note

Barrett, E. C. undated
Burnham, F. R. 1935
Compton, Arthur H. 1933
Conley, E. 1935
Corlin, Axel 1937
Piccard, Jean 1933

Box 1, Folder 6

Cosmic-ray data and related correspondence

Scope and Content Note

Arrowhead Lake Company 1929
Bowen, Ira S. 1932
Brown, F. C. 1932
Compton, Arthur H. 1932-1933
Piccard, Jean 1934
Plesset, Milton undated

Box 1, Folder 7

Miscellaneous Robert A. Millikan material: cosmic-ray reprints, photographs, newsclippings, etc. 1916, 1919, 1928, 1931, 1934, 1936-1937, 1964, undated

Series 3. **Biographical and Miscellaneous Material**

Box 1, Folder 8

Research programs--proposed undated

Box 1, Folder 9

Slides of apparatus and expeditions 1925-1929, undated

Box 1, Folder 10

Journals (3) Oct 1939-Mar 1940, Jul 1951-Jul 1959, Jul 1960-Oct 1983

Box 2, Folder 1

Memories 1993-1994

Box 2, Folder 2

Reprints

Scope and Content Note

Scattering of high velocity electrons by thin foils 1931

The east-west and longitude effects 1935

The Radiation Laboratory 3-band amplifier 1943

The low-voltage k-band oscillator 1945

Some notes on space-charge-limited oscillators and amplifiers at microwave frequencies 1945

Millikan--Teacher and Friend 1964

Effects of pressures inside Monterey pine trees 1993