

University of Chicago Library

Guide to the Donald Alexander MacRae Papers 1943-1946



© 2018 University of Chicago Library

Table of Contents

Descriptive Summary	3
Information on Use	3
Access	3
Citation	3
Biographical Note	3
Scope Note	5
Related Resources	6
Subject Headings	6
INVENTORY	7
Series I: Personal	7
Series II: Associations of Scientists	7
Series III: World Governmental Organizations	8
Series IV: American Domestic Politics	9
Series V: Media Coverage of the Atomic Bomb and Nuclear Energy	9
Series VI: Oak Ridge Laboratory Research	9
Series VII: Oversize	10

Descriptive Summary

Identifier	ICU.SPCL.MACRAED
Title	MacRae, Donald Alexander. Papers
Date	1943-1946
Size	3.25 linear feet (4 boxes and 1 oversize folder)
Repository	Special Collections Research Center University of Chicago Library 1100 East 57th Street Chicago, Illinois 60637 U.S.A.

Abstract This collection contains the papers of Donald Alexander MacRae (1916-2006), an astronomer and physicist, who worked in Oak Ridge, Tennessee, as part of the research team developing the gaseous diffusion method of uranium enrichment for the Manhattan Project. These papers focus on MacRae's time at Oak Ridge, from 1945 to 1946, particularly MacRae's efforts as part of scientific outreach organizations. The collection contains awards; newsletters and notes related to his participation in various nuclear scientific organizations; newspapers covering atomic weapons and nuclear energy; drafts of and notes concerning Senate Bill S.1717, the Atomic Energy Act of 1946; correspondence; research done by MacRae and others at Oak Ridge, including architectural drawings of the gaseous diffusion plants and technical drawings of a mass spectrometer.

Information on Use

Access

The collection is open for research.

Citation

When quoting material from this collection, the preferred citation is: MacRae, Donald Alexander. Papers, [Box #, Folder #], Special Collections Research Center, University of Chicago Library.

Biographical Note

Donald Alexander MacRae (b. February 19, 1916, d. December 6, 2006) was a Canadian physicist and astronomer, known for his work on stellar spectroscopy and radio astronomy, who worked at Carbide and Carbon Chemicals Corp (currently known as Oak Ridge National Laboratory) as part of the Manhattan Project during World War II.

Donald MacRae was born in Halifax, Nova Scotia, on February 19, 1916 to Donald Alexander MacRae, who was at the time the Dean of the Dalhousie Law School, and Laura Geddes (Barnstead) MacRae. He was educated in Toronto, receiving his Bachelors in Mathematics and Physics from the University of Toronto in 1937. MacRae married Elizabeth (Betty) Malcolm in 1939. The MacRaes would have three sons, David, Charles, and Andrew.

MacRae earned his PhD in Astronomy from Harvard University in 1943 focusing on the field of galactic structure, under the mentorship of the astronomer Bart Bok. In 1941, while writing his doctoral dissertation, MacRae spent nine months at the University of Pennsylvania's Flower and Cook observatories. Just before his doctoral defense, he accepted a position as a research assistant at Cornell University with R. William Shaw.

After four years at Cornell, MacRae received an offer from the Carbide and Carbon Chemicals Corp in Oak Ridge, Tennessee. While aware that this position was in some way connected to the war effort, MacRae did not know until moving to Tennessee that he was now part of the Manhattan Project, working on methods of enriching uranium through the process of gaseous diffusion at the K-25 plant. This enriched uranium was used in the Little Boy atomic bomb that was dropped on Hiroshima on August 6, 1945.

It was at Oak Ridge that MacRae became involved in public scientific outreach efforts to warn the public about the dangers of nuclear war. He served as the head of the Planning Committee for the Oak Ridge Engineers and Scientists (ORES), one of several groups and committees in Oak Ridge, Tennessee. Throughout his career, MacRae was heavily involved on boards and committees dedicated to interdisciplinary dialogue and public scientific outreach.

Following the end of World War II and the completion of the Manhattan Project, MacRae accepted a position as Assistant Professor of Astronomy at Case Western Reserve and the Warner & Swasey Observatory, where he stayed until 1953. Wanting to be closer to Canadian friends and family, MacRae accepted a position as Associate Professor at the University of Toronto in the fall of 1953. He was appointed Head of the Department of Astronomy and the Director of the David Dunlap Observatory in 1965, positions he held until 1978. During his tenure as the Head of Department, MacRae established the University of Toronto as the center of astronomical activity, establishing the Canadian Southern Observatory at Las Campanas, Chile, which attracted graduate students and faculty members. MacRae would remain at the University of Toronto until his retirement in 1982, when he was appointed Professor Emeritus in the Department.

Throughout his retirement, MacRae maintained a strong interest in and connection to the research taking place in the Department of Astronomy at the University of Toronto. His wife, Betty, passed away in 2005. Donald MacRae died in Toronto on December 6, 2006, at the age of 90.

Scope Note

The Donald Alexander MacRae Papers are organized into seven series: Series I: Personal; Series II: Associations of Scientists; Series III: World Governmental Organizations; Series IV: American Domestic Politics; Series V: Media Coverage of the Atomic Bomb and Nuclear Energy; Series VI: Oak Ridge Laboratory Research; and Series VII: Oversize. The collection contains awards; newsletters and notes related to his participation in various nuclear scientific organizations; newspapers covering atomic weapons and nuclear energy; drafts of and notes concerning Senate Bill S.1717, the Atomic Energy Act of 1946; correspondence; research done by MacRae and others at Oak Ridge, including architectural drawings of the gaseous diffusion plants and technical drawings of a mass spectrometer. These papers focus on MacRae's time at Oak Ridge, from 1945 to 1946. Materials are arranged alphabetically within series, except where noted.

Series I, Personal, contains awards and commendations related to MacRae's time at Oak Ridge.

Series II, Associations of Scientists, contains newsletters, notes, and correspondence, primarily written by others, related to various scientific organizations in which MacRae was an active member or with which he communicated.

Series III, World Governmental Organizations, contains pamphlets, correspondence, newsletters, and a holographic manuscript written by MacRae, all concerning the role of world governmental organizations, particularly the United Nations, in regulating the production and usage of nuclear weapons. Given the keen interest Oak Ridge Engineers and Scientists (ORES) took in these questions, documents specifically pertaining to ORES's response to various United Nations actions may also be found in Series II.

Series IV, American Domestic Politics, contains documents concerning American legislative and executive actions concerning the regulation of nuclear weapons, particularly the Senate Bill S.1717, the Atomic Energy Act of 1946 and the "Report on International Control of Atomic Energy," generally known as the "Acheson-Lillenthal Report," which was presented to the State Department in response to the passage of S.1717. Included in this series is correspondence from House Minority Leader Joseph W. Martin, Jr. (R-MA) to MacRae concerning S.1717. A "comparative summary of key senate bills for domestic control of atomic energy" may be found in Series VII.

Series V, Media Coverage of the Atomic Bomb and Nuclear Energy, contains news clippings and photocopies of discussions in and coverage by the popular media concerning nuclear weapons and energy. Newspapers from August 1945, which specifically concern the American nuclear attack on Japan and the role that Oak Ridge played, may be found in Series VII.

Series VI, Oak Ridge Laboratory Research, contains previously classified material concerning the development of mass spectrometry at Oak Ridge and progress reports concerning research conducted by MacRae. Architectural drawings of the K-25 and K-27 plants, along with technical drawings of a mass spectrometer, may be found in Series VII.

Series VII, Oversize, contains architectural drawings, newspapers, technical drawings, and documents concerning Senate legislation. Within this series, the folders are arranged in a way that reflects their affinity with the other series in this collection, moving in the same order as those series.

Related Resources

The following related resources are located in the Department of Special Collections:

<http://www.lib.uchicago.edu/e/spcl/select.html>

Association of Los Alamos Scientists. Records

Association of Oak Ridge Engineers and Scientists. Records

Association of Pasadena Scientists. Records

Association of Scientists for Atomic Education. Records

Atomic Scientists. Miscellaneous Records

Atomic Scientists of Chicago. Records

Atomic Scientists' Printed and Near-Print Material. Records

Balderston, John L., Jr. Collection

Bernstein, Seymour. Papers

Bulletin of the Atomic Scientists. Records

Coryell, Charles D. Papers

Fermi, Enrico. Collection

Henshaw, Paul Stewart. Papers

Rush, Joseph H. Papers

Subject Headings

- MacRae, Donald A. (Donald Alexander)
- Oak Ridge Gaseous Diffusion Plant
- Oak Ridge National Laboratory
- United Nations
- University of Toronto
- Astronomers
- Atomic bomb
- Atomic bomb--United States—History
- Manhattan Project (U.S.)
- Nuclear weapons
-

INVENTORY

Series I: Personal

This series contains awards and a map related to MacRae's time at Oak Ridge.

Box 1

Folder 1

Manhattan Project Certificate, August 6, 1945

Box 1

Folder 2

Pin, Manhattan Project – A-Bomb, 1945

Box 1

Folder 3

“You and Your Work at Carbide” – Map, undated

Series II: Associations of Scientists

This series contains bulletins, newsletters, and correspondence related to MacRae's involvement in and outreach on behalf of various groups of scientists concerned with nuclear technology. At Oak Ridge, these groups included the Atomic Engineers of Oak Ridge (AEOR), Atomic Engineers and Scientists (AEOS), Oak Ridge Engineers and Scientists (ORES), Association of Oak Ridge Engineers and Scientists (AORES), and the Joint Oak Ridge Group (which encompassed AEOR, AORES, and ORES). Also included are newsletters, press releases, and related documents concerning national and international associations of scientists, among them the Atomic Scientists of Chicago and the Canadian Association of Scientific Workers. Further material concerning ORES may be found in Series III.

Box 1

Folder 4

Associations of scientists – Newsletters, press releases, correspondence, 1945-1946

- American Association of Scientific Workers
- Association of Manhattan District Scientists
- Association of Pasadena Scientists
- Canadian Association of Professional Physicists
- Canadian Association of Scientific Workers

- Cornell Scientist Newsletters
- M.I.T. International Association
- Los Alamos National Laboratory
- National Committee on Atomic Information

Box 1

Folder 5

Atomic Scientists of Chicago – Notes, bulletins, monograph, 1945-1946

Box 1

Folder 6

Federation of American Scientists, 1946

Box 1

Folder 7

Oak Ridge Engineers and Scientists – Political Outreach – Notes, Memoranda, Correspondence, 1945-1946

Box 1

Folder 8

Oak Ridge Engineers and Scientists – World Government – Notes, Memoranda, Correspondence, 1945-1946

Box 1

Folder 9

Oak Ridge Engineers and Scientists Letterhead, undated

Box 2

Folder 1

Oak Ridge Scientific Groups - Newsletters, Bulletins, and Informational Material, 1945-1946

Box 2

Folder 2

Joint Action of Oak Ridge Scientific Groups – Notes, Memoranda, Correspondence, 1945-1946

Series III: World Governmental Organizations

Box 2

Folder 3

Documents related to world government – speeches, statements, 1943-1946

Box 2

Folder 4

“The Defenses of Peace” – UNESCO pamphlet, January 15, 1946

Box 2

Folder 5

“The Scientists and UNESCO” – holographic manuscript, undated

Box 2

Folder 6

The UN Charter – Pamphlets, 1946

Box 2

Folder 7

“To the World Scientists – Men Who Believe the Oracle of Truth,” Violet and Noel Rawnsley – Pamphlet, undated

Box 2

Folder 8

United Nation News, vol. 1, nos. 1-8, January-August 1946

Series IV: American Domestic Politics

Box 2

Folder 9

S.1717: Atomic Energy Act of 1946 – Correspondence, pamphlet, bill draft, 1945-1946

Box 2

Folder 10

“A Report on the International Control of Atomic Energy” – State Department report and press release, telegram, 1946

- Contains handwritten notes from Oak Ridge Engineers and Scientists detailing response to the report

Series V: Media Coverage of the Atomic Bomb and Nuclear Energy

Box 2

Folder 11

“Asks World Body Be Given Secret of Atomic Bomb,” Globe and Mail (Toronto) – Clipping and photocopy, August 14, 1945

Box 3

Folder 1

Popular Media Reports on Nuclear Energy – Clippings, photocopies, typescript transcripts, 1945-1946

Box 3

Folder 2

“Principal Wallace Surveys Peace Aims,” source unknown – news clipping and photocopy, 1946

Box 3

Folder 3

“Ridgers Linked in ‘Subversion’ – HUAC,” Knoxville Journal – news clipping and photocopy, July 12, 1946

Series VI: Oak Ridge Laboratory Research

Box 3

Folder 4

Instructions GEI-18292, Assay Machine, Cat. No. 6933949 G2, 1945

Box 3

Folder 5

Progress Reports, 1945-1946

Box 3

Folder 6

Spectrometer Research & Development, 1946

Series VII: Oversize

Box 4

Folder 1

“Comparative Summary of Key Senate Bills for Domestic Control of Atomic Energy” (2 Copies), undated

Box 4

Folder 2

Newspapers, August 1945

- Front Page Section, Knoxville Journal, August 6, 1945
- Knoxville Journal, August 7, 1945
- Oak Ridge Journal, August 9, 1945
- New York Times Magazine, August 12, 1945
- “Week in Review,” New York Times, August 12, 1945

Box 4

Folder 3

Mass Spectrometer Drawings, undated

Box OVERSIZE FOLDER 1

Architectural Drawing of K-25 and K-27 Plant