



MG 441 – Luise Herzberg fonds

Dates: 1863-2010 (inclusive); 1939-1971 (predominant).

Extent: 36 cm of textual records, 3 photographs, memorabilia.

Biography: Luise Hedwig Herzberg, née Oettinger, was born in Nuremberg, Germany, on 22 November 1906. She attended the Civic High School for Girls in Nuremberg, graduating in 1925; and may have taken a year off (possibly with relatives in Texas) prior to beginning university in 1926. She studied mechanical engineering at the Technische Hochschule in Munich prior to attending the University of Göttingen. She took one year of study at the University of Texas (Austin) prior to returning to Göttingen, where she met her future husband, Gerhard Herzberg. They married in Nuremberg on 30 December 1929. She joined Gerhard in his laboratory in Bristol, England, where she began her PhD research on the spectrum and structure of beryllium oxide (BeO). She continued her studies in Darmstadt, when the couple returned to Germany in November 1930. For various reasons, her PhD examination was conducted through the University of Frankfurt; Luise received her doctorate on 29 May 1933. She was quite possibly the last Jew to receive a PhD from Frankfurt before the war; the Nazis had come to power that January. The Herzbergs left Germany in 1935, and Gerhard accepted a position at the University of Saskatchewan. Despite the birth of their two children and the majority of her time taking care of their household, Luise was able to continue with some scientific work (although not as a faculty member). In 1945 Gerhard accepted a position with the University of Chicago (at their observatory in Wisconsin); Luise was a “volunteer research associate.” In 1948, the family moved to Ottawa, where Gerhard had accepted a position with the National Research Council. Once again, Luise served as a “volunteer research associate.” By 1952 she had a summer position with the Dominion Observatory; in 1958 this became a full-time position. The final twelve years of her working career (beginning in 1959) were spent at the Radio Physics Laboratory at Shirley Bay. Luise died in Ottawa on 3 June 1971, just prior to her planned retirement and five months before her husband, Gerhard, was awarded the Nobel Prize. Their son Paul noted that not only had “Gerhard ... won the Nobel Prize with Luise’s constant support,” two of Luise’s colleagues independently suggested that “given the opportunity, Luise might have exceeded Gerhard’s accomplishments and may also have won a Nobel Prize. Such is the high esteem in which Luise was held.”

Scope and Content: This fonds contains material relating to the personal and professional life of Luise Herzberg, including materials relating to her childhood and schooling; family documents; materials relating to her parents, Paul and Elsbeth Oettinger, correspondence with her sister, Lotte Thurnauer; and materials received or collected by her son Paul Herzberg. The fonds contains substantial material relating to Luise’s scientific work, including correspondence with international colleagues, and reprints of her articles.

Arrangement: The original organization, file numbers and titles have been retained.

Material is in English and German.

Restrictions: There are no restrictions on access.

Title based on contents.

Related material at the University Archives and Special Collections includes MG 440 – Gerhard Herzberg fonds; MG 74 – JWT Spinks fonds; and in the records of the President’s Office – series 1, Walter Murray; and MG391 – Herzberg Offprint Collection.

Researchers should also note the Paul Herzberg fonds (F0235) at the York University Archives and Special Collections, and the Gerhard Herzberg fonds (MG 31 J4) at the Library and Archives Canada.

See also *Luise Herzberg, Astrophysicist: A Memoir* by Paul Herzberg; and *Gerhard Herzberg: An Illustrious Life in Science* by Boris Stoicheff.

Related: *Highlights from the C.J. Mackenzie Diary*, edited by Paul Herzberg. Gift of Agnes Herzberg, 2013 – see SpColl (Shortt).

Donated to the University Archives and Special Collections by Paul Herzberg in 2013.

Guide prepared by Cheryl Avery, 2013; formatted by Lisa Carpenter, 2017.

Luise Herzberg – Bibliography and Lectures. – 1949-1971.

List from curriculum vitae

1.1B Hans Thurnauer. – 1939-1940, 1945.

Correspondence from Luise (“Lissy”) to her sister Lotte Thurnauer. See also below, 4.5 – 10.
Material in German and English.

1.14A Luis Herzberg Correspondence Indexes. – 1992.

Detailed list of letters by individuals, subjects, dates; see below, file 4.1.
Created by Paul Herzberg.

2.2B Eichenberg. - 1950.

Correspondence between Gerhard Herzberg, Hans Eichenberg and Paul Oettinger.
Material in German.

3.1B Rawson. – 1971.

Correspondence to Paul Herzberg from Hildred Rawson [widow of biology professor Don Rawson] regarding Luise’s death and memories of their early life together in Saskatoon.

4.1 Stratford File Box (Shirley Bay) – [LH Correspondence].

For a detailed listing, see above, file 1.14A.

-1 A. – 1961-1966.

Includes correspondence with Richard Akerib (NRA); the American Astronomical Society; the American Physical Society/American Institute of Physics, including a copy of “A Preliminary Report on Phase I of the Reference Retrieval System Development Project” by Pauline Atherton; *Applied Optics*; etc.

-2 B. – 1960-1967.

Includes correspondence with Charles Barth (Cal Tech); C.S. Beals (Dominion Observatory); etc.

-3 C. – 1961-1969.

The Canadian Association of Physicists; the *Canadian Journal of Physics*; Eliska Chvojkova (Prague); etc.

-4 D. – nd, 1961.

Correspondence with Frank Davies; Raymond Davis (Brookhaven).

-5 E-F. – 1960-1969.

Includes correspondence with B. Edlen (Sweden); J. Eggert (Zurich); G-G. Fälthammar (Sweden); etc.

-6 G. –1960-1966.

Includes correspondence with Dr. Giolode (UC London); P. Goldfinger (Brussels); J. Greenstein (Pasadena); etc.

-7 **H-I-J.** – 1960-1968.

Includes correspondence with J.B. Hasted (UC London); a copy of Agnes Herzberg's "Two Third Order Rotatable Designs in Four Dimensions;" annotated drafts of "The possible importance of nitric oxide formation during polar-cap ionosphere absorption events" by Luise Herzberg; "Magnetic Ion Mass Spectrometer for Satellite Application" by John Hoffman (US Naval Research Laboratory), together with correspondence; Helen Hogg (U of T); D.M. Hunten (U of S); T. Idehara (Kyoto); A. Vallance-Jones (U of S); etc.

-8 **K-L.** – 1962-1971.

Includes correspondence with L. Kerwin (Laval); G. Landauer (Max-Planck Institut); Bob Likuski (Illinois); J.L. Locke (Dominion Observatory); F. Lyon (Western); etc.

-9 **M.** – 1961-1967.

Includes correspondence with R. Michard (Paris); e. Miescher (Basel); A. Monfils (Liege); etc.

-10 **N-O.** – 1960-1970.

Includes correspondence with O. Namba (Utrecht); M. Nicolet (Brussels); R.B. Norton (Boulder); T. Obayashi (Tokyo); J. Osorio (Portugal), including notations and a Christmas card; etc.

-11 **P-Q.** – 1962, 1966.

Includes correspondence with B. Peters (Denmark); R.J. Porter (US Naval Research Laboratory).

-12 **R.** – 1968-1970.

Includes correspondence with K.J. Rajan (Baroda, India); and the Royal Astronomical Society.

-13 **S.** – 1961-1969.

Includes correspondence with H.I. Schiff (McGill); Paul Serson (Dominion Observatory); O.N. Singh (India); I. Shkarofsky (RCA Victor); J. Siry (NASA); Charlotte Sitterley (National Bureau of Standards); JWT Spinks (U of S); etc.

-14 **T-U-V.** – 1960-1965.

Includes correspondence with Jiri Teichmann (Université de Montréal); Brian Thrush (Cambridge); and materials regarding a symposium on relativistic astrophysics at UT (Austin).

-15 **W.** – 1962-1963, 1966.

Includes correspondence with L. Wallace (Kitt Peak National Observatory); Lloyd Winacott (PA Radar Lab); IGY World Data Centre; M. Wrubel (Indiana).

4.5 Expanding Alphabetical File – Luise Herzberg Correspondence.

See also below, 8-26B, “Expanding File Index” for a detailed listing.

-1 **A-B.** – 1948-1971.

Includes receipts for Paul Oettinger’s grave; correspondence with M.G. Adam, Oxford University; H.D. Babcock, Mount Wilson Observatory; C.S. Beals, Dominion Observatory; together with various memberships in professional associations, etc.

-2 **C-D.** – 1955-1959.

Includes a review of Thomas Khun’s “The Copernican Revolution: Planetary Astronomy in the Development of Western Thought;” correspondence with P.F. Chester, Westinghouse; A.C. Coleman, University of Toronto; Balfour Currie, University of Saskatchewan; and Helen Dodson, University of Michigan; etc.

-3 **E-F.** – 1957-1959.

Includes correspondence with Bengt Edlén, University of Lund; Eric Forbes, including his manuscript, “On the Red Shift of the Solar Lines III;” and Walter Frieberger (Brown University), regarding the Dictionary of Applied Mathematics.

-4 **G-H.** – 1952-1971

Includes the book of remembrance (guest signatures) from Luise’s funeral; correspondence with R. Gebauer, Austria; M.J. Giroux, Department of Mines & Technical Surveys; L. Goldberg, University of Michigan; John Howard, Massachusetts; H.E. Duckworth, McMaster; R. Gebauer, Graz; Luise’s application to the Defence Research Board, together with employment information; similar documentation regarding application to the civil service commission, resignation from the Department of Mines and Technical Surveys, list of publications, etc.

- 5 **I-J.** – 1957-1958, 1961.

Correspondence with A.V. Jones, University of Saskatchewan, etc.

- 6 **K-L.** – 1952, 1959.

Correspondence with Albin Lagerqvist, University of Stockholm; and J.L. Locke, Dominion Observatory.

-7 **M.** – 1954-1967.

Includes correspondence regarding upkeep at the Ottawa Jewish Cemetery; correspondence from Karl Meissner (Purdue); W.R. Minrath regarding the Dictionary of Applied Mathematics; M. Migeotte (Liege); Oren Mohler (Michigan); Charlotte Sitterly (National Bureau of Standards, US); etc.

-8 **P-Q** – 1959-1961.

Material regarding membership in the Public Service of Canada, including a copy of the by-laws; correspondence with J.J. Phillips (Berkeley).

-9 **R-S.** – 1953-1961.

Correspondence with Mario Rigutti (Dominion Observatory); the Royal Astronomical Society, including notification of being elected a Fellow; S. Silverman (Johns Hopkins); J.W.T. Spinks (University of Saskatchewan); etc.

10 T-U. – 1947-1960.

Includes correspondence with Makoto Takeo (Portland); M.P. Thekaekara (Georgetown). The majority of correspondence is from Lotte (Luise's sister) and Hans Thurnauer (with related items from Delores Elliott).

11 V-W. – 1958.

Correspondence from T. Weiner (University of New Brunswick) regarding his paper "On Blue and Red shifts of light in gravitational fields."

Box 2

5.2A Luise Herzberg Documents.

Includes a family register; "resident alien's border crossing identification card;" birth certificate; naturalization certificate; notice re: PhD; wedding certificate; etc.
Material in German and English.

5.2B Luise Herzberg Diploma. – 1933. – Oversize.

Original mailing tube has been retained.
Includes 2 versions on heavy paper with stamp; one signed; 4 copies on lighter newsprint.

5.3A "Scraps" Written by Luise Herzberg. – nd.

5.12 Luise Herzberg Reprints. – 1932-1969. – textual records, 1 photograph

Includes "A New Band System of Beryllium Oxide" (1932); "Über ein neues Bandensystem des Berylliumoxyds und die Struktur des Be O-Moleküls" (1933); "Spectroscopic Evidence for the Molecule PN" (1933); "Spektroskopischer nachweis und Struktur des PN-Moleküls" (1933); "Bandenspektrum und Struktur des CP-Moleküls" (1934); "Rotations-schwingungsspekren im photographischen Ultrarot von Molekülen, die das Wasserstoffisotop der Masse 2 enthalten" (1937); "On the spectrum of the P₂ Molecule" (1940); "Fine Structure of the infrared atmospheric oxygen bands" (1947); "Production of nitrogen atoms in the upper atmosphere" (1948); "Fine structure of the red system of atmospheric oxygen bands" (1948); "Absorption spectrum of methyl iodide in the near infrared" (1949); "Rotation-vibration spectra of diatomic and simple polyatomic molecules with long absorbing paths - VI" (1950); "The absorption due to carbon monoxide in the infrared solar spectrum" (1953); "Rotation-vibration spectra of diatomic and simple polyatomic molecules with long absorbing paths - XI" (1953); "Molecular Spectra" (1955); "Evidence for term-dependent wave-length displacements of solar absorption lines" (1956); "The wavelength displacements of some infrared lines between limb and center of the sun" (1957); "Constants of Polyatomic Molecules" (1957); "The wavelength displacements of some infrared lines between limb and center of the sun. II" (1960); "The possible importance of nitric oxide formation during polar-cap ionospheric absorption events" (1960); "Photochemical processes in the ionosphere induced by solar proton bombardment" (1962); "Solar optical radiation and its role in upper atmospheric processes" (1965); "Frequency variation in ionospheric cyclotron harmonic series obtained by the alouette I satellite" (1966); "An unpredicted period in the orbital motion of the Alouette I artificial earth satellite" (1965); "A new determination of the C¹²/C¹³ Isotopic abundance ration in th solar photosphere" (1967); "Ionospheric Conditions following the Proton Flare of 7 July 1966 as deduced from Topside

Soundings" (1969); "Topside observation of electron density variations (G-condition) at times of low magnetic activity" (1969).

Also includes Luise's review of *The Second Revision of Rowland's Preliminary Table of Solar Spectrum Wavelengths* (1967); bibliographies of scientific papers and reports, including papers read before learned societies.

Material in German and English.

5.14 Luise Herzberg – Göttingen and Darmstadt Record Books. -1925-1933.

Material in German.

5.15 Paul Oettinger Documents. – 1863 -1957. – textual records, 1 photograph.

Includes birth certificate, certificate of war service (WWI and WWII); identity cards (for both Paul and Elsbeth) naturalization documents (for both Paul and Elsbeth); will, etc.

Family documentation includes materials relating to Karoline Eichenberg, Klara Eichenberg, Herman Oettinger, and Paul Herzberg. An index to the documents is included in the folder.

Material in German and English.

5.16 Paul Oettinger – Order of Merit, WWI.

3 medals; "gold I gave for iron" – iron wedding rings and watch chain, received in exchange for gold items during wartime.

5.17 Paul Oettinger Documents. – 1948-1949, 1957. – textual records, 1 photograph.

Includes materials relating to restitution.

Material in German.

5.18 Luise Herzberg Documents re: Paul Oettinger. – 1949-1958.

Newspaper notice re: death of Elsbeth (Luise's mother); Paul's instructions re: assets, accounts, etc.; his will; etc.

5.19 Paul Oettinger – Restitution Documents. – 1939-2006.

This file was divided into 10 folders; all relating to the claim for restitution by Paul Oettinger and his correspondence with various banks in Germany regarding a settlement. It also includes lists made by Paul Herzberg of the various files relating to the restitution claim, financial documents, etc.

-1 **Re: account no. 344332.** – 1949-1954.

-2 **Re: account no. 344304, 334307.** – 1948-1949.

-3 **Re: account no. 344307/724.** – 1947-1949.

-4 **Re: account no. 344307/28.** – 1947-1949.

-5 **Re: account no. 344307/24.** – 1945-1949.

-6 **Re: account no. 344307.** – nd.

Handwritten notes.

-7 **Re: account no. 344307.** – 1939-1962.

-8 **Re: account no. 344307/45.** – 1957-1975.

Box 3

-9 **Re: account no. 344307/45.** – 1954-1956.

-10 **Re: account no. 344307/60.** – 1949-1954.

- 11 **Outline of Documents.** – 2005-2006.

Created by Paul Herzberg; includes a chronology of events beginning with the forced sale of his share in the Bronzefarben company, “flight tax,” etc.

6.4 Luise Herzberg Lab Notes.

-1 **[Untitled].** – nd, 1958.

National Research Lab notebook (“Formulae, etc”) and folder of notes relating to a series of experiments (by date), 1958.

-2 **Annual Report.** – 1959.

Single page report on the solar limb shift program.

-3 **Grating Data.** - nd. – textual records, 1 photograph.

Single page report on the “double pass arrangement of Dominion Observatory solar spectrograph;” together with notes and graphs.

-4 **Observing Data.** – 1957.

See also below, subfile 8.

-5 **CO Transition Probabilities (G.H.).** – nd.

Notes (formula).

-6 **[Loose Materials].** – [1953?], 1957.

Copy of “The wavelength displacements of some infrared lines between limb and centre of the sun;” two notebooks.

-7 **CO Fundamental in Solar Spectrum.** – nd.

Notes.

-8 **Herzberg, L. Observing Data.** – 1959.

Notes. See also above, subfile 4.

8.13 Paul Oettinger Death Notice. – 1957.

Material in German.

8.14 Luise Herzberg Estate. – 1971-1973.

Various financial records; copy of will; copy of tribute from *Ottawa Journal*.

8.15 Passport. – 1945.

Canadian passport for family (Gerhard, Luise, Paul and Agnes); valid for travel to the United States.

8.16 Luise Herzberg Address Book.

8.26B Expanding File Index. – 2002.

Detailed list of letters by individuals, subjects, dates; see above, file 4.5.
Created by Paul Herzberg.

Luise Herzberg, Astrophysicist: A Memoir. – 2010.

Book by Paul Herzberg.