

Guide to the Alois Francis Kovarik Papers

MS 13



compiled and edited by Joann Williamson under the supervision of Francis Radvonovsky

September 1969

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Collection Overview

REPOSITORY: Manuscripts and Archives
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CALL NUMBER: MS 13

CREATOR: Kovarik, A. F. (Alois Francis), 1880-1965

TITLE: Alois Francis Kovarik papers

DATES: 1902-1951

PHYSICAL DESCRIPTION: 7 linear feet (15 boxes)

LANGUAGE: English

SUMMARY: Physicist, professor at Yale University. Correspondence, writings, lecture notes and glass slides relating to Kovarik's work on radioactive materials. Included also are biographical materials gathered by Kovarik in connection with an article on Bertram B. Boltwood and papers issued by the Committee on Standards of Radioactivity (1938-1946) of which Kovarik was a member. Prominent among his correspondents are Niels Bohr, Marie S. Curie, Ernest Pollard and Luville T. Steadman.

ONLINE FINDING AID: To cite or bookmark this finding aid, please use the following link: <https://hdl.handle.net/10079/fa/mssa.ms.0013>

Requesting Instructions

To request items from this collection for use in the Manuscripts and Archives reading room, please use the request links in the HTML version of this finding aid, available at <https://hdl.handle.net/10079/fa/mssa.ms.0013>.

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Key to the container abbreviations used in the PDF finding aid:

b. box
f. folder

Administrative Information

Immediate Source of Acquisition

Gift of Alois F. Kovarik in 1956, and of his estate in 1966 and 1970.

Conditions Governing Access

The materials are open for research.

Conditions Governing Use

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Preferred Citation

Alois Francis Kovarik Papers (MS 13). Manuscripts and Archives, Yale University Library.

Biographical / Historical

Physicist; professor of Physics at Yale University, 1915-1948; member of the Manhattan Project during World War II.

Degrees and positions held by Professor Kovarik include: University of Minnesota, B.A. 1904, M.A. 1907, PH.D. 1909; Victoria University Manchester, SC. D. 1916; Yale University, HON. M.A. 1925/Yale University, Assistant Professor of Physics, 1916-1922, Associate Professor, 1922-1925, Professor, 1925-1948, Professor Emeritus, 1948-1965, Fellow Silliman College, 1933-1948, Associate Fellow, 1948-1965; Charles University, Prague, Dr. Rer. Nat. 1932.

Scope and Contents

The papers of Alois Francis Kovarik (1880-1965), professor of physics at Yale University, include his research notes, lecture notes, notes taken as an undergraduate and one box of materials relating to an article about Bertram B. Boltwood, a colleague whose papers are also housed in the Yale University Library.

Professor Kovarik was among the first scientists to gauge the age of the Earth through the "radioactivity clock method." In 1930, speaking before the Connecticut Academy of Arts and Sciences, he gave his estimate of the minimum age of the Earth to be 1,852,000,000 years, based on his study of the disintegration of uranium into lead. He also studied the ionization of gases and Alpha, Beta and Gamma rays. During World War II, he was one of the nuclear scientists assembled for work on the atomic bomb project.

Arrangement

The collection is arranged in two series and one addition: I. Papers, 1914-1931. II. Writings, 1902-1947.

Collection Contents

Series I: Papers, 1914-1931

This series includes correspondence, an article and various material pertaining to this article. The fragments of correspondence are in chronological order; and the material pertaining to Bertram B. Boltwood, subject of Kovarik's article, is arranged according to correspondence typescript, draft, research material, and various printed material.

b. 1, f. 1	Fragment of correspondence	1914-1915
b. 1, f. 2	Bertram B. Boltwood, correspondence concerning articles about him for various biographical dictionaries	1927-1931
Article by A.F. Kovarik		
b. 1, f. 3	Typescript and a carbon copy of a different draft	undated
b. 1, f. 4	Manuscript draft	undated
b. 1, f. 5	Research notes concerning Boltwood's research, ancestry, etc.	undated
b. 1, f. 6	Bibliography of Boltwood's works	undated
b. 1, f. 7	Notes on Boltwood's writing	undated
b. 1, f. 8	Reprints of obituaries	1928
b. 1, f. 9	Newspaper clippings	1929

Series II: Writings, 1902-1947

Writings contain Kovarik's student notes from the University of Minnesota, lecture notes and research notes. Within each type, they are arranged in alphabetical order by title or subject.

Student notes cover science and mathematics courses. Lecture notes concern various topics in nuclear physics; and research notes include such material as absorption by gases, ionization, radioactive elements, and Beta and Gamma rays.

Student Notes		
b. 2, f. 10	Astronomy 1 vol.	1902-1904
b. 2, f. 11	Byerly's, Fournier's and Spherical Harmonies 1 vol.	1903
b. 2, f. 12	Chemistry 2 vols.	undated
b. 2, f. 13	Chemistry and notes from lectures, text, elsewhere 2 vols.	undated
b. 2, f. 14	Curve tracing 1 vol.	1903
b. 2, f. 15	French 1 vol.	undated
b. 2, f. 16	Geometry I 1 vol.	1902
b. 2, f. 17	Geometry II 1 vol.	1902
b. 3, f. 18	Least Squares 1 vol.	1903-1904
b. 3, f. 19	Physics notes on energy work and motion 1 vol.	undated
b. 3, f. 20	Senior physics 1 vol.	1903-1904
b. 3, f. 21	Theoretical Mechanics, Ziwet's 2 vols.	1903
Lecture Notes		
b. 4, f. 22	Atomic Weights	1932-1936
b. 4, f. 23	Calculations	1932-1938
b. 4, f. 24	Condensers	1939
b. 4, f. 25	Constant Deflection Method	1922-1937
Disintegration		
b. 4, f. 26	Artificial	1937-1939
b. 4, f. 27	Data	1932-1938
b. 4, f. 28	Nuclear Process	1943-1945
b. 4, f. 29	Radioactivity Theory	1938-1947
b. 4, f. 30	Electric Currents: Problems of Capacity	1914-1922
b. 4, f. 31	Electrostatic Measurement	1921-1939
b. 4, f. 32	Fission	1945

Lecture Notes (continued)

b. 4, f. 33	G1 & G2	1937
b. 4, f. 34	Integration, artificial	1935
b. 4, f. 35	Ionization, theory, alpha particles	1933-1939
b. 4, f. 36	Isomers, chemical separation	1932
b. 4, f. 37	Isotopes	1947
b. 4, f. 38	Isotopes, chemical work of J.J. Thomson and others	1937-1945
b. 4, f. 39	Neutron bombardment	1935
b. 5, f. 40	Nuclear energy levels	1945
b. 5, f. 41	Nuclear Packing	1937
	Particles, alpha	
b. 5, f. 42	Nature and range of	1941-1945
b. 5, f. 43	Anomalous Scattering	1935-1945
b. 5, f. 44	Scattering of, Darwin's equations	1942
b. 5, f. 45	Physics 32, organization, content, & problems	1930-1941
	Physics 126	
b. 5, f. 46	Lectures	1937-1945
b. 5, f. 47	Current lectures	1946
b. 5, f. 48	Current lectures and program of work	1945-1947
b. 5, f. 49	Examinations and problems	1942-1943
b. 5, f. 50	Students' papers	1941
b. 5, f. 51	Protons, collisions and energy	undated
b. 5, f. 52	Quantum Theory	1942
	Radioactivity	
b. 5, f. 53	Effects of radiations	undated
b. 5, f. 54	Induced	1942
b. 5, f. 55	Scattering of alpha particles	1929
	Rays:	
b. 5, f. 56	Beta	1933-1944
b. 5, f. 57	Gamma	1933-1944
b. 5, f. 58	Gamma internal conversion	1934

Lecture Notes > Rays: (continued)

b. 5, f. 59	X, spectroscopy	undated
b. 5, f. 60	Rutherford's Nuclear Atom, scattering of alpha particles	1931-1946
b. 5, f. 61	Spin, nuclear, of radioactive elements	1934-1935
b. 5, f. 62	Stopping power, absorption of particles	1938-1947
b. 5, f. 63	Thorium dioxide	1932-1933
b. 5, f. 64	Waves, de Broglie and Compton effect	1946

Research Notes

Absorption by Gases:

b. 6, f. 65	Book I & II 2 vols.	1911-1912
b. 6, f. 66	Book III & IV, Beta ray, 2 vols.	1912-1912
b. 6, f. 67	Book V 1 vol.	1913
b. 6, f. 68	Emanation and other various measurements 1 vol.	1913

Experiments:

b. 6, f. 69	Examining the examinations of radioactive elements 1 vol.	1924
b. 6, f. 70	Using Edelmann's String Electrometer, AI Counting by Geiger's Method Transmitted & Reflected Beta Particles 2 vols.	1913-1914
b. 6, f. 71	General Experiments 1 vol.	1912
b. 6, f. 72	General Experiments & Measurements	1934-1943

Ionization:

b. 6, f. 73	Of a Beta particle of Radium D.E., BI 1 vol.	1915-1916
b. 6, f. 74	In air by Beta particles, magnetic spectrum 1 vol.	1916
b. 6, f. 75	Johnson's Differential Equations 1 vol	undated
b. 6, f. 76	Magnetic Spectra 1 vol.	1916
b. 6, f. 77	Murray's Differential Equations 1 vol.	undated
b. 7, f. 78	Olmsted, Dennison and Mansfield, Jared, notes on 1 vol.	undated
b. 7, f. 79	Optics, lecture notes, Gases, kinetic theory 1 vol.	undated

Particles:

b. 8, f. 80	Beta II 1 vol.	1916-1919
b. 8, f. 81	Beta II 1 vol.	1917-1918
b. 8, f. 82	Beta III, Gamma Rays, pulses, X Ray, pulses 1 vol.	1918-1920

Polonium:

Research Notes > Polonium: (continued)

b. 8, f. 83	Experiments with particles, alpha 1 vol.	1913
b. 8, f. 84	Preliminary tests 1 vol.	1928
b. 8, f. 85	Probability, theory 1 vol.	1911
b. 8, f. 86	Problems in Physics 2 vols.	1904, 1912-1913
b. 8, f. 87	Radio: using aerial, resonance, resistance, frequency and audibility in all directions 1 Vol.	1918
b. 9, f. 88	Radioactive elements 1 vol.	1910
b. 9, f. 89	Radioactive elements 1 vol.	1910-1911
b. 9, f. 90	Radioactivity and weather forecast (clippings) VII & VIII 2 vols.	1911
b. 9, f. 91	Radon 1 vol.	1925-1926
	Rays, Beta	
b. 9, f. 92	Books I & II, reflection experiments done at the University of Manchester, England 2 vols.	1909-1910
b. 9, f. 93	Books III & IV, reflection experiments done at the University of Manchester, England 2 vols.	1910
b. 10, f. 94	Book V & X, reflection experiments done at the University of Manchester, England, 2 vols.	1911
b. 10, f. 95	Books XI & XII, reflection experiments done at the University of Manchester, England, 2 vols.	1911
b. 10, f. 96	Book II, statistics 1 vol.	1915
b. 10, f. 97	Book III 1 vol.	1915
	Rays, Gamma	
b. 10, f. 98	Book IV I vol.	1920
b. 10, f. 99	Book V, Gamma spectra 1 vol.	1921-1922
b. 10, f. 100	Book VI, Gamma, crystal reflection 1 vol.	1923-1924
b. 11, f. 101	Book VII, producing Beta rays in elements 1 vol.	1922
b. 11, f. 102	Uranium nitrate crystals, Vol. 2, 1 vol.	1927

Additional material

Accession 1970 Dec 18

Correspondence, printed matter, laboratory note books, and lantern slides (negatives), including some made by B. B. Boltwood.

Correspondence		
b. 12, f. 103	Bohr, Niels Henrik David, 1885-1962	1930-1931
b. 12, f. 104	Curie, Marie Sklodowska, 1867-1934	1924 January 13
b. 12, f. 105	Easton, William Heyden, 1916-	1939 January 25
b. 12, f. 105	Ellis, Charles Drummond, 1895-	1931 March 20
b. 12, f. 105	Evans, Robley Dunglison, 1907-	[1936?] August 22
b. 12, f. 105	Exner, Frank M.	1931 February 14
b. 12, f. 106	Failla, Gioacchina, 1891-1961	1934
b. 12, f. 106	Kurie, Franz Newell Devereux	1935 March 10
b. 12, f. 106	Ladenburg, R.	1934 November 9
b. 12, f. 106	Lane, Alfred C. See: box 12, folder 119	
b. 12, f. 106	Lang, W.B.	1944 August 26
b. 12, f. 106	MacKee, George Miller	undated
b. 12, f. 106	McKeehan	1931 January 14
b. 12, f. 107	Pollard, Ernest	1931-1933
b. 12, f. 108	Roberts, Douglas J.	1934
b. 12, f. 108	Ruark, Arthur E.	1933 July 25
b. 12, f. 108	Rubey, William Walden, 1898-	1944
b. 12, f. 109	Steadman, Luville Taylor	1930-1936
b. 12, f. 110	Tate, John Torrence, 1925-	1933, 1936
b. 12, f. 110	Wilkins, Thomas Russell, 1891-1940	1935 December 30
b. 12, f. 110	Woodruff, Lorande Loss	1942 February 19
Subject Files		
b. 12, f. 111	Apparatus	

Subject Files (continued)

b. 12, f. 112	Apparatus. "Impulse counter" description and notes	1937, 1942, n.d
b. 12, f. 113	Bibliography and abstracts	
b. 12, f. 114-116	Committee on Standards of Radioactivity, correspondence and reports	1938 January 27-1946 July 2
b. 12, f. 117	Committee on Standards of Radioactivity, National Bureau of Standards - certificates for radium standards	1940-1941
b. 12, f. 118	Committee on Standards of Radioactivity, Reports	undated
b. 12, f. 119	Committee on the Measurement of Geologic Time, correspondence, reports, offprints	1937-1944, undated
b. 12, f. 120	Exhibition, American Chemical Society, New Haven Section. [Committee on Exhibits];correspondence	1922-1923
b. 12, f. 121	Exhibition, American Chemical Society, New Haven Section; notes, reasearch materials, case labels	1923
b. 12, f. 122	Exhibition, American Chemical Society, New Haven Section; photographs	1923
b. 13, f. 123	Notes See also: box 14	1934-1944, undated
b. 13, f. 124	Notes. Observation data	1941-1945
b. 13, f. 125	1951 April 3-June 2	1951 April 3-June 2
b. 13, f. 126	Notes on thorium	
b. 13, f. 127	Sigma Xi. Yale Chapter; correspondence, membership and program materials	1937-1938
b. 13, f. 128	Sigma Xi. Yale Chapter: 43rd anniversary address, "The nuclear atom and its transmutation, and notes	Circa 1938
b. 13, f. 129	Teaching	
b. 13, f. 130	Teaching; correspondence and other papers re students (Robert L. Anthony and Gordon Brubaker)	1935-1938
b. 13, f. 131	Teaching; slide lists for lectures	undated
Writings		
b. 13, f. 132-136	"The disintegration constant of thorium and the branching ratio of thorium C." English Includes manuscript, reprints, notes, diagrams, proofs, publication-related correspondence, and bibliography.	1936-1938
b. 13, f. 137	"The rate of emission of c-particles from uranium and the relative activity of actino-uranium." Paper for the Conference on Applied Nuclear Physics; with related correspondence and printed matter English	1940 October 28
b. 14	Notebooks	1932-1946

b. 15

Glass negatives

undated

Selected Search Terms

The following terms have been used to index the description of this collection in the Library's online catalog. They are grouped by name of person or organization, by subject or location, and by occupation and listed alphabetically therein.

Subjects

Agriculture
Nuclear energy
Radioactivity
Science
Uranium -- Isotopes

Occupations

Physicists

Names

Bohr, Niels, 1885-1962
Boltwood, Bertram Borden, 1870-1927
Curie, Marie, 1867-1934
Easton, William H. (William Heyden), 1916-1996
Ellis, C. D. (Charles Drummond), 1895-1980
Evans, Robley Dunglison, 1907-
Exner, Frank M.
Failla, Gioacchino, 1891-1961
Kovarik, A. F. (Alois Francis), 1880-1965
Kurie, Franz Newell Devereux
Ladenburg, Rudolf Walter, 1882-1952
Lane, Alfred C. (Alfred Church), 1863-1948
Lang, W. B.
MacKee, George M. (George Miller), 1878-
McKeehan, L. W. (Louis Williams), 1887-1975
Pollard, Ernest C. (Ernest Charles), 1906-1997
Roberts, Douglas J.
Ruark, Arthur Edward, 1899-
Rubey, William Walden, 1898-1974
Steadman, L. T. (Luville Taylor), 1904-
Tate, John Torrence, 1925-
Wilkins, Thomas Russell, 1891-1940
Woodruff, Lorande Loss, 1879-1947

Corporate Bodies

National Research Council. Committee on the
Measurement of Geological Time
National Research Council. Committee on
Standards of Radioactivity
Yale University. Physics Department
Yale University -- Faculty