

Lancaster University Special Collections and Archives

Lewis Fry Richardson (1881-1953) Papers

Description

Accession: ACC/1991/2

Identifier: RLF

Extent: 9 items

Dates: c.1918-1953

Scope and Content: Research notes and papers created by Lewis Fry Richardson related to his application of mathematical methods to analyse the dynamics of war and conflict. Includes typescript textual analysis and his original statistical notes.

History: Lewis Fry Richardson (1881 – 30 September 1953) was a mathematician and meteorologist who made groundbreaking contributions to numerous scientific fields. He is best known for pioneering modern mathematical techniques of weather forecasting, and the application of similar techniques to studying the causes of wars and how to prevent them. He also developed the Modified Richardson iteration, an iterative method for solving a system of linear equations. Following his Quaker beliefs, Richardson often applied his mathematical skills in service of his pacifist principles.

He was born to prosperous Quaker family in York on the 11th October 1881. He was educated at Bootham School, a private Quaker boarding school in York. In 1898 he went to the Durham College of Science before studying Natural Sciences at King's College, Cambridge, where he graduated with a first-class degree in 1903.

After graduating, Richardson worked in various roles: National Physics Laboratory, 1903-1904; University College, Aberystwyth (1905-1906); Chemist at National Peat Industries (1906-1907); National Physical Laboratory, 1907-1909; Manager of the physical and chemical laboratory at the Sunbeam Lamp Company (1909-1912); Manchester College of Technology (1912-1913); Manchester College of Technology, 1912-1913; and superintendent of the Eskdalemuir Observatory for the Meteorological Office 1913–1916. During this period, he began to experiment with using mathematical models to predict weather forecasts based on scientific rules rather than past trends.

Due to his Quaker beliefs, Richard became a conscientious objector during World War I and had to leave his post at the Meteorological Office in 1916. Instead, he joined the Friends'

Ambulance Unit and was attached to the 16th French Infantry Division. During his free time, he continued to develop mathematical models to predict the weather and began to apply the same mathematical methods to analyse the dynamics of war and conflict. He aimed to understand the causes, patterns, and escalation of wars through quantitative and mathematical modelling and published his research “The Mathematical Psychology of War” in 1919.

He briefly returned to work at the Meteorological Office after the War but resigned on grounds of conscience when the organisation was amalgamated into the Air Ministry in 1920. The rest of his working life was based in the higher education sector, working at Westminster Training College, 1920–1929, and as the Principle of Paisley Technical College, 1929–1940. In 1926, he was elected to the Fellowship of the Royal Society and received a doctorate in mathematical psychology from the University of London at the age of 47.

The volumes were transferred to the Library in 1991 from the Richardson Institute for Conflict and Peace Research at Lancaster University. It is not known how the Richardson Institute came to hold the papers.

Conditions on access: The collection can be accessed by appointment in the Archives Research Centre. Request for access must be made at least one week in advance to ensure we are able to book your place and retrieve the requested material ahead of your visit. Please contact us on library@lancaster.ac.uk. Alternatively, you can write to: Special Collections and Archives, Lancaster, University Library, Bailrigg, Lancaster, Lancashire. LA1 4YH.

Conditions on Use: The materials are available for reuse for private non-commercial study purposes. As Richardson died in 1954, his intellectual property has expired and the papers are available for reuse for other purposes on request.

Related Materials: Richardson’s research into war and conflict were published posthumously as Richardson, L. F. (1960). *Statistics of deadly quarrels* and Richardson, L. F. (1960). *Arms and insecurity: a mathematical study of the causes and origins of war*.

Richardson’ papers are split across several locations. His research related to physics are held by the University of the West of Scotland (GB605/DC/1965/010). Cambridge University Library: Department of Manuscripts and University Archives also hold a collection of Richardson’s papers (GBR/0012/MS Add.9228).

Notes: This list was created by Katie Waring on 05/02/2025. Updated on 12/12/2025 when new identifiers were applied.

Contents

Identifier	Description	Dates
RLF/1	<p>Research Notes: 'Notes on separate fatal quarrels. - Vol.1'</p> <p>Bound volume of statistical research by Lewis Fry Richardson looking at the causes of Wars in the 19th and 20th century. Manuscript. Inventory number: MS/00131.</p>	[1918-1953]
RLF/2	<p>Research notes: 'Deadly quarrels separately. - Vol.2'</p> <p>Bound volume of statistical research by Lewis Fry Richardson looking at the causes of Wars in the 19th and 20th century. Manuscript. 402 pages. Inventory number: MS/00132.</p>	[1918-1953]
RLF/3	<p>Research notes: 'Advanced theory of arms-races. - 3 : Years 1920 to 1940 continued'</p> <p>Bound volume of statistical research by Lewis Fry Richardson looking at the causes of Wars in the 19th and 20th century. Manuscript. 259 pages. Inventory number: MS/00133.</p>	[1918-1953]
RLF/4	<p>Research notes: 'Arms as insurance: linear theory of n nations begun: years 1920 to 1940 begun'.</p> <p>Bound volume of statistical research by Lewis Fry Richardson looking at the causes of Wars in the 19th and 20th century. Manuscript. Inventory number: MS/00134.</p>	[1918-1953]
RLF/5	<p>Bound untitled volume of research notes.</p> <p>Bound volume of statistical research by Lewis Fry Richardson looking at the causes of Wars in the 19th and 20th century. Manuscript. pp.350-510. Inventory number: MS/00135.</p>	[1918-1953]
RLF/6	<p>Research notes: 'Analyses of the collection of fatal quarrels as to r versus s.'</p> <p>Bound volume of statistical research by Lewis Fry Richardson looking at the causes of Wars in the 19th and 20th century. Manuscript. pp1-624. Inventory number MS/00136.</p>	[1918-1953]

RLF/7	<p>Typescript 'Mapping by compact cells of equal population'</p> <p>Typescript text of a paper entitled 'Mapping by compact cells of equal population' by Lewis Fry Richardson. Labelled 'author's file copy' and 'copy no. 3'. Inventory number MS/00137.</p>	[1918-1953]
RLF/8	<p>Typescript: 'Mathematical psychology of war' by Lewis F Richardson</p> <p>Typescript version of an article, possible later published as Mathematical Psychology of War. <i>Nature</i> 135, 830–831 (1935). Labelled 'dedicated to my Comrades of the motor ambulance convoy known as S.S Anglaise 13, in whose company this essay was written'. 50 pages. Inventory number MS/00138.</p>	1919-02-25
RLF/9	<p>Typescript: 'Languages and religions'</p> <p>Typescript text of a article by Lewis F Richardson. Sections 1/4/1-1/48 – 'Languages and wars in the collection'. Section 1/9/1-1/9/3 'Religions and wars. 57 pages. Inventory number: MS/00139.</p>	[1918-1953]