Correspondence of Walter Ledermann with Sir Godfrey H. Thomson

Collection reference code: GB 237 CollColl-1064

Folder I : Letters numbered 1 (37) - 34 (37)
Godfrey Thomson to Walter Ledermann (unless otherwise noted), 1937

Folio #	Date	Sent From	Length	Content
1 (37)	2 Feb 1937	5 Ravelston Dykes, Edinburgh	2 pages	Thomson discusses Ledermann's manuscript and its relation to T.L. Kelly's "book from 1928" (which Thomson sent to Ledermann), mentioning Kelley's "pentad criterion". Thomson also specifically mentions Kelley's work *Crossroads in the Mind of Man*.
2 (37)	10 Feb 1937	Dept. of Education, University of Edinburgh	1 page	Thomson discuss the addition of a footnote to Ledermann's manuscript, drawing attention to [T.L] Kelley's pentad criterion in *Crossroads in the Mind of Man*.
3 (37)	16 Feb 1937	Dept. of Education, University of Edinburgh	2 pages typed	Thomson discusses mainly administrative issues regarding the submission of a paper by Ledermann to *Psychometrika*
5 (37)	5 June 1937	Ravelston Dykes	2 pages	Thomson discusses his being granted a leave of absence by the "National Committee"; an offprint sent from a Dr. Aitken; and the possibility of getting a "young mathematical computer" for the team.
7 (37)	28 June 1937	National Committee for the Training of Teachers	2 pages plus attachment	Thomson generally discusses his plans for the summer and winter, and provides Ledermann with a reading list (attached).
8 (37)	8 July 1937	Ravelston	2 pages	Thomson discusses books on statistics which employ matrix methods, mentioning:

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		Dykes		*Introduction to the Theory of Statistics* by George Udny Yule, 1912; the last edition of R.A. Fisher's *Statistical Methods for Research Workers*; and T.L. Kelley's *Statistical Methods*
9 (37)	17 July 1937	Ravelston Dykes	6 pages	Thomson discusses Cyril Burt's article on "The correlation between persons" in the *British Journal of Psychology*, July 1937, asking Ledermann to help him work on equations contained therein. He also mentions his own paper "On complete families. . ." in the *British Journal of Psychology,* July 1935 which discusses the idea of correlations between persons. Thomson further mentions a letter from Dr. William Stephenson.
10 (37)	19 July 1937	Ravelston Dykes	2 pages	Thomson continues a discussion from an earlier letter (17 July 1937) regarding [Cyril] Burt's article "The correlation between persons". Includes mathematical diagrams and equations.
11 (37)	20 July 1937	Ravelston Dykes	2 pages	Thomson further continues a previous discussion regarding [Cyril] Burt's article "The correlation between persons". Includes mathematical equations.
12 (37)	25 July 1937	Ravelston Dykes	1 page	Thomson gives Ledermann his address for the next fortnight at the Training College in Yorkshire, and also mentions an enclosed cheque.
13 (37)	6 Aug 1937	Training College, Bingley	4 pages	Thomson discusses an enclosed article (article not archived with letter) he wrote and was thinking of sending to the *British Journal of Psychology*, asking Ledermann for suggestions. The article regards the idea of "selection influencing functional analysis". Thomson also recommends and discusses various works for Ledermann to read.
14 (37)	14 Aug 1937	The Old Schoohouse, Glenapp via Girvan	3 pages	Thomson generally discuses his paper for the *British Journal of Psychology.*
15 (37)	16 Aug 1937	Glenapp via Girvan	2 pages	Thomson discuses his paper for the *British Journal of Psychology*, including an equation.
16 (37)	18 Aug 1937	Glenapp via Girvan	3 pages	Thomson discusses the possibility of Ledermann writing a follow-up to his own paper, and asking Ledermann to discuss multivariate selection. Thomson also mentions [Harold] Hotelling's paper "Relations between two sets of variates" in *Biometrika*, December 1936, discussing his "vector correlation" (includes equations). Thomson also mentions other papers.
17 (37)	25 August 1937	Glenapp via Girvan	2 pages	The letter accompanies a manuscript (17 a (37) with an equation which Thomson has asked Ledermann to solve.
17 a (37)			13 pages	A manuscript detailing an equation which Thomson has asked Ledermann to prove. (see 17 a (37))

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18 (37)	29 August 1937	Glenapp via Girvan	7 pages	Thomson discusses Ledermann's response to an equation Thomson had sent to him (includes equations). (See 17a (37)) Thomson also discusses his paper titled "The Influence of Selection on Functional Analysis" and the need to write a sequel on the influence of multivariate selection on functional analysis.
19 (37)	14 Sept 1937	Glenapp via Girvan	6 pages	Thomson discusses a manuscript about the connection between estimation and selection. Thomson also discusses multivariate selection. The letters includes equations plus a postscript note dated 15 September.
20 (37)	15 Sept 1937	Glenapp via Girvan	11 pages	Thomson discusses his manuscript regarding "sums and differences". He mentions a paper by [Charles] Spearman in the *British Journal of Psychology*, Vol. V, as well as one by [Harold] Hotelling titled "The most predictable criterion" in the *Journal of Educational Psychology*, Feb. 1935. The letter includes equations.
21 (37)	26 Sept 1937	Glenapp via Girvan	2 pages	Thomson discusses several books and papers of interest, including work by Cyril Burt, M.S. Bartlett, and *Matrices and Determinoids* by [Cutherbert Edmund] Cullis. Thomson also discusses his schedule of for the coming weeks.
22 (37)	30 Sept 1937	Glenapp via Girvan	10 pages	Thomson discusses his take on M.S. Bartlett's proposed method of estimating factors, given in his articles in the *British Journal of Psychology,* Oct 1935 and July 1937. Includes many equations as well as a postscript dated 1 Oct 1937 which also discusses Bartlett.
24 (37)	4 Oct 1937	Glenapp via Girvan	7 pages	Thomson discusses his "way of calculating what values may be given to elements of Vpp in a hierarchical matrix so as to produce to new group factors". The letter includes equations.
25 (37)	4 Oct 1937		Postcard	Thomson gives his reaction to a letter from Ledermann regarding Thomson's "method with the 'auxiliary matrix' for finding V_{pp}^{-1}. . ."
26 (37)	8 Oct 1937	Ravelston Dykes	Postcard	Thomson mentions [MS] Bartlett's estimates having "minimum standard error".
27 (37)	16 Oct 1937	Ravelston Dykes	3 pages	Thomson discusses the draft of his part of the "multivariate" article, and asks Ledermann for comments. [Ledermann appears to have made notes containing equations on the letter].
Unnumbered	22 Oct 1937		Postcard	Regards an appointment, and also mention M.S. Bartlett's offprint.
28 (37)	25 Oct 1937	Ravelston Dykes	2 pages	Thomson discusses a letter he wrote to [M.S.] Bartlett regarding Barlett's equations.
29 (37)	5 Nov 1937	Ravelston	2 pages	Thomson discusses "our" paper on boundary conditions in *Psychometrika*. Thomson makes

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		Dykes	typed	reference to oblique factors and also mentions a [K.J.] Holzinger and [H.H.] Harman articles from the *Journal of Educational Psychology*, May 1937. The letter includes mathematical charts and equations.
29 a (37)	7 Nov 1937		Postcard	Briefly mentions Bartlett's offprints.
30 (37)	8 Nov 1937	Ravelston Dykes	1 page typed	Thomson gives Ledermann a copy of a letter from Thomson to Dr. Horst [see 30 a (37)] .
30 a (37)			2 pages typed	A copy of a letter from Thomson to Dr. Horst, which Thomson sent to Ledermann for review and comment. In the letter Thomson discusses his negative opinion of Horst's manuscript.
30 b (37)?	12 Nov 1937	Ravelston Dykes	2 pages	Thomson asks Ledermann to copy particulars of the translations of Pliny's letters held at the University Library for Thomson's son.
31 (37)	14 Nov 1937	Ravelston Dykes	2 pages typed	Thomson thanks Ledermann for a letter showing that "minimum trace and minimum thurstone rank do not always occur together". Thomson goes on to discuss matrices with "Heywood cases" and the Spearman analysis. The letter includes mathematical notes.
32 (37)	19 Nov 1937		2 pages	Thomson discusses the connection between the "Heywood case" and Ledermann's condition. Thomson mentions Spearman's communalities. The letter includes equations.
33 (37)	8 Dec 1937	Glenapp via Girvan	4 pages	The letter regards various topics, including Thomson travels in England; the enrolment of Ledermann as a DSc. Student; the submission of articles by Ledermann; Thomson's thoughts on Ledermann's letter about hierarchical Heywood cases; and Ledermann's articles in "automorphic" matrices and boundary conditions.
34 (37)	18 Dec 1937	Glenapp via Girvan	5 pages	Thomson discusses the printing of Ledermann's paper in *Sociometrica* or *Psychometrika* [Thomson unsure]. Thomson also acknowledges five letters from Ledermann, offering comments on various topics including boundary conditions and Ridley Thompson's criterion. Thomson also briefly mentions the progress of his own book.

Folder II: Letters numbered 1 (38) -43 (38)
Godfrey Thomson to Walter Ledermann (unless otherwise noted), 1938

1 (38)	New Years Day 1938	Glenapp via Girvan	2 pages	Thomson gives his thoughts of part of an article by [Charles] Spearman in *The Abilities of Man* which regards the "reversibility of proof" of Spearman's tetrad criterion, and asks Ledermann for an explanation.

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2 (38)	10 Jan 1938	Glenapp via Girvan	1 page	Thomson encloses a letter (not archived) that he is thinking of sending to *Nature*.
3 (38)	27 Jan 1938	Ravelston Dykes	4 pages	Thomson asks Leadermann to "put into proper shipshape" a proof which involves "Bartlett's estimates of the common factors". Thomson then outlines the proof, including equations and diagrams.
4 (38)	31 Jan 1938	Ravelston Dykes	Postcard	Thomson invites Ledermann to dinner and mentions a proof by M.S. Bartlett.
5 (38)	1 Feb 1938	Ravelston Dykes	2 pages	Thomson writes to change the date of a dinner invitation, also enclosing the "Doolittle" Calculation (not archived) and a card from M.S. Bartlett as well as a proof of a Bartlett article (not archived).
6 (38)	7 Feb 1938	Ravelston Dykes	2 pages	Thomson asks Ledermann to clarify a point Ledermann had made concerning Thomson's statement about "t.d.'s" [tetrad-differences?]. Includes mathematical notes.
7 (38)	10 Feb 1938	Ravelston Dykes	2 pages	Thomson asks Ledermann to investigate a "matrix of marks" which he outlines in the letter. Letter includes mathematical notes.
8 (38)	12 Feb 1938	Ravelston Dykes	8 pages	Thomson continues a discussion about a matrix outlined in a previous letter 7 (38), responding to Ledermann's comments.
8a (38) (out of date sequence)	15 Jan 1938	Ravelston Dykes	1 page types	Thomson states that he has received the manuscript of the article on "Univariate Selection" back from Professor F.C. Bartlett to have it typed before submission.
8b (37) (out of date sequence)	17 Jan 1938	Ravelston Dykes	1 page	Thomson states that he will send Ledermann the *Psychometric* offprints.
9 (38)	18 Feb 1938	Ravelston Dykes	2 pages	Thomson states that he received the proofs of the "Univariate" article for the *British Journal of Psychology* and that unfortunately his and Ledermann's articles will be printed in separate issues.
10 (38)	21 Feb 1938	Ravelston Dykes	7 pages	Thomson relays to Ledermann a point concerning [Cyril] Burt's example of matrix of marks in his article on "Correlations between person". Thomson outlines the point in detail, with mathematical notes.
11 (38)	27 Feb	Glenapp via	7 pages	Thomson goes over his discovery "that when a matrix of marks is centered both ways before

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	1938	Girvan		the correlation coefficient are calculated. . . these correlation are identical with the first residual matrix when Thurstone's centroid process is applied to the matrix of full correlations. . . with unit communalities", referencing Burt and Spearman. The letter also includes a postscript dated 28 Feb 1938 which continues the previous discussion, and also includes a transcript of a letter written by M.S. Bartlett to *Nature* (sent to Thomson by Bartlett).
12 (38)	1 March 1938	Glenapp via Girvan	3 pages	Thomson reflects on a discussion with Ledermann regarding "the first centroid factor" and "profile correlation", referencing [Cyril] Burt.
13 (38)	3 March 1938	Glenapp via Girvan	5 pages	Thomson responds to Ledermann's letter regarding the reciprocity of persons and tests, referencing [Cyril] Burt's doubly centered matrices. The letter includes mathematical notes.
13 a (38)	5 March 1938	Glenapp via Girvan	Postcard	Thomson asks Ledermann to work out a formula using M.S. Bartlett's "principle of minimising the other factors not used, and regarded as errors".
14 (38)	6 March 1938	Glenapp via Girvan	6 pages	Thomson offers comments on [L.L.] Thurston's *The Vectors of Mind* and his and Ledermann's own articles on boundary conditions in *Psychometrica* (includes mathematical notes). Thomson also mentions that he has been asked to take part in a discussion at the Royal Society in London on the "Application of Quantitative Methods to Certain Problems in Psychology", speaking on "recent developments in statistical method".
15 (38)	8 March 1938	Glenapp via Girvan	4 pages	Thomson expresses his uncertainty regarding "Hotelling factors" and discusses Bartlett and Thurstone estimates.
16 (38)	9 March 1938	Glenapp via Girvan	2 pages	Thomson mentions that [Cyril] Burt, [Charles] Spearman and Dr. Myers are to be the other speakers at a discussion at the Royal Society on 24 March, and that he asked Ledermann to be invited. Thomson also states that he has enclosed a "geometrical discussion of [M.S.] Bartlett's form of estimation" (not archived), referencing Bartlett's letter to *Nature*.
17 (38)	13 March 1938	Glenapp via Girvan	10 pages	Thomson discusses at length M.S. Bartlett's "case" regarding "each person's ability in the 'unkown' quality e", referencing "specification equations" and "methods of estimation". See also 17 a (38)
17a (38)	20 March 1938	Glenapp via Girvan	2 pages	Letter accompanying another letter from 20 March (17 a (38)), which Thomson decided to wait to send). Thomson mentions Ledermann's correspondence with Paul Horst and Ledermann's work on minimum trace and minimum rank.
18 (38)	31 March 1938	Glenapp via Girvan	2 pages	Thomson asks Ledermann for an explanation of how "Thurstone rotates the axes to the position of Simple Structure", for use in a book Thomson is writing.
19 (38)	31 March	Glenapp via	8 pages	In view of his book chapter on "Boundary Conditions" Thomson asks for Ledermann's opinion

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	1938	Girvan		on "the rule", which Thomson outlines, using examples. Thomson also asks for input concerning "Thurstone's iterative process for finding the communalities", first outlining what the process is.
20 (38)	6 April 1938		Postcard	The postcard outlines mathematical instructions regarding a matrix.
21 (38)	12 April 1938	Glenapp via Girvan	4 pages	Thomson informs Ledermann of his travel plans for April and May, and instructs Ledermann to do some editing work on his book.
21 a (38)	19 April 1938	Glenapp via Girvan	2 pages	Thomson informs Ledermann that he has sent him copies of his book.
21 b (38)	21 May 1038		Postcard	Thomson briefly mentions his travels in Czechoslovakia and Sweden.
22 (38)	25 May 1938	Glenapp via Girvan	1 page	Thomson mentions offprints he had asked Ledermann to order.
23 (38)	29 May 1938	Glenapp via Girvan	10 pages	The folio contains a one page letter in which Thomson remarks on Ledermann's notes about Thomson's book (regarding a formula), followed by a postscript dated the same day in which Thomson answers Ledermann's question "what other accident occurs in Burt's matrix apart from the fact that it is doubly centered?" A further postscript dated 30 May 1938 goes over the question "when a Heywood [battery?] becomes impossible?"; it includes mathematical notes.
24 (38)	1 June 1938	Glenapp via Girvan	1 page	Thomson states "I am glad I was right about formula", presumably referring to the formula discussed in folio 23 (38). He also states that his manuscript is nearly finished.
25 938)	8 June 1938	Glenapp via Girvan	1 page typed	Thomson gives his thoughts on Ledermann applying for a temporary teaching post in Swansea.
26 (38)	10 June 1938	Glenapp via Girvan	1 page typed	Thomson asks Ledermann to review [L.L.] Thurstone's *Primary Mental Abilities* to check on the covariances of the estimated factors, and also mentions Thurstone's comment in the book about "Spearman's factor g".
27 (38)	12 June 1938	Glenapp via Girvan	2 pages	Thomson mentions that he has "qualms" about the section in his book on simple structure and asks Ledermann to read it again. Thomson also asks Ledermann a question regarding the distribution of a set of factor axes that have been rotated into a position of "simple structure".
28-29 (38)	14 and 15 June 1938		5 pages	Paper titled "Professor Thomson's Letters of June 14th and 15th on Distribution of Loadings". It discusses the distribution of loadings found in Thurstone's example in *Primary Mental Abilities.*
30 (38)	17 June		Postcard	Thomson asks Ledermann to find the latent root of a matrix of " 'natural' variances and

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	1938			covariances of a hierarchical battery on the Sampling Theory" (providing the mathematical text).
31 (38)	21 June 1938	Glenapp via Girvan	Postcard	Thomson thanks Ledermann for the latent roots discussed in 30 (38) and offers comments.
32 (38)	25 June 1938	Glenapp via Girvan	3 pages typed	Thomson thanks Ledermann for his letters and discusses the question of unimodality or bimodality, providing a graph and referencing Thurstone's *Primary Mental Factors* and "Woodrow's experiment".
32 (38)

(out of date sequence) | 1 July 1938 | Glenapp via Girvan | 2 pages | Thomson comments on Ledermann's "analytical expression of the difference between [people?] correlations and partial correlations for constant mean score." |
33 (38)	26 June 1938	Glenapp via Girvan	6 pages typed	Thomson discusses what he calls "profile correlations", providing matrices of marks in the letter. Thomson references [Cyril] Burt's article the "Analysis of temperaments" in the *British Journal of Medical Psychology*, vol. 17.
34 (38)	28 June 1938	Glenapp via Girvan	2 pages	Thomson comments on Ledermann's thoughts on bimodal distribution. Thomson references Thurstone's *Primary Mental Factors.*
33 (38) (number repeated)	4 July 1938	Glenapp via Girvan	1 page	Thomson expresses his sorrow over the Ledermann's father's accident and wishes him a speedy recovery, and hopes that the Colloquium at St. Andrews will take his mind off it.
NOTE: Copy of letter from Ledermann to Thomson	15 July 1938	174 Gloucester Terrace, London	2 pages	Copy of a letter from Ledermann to Thomson. Ledermann informs Thomson that he was offered the position of the Assistant Lecturer in the Mathematics department at St. Andrews, and expresses his excitement about the opportunity but also his regret that it would take him away from research work with Thomson.
Offprint	1938		1 page	"Methods of Estimating Mental Factors" by M.S. Bartlett, reprinted from *Nature*, Vol. 141, Feb. 1938.
Unnumbered	March 9 (1938?)			Paper titled "Copy of Professor Thomson's M.S. on Regression and Bartlett's Estimates". Includes diagram.
34 (38)	16 July 1938	Glenapp via Girvan	1 page	Thomson congratulates Ledermann on his university teaching post and mentions that Ledermann should contact the Senate about his thesis.
35 (38)	26 July	Glenapp via	1 page	Thomson mentions the "*Psychometrika* articles" and Ledermann's " 'Univariate' note" and

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		Girvan		offprints.
36 (38)	6 August 1938	Glenapp via Girvan	1 page	Thomson states he has received 25 offprints of Ledermann's *British Journal of Psychology* article.
37 (38)	6 Sept 1938	Ravelston Dykes	1 page	Thomson gives Ledermann his schedule for the next month, also mentioning Ledermann's note on sampling distribution and selection.
37 a (38)	11 Sept. 1938	Ravelston Dykes	2 pages	Thomson comments on Ledermann's manuscript, including his use of the term "correlational matrices".
NOTE: Copy of letter from Ledermann to Thomson	21 Oct 1938	1 Pilmour Place, St. Andrews	1 page typed	Letter from Ledermann to Thomson; Ledermann notes his disappointment over an enclosed letter from Professor T. Hudson Beare of the University of Edinburgh (not archived) regarding his application for a D.S.c. degree, and asks Thomson for advice. Ledermann also reports that his paper on Sampling Distribution and Selection was deemed appropriate for reproduction in *Biometrika* by Professor E.S. Pearson, and that article on "The Orthogonal Transformation of a Factorial Matrix into Itself" was accepted for publication by *Psychometrika*.
38 (38)	22 Oct 1938	Moray House	2 pages	Thomson expresses disappointment over the decision of the "Faculty of Science" regarding Ledermann, and encourages him to approach St. Andrews. Thomson mentions their joint articles on Multivariate Selection and other articles awaiting publishing, and also mentions that Spearman has written an " 'anti-Thomson' " article in the *British Journal of Psychology.*
39 (38)	31 Oct 1938	Moray House	1 page typed	Thomson informs Ledermann that two articles by Ledermann-"The Orthogonal Transformation of Factorial Matrix into Itself" and "On a Shortend Method of Estimation of Mental Factors by Regression" have been accepted for publication by *Psychometrika*.
40 (38)	25 Nov 1938	Moray House	2 pages	Thomson mentions several articles, including "The Unit Hierarchy and its Properties" by Cyril Burt and "A method for finding the inverse of a matrix" by Ledyard R. Tucker, also making references to work by A.C. Aitken.
NOTE: Copy of letter from Ledermann to Thomson	4 Dec 1938	1 Pilmour Place, St. Andrews	1 page typed	Letter from Ledermann to Thomson. Ledermann states that he has been advised to not take any steps regarding his DS.c. degree at St. Andrews and asks Thomson to help sort out his situation from Edinburgh, and also mentions proofs for his article in *Biometrika.*
41 (38)	Dec 1938	Ravelston Dykes	Postcard	Thomson states that Ledermann's successor, D.N. Lawley is now in Edinburgh, and that he will think about what Ledermann should do regarding his degree situation
42 (38)	17 Dec	Ravelston	2 pages	Thomson briefly mentions a *Biometrika* offprint and urges Ledermann to not spend too much

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	1938	Dykes		time preparing lectures, thus overworking himself.
34 (38)	19 Dec 1938	Ravelston Dykes	2 pages	Thomson responds to a letter from Ledermann which lists books given from the Carnegie Trust; Thomson mentions that he may want "Thurstone, Alexander and Holzinger" to give to a student.
Unnumbered			11 pages typed	Copy of letter titled "M.S. Bartlett's Letter on Estimation", from M.S. Bartlett to Thomson. Bartlett writes the letter to Thomson in view of their conflicting opinions regarding estimation, setting out his case with examples, making references to the Spearman case.

Folder III: Letters numbered 1 (39) – 13 (39); 1 (40) - 3 (40), plus unnumbered letters
Godfrey Thomson to Walter Ledermann (unless otherwise noted), 1939-1954

Folio #	Date	Sent from	Length	Content
NOTE: Copy of letter from Ledermann to Thomson	25 Apr 1939	1 Pilmour Place, St. Andrews	1 page typed	Letter from Ledermann to Thomson. Ledermann tells Thomson that he may be given the Carnegie Teaching Fellowship from 1 Oct 1939, which would involve original research work. Ledermann asks Thomson if he may continue the work on Factorial Analysis he began as Thomson's Assistant.
1 (39)	26 April 1939	Ravelston Dykes	1 page	Thomson tells Ledermann he is delighted about the Teaching Fellowship possibility referred to in a letter dated 25 April, as it would allow Ledermann to continue work on Factorial Analysis.
2 (39)	19 June 1939	Moray House	1 page typed	Thomson responds to a letter from Ledermann, Thomson states he would be happy to re-send previous letters to him again, and asks Ledermann to specify particular subjects he is interested in.
NOTE: Copy of letter from Ledermann to Thomson	24 June 1939	3 Church Crescent London	1 page typed	Letter from Ledermann to Thomson. Referring to a letter from Thomson (folio 2 (39)), Ledermann states that we would like to take up " 'maximizing and minimizing the specifics' " , and also mentions that he has "not been able to make much of " W.G. Madow's paper on Multivariate Statistical Analysis.

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3 (39)	4 July 1939	Ravelston Dykes	2 pages	Thomson encloses some manuscripts regarding the question of minimum rank and trace (not archived), and further discusses the question. He also mentions that the current issue of *Psychometrika* contains Ledmermann's paper on shortened estimation.
4 (39)	1 August 1939	Glenapp via Girvan	4 pages	Thomson asks Ledermann to review a matrix, which he transcribes in the letter, which Thomson suspects is a misprint. Thomson also asks him to do some calculations concerned with an experiment with Performance Tests.
5 (39)	10 Aug 1939	Glenapp via Girvan	3 pages	Thomson comments on Ledermann's manuscript and suggests he send it to the Royal Society in Edinburgh. Thomson also discusses his "calculations" and suggests that Ledermann go to Mr. Kendall of the Agriculture and Fisheries for assistance with the calculations, which are "two Thurstone centroid analyses". Thomson also encloses the "girls data" (not archived) and asks Ledermann to "undertake the supervision" of them.
6 (39)	14 August 1939	Glenapp via Girvan	Postcard	Thomson asks Ledermann to do nothing further with the calculations (see 5 (39)) until he hears further from Thomson.
7 (39)	24 Aug 1939	Glenapp via Girvan	1 page	Thomson states that he is glad Dr. [Comrie?] "had become interested in the problem" but it will have to wait. .
8 (39)	21 Sept 1939	Ravelston Dykes	2 pages	Thomson thanks Ledermann for "the sheets", although they were not of any great value, and mentions that he nearly has the correlations "in the perfectly accurate form". Thomson also mentions that his son Hector is possibly in the Eastern Mediterranean.
10 (39)	11 Oct 1939	Ravelston Dykes	2 pages	Thomson briefly discusses the ordering of offprints.
11 (39)	28 Oct 1939	Ravelston Dykes	4 pages	Thomson discusses two papers of E.B. Wilson and Jane Worcester of Harvard University from the Proceedings of the National Academy of Sciences [of America]. The letter includes mathematical notes and discusses sets of communalities.
			1 page	Notes on criterion (as in the Minnesota book) and intelligence tests
12 (39)	28 Oct 1939	Moray House (EPC)	1 page	Thomson returns Ledermann's manuscript for the Royal Society with amendments as suggested by a referee. Thomson also ponders whether Professor Kendall will apply for a Carnegie grant.
12a (39)	15 Nov 1939	Ravelston Dykes	3 pages	Thomson invites Ledermann to tea, and then discusses an article by E.B. Wilson and Jane Worcester (see 11 (39)), transcribing two matrices from their paper. Thomson also mentions that he has heard from his son Hector, who had been working in Nicosia.
13 (39)	5 Dec 1939	Ravelston	1 page	Thomson reminds Ledermann to order 150 offprints of his Royal Society article, which the

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		Dykes		Research Fund will pay for.
Unnumbered	8 Jan 1940	Glenapp via Girvan	1 page	Thomson invited Ledermann to a meeting of the " 'Factorial Club'" , at which Thomson will open a discussion of [Cyril] Burt's *The Factors of the Mind.*
1 (40)	30 Jan 1940	Ravelston Dykes	1 page	Thomson invites Ledermann to dinner.
2 (40)	16 Feb 1940	Ravelston Dykes	Postcard	Thomson points out what he believes to be a misprint in Ledermann's paper.
3 (40)	26 Feb 1940	Ravelston Dykes	1 page	Thomson asks Ledermann to stop by his office when Ledermann is at Moray House, so Thomson can introduce him to Mr. James Duff from the University of Durham.
Unnumbered	16 April 1940	Moray House	2 pages	Thomson briefly reflects on the state of world.
Unnumbered	24 June 1940	Ravelston Dykes	2 pages	Thomson thanks Ledermann for sending a copy of his thesis, and congratulates him on his Doctorate.
Unnumbered	12 Nov 1940	Moray House	1 page typed	Thomson invites Ledermann to a series of meetings in Room 70 at Moray House to discuss the mathematics of mental testing.
Unnumbered	21 January 1941	Ravelston Dykes	14 pages	Thomson first states he is glad that Ledermann will be present at the "Factorial Club". He then goes into a lengthy discussion of [Cyril] Burt's theories, in particular his " 'reciprocity of tests and person'" and "the approximate sense in which according to Burt this reciprocity holds even when the conditions are absent which cause it to be exact." The letter includes lengthy mathematical notes. There are further mathematical notes of the backs of some of the pages.
Unnumbered	12 Feb 1941	Ravelston Dykes	6 pages	Thomson responds to a query from Ledermann regarding a "Table V", outlining his response with mathematical equations and charts. At the end of the letter he states "we can talk about these things on Friday" and further mentions that there is something that he does not understand about "Burt's approximate reciprocity".
Unnumbered	2 March 1941	Ravelston Dykes	2 pages	Thomson states that he was glad to read Ledermann's attack on the " 'reciprocity'" problem, and goes through his thoughts on the matter, referring to work of [Cyril] Burt and [Harold] Hotelling.
Unnumbered			3 pages typed	Paper titled "Geometrical Illustrations of Factors and Correlations", containing diagrams.
Unnumbered			2 page	Offprint- "A Shortened Method of Estimation of Mental Factors by Regression" by Walter Ledermann (from *Nature*, 1938)

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Unnumbered	12 Nov 1941	Moray House	1 page	Thomson asks Ledermann if we would speak with him at the Royal Society, Edinburgh about their work on Factorial Analysis (in addition to Mr. Lawley).
Unnumbered	18 Dec 1941	Moray House	2 pages	Thomson wishes Ledermann and his family a Merry Christmas and Happy New Year, and them comments on a paper by Ledermann.
Unnumbered	18 April 1942	Glennap	2 pages typed	NOTE: copy of letter from Thomson to Dr. Herdan. Thomson expresses his difficulty in understanding an article by Dr Herdan, outlining his thoughts.
Unnumbered	13 Dec 1942	Moray House	10 pages typed	Thomson sends Leadermann a copy of his lecture on "Factoral Analysis of Human Ability" (attached) which he is delivering on 2 Feb. The text of the lecture includes diagrams.
Unnumbered			3 pages typed	Paper on "Positive Structure in Factorial Analysis"- includes diagrams and annotations.
Unnumbered			4 pages typed	Review of paper by G. Herdan titled "The Factorization of Political Vocabulary".
Unnumbered	9 July 1942 (Out of sequence)	Glenapp via Girvan	1 page	Thomson states that he would like Ledermann's opinion of a review in *Science* by [Harold] Hotelling.
Unnumbered	28 July 1945	Glenapp via Girvan	3 pages (clipped with letters below)	Thomson asks Ledermann to consider "a question concerning the rotation of orthogonal axes, retaining their orthogonality". The letter includes mathematical notes.
Unnumbered	29 July 1945	Glenapp via Girvan	3 pages	Thomson asks Ledermann for his input in view of the new edition of his *The Factorial Analysis [of Human Ability]*, regarding oblique factors.
Unnumbered	17 July 1945	Glenapp via Girvan	4 pages	Thomson thanks Ledermann for his letter and comments on his findings. Also includes a postscript in which Thomson continues a discussion about "your proof of the reciprocity of reference vectors and primary factors. . ."
Unnumbered	13 July 1945			Clipped with above letters. Draft of letter to Thomson, from Ledermann (?) regarding his criterion for simple structure.
Unnumbered	30 March 1941 (Out of sequence)	Glenapp via Girvan	Postcard	Thomson thanks Ledermann for his postcard.

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Unnumbered	20 Jan 1946	Ravelson Dykes	2 pages	Thomson asks Ledermann to do a calculation regarding two matrices.
Unnumbered	1 March 1946	Ravelson Dykes	2 pages	Thomson congratulates Ledermann on his appointment to the Grade II lectureship in mathematics at St. Andrews, and thanks him for the notes about the proof.
Unnumbered	28 Jan 1946	Ravelson Dykes	2 pages	Thomson states that he has received Ledermann's calculations, but there is no point in going on because the matrix is a 'Heywood' case and will not serve his purpose.
COPY: Letter to Prof. Thomson from G. Herdan	20 Aug 1942	Thornton Road Cambridge	2 pages typed	G. Herdan explains the way in which he has applied the Sampling Theory to the data of the experiment.
Unnumbered			1 page	Notes on [Cyril] Burt's "Table V", page 405. (see letter dated 12 Feb. 1941)
Unnumbered	October 1942		2 pages typed	Paper titled "For Factorial Club Meeting. Confidential. On the use of regression equations for identifying aesthetic 'types'", by E.A. Peel.
Unnumbered	Nov 1942		2 pages typed	Paper titled "The Factorization of Political Vocabulary" by G. Herdan
Unnumbered			3 pages typed	Paper with mathematical notes and charts
Unnumbered			10 pages	Draft of review of *The Factors of the Mind* by Cyril Burt, 1940. Pages of letters also have writing on the other side.
Unnumbered			2 pages typed	4 tables from the *Factors of the Mind?*
Unnumbered	22 Jan 1946	Moray House	2 pages	Thomson encourages Ledermann to be Lawley's successor at Moray House if he decides to leave St. Andrews, noting the salary and the risks involved. Thomson contemplates the future of "Room 70" once he retires in 1951.
Unnumbered	27 March 1951	Ravelston Dykes	2 pages	Thomson writes his surprise at receiving a letter from Ledermann. Thomson contemplates his age and briefly reminisces.
Unnumbered	25 March 1954	Ravelston Dykes	3 pages	Thomson discusses a paper by Ahmavaara and asks Ledermann to comment on Thomson's interpretations of what the paper says about "multivariate selection being always reducible to a succession of univariate selections". Thomson refers to his "Factorial Analysis".
Unnumbered			11 pages typed	Extract from Review by Godfrey Thomson of [Cyril] Burt's *The Factors of the Mind* in *Occupational Psychology*, 1941. Also includes typed transcript of a letter from Thomson to Burt

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				dated 7/8/41 regarding H.D. Wing's article "Factorial Study of Musical Tests" from Bartlett's Journal, plus a typed transcript of Burt's reply to Thomson dated 5/9/41.
Unnumbered	11 Jan 1943	Ravelston Dykes	7 pages	Thomson asks Ledermann about university examinations in Germany and writes about the formula "'number of common elements divided by the geometrical mean of the two totals'" using a dice throw as an example.
Unnumbered	24 May 1954	Ravelston Dykes	2 pages	Thomson mentions that he would like Ledermann's view of an article in *Psychoemetrika* on "Selection and Invariance in factorial analysis".

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