CONTEMPORARY SCIENTIFIC ARCHIVES CENTRE

Catalogue of the papers and correspondence of

DOUGLAS RAYNER HARTREE, FRS

(1897-1958)

Compiled by Jeannine Alton and Harriot Weiskittel

Deposited in the Archives,
Christ's College, Cambridge

CSAC 45/9/76

Title:	Catalogue of the papers and correspondence of Douglas Rayner Hartree, 1897-1958, mathematician
Compiled by:	Jeannine Alton and Harriot Weiskittel
Description level:	Fonds
Date of material:	1932-1950
Extent of material:	4 boxes
Deposited in:	The Archives, Christ's College, Cambridge
Reference code:	GB 0267 D.R. Hartree papers

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Description of the collection

The manuscripts were received from Mrs. Elaine Hartree (widow), and from Professor M.V. Wilkes (Items 15 and 16).

Items 1-12 consist of manuscript notes and drafts, many heavily revised, for books projected but not completed by Hartree as single author or in collaboration. Lady Jeffreys (née Bertha Swirles, Hartree's collaborator on his proposed book on Mechanics (Items 1-10)) retains some duplicated lecture-notes of his courses, and some calculations made by his father, William Hartree, on an early, hand-operated Brunsviga.

Items 15 and 16 were received from Professor Wilkes, whose explanatory notes accompany both files. Item 15 consists of Hartree's notes for a course of lectures on Partial Differential Equations to be given in the University of Cambridge; Item 16 is notes taken by him of lectures given by A.M. Turing 1946-47. Fuller information on both these files is given in the handlist below.

Item 17 consists of Xerox copies of letters, or notes of letters, written by Hartree to E.V. Appleton; they were received from Mrs. Hartree via Professor C. Stewart Gillmor.

Some of Hartree's early calculating machines are held in the Science Museum, South Kensington, London.

All the items in the handlist are manuscript unless otherwise stated. Titles and descriptions in inverted commas are those which appear on the documents.

Summary of the career of D.R. Hartree

b.1897	Cambridge.
1910-15	educated Bedales School.
1915	St. John's College, Cambridge (Scholar).
1915-19	Work with A.V. Hill, Anti-Aircraft Experimental Section, Munitions Inventions Department.
1918-22	Mathematical Tripos Pt.I, Natural Sciences Tripos (Physics), Pt.II.
1923	married Elaine Charlton.
1924-27	Fellow, St. John's College, Cambridge.
1926	Ph.D., Cambridge.
1928-29	Fellow, Christ's College, Cambridge.
1929-37	Beyer Professor of Applied Mathematics, University of Manchester.
1932	Fellow of the Royal Society.
1937-46	Professor of Theoretical Physics, University of Manchester.
1939-45	Work on scientific staff, Ministry of Supply.
1946-58	Plummer Professor of Mathematical Physics, University of Cambridge; Fellow of Christ's College

Items 1-10: Mechanics

Extensively-revised manuscript and typescript drafts for projected book on 'Mechanics' in 2 vols.: 'Statics' and 'Dynamics', to be written by Hartree in collaboration with Dr. Bertha Swirles (now Lady Jeffreys) and published by Cambridge University Press. The book was not completed.

1. 'Book on Dynamics'
   Correspondence with S.C. Roberts (Secretary to Syndics, C.U.P.) and with Dr. Swirles; Hartree's outline sketches for chapter contents 1-19. 1932-33

2. 'Chapter 2. Vectors'
   Ms. drafts and revisions; correspondence with co-author re book, and re British Association meeting at Norwich. 1935

3. 'Chapter 3' (Kinematics of a Particle)
   Ms. drafts and typescr.

4. 'Chapter 4. Laws of Motion'
   Ms. drafts and typescr.

5. 'Chapter 5' ('Special Cases of rectilinear motion of a particle')
   Ms. drafts and typescr.

6. 'Chapter 6' ('Special Motions of a Particle in Two Dimensions')
   Ms. drafts and typescr.

7. 'Chapter 8' ('Localised Vectors, Moments, Vector Products')
   Ms. drafts and typescr.

8. 'Chapter 9' ('Motion of a System of Particles')
   Ms. drafts and notes; typescr.

9. 'Chapter 11' ('The Kinematics of a Rigid Body in Two Dimensions' - later renumbered as Chaps. 12 and 13)
   Ms. drafts and typescr.

10. 'Chapter 12' ('The Dynamics of a Rigid Body in Two Dimensions')
    Ms. drafts and typescr.

11. 'Introduction to Wave Mechanics'
    Drafts of uncompleted book;
    typescr. of Chapter 2: 'Particles and Waves.'
    Chapter 6: 'Momentum and Moment of Momentum.'
    Chapter 9: 'Many-particle systems.'
    Chapter 13: 'Relativity and wave mechanics.'

12. Introduction and typescr. Chapters I-III of projected book on differential equations:

Chapter I: How differential equations arise in scientific and technical problems.
Chapter II: Introductory concepts.
Chapter III: First-order linear equations.

13. Misc. press-cuttings and reviews of Hartree's book Calculating Instruments and Machines, Illinois U.P. 1949, Cambridge U.P. 1950.

14. Copy of Calculating Machines, Hartree's Inaugural address as Plummer Professor of Mathematical Physics, Cambridge. 1947

15. 'Numerical treatment of partial differential equations' 34pp. Ms. Notes for a course of lectures to be given in the University of Cambridge. These were received from Professor M.V. Wilkes whose explanatory note of 2 August 1976 is attached. It runs 'In the Lent Term 1958, Hartree told me that he was about to go into the Evelyn Nursing Home. He expected to be out in time to give a course of lectures on P.D.E.s that he had announced for the second half of the term, but that he would, as a precaution, like to give me his notes so that I could deputise for him if necessary.

Hartree collapsed in the street on his way to the Nursing Home and was taken to Addenbrooke's Hospital where he died'.

16. Notes taken by Hartree of lectures by Alan M. Turing (received from Professor M.V. Wilkes whose explanatory note of 2 August 1976 is attached).

These are part of the notes taken by Hartree of a course of 7 lectures given at the Ministry of Supply, London, by Turing Dec.1946-Jan.1947 on the design of A.C.E.* They relate to Lecture 6 (23 Jan.1947), 5pp., and Lecture 7 (30 Jan.1947), 4pp., plus 1p. diagram.

17. Copies of letters by Hartree to E.V. Appleton, 4 April 1933, 9 August 1934, and notes on two further letters, 22 February 1936, 6 June 1936.

* ACE: Automatic Computing Engine