

THE ROYAL SOCIETY

THE ROYAL COMMISSION ON HISTORICAL MANUSCRIPTS

Committee on Scientific and Technological Records

CONTEMPORARY SCIENTIFIC ARCHIVES CENTRE

Papers of

THEODORE WILLIAM CHAUNDY

(1889 - 1971)

Listed by: Jeannine Alton  
Harriot Weiskittel

Deposited in the Bodleian Library, University of Oxford

1975

### Description of the collection

The papers, which cover the years 1910 - 1951, were received from Mrs. Chaundy.

They consist almost entirely of lectures on mathematics delivered in the University of Oxford. Some have annotations and revisions, perhaps with a view to publication (see items 25-32).

Chaundy kept the lectures in files with his name and address and usually a date; he classified them by a letter and subscript numeral. The alphabetical sequence has been retained, although it does not correspond with chronological order; work classified under one letter group may span several years, while incomplete sequences (e.g. 'B' or 'N') appear to indicate that some lectures are missing. Some files contained loose notes, calculations or correspondence; these have been extracted and appear as separate items immediately following the relevant file.

Unless otherwise stated, all items are manuscript. Titles in inverted commas are those on the manuscripts.

Advice on identification and technical terms was kindly given by Dr. Peter Collins, Fellow of St. Edmund Hall, Oxford.

### Summary of career

b.1889	Oxford
1906 - 09	Mathematical Scholar at Balliol, Oxford
1909	Honours School of Mathematics, First Class
1910	Lecturer in Mathematics, Christ Church
1912 - 56	Student and tutor, Christ Church
1927 - 47	University Lecturer in Mathematics
1947 - 56	University Reader in Mathematics
1956	Retirement; Emeritus Student, Christ Church

A photocopy of an obituary of Chaundy which appeared in a Christ Church Report 1971 has been included with the collection. An obituary notice appeared in the Times on 16 April 1966.

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|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 1.  | A 1 | 'Algebra'                                                                                                                                                                            | September 1944                  |
| 2.  | A 2 | 'Algebra. Continued fractions'                                                                                                                                                       | September 1944                  |
| 3.  | B 1 | 'Analytical projective geometry. The one-fold cross ratio (1,1) correspondence'                                                                                                      | May 1924                        |
| 4.  | B 2 | 'Algebraic projective geometry. The straight line'                                                                                                                                   | June 1924                       |
| 5.  | B 3 | 'Analytical projective geometry. The conic'                                                                                                                                          | May 1925                        |
| 6.  | B 5 | 'Invariants and covariants of conics'                                                                                                                                                | May 1925                        |
| 7.  | B 6 | 'Poncelet's poristic polygons'                                                                                                                                                       | September 1925                  |
| 8.  | C 1 | 'Theory of convergence. Convergent sequences'                                                                                                                                        | December 1925                   |
| 9.  | C 2 | 'Theory of convergence (to be read concurrently with C 1). Infinite sets and their bounds'                                                                                           | September 1927                  |
| 10. | C 3 | 'Theory of convergence. Irrational number'                                                                                                                                           | January 1926<br>October 1927    |
| 11. | C 4 | 'Theory of convergence. Exponential & logarithmic functions'                                                                                                                         | March 1926<br>October 1927      |
| 12. | C 5 | 'The theory of convergence. Series of positive terms (Convergence tests)'                                                                                                            | October 1927                    |
| 13. | C 6 | 'Theory of convergence. Absolute convergence (including properties of series of positive terms)'                                                                                     | November 1927                   |
| 14. | C 7 | 'Theory of convergence. The binomial expansion. Allied expansions' (this file also contained items 15 - 23)                                                                          | November 1927                   |
| 15. |     | 'Theory of convergence. C 5. The binomial and kindred expansions'                                                                                                                    | February 1923                   |
| 16. |     | 'Solid lecture. T 6. Invariants and covariants of conicoids'                                                                                                                         | n.d.                            |
| 17. |     | 'The algebraic expression as sums of squares of products themselves sums of squares'                                                                                                 | 1911                            |
| 18. |     | 'Products of Pfaffians' (2 drafts of lecture) and 2 sets of notes and calculations labelled 'pfaffians'                                                                              | n.d.                            |
| 19. |     | 'The conditioned positive quadratic form'                                                                                                                                            | n.d.                            |
| 20. |     | 'The measure of curvature'                                                                                                                                                           | n.d.                            |
| 21. |     | 'Add to Riemann's equation' (miscellaneous notes)                                                                                                                                    | n.d.                            |
| 22. |     | Letter from 'J.L.B.' to Chaundy on mathematical points; letter from W.G.L. Sutton to 'Hodgkinson' enclosing notes on 'Transformation group of a linear diff. eq.', Picard, Ch. XVII. | 4 June 1943<br>18 February n.d. |
| 23. |     | 'Application to double-six'                                                                                                                                                          | n.d.                            |

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|-----|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 24. |     | Miscellaneous sets of unlabelled notes and calculations, many on verso of O.U. <u>Gazette</u> , lecture lists etc.                                                                                         | n.d.                          |
| 25. | D 1 | 'Elementary differential geometry of the plane. Intrinsic coordinates'                                                                                                                                     | n.d.                          |
| 26. | D 1 | 'Differential geometry of the plane. The "elements" of a curve'                                                                                                                                            | April 1928                    |
| 27. | D 2 | 'Differential geometry of the plane. Contact and curvature' (miscellaneous notes included)                                                                                                                 | April 1928                    |
| 28. | D 3 | 'Differential geometry. Singular points. Evolutes and involutes'                                                                                                                                           | May 1928                      |
| 29. | D 4 | 'Differential geometry. Some popular curves' (miscellaneous notes included)                                                                                                                                | May 1928                      |
| 30. | D 5 | 'Differential geometry. Envelopes. (Straight lines)'                                                                                                                                                       | June 1929                     |
| 31. | D 6 | 'Differential geometry. Envelopes. (Curves in general)'                                                                                                                                                    | June 1929                     |
| 32. | D 7 | 'Differential geometry. Curvilinear coordinates'                                                                                                                                                           | June 1930                     |
| 33. | D I | 'Differential geometry of the plane curve in seven chapters' Typescript with ms. annotations of chapters with titles as above (items 26 - 32); each chapter bears the notation 'T.W.C. copied 1945 K.M.O.' | c. 1945?                      |
| 34. |     | Duplicate set of typescripts (with no annotations)                                                                                                                                                         |                               |
| 35. | E 1 | 'Elliptic functions. Singly-periodic functions' (this file also contained items 36 - 39)                                                                                                                   | May 1921                      |
| 36. |     | 'I. Doubly periodic functions'                                                                                                                                                                             | September 1923                |
| 37. |     | 'II Weierstrass's $p$ -function'                                                                                                                                                                           | September 1923                |
| 38. |     | 'III Addition formulae'                                                                                                                                                                                    | September 1923                |
| 39. |     | 'IV Pseudo-elliptic functions'                                                                                                                                                                             | September 1923                |
| 40. | E 2 | 'Elliptic Functions. The definition of $\text{sn } u$ '                                                                                                                                                    | July 1921<br>September 1923   |
| 41. | E 3 | 'Jacobi's doubly periodic functions. $\text{cn}$ and $\text{dn}$ transformations'                                                                                                                          | July 1921                     |
| 42. | E 4 | 'Weierstrass's functions $p(z)$ '                                                                                                                                                                          | January 1922<br>February 1924 |
| 43. | E 5 | 'Elliptic functions. The addition-formulae'                                                                                                                                                                | February 1925                 |

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|-----|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| 44. | E 6  | 'Elliptic functions. Integration' (with set of calculations)                                                                                                        | February 1922                                               |
| 45. | E 7  | 'Elliptic functions. The general elliptic functions'                                                                                                                | March 1922                                                  |
| 46. |      | 'Addition-formulae' (found in item 45)                                                                                                                              | n.d.                                                        |
| 47. | F 1  | 'Partial differential equations. Linear equations of the first order'                                                                                               | March 1932                                                  |
| 48. | F 2  | 'Partial differential. Differential equations. Compatible systems (linear, first order)' (with misc. notes and calculations)                                        | April 1932                                                  |
| 49. | F 3  | 'Partial differential equations of the first order. Clairaut's equation'                                                                                            | March 1932<br>November 1935                                 |
| 50. | F 4  | 'Partial differential equations of the first order. Method of duality and the equation $x f(p,q) + y g(p,q) + z h(p,q) + k(p,q) = 0$ '                              | February 1937<br>May 1932<br>November 1935<br>February 1937 |
| 51. | F 5  | 'Partial differential equations. First order: non-linear. Structure of the solution' (with note by Chaundy 'before F 4')                                            | May 1932<br>November 1935                                   |
| 52. | F 6  | 'Partial differential equations of the first order. Singular solutions. Lagrange's equation' (with note 'begin here p.68' and miscellaneous notes and calculations) | n.d.                                                        |
| 53. | F 7  | 'Partial differential equations of the first order. Compatible systems: complete systems'                                                                           | March 1937                                                  |
| 54. | F 8  | 'Partial differential equations of the first order. Incomplete systems: Charpit's principle'                                                                        | March 1936, 1937                                            |
|     | F 12 | contained items 55 - 62 as follows:                                                                                                                                 |                                                             |
| 55. |      | 'Poncelet's poristic polygons (second paper)'                                                                                                                       | August 1924                                                 |
| 56. |      | 'Real representation of non-real points'                                                                                                                            | n.d.                                                        |
| 57. |      | 'Cycle-points'                                                                                                                                                      | n.d.                                                        |
| 58. |      | 'The deformation of a spherical sound-wave by a linear wind'                                                                                                        | 11 December 1917                                            |
| 59. |      | 'A general theorem'                                                                                                                                                 | n.d.                                                        |
| 60. |      | notes on 'non-metrical geometry'                                                                                                                                    | n.d.                                                        |
| 61. |      | draft of letter to 'Pidduck';<br>letter from E.B. Elliott to Chaundy on his 'introduction of the negative radius'                                                   | n.d.<br>17 June 1910                                        |
| 62. |      | various notes, drafts and calculations                                                                                                                              | n.d.                                                        |

63. G 0 'Spherical trigonometry' May 1924
64. G 1 'Euclidean geometry. The fundamental transformation' April 1922
65. G 2 'Euclidean geometry. Systems of circles' April 1922
66. G 3 'Euclidean geometry. Coaxal circles (continued). Poncelet's theorem. Coaxal spheres' April 1922
67. G 4 'Properties of the triangle' July 1922
68. H 1 'Elementary differential equations. Legendre's functions. The hyperbolic equation' (this file also contained items 69 - 73) May 1951
69. Miscellaneous sets of notes entitled as follows: n.d.  
 'Solutions that depend on integral equations'  
 'Equations linear'  
 'Questions to be looked into'  
 'Various special forms. Assorted differential equations'  
 'Change of variables of integration'
70. Letter from 'J.L.H.' to Chaundy re mathematical problem. Envelope addressed to Professor Dixon containing draft of 'A problem in elimination' in J.L.H.'s hand with set of untitled notes 4 May 1926
71. - 73. Miscellaneous untitled sets of notes and calculations - mostly equations solutions n.d.
74. H 2 'Physical origin of Riemann's equation' n.d.
75. H 3 'Partial differential equations. Elliptic equations' April 1951
76. H 4 'Partial differential equations of higher orders. Euler's equation' June 1936
77. H 5 'Higher partial differential equations. Some extensions of Euler's equation' February 1939
78. H 5 'Partial differential equations of higher order. Linear equations with constant coefficients' (with annotations in unidentified hand) May 1938
79. H 7 'Partial differential equations. Parabolic equations' May 1951
80. I 1 'Algebraic forms. Elementary theory of the cubic and the quantic' July 1925
81. I 2 'Algebraic forms. The notion of invariants and covariants. Dimensional relations' May 1921
82. I 3 'Algebraic forms. Cogredience and contragredience. Standard covariants' May 1921  
 July 1924

83.	I 4	'Algebraic forms. Canonical forms. Catalecticant. Canonizant. $\text{Mu}^{-ic}$ '	May 1921
84.	I 5	'Algebraic forms. Binary quantics'	May 1921
85.	I 6	'Algebraic forms. Complete systems of covariants and of seminvariants'	August 1921
86.	I 7	'Algebraic forms. The cubic and quantic'	June 1922
87.	I 8	'Algebraic forms. Symbolism and founts'	March 1925
88.	K 1	'Integral calculus. Introduction'	August 1929
89.	K 2	'Integral calculus. Rational functions'	August 1929
90.	K 3	'Integral calculus. Rational integrals of rational function'	October 1929
91.	K 4	'Integral calculus. Irrational algebraic functions'	November 1930
92.	K 5	'Integral calculus. The Riemann Integral'	October 1930
93.	K 6	'Integral calculus. Recurrence formulae'	November 1930
94.	L 1	'Particle dynamics. Resisted motion in one dimension'	October 1927
95.	L 2	'Particle dynamics. Resisted motion in two dimensions'	November 1927
96.	L 3	'Particle dynamics. Central forces. Strings over pulleys'	November 1927
97.	M 1	'Forces in two dimensions'	September 1920
98.	M 2	'Forces in three dimensions'	September 1920
99.	M 3	'Dynamical notions in statics. ("Virtual", Work, Stability)'	September 1920
100.	N 3	'Determinants. Their definition and reduction. Solution of linear equations'	December 1924
101.	N 4	'Determinants. Multiplication of determinants. Reciprocal determinants. Symmetrical determinants'	December 1924
102.	N 5	'Determinants. Determinants of special form. Skew - symmetrical determinants'	1925, 1938
103.	O 1	'Ordinary differential equations. Linear equations. Equations with an "absolute" term. Adjoint operators'	September 1938

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|-------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 104.        | 0 2 | 'Ordinary differential equations. The Green's functions'                                                                                     | n.d.          |
| 105.        | 0 3 | 'Ordinary differential equations. Solution in power-series'                                                                                  | June 1939     |
| 106.        | 0 4 | 'Ordinary differential equations. Solutions by definite integrals'                                                                           | June 1939     |
| 107.        | 0 5 | 'Differential equations. Simultaneous linear equations with constant coefficients'                                                           | June 1932     |
| 108.        | 0 6 | 'Ordinary differential equations. Adjoints' (with notation in Chaundy's hand 'But conflate with the more recent 0 1, 0 2')                   | June 1938     |
| 109.        | 0 7 | 'Ordinary differential equations. Total differential equations'                                                                              | n.d.          |
| 110.        | 0 8 | 'Ordinary differential equations. Singular solutions'                                                                                        | February 1941 |
|             | 0 4 | File labelled 'Geometrical optics' with name and address: 'J.G. Freeman, Christ Church, Oxford' containing items 111 - 118 in Chaundy's hand |               |
| 111.        |     | 'Algebraic geometry': draft of lecture                                                                                                       | n.d.          |
| 112.        |     | 'Riemann (3)': set of calculations                                                                                                           | n.d.          |
| 113.        |     | 'Condition that a certain set of equations (quadric and linear) coexist. Analogy of Jacobians'                                               |               |
| 114.        |     | 'The general equation of 2nd order'                                                                                                          |               |
| 115.        |     | Untitled draft (first 2 pages missing) <u>re</u> 'Chauchy's existence theorem'                                                               |               |
| 116. - 118. |     | Miscellaneous sets of equation solutions (on verso of examination scripts), bibliographical notes.                                           |               |
| 119.        | P 1 | 'Projective geometry. Cross-ratio. Projection. The complete quadrilateral'                                                                   | August 1910   |
| 120.        | P 2 | 'Projective geometry. The Conic'                                                                                                             | August 1910   |
| 121.        | P 3 | 'Projective geometry. Reciprocation. Further focal properties'                                                                               | August 1910   |
| 122.        | P 4 | 'Projective geometry. Newton's theorem. Asymptotes. Quadratic ranges and pencils' (annotated at a later date)                                | August 1910   |
| 123.        | P 5 | 'Projective geometry. Properties of two triangles. Pencils and ranges of conics'                                                             | August 1910   |



124.	P 6	'Projective geometry. Systems in perspective. Plane homographics'	August 1910
125.	Q 1	'Algebraic eliminants. The eliminant of two polynomials'	September 1940
126.	Q 2	'Algebraic eliminants. The H.C.F. of $f(n), g(n)$ '	Revised November 1936
127.	Q 3	'Algebraic eliminants. Sturm's theorem'	February 1928
128.	Q 4	'Algebraic eliminants. Many common roots' (with notation in Chaundy's hand 'rewrite')	March 1928
129.	R 1	'Rigid dynamics. The motion of a rigid body'	December 1922
130.	R 2	'The rigid body. Dynamics of the motion'	January 1923
131.	S 1	'Solid geometry. The line and plane. The sphere'	October 1925
132.	S 2	'Solid geometry. The cone'	October 1924
133.	S 3	'Solid geometry. The general quadric. Projective theory (pole and polar)'	November 1924
134.	S 4	'Solid geometry. Reduction of the general quadric'	November 1924
135.	T 1	'Trigonometric series and integrals. Introductory integrals and the elementary Fourier series'	(September 1936) September 1947
136.	T 2	'Trigonometric series and integrals. The integrated series and associated integrals'	September 1936
137.	T 3	'Trigonometric series and integrals. Integrated series of the second kind'	September 1936 August 1948
138.	T 4	'Trigonometric series and integrals. Further integrals'	October 1936 November 1948
139.	T 5	'Trigonometric series and integrals' (this file also contained items 140 - 142)	October 1936
140.		Chaundy's notes (on verso of requests for application forms for Mathematical Scholarship, 1948) on various mathematical problems	
141.		'Appendix on Abel's artifice'	
142.		various miscellaneous notes and calculations	
143.	T 6	'Trigonometric series and integrals.' (file labelled on cover 'miscellaneous' and includes various notes in addition to T 6)	November 1936
144.	V 1	'Attractions. Fundamental theory'	November 1915

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|------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 145. | V 2 | 'Potential of ellipsoid at internal point. Addendum to be read in the appropriate place. Alternative method'                                                       | n.d.           |
| 146. | V 3 | 'Calculus of variations'                                                                                                                                           | January 1935   |
| 147. | V 4 | 'Calculus of variations'                                                                                                                                           | September 1935 |
| 148. | V 5 | 'Vector analysis in space'                                                                                                                                         | February 1935  |
| 149. | V 6 | 'Vector analysis. Kinematics and statics of a rigid body. (Read with R 1)'                                                                                         | July 1936      |
| 150. | V 7 | 'Vector analysis. The dynamics of a rigid body. (Read with R 2)'                                                                                                   | July 1936      |
| 151. | Z 1 | 'Functions of a complex variable. Conformal representation'                                                                                                        | February 1931  |
| 152. | Z 2 | 'The complex variable. The analytic function'                                                                                                                      | December 1931  |
| 153. | Z 3 | 'The complex variable. The integration of many-valued functions'                                                                                                   | May 1921       |
| 154. |     | Miscellaneous file containing ms. draft of 'Chapter IX. Parameters' and set of miscellaneous notes (neither in Chaundy's hand although both carry his annotations) | n.d.           |
| 155. |     | Ms. draft of 'II. The Straight Line' in Chaundy's hand                                                                                                             | n.d.           |
| 156. |     | Notes in unidentified hand with annotations and additional notes by Chaundy                                                                                        | n.d.           |