

CAYLEY

MATHEMATICAL
PAPERS

2

1889



MATHEMATICAL PAPERS.

THE COLLECTED

MATHEMATICAL PAPERS

CONTENTS OF

ARTHUR CAYLEY, Sc.D., F.R.S.,

SADLERIAN PROFESSOR OF PURE MATHEMATICS IN THE UNIVERSITY OF CAMBRIDGE.

VOL. II.
CAMBRIDGE:
AT THE UNIVERSITY PRESS.

1889

[All Rights reserved.]

JOHNSON REPRINT CORPORATION
111 Fifth Avenue, New York 3, N.Y.

JOHNSON REPRINT COMPANY LIMITED
Berkeley Square House, London, W. 1.

opis nr 47679

THE GOLDBECK

MATHEMATICAL PAPERS



19807/11

First Reprinting, 1963, Johnson Reprint Corporation

CONTENTS.

	<small>PAGE</small>
101. <i>Notes on Lagrange's Theorem</i>	1
Camb. and Dubl. Math. Jour. t. vi. (1851), pp. 37—45	
102. <i>On a Double Infinite Series</i>	8
Camb. and Dubl. Math. Jour. t. vi. (1851), pp. 45—47	
103. <i>On Certain Definite Integrals</i>	11
Camb. and Dubl. Math. Jour. t. vi. (1851), pp. 136—140	
104. <i>On the Theory of Permutants</i>	16
Camb. and Dubl. Math. Jour. t. vii. (1852), pp. 40—51	
105. <i>Correction to the Postscript to the Paper on Permutants</i>	27
Camb. and Dubl. Math. Jour. t. vii. (1852), pp. 97—98	
106. <i>On the Singularities of Surfaces</i>	28
Camb. and Dubl. Math. Jour. t. vii. (1852), pp. 166—171	
107. <i>On the Theory of Skew Surfaces</i>	33
Camb. and Dubl. Math. Jour. t. vii. (1852), pp. 171—173	
108. <i>On certain Multiple Integrals connected with the Theory of Attractions</i>	35
Camb. and Dubl. Math. Jour. t. vii. (1852), pp. 174—178	
109. <i>On the Rationalisation of certain Algebraical Equations</i>	40
Camb. and Dubl. Math. Jour. t. viii. (1853), pp. 97—101	
110. <i>Note on the Transformation of a Trigonometrical Expression</i>	45
Camb. and Dubl. Math. Jour. t. ix. (1854), pp. 61—62	
111. <i>On a Theorem of M. Lejeune-Dirichlet's</i>	47
Camb. and Dubl. Math. Jour. t. ix. (1854), pp. 163—165	

	PAGE
112. <i>Demonstration of a Theorem relating to the Products of Sums of Squares</i>	49
Phil. Mag. t. iv. (1852), pp. 515—519	
113. <i>On the Geometrical Representation of the Integral</i> $\int dx \div \sqrt{(x+a)(x+b)(x+c)}$	53
Phil. Mag. t. v. (1853), pp. 281—284	
114. <i>Analytical Researches connected with Steiner's Extension of Malfatti's Problem</i>	57
Phil. Trans. t. CXLII. (for 1852), pp. 253—278	
115. <i>Note on the Porism of the In-and-circumscribed Polygon</i>	87
Phil. Mag. t. vi. (1853), pp. 99—102	
116. <i>Correction of two Theorems relating to the In-and-circumscribed Polygon</i>	91
Phil. Mag. t. vi. (1853), pp. 376—377	
117. <i>Note on the Integral</i> $\int dx \div \sqrt{(m-x)(x+a)(x+b)(x+c)}$	93
Phil. Mag. t. vi. (1853), pp. 103—105	
118. <i>On the Harmonic Relation of two Lines or two Points</i>	96
Phil. Mag. t. vi. (1853), pp. 105—107	
119. <i>On a Theorem for the Development of a Factorial</i>	98
Phil. Mag. t. vi. (1853), pp. 182—185	
120. <i>Note on a Generalisation of the Binomial Theorem</i>	102
Phil. Mag. t. vi. (1853), p. 185	
121. <i>Note on a Question in the Theory of Probabilities</i>	103
Phil. Mag. t. vi. (1853), p. 259	
122. <i>On the Homographic Transformation of a Surface of the Second Order into Itself</i>	105
Phil. Mag. t. vi. (1853), pp. 326—333	
123. <i>On the Geometrical Representation of an Abelian Integral</i>	113
Phil. Mag. t. vi. (1853), pp. 414—418	
124. <i>On a Property of the Caustic by Refraction of the Circle</i>	118
Phil. Mag. t. vi. (1853), pp. 427—431	

	PAGE
125. <i>On the Theory of Groups as depending on the Symbolical Equation $\theta^n = 1$</i> Phil. Mag. t. vii. (1854), pp. 40—47	123
126. <i>On the theory of Groups as depending on the Symbolical Equation $\theta^n = 1$. Second Part</i> Phil. Mag. t. vii. (1854), pp. 408—409	131
127. <i>On the Homographic Transformation of a Surface of the Second Order into itself</i> Phil. Mag. t. vii. (1854), pp. 208—212: continuation of 122	133
128. <i>Developments on the Porism of the In-and-circumscribed Polygon</i> Phil. Mag. t. vii. (1854), pp. 339—345	138
129. <i>On the Porism of the In-and-circumscribed Triangle, and on an irrational Transformation of two Ternary Quadratic Forms each into itself.</i> Phil. Mag. t. ix. (1855), pp. 513—517	145
130. <i>Deuxième Mémoire sur les Fonctions doublement Périodiques</i> Liouville, t. xix. (1854), pp. 193—208: sequel to 25	150
131. <i>Nouvelles Recherches sur les Covariants</i> Crelle, t. xlvi. (1854), pp. 109—125	164
132. <i>Réponse à une Question proposée par M. Steiner</i> Crelle, t. l. (1855), pp. 277—278	179
133. <i>Sur un Théorème de M. Schläfli</i> Crelle, t. l. (1855), pp. 278—282	181
134. <i>Remarques sur la Notation des Fonctions Algébriques</i> Crelle, t. l. (1855), pp. 282—285	185
135. <i>Note sur les Covariants d'une Fonction Quadratique, Cubique, ou Biquadratique à deux Indéterminées</i> Crelle, t. l. (1855), pp. 285—287	189
136. <i>Sur la Transformation d'une Fonction Quadratique en elle-même par des Substitutions linéaires</i> Crelle, t. l. (1855), pp. 288—289	192
137. <i>Recherches Ultérieures sur les Déterminants gauches</i> Crelle, t. l. (1855), pp. 299—313: continuation of 52 and 69.	202

	PAGE
138. <i>Recherches sur les Matrices dont les termes sont des fonctions linéaires d'une seule Indéterminée</i>	216
Crelle, t. L. (1855), pp. 313—317	
139. <i>An Introductory Memoir on Quantics</i>	221
Phil. Trans. t. CXLIV. (for 1854), pp. 244—258	
140. <i>Researches on the Partition of Numbers</i>	235
Phil. Trans. t. CXLV. (for 1855), pp. 127—140	
141. <i>A Second Memoir on Quantics</i>	250
Phil. Trans. t. CXLVI. (for 1856), pp. 101—126	
142. <i>Numerical Tables Supplementary to Second Memoir on Quantics</i>	276
Now first published (1889)	
143. <i>Tables of the Covariants M to W of the Binary Quintic: from the Second, Third, Fifth, Eighth, Ninth and Tenth Memoirs on Quantics</i>	282
Arranged in the present form, 1889	
144. <i>A Third Memoir on Quantics</i>	310
Phil. Trans. t. CXLVI. (for 1856), pp. 627—647	
145. <i>A Memoir on Caustics</i>	336
Phil. Trans. t. CXLVII. (for 1857), pp. 273—312	
146. <i>A Memoir on Curves of the Third Order</i>	381
Phil. Trans. t. CXLVII. (for 1857), pp. 415—446	
147. <i>A Memoir on the Symmetric Functions of the Roots of an Equation</i>	417
Phil. Trans. t. CXLVII. (for 1857), pp. 489—496	
148. <i>A Memoir on the Resultant of a System of two Equations</i>	440
Phil. Trans. t. CXLVII. (for 1857), pp. 703—715	
149. <i>On the Symmetric Functions of the Roots of certain Systems of two Equations</i>	454
Phil. Trans. t. CXLVII. (for 1857), pp. 717—726	
150. <i>A Memoir on the Conditions for the Existence of given Systems of Equalities among the Roots of an Equation</i>	465
Phil. Trans. t. CXLVII. (for 1857), pp. 727—731	

	PAGE
151. <i>Tables of the Sturmian Functions for Equations of the Second, Third, Fourth, and Fifth Degrees</i>	471
Phil. Trans. t. CXLVII. (for 1857), pp. 733—736	
152. <i>A Memoir on the Theory of Matrices</i>	475
Phil. Trans. t. CXLVIII. (for 1858), pp. 17—37	
153. <i>A Memoir on the Automorphic Linear Transformation of a Bipartite Quadric Function</i>	497
Phil. Trans. t. CXLVIII. (for 1858), pp. 39—46	
154. <i>Supplementary Researches on the Partition of Numbers</i>	506
Phil. Trans. t. CXLVIII. (for 1858), pp. 47—52	
155. <i>A Fourth Memoir on Quantics</i>	513
Phil. Trans. t. CXLVIII. (for 1858), pp. 415—427	
156. <i>A Fifth Memoir on Quantics</i>	527
Phil. Trans. t. CXLVIII. (for 1858), pp. 429—460	
157. <i>On the Tangential of a Cubic</i>	558
Phil. Trans. t. CXLVIII. (for 1858), pp. 461—463	
158. <i>A Sixth Memoir on Quantics</i>	561
Phil. Trans. t. CXLIX. (for 1859), pp. 61—90	
<hr/>	
<i>Notes and References</i>	593

CLASSIFICATION.

GEOOMETRY

- Theory of Distance, 158
Surfaces, 106, 107
Transformation of Quadric Surfaces, 122, 127, 129, 136, 153
-

- Steiner's extension of Malfatti's Problem, 114
In-and-circumscribed triangle and polygon, 115, 116, 128, 129
Harmonic relation of two lines or points, 118
Question proposed by Steiner, 132
Caustics, 124, 145
Cubic Curves, 146, 157

ANALYSIS

- Skew Determinants, 137
Attractions and Multiple Integrals, 108
Definite Integrals, 103
Elliptic and Abelian Integrals, 110, 113, 117, 123, 130
Covariants, Quantics &c., 131, 134, 135, 139, 141, 142, 143, 144, 155, 156, 158
Matrices, 138, 152
Partition of Numbers, 140, 154
Symmetric Functions &c., 147, 148, 149, 150
-

- Lagrange's Theorem, 101
Double Infinite Series, 102
Permutants, 104, 105
Rationalisation of Algebraic Expression, 109
Transformation of Trigonometrical Expression, 110
Theorem of Lejeune-Dirichlet's, 111
Products of Sums of Squares, 112
Factorials, 119
Generalisation of Binomial Theorem, 120
Question in Probabilities, 121
Groups, 125, 126
Theorem of Schläfli's, on Elimination, 133
Sturmian Functions, 151

