

**The following Presents to the Library have been received, for which
the Society tenders its grateful thanks:—**

1. American Journal of Mathematics.
2. Bulletin of the American Mathematical Society.
3. Proceedings of the American Philosophical Society.
4. Annals of Mathematics.
5. Proceedings of the Cambridge Philosophical Society.
6. Proceedings of the Royal Society of Edinburgh.
7. Bulletin de la Société Mathématique de France.
8. Journal de Mathématiques Élémentaires, publié par M. H. VUIBERT.
9. Bulletin de la Société Physico-Mathématique de Kasan.
10. Bulletin of the University of Kansas.
11. Communications de la Société de Kharkow.
12. Proceedings of the London Mathematical Society.
13. Memoirs and Proceedings of the Manchester Literary and Philosophical Society.
14. The Mathematical Gazette.
15. Revista de la Real Academia de Ciencias exactas, físicas y naturales de Madrid.
16. Memorias de la Real Academia de Ciencias exactas, físicas y naturales de Madrid.
17. Annales de la Faculté des Sciences de Marseille.
18. Nieuw Archief voor Wiskunde.
19. Proceedings and Transactions of the Nova Scotian Institute of Science.
20. Rendiconti del Circolo Matematico di Palermo.
21. Annaes Scientificos da Academia Polytechnica do Porto.
22. Revue Semestrielle des Publications Mathématique.
23. Proceedings of the Tôkyô Mathematico-Physical Society.
24. Nova Acta regiae Societatis Scientiarum Upsaliensis.
25. Bulletin of the Philosophical Society of Washington.
26. Prace Matematyczno-Fizyczne, Warsaw.
27. Wiskundige Opgaven met de Oplossingen.
28. Mathematische-naturwissenschaftliche Mitteilungen, Württemberg.
29. Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich.
30. Notes on Dynamics, by Sir G. GREENHILL.
31. Applications aux Mouvements Planétaires et Cométaires de la Recherche du Centre de Gravité et des Axes Principaux, by M. H. DE LA GOUPILLIERE.
32. Étude sur les Probabilités des Causes, by M. L. BACHELIER.
33. Arskrift utgifven af Kongl. Vetenskaps-Societeten i Upsala.
34. L'Equilibrio ed il Moto Perpetuo della Terra girante intorno al Sole, by Captano G. BORREDON.
35. Bulletin of the Philosophical Society of Washington, vols. 1-6, 8-10 presented by the Smithsonian Institution; vols. 11, 12 presented by the Philosophical Society of Washington.
44. Some Remarks upon the Curves of Policy Values, by R. A. BRODIE, F.F.A., A.I.A.

Edinburgh Mathematical Society

LIST OF MEMBERS.

TWENTY-SEVENTH SESSION, 1908-1909.

- 1 V. RAMASWAMI AIYAR, M.A., Deputy Collector, Arni, India
ROBERT J. ALEY, Professor of Mathematics, Indiana University,
Bloomington, Indiana, U.S.A.
JOHN ALISON, M.A., F.R.S.E., Headmaster, George Watson's
College, Edinburgh
R. E. ALLARDICE, M.A., Professor of Mathematics, Stanford
University, California, U.S.A.
- 5 WM. ANDERSON, M.A., F.R.S.E., George Watson's College,
Edinburgh
JAMES ARCHIBALD, M.A., F.R.S.E., 1 Leamington Terrace,
Edinburgh
LOUDON ARNEIL, M.A., Provincial Training College, Glasgow
PAUL AUBERT, Professeur au Lycée, Henry IV., Paris
JOHN BALLANTYNE, M.A., High School, Falkirk
- 10 A. J. GUNION BARCLAY, M.A., F.R.S.E., High School, Glasgow
J. C. BEATTIE, D.Sc., F.R.S.E., Professor of Applied Mathe-
matics and Experimental Physics, South African College,
Cape Town
ROBT. J. T. BELL, M.A., B.Sc., 90 Barrington Drive, Glasgow
PETER BENNETT, Glasgow and West of Scotland Technical
College, Glasgow
ADA BIRCH, M.A., High School for Girls, Glasgow
- 15 EDWARD BLADES, M.A., B.Sc., George Watson's Ladies' College,
Edinburgh
JAMES BOLAM, Leith Nautical College, Leith
Professor T. J. L'A BROMWICH, M.A., F.R.S., Devana Terrace,
Cambridge
R. R. BRODIE, F.F.A., Scottish Provident Institution, St
Andrew Square, Edinburgh

- A. BROWN, M.A., B.Sc., Professor of Applied Mathematics,
South African College, Cape Town
- 20 H. H. BROWNING, M.A., 128 Byres' Road, Glasgow
Major J. BRUCE-KINGSMILL, R.A., F.C.S., 4 St Ann's Square,
Manchester
- JAMES BUCHANAN, M.A., 9 St Andrew Square, Edinburgh
A. G. BURGESS, M.A., F.R.S.E., Ladies' College, Queen Street,
Edinburgh (*Hon. Secretary*)
J. W. BUTTERS, M.A., B.Sc., F.R.S.E., Rector, The Academy,
Ardrossan
- 25 JOHN F. CAMERON, M.A., Fellow and Tutor of Caius College,
Cambridge
- WM. CAMERON, B.Sc., A.R.C.S., Allan Glen's School, Glasgow
JOHN CAMPBELL, B.Sc., Allan Glen's School, Glasgow
GEORGE A. CARSE, M.A., D.Sc., Lecturer on Natural Philosophy,
The University, Edinburgh
HORATIO S. CARSLAW, M.A., D.Sc., F.R.S.E., University,
Sydney, Australia
- 30 CHARLES CHREE, M.A., D.Sc., F.R.S., 75 Church Road,
Richmond, Surrey
- GEORGE CHRYSTAL, M.A., LL.D., Sec R.S.E., Professor of
Mathematics, University, Edinburgh (*Hon. Member*)
J. B. CLARK, M.A., F.R.S.E., Headmaster, George Heriot's
School, Edinburgh
PETER COMRIE, M.A., B.Sc., F.R.S.E., Boroughmuir School,
Edinburgh
- JAMES I. CRAIG, M.A., B.A., Survey Department, Cairo, Egypt
- 35 G. E. CRAWFORD, M.A., Manor House, Clifton, Bristol
LAWRENCE CRAWFORD, M.A., D.Sc., Professor of Mathematics,
South African College, Cape Town
R. F. DAVIS, M.A., Burlington Avenue, Kew Gardens,
London, W.
- J. MACALISTER DODDS, M.A., Peterhouse, Cambridge
A. C. DIXON, M.A., F.R.S., Professor of Mathematics, Queen's
College, Belfast
- 40 JAMES M. DOGGART, B.A., High School, Kirkcaldy.
J. A. DOIG, George Watson's College, Edinburgh
A. GRAHAM DONALD, M.A., F.F.A., Scottish Provident
Institution, Edinburgh
CHAS. S. DOUGALL, M.A., Rector, The Institution, Dollar
JOHN DOUGALL, M.A., D.Sc., c/o Moore, 16 Gibson Street,
Hillhead

- 45 ALBERT DRIVER, George Watson's College, Edinburgh
 DAVID DRYSDALE, M.A., Royal Academy, Irvine
 JOHN DUNBAR, M.A., B.Sc., The Academy, Ardrossan
 GEORGE DUTHIE, M.A., B.A., F.R.S.E., Superintending
 Inspector of Schools and Statist, Salisbury, Rhodesia
 Professor JAMEHEDJI EDALJI, 72 Yocho Machi, Ushigome Ku,
 Tokyo, Japan
- 50 GEORGE EDNIE, M.A., B.Sc., The Academy, Dumfries
 JAMES M. EDWARD, M.A., Headmaster, Wigtown
 F. E. EDWARDES, Harrow School, Middlesex
 JAS. ERSKINE-MURRAY, D.Sc., 2 Crown Gardens, Glasgow
 AGNES FARQUHARSON, 20 Howard Place, Edinburgh
- 55 R. M. FERGUSON, Ph.D., LL.D., F.R.S.E., 5 Douglas Gardens,
 Edinburgh
 WM. FINLAYSON, 84 Pilrig Street, Edinburgh
 DAVID KENNEDY-FRASER, B.Sc., 95 George Street, Edinburgh
 W. G. FRASER, M.A., H.M.I.S., 18 Glebe Avenue, Stirling
 JAMES M. FREW, M.A., B.Sc., 17 Highbury Road, Dowanhill,
 Glasgow
- 60 J. D. FULTON, M.A., B.Sc., Boroughmuir Higher Grade School,
 Edinburgh
 ALEXANDER H. GARDNER, M.A., B.Sc., Headmaster, Lochgilphead
 WM. GENTLE, B.Sc., George Heriot's School, Edinburgh
 H. T. GERRANS, M.A., Fellow and Tutor of Worcester College,
 Oxford
 GEORGE A. GIBSON, M.A., LL.D., Professor of Mathematics,
 West of Scotland Technical College, Glasgow (*Hon. Member*)
- 65 JAMES GOODWILLIE, M.A., B.Sc., Lecturer on Mathematics,
 King's College, Aberdeen
 J. G. GRAY, B.Sc., F.R.S.E., Natural Philosophy Department,
 Glasgow University
 GEORGE GREEN, M.A., 3 Edgefauld Terrace, Springburn,
 Glasgow
 Professor Sir A. G. GREENHILL, M.A., F.R.S., 1 Staple Inn,
 London, W.C. (*Hon. Member*)
 W. G. GREENSTREET, M.A., Headmaster Marling School, Stroud
- 70 P. S. HARDIE, M.A., B.Sc., Ras-el-tin, Government School,
 Alexandria, Egypt
 R. P. HARDIE, M.A., Assistant to the Professor of Logic,
 University, Edinburgh
 J. HARKNESS, M.A., B.Sc., Physical Laboratory, The University,
 Edinburgh

- ROBERT HARVIE, M.A., 145 Greenhead, Glasgow
 E. W. HERBERT, M.A., The Academy, Edinburgh
- 75 WM. HYSLOP, M.A., B.Sc., Headmaster, Supplementary School,
 Dumbarton
 ALEX. HOLM, M.A., Girls' High School, Glasgow
 E. M. HORSBURGH, M.A., B.Sc., A.M.I.C.E., Lecturer in
 Mathematics, The University, Edinburgh
 W. R. HUGHES, B.A., Fellow of Jesus College, Cambridge
 ANDREW HUTCHISON, M.A., B.Sc., John Street H.G. School,
 Glasgow
- 80 PETER D. INNES, M.A., B.Sc., Heriot Watt College, Edinburgh
 JOHN JACK, M.A., Professor of Mathematics, Wilson College,
 Bombay
 W. JACK, M.A., LL.D., Emeritus-Professor of Mathematics,
 University, Glasgow (*Hon. Member*)
 JOHN JACKSON, M.A., Victoria Building, Greenock Road, Paisley
 H. A. JAMIESON, M.A., The Academy, Ayr
- 85 JOHN JEFFREY, M.A., B.Sc., Rector, High School, Selkirk
 WM. JEFFREY, M.A., Academy, Banff
 GEORGE JOHNSTON, M.A., Spier's School, Beith
 D. M. JOHNSTONE, M.A., B.Sc., George Heriot's School, Edinburgh
 COLIN KESSON, 94 Camperdown Road, Scotstoun
- 90 ARCHIBALD KING, M.A., B.Sc., Rector, The Academy, Castle-
 Douglas
 JOHN W. KIPPEN, Headmaster, St Andrew's School, Dundee
 CARGILL G. KNOTT, D.Sc., F.R.S.E., Lecturer on Applied
 Mathematics, University, Edinburgh
 ARCHIBALD LANG, M.A., B.Sc., H.M.I.S., 21 Cartha Street,
 Langside, Glasgow
 P. R. SCOTT LANG, M.A., B.Sc., F.R.S.E., Professor of Mathe-
 matics, University, St Andrews
- 95 W. S. LAURIE, M.A., 34 Percy Street, Blyth, Northumberland
 GEORGE LAWSON, M.A., Rector, Waid Academy, Anstruther
 R. LEES, M.A., B.Sc., Headmaster, The Academy, Fraserburgh
 G. M. K. LEGGETT, 28 Cambridge Street, Eccleston Square,
 London, S.W.
 ALEXANDER LEIGHTON, M.A., B.Sc., Morgan Academy, Dundee
- 100 WM. A. LINDSAY, M.A., B.Sc., Provincial Training College,
 Glasgow
 JAMES LITTLEJOHN, M.A., 11 Kinnaird Street, Arbroath
 ALEX. V. LOTHIAN, M.A., B.Sc., F.R.S.E., Science Lecturer,
 Provincial Training College, Glasgow

- J. BARRIE-LOW, M.A., Wrenschtown House, Observatory Road,
Cape Town
- WM. H. LOVE, M.A., Provincial Training College, Glasgow
- 105 JOHN H. M'ALPINE, M.I.N.A., 532 Walnut Street, Philadelphia,
U.S.A.
- NEIL M'ARTHUR, M.A., B.Sc., Mathematical Department, The
University, Glasgow
- JAMES A. M'BRIDE, B.A., B.Sc., Allan Glen's School, Glasgow
- JAS. M'CUBBIN, B.A., F.R.S.E., Rector, The Academy,
Kilsyth
- JAMES A. MACDONALD, M.A., B.Sc., F.R.S.E., H.M.I.S.,
Dingwall, N.B.
- 110 W. J. MACDONALD, M.A., F.R.S.E., Daniel Stewart's College,
The Dean, Edinburgh
- D. C. M'INTOSH, M.A., B.Sc., F.R.S.E., Ladies' College, Queen
Street, Edinburgh
- DONALD MACKAY, M.A., Viewforth School, Falkirk
- J. S. MACKAY, M.A., LL.D., F.R.S.E., 69 Northumberland
Street, Edinburgh (*Hon. Member.*)
- ANGUS M'LEAN, B.Sc., C.E., Principal, Technical College,
Paisley
- 115 CHARLES M'LEOD, M.A., D.Sc., Grammar School, Aberdeen
- PETER M'LEOD, M.A., B.Sc., Hillhead High School, Glasgow
- JESSIE CHRYSAL MACMILLAN, M.A., B.Sc., Corstorphine Hill
House, Edinburgh
- D. B. M'QUISTAN, M.A., B.Sc., Technical College, Glasgow
- JOHN M'WHAN, M.A., Rossville, Cambuslang
- 120 ARTEMAS MARTIN, M.A., Ph.D., LL.D., U.S. Coast Survey,
Washington, D.C., U.S.A.
- JEAN MATTHEW, M.A., c/o Mrs Stewart, 103 Marchmont Road,
Edinburgh
- J. B. MEIKLEJOHN, M.A., High School, Dundee
- JOAQUIN DE MENDIZABAL Y TAMBORREL, Professor de Mathe-
matique, Palma, 13, Mexico
- ALEX. J. MERRILEES, M.A., B.Sc., 12 Marchmont Street,
Edinburgh
- 125 W. J. MILLAR, C.E., late Secretary, Instit. Engineers and
Shipbuilders in Scotland, 31 Marine Place, Rothesay
- JOHN MILLER, M.A., D.Sc., West of Scotland Technical College,
Glasgow (*Editor of Proceedings*)
- T. HUGH MILLER, M.A., D.Sc., Training College, Isleworth
near London

- WILLIAM MILLER, M.A., Ph.D., Institution, Dollar
 ARCH. MILNE, M.A., B.Sc., F.R.S.E., Provincial Training
 College, Edinburgh
- 130 HUGH MITCHELL, 4 Windsor Street, Dundee
 JAMES MITCHELL, M.A., B.Sc., F.R.S.E., The Academy,
 Kilmarnock
 GEORGE L. MOFFAT, M.A., B.Sc., The Academy, Glasgow
 ALEXANDER MORGAN, M.A., D.Sc., F.R.S.E., Principal,
 Provincial Training College, Edinburgh
 ELIZABETH MORRISON, M.A., 23 Brisbane Street, Greenock
- 135 J. T. MORRISON, M.A., B.Sc., F.R.S.E., Professor of Physics,
 Stellenbosch, Cape Colony
 THOMAS MUIR, M.A., LL.D., F.R.S., F.R.S.E., C.M.G.,
 Superintendent-General of Education, Mowbray Hall,
 Rosebank, Cape Colony
 R. FRANKLIN MUIRHEAD, B.A., D.Sc., 64 Great George Street,
 Hillhead, Glasgow
 ASUTOSH MUKHOPADHYĀY, M.A., LL.D., F.R.A.S., F.R.S.E.,
 Professor of Mathematics, Bhowanipore, Calcutta
 A. M. C. MUTCH, M.A., B.Sc., Royal Academical Institution,
 Belfast
- 140 M. T. NARANIENGAR, M.A., Professor of Mathematics, Central
 College, Bangalore, South India
 CHARLES NIVEN, M.A., D.Sc., F.R.S., Professor of Natural
 Philosophy, University, Aberdeen (*Hon. Member*)
 ROBERT NORRIE, M.A., 1 Kilnburn Place, Newport-on-Tay
 A. S. OGILVIE, M.A., B.Sc., Moray House, Edinburgh
 R. T. OMOND, F.R.S.E., 3 Church Hill, Edinburgh
- 145 W. M'F. ORR, M.A., Professor of Mathematics, Royal College
 of Science, Dublin
 L. F. OTTO, M.A., Headmaster, Railway School, Thansi, U.P.,
 India
 FRANK R. PEARSON, M.A., George Watson's College, Edinburgh
 WILLIAM PEDDIE, D.Sc., F.R.S.E., Professor of Physics,
 University College, Dundee
 GEORGE PHILIP, M.A., B.Sc., George Watson's College, Edinburgh
- 150 WM. EDWARD PHILIP, M.A., H.M.I.S., Aberdeen
 ROBERT PHILP, M.A., Hutcheson's Grammar School, Glasgow
 D. K. PICKEN, Professor of Mathematics, Victoria College,
 Wellington, New Zealand
 P. PINKERTON, M.A., D.Sc., F.R.S.E., George Watson's College,
 Edinburgh (*President*)

- R. H. PINKERTON, M.A., Professor of Mathematics, University College, Cardiff
- 155 A. J. PRESSLAND, M.A., F.R.S.E., The Academy, Edinburgh
 HARRY RAINY, M.A., M.D., F.R.S.E., 16 Great Stuart Street, Edinburgh
 PETER RAMSAY, M.A., B.Sc., George Watson's College, Edinburgh
 THOS. T. RANKINE, C.E., B.Sc., Principal, Wigan and District Mining and Technical College, Wigan
 DAVID RENNETT, LL.D., 32 Fountainhall Road, Aberdeen
- 160 JOHN ROBERTSON, B.Sc., Physical Laboratory, The University, Edinburgh
 RICHARD D. ROBERTSON, M.A., Allan Glen's School, Glasgow
 ALEXANDER D. ROSS, M.A., B.Sc., F.R.S.E., 7 Queen's Terrace, Glasgow
 EDWARD B. ROSS, M.A., Professor of Mathematics, Christian College, Madras
 PETER ROSS, M.A., B.Sc., Broughton H.G. School, Edinburgh
- 165 ANDREW RUTLEDGE, B.A., 32 Clonmore Road, N. Strand, Dublin
 ALEX. D. RUSSELL, B.Sc., F.R.S.E., High School, Falkirk
 K. J. SANJANA, Professor of Mathematics, Bhaonagar, Bombay
 CHARLOTTE ANGAS SCOTT, D.Sc., Professor of Mathematics, Bryn Mawr College, Pennsylvania, U.S.A.
 R. F. SCOTT, M.A., Master of St John's College, Cambridge
- 170 W. SCRIMGEOUR, M.A., B.Sc., 26 Alexandra Place, Oban
 RODERICK M. SHEARER, M.A., B.Sc., 28 Strathearn Road, Edinburgh
 DUNCAN M. Y. SOMERVILLE, M.A., D.Sc., Lecturer in Applied Mathematics, University of St Andrews
 T. B. SPRAGUE, M.A., LL.D., F.R.S.E., 29 Buckingham Terrace, Edinburgh
 J. E. A. STEGGALL, M.A., Professor of Mathematics, University College, Dundee
- 175 ALEX. STEVENSON, M.A., B.Sc., Whitehill School, Glasgow
 ADAM B. STEWART, M.A., The Ministry of Education, Darb-El-Gamamiz, Cairo, Egypt
 WALTER STEWART, M.A., D.Sc., H.M.I.S., 1 Eyre Crescent, Edinburgh
 GEORGE D. C. STOKES, M.A., B.Sc., Mathematical Department, The University, Glasgow
 LOUISA STORY, George Watson's Ladies' College, Edinburgh

- 180 WALTER STOTT, Hon. Sec. Liverpool Mathematical Society,
4 Grasmere Drive, Liscard
DAVID G. TAYLOR, M.A., University College, Cardiff
JAMES TAYLOR, M.A., F.R.S.E., The Academy, Edinburgh
W. S. TEMPLETON, M.A., B.Sc., Professor of Physics, Medical
and Technical Colleges, Colombo, Ceylon
J. A. THIRD, M.A., D.Sc., Spier's School, Beith
- 185 H. F. THOMPSON, B.A., Academy, Edinburgh
W. L. THOMPSON, M.A., B.Sc., Rector, The Academy, Hawick
JOHN GRAHAM THOMSON, 34 London Street, Edinburgh
WM. THOMSON, M.A., B.Sc., LL.D., F.R.S.E., Registrar to the
Cape University, Cape Colony
W. L. THOMSON, M.A., George Heriot's School, Edinburgh
- 190 JOHN TURNER, M.A., B.Sc., Royal High School, Edinburgh
(*Hon. Treasurer*)
CHARLES TWEEDIE, M.A., B.Sc., F.R.S.E., Lecturer on Mathe-
matics, University, Edinburgh
DAVID TWEEDIE, M.A., B.Sc., Minister of Public Instruction,
Cairo, Egypt
GEORGE D. VALENTINE, M.A., Advocate, 18 Dundas Street,
Edinburgh
ROBERT WALKER, M.A., Provincial Training College, Glasgow
- 195 SAMUEL WALKER, M.A., D.Sc., George Heriot's School,
Edinburgh
W. WALLACE, M.A., F.R.S.E., Moss-side P.O., Belvidere,
Alberta, Canada
T. P. WATSON, M.A., B.Sc.; F.R.S.E., Principal, Technical
College, Keighley, Yorkshire
JOHN C. WATT, M.A., Jesus College, Cambridge
JAMES MACPHERSON WATTIE, M.A., B.A., H.M.I.S., Linton,
Strathern Road, Broughty-Ferry
- 200 EDWIN WAUCHOPE, 14 Clifton Dale, York
J. H. MACLAGAN-WEDDERBURN, M.A., D.Sc., F.R.S.E., 6
Succoth Gardens, Edinburgh (*Vice-President*)
JOHN WEIR, M.A., Professor of Mathematics, Mysore, India
WILLIAM WELSH, M.A., Jesus College, Cambridge
JOHN W. WHITE, B.A., Trinity Academy, Leith
- 205 WM. WYPER, C.E., 100 Bothwell Street, Glasgow
Rev. JOHN YOUNG, M.A., Whithorn, Wigtownshire
W. YOUNG, F.F.A., Actuary's Dept., New York Life Insurance
Co., 346 Broadway, New York, U.S.A.