

Transactions of the Cambridge Philosophical Society

RECENT PAPERS

Vol. XXII.

- No. XXVI. **The Escape of Molecules from an Atmosphere, with special reference to the Boundary of a Gaseous Star.** By E. A. MILNE, M.A., Trinity College, Cambridge. Pp. 35. Price 5/-.
- „ XXVII. **Some Problems of Diophantine Approximation: The Analytical Properties of Certain Dirichlet's Series Associated with the Distribution of Numbers to Modulus Unity.** By G. H. HARDY, M.A., Savilian Professor, University of Oxford, and J. E. LITTLEWOOD, M.A., Trinity College, Cambridge. Pp. 16. Price 3/6.
- „ XXVIII. **Free Paths in a Non-uniform Rarefied Gas with an Application to the Escape of Molecules from Isothermal Atmospheres.** By J. E. JONES, 1851 Exhibition Senior Research Student, Trinity College, Cambridge. Pp. 22. With Title-page and Index to Vol. XXII. Price 5/6.

Vol. XXIII.

- No. I. **On Approximate Continuity.** By M. H. A. NEWMAN, B.A., St John's College, Cambridge. Pp. 18. Price 3/6.
- „ II. **A Mathematical Theory of Natural and Artificial Selection.** By J. B. S. HALDANE, M.A., Trinity College, Cambridge. Pp. 23. Price 4/-.
- „ III. **On the Form of the Solution of the Equations of Dynamics.** By T. M. CHERRY, B.A., Trinity College, Isaac Newton Student. Pp. 28. Price 4/-.
- „ IV. **On the Motion of Spheres, Circular and Elliptic Cylinders through Viscous Liquid.** By W. J. HARRISON, M.A., Clare College, Cambridge. Pp. 18. Price 3/-.
- „ V. **Researches in the Theory of Determinants.** By Major P. A. MACMAHON, R.A., F.R.S., Pp. 47. 7/-.
- „ VI. **The Optical Constants of Matter.** By C. G. DARWIN, M.A., F.R.S., Christ's College, Tait Professor of Natural Philosophy in the University of Edinburgh. Pp. 31. Price 5/-.
- „ VII. **Some Examples of Trajectories Defined by Differential Equations of a Generalised Dynamical Type.** By T. M. CHERRY, Ph.D., Fellow of Trinity College, Cambridge. Pp. 32. Price 5/-.
- „ VIII. **Some Formulae for Scrolls and Line Systems in Ordinary Space.** By C. G. F. JAMES, Trinity College, Cambridge. Pp. 34. Price 6/-.
- „ IX. **The Aberrations of a Symmetrical Optical System.** By G. C. STEWARD, M.A., Fellow of Emmanuel College, Cambridge. Pp. 29. Price 5/-.
- „ X. **The Linear Invariants of Ten Quaternary Quadrics.** By H. W. TURNBULL, M.A., Trinity College, Professor of Mathematics in the University of St Andrews, and ALFRED YOUNG, Sc.D., sometime Fellow of Clare College. Pp. 39. Price 6/-.
- „ XI. **Mathieu Functions.** By S. GOLDSTEIN, B.A., St John's College. Pp. 34. Price 6/-.
- „ XII. **The Mathematical Theory of the Statistical Methods employed in the Study of Correlation in the case of Three Variables.** By A. A. TSCHUPROW. Translated by L. ISSERLIS, M.A., Christ's College. Pp. 46. Price 7/-.

(Title-page and Table of Contents to Volume XXIII.)

CONTENTS

| | PAGE |
|---|------|
| <i>On points with arbitrarily assigned mutual distances.</i> By H. S. M. COXETER, Ph.D., Trinity College, and J. A. TODD, Ph.D., Trinity College | 1 |
| <i>On the regularity of surfaces.</i> By Mr L. ROTH, Clare College | 4 |
| <i>The Cauchy property of the generalised Perron integrals.</i> By M. E. GRIMSHAW, Newnham College | 15 |
| <i>A figure in space of seven dimensions, and its sections.</i> By W. L. EDGE, M.A., Trinity College | 19 |
| <i>Modern algebra and polynomial ideals.</i> By F. S. MACAULAY, M.A., St John's College | 27 |
| <i>On the projection of irregularly linearly measurable plane sets of points.</i> By J. GILLIS, B.A., Trinity College. (With Three Text-figures) | 47 |
| <i>A note on the theory of the photo-electric current across a metal semiconductor contact.</i> By Prof. R. H. FOWLER, Trinity College. (With One Text-figure) | 55 |
| <i>An attempt to detect a neutral particle of small mass.</i> By J. CHADWICK, Ph.D., Gonville and Caius College, and D. E. LEA, B.A., Trinity College | 59 |
| <i>The action of β and γ rays on rock salt crystals.</i> By P. W. BURBIDGE, B.A., Trinity College. Travelling Fellow of the Universities Bureau of the British Empire. (With Three Text-figures) | 62 |
| <i>An attempt to detect radiation in thunder clouds.</i> By W. A. MACKY, Gonville and Caius College. (Communicated by Prof. C. T. R. WILSON.) (With One Text-figure) | 70 |
| <i>The adsorption of hydrogen on tungsten.</i> By J. K. ROBERTS, Ph.D., Trinity College. (With One Text-figure) | 74 |
| <i>The theory of ionisation measurements in gases at high pressures.</i> By D. E. LEA, B.A., Coutts Trotter Student, Trinity College. (With Eleven Text-figures) | 80 |
| <i>Some calculations on the range-velocity relation for alpha particles and protons.</i> By W. E. DUNCANSON, Trinity College. (Communicated by Dr J. CHADWICK.) (With Three Text-figures) | 102 |