

Transactions of the Cambridge Philosophical Society

RECENT PAPERS

Vol. XXII.

- No. XXIII. **On a General Infinitesimal Geometry, in reference to the Theory of Relativity.** By WILHELM WIRTINGER (Vienna). Pp. 10. Price 2/6.
- „ XXIV. **On the Fifth Book of Euclid's Elements (Fifth Paper).** By M. J. M. HILL, Sc.D., LL.D., F.R.S., Astor Professor of Mathematics in the University of London. Pp. 14. Price 2/6.
- „ XXV. **The Influence of Electrically Conducting Material within the Earth on Various Phenomena of Terrestrial Magnetism.** By S. CHAPMAN, M.A., Trinity College, and T. T. WHITEHEAD. Pp. 20. Price 3/6.
- „ 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/-.

CONTENTS.

	PAGE
<i>Notes on optical constants.</i> By Mr C. G. DARWIN, F.R.S., Tait Professor of Natural Philosophy in the University of Edinburgh. I. <i>The optical behaviour of certain atomic models</i>	817
<i>Notes on optical constants.</i> By Mr C. G. DARWIN, F.R.S., Tait Professor of Natural Philosophy in the University of Edinburgh. H. <i>The lateral scattering from a gas</i>	824
<i>The β-ray spectrum of the natural L-radiation from radium B.</i> By D. H. BLACK, M.Sc., Emmanuel College. (Communicated by Prof. Sir E. RUTHERFORD)	832
<i>The natural X-ray spectrum of radium B.</i> By Professor Sir ERNEST RUTHERFORD, F.R.S., and W. A. WOOSTER, B.A., Peterhouse. (With One Text-figure)	834
<i>The analysis of the β-ray spectrum due to the natural L radiation of radium B.</i> By D. H. BLACK, M.Sc., Emmanuel College. (Communicated by Prof. Sir E. RUTHERFORD)	838
<i>The atomic number of a radioactive element at the moment of emission of the γ-rays.</i> By Dr C. D. ELLIS, Trinity College, and W. A. WOOSTER, B.A., Peterhouse. (With One Text-figure)	844
<i>The β-ray type of disintegration.</i> By Dr C. D. ELLIS, Trinity College, and W. A. WOOSTER, B.A., Peterhouse	849
<i>Assemblies of imperfect gases by the method of partition functions.</i> By Mr R. H. FOWLER, Trinity College	861
<i>An extended form of Kronecker's theorem with an application which shows that Burgers' theorem on adiabatic invariants is statistically true for an assembly.</i> By L. H. THOMAS, B.A., Trinity College. (Communicated by Mr R. H. FOWLER)	886
<i>Doublet and triplet separations in optical spectra as evidence whether orbits penetrate into the core.</i> By Mr D. R. HARTREE, St John's College. (With Three Text-figures)	904
<i>On the theorem of Pappus.</i> By Mr M. H. A. NEWMAN, St John's College	919
<i>On differentiation with respect to a function.</i> By Mr E. C. FRANCIS, Peterhouse	924
<i>The Lebesgue-Stieltjes integral.</i> By Mr E. C. FRANCIS, Peterhouse	935
<i>The enumeration of the partitions of multipartite numbers.</i> By Major P. A. MACMAHON, Sc.D., St John's College	951
<i>On the substitution of Wallis's postulate of similarity for Euclid's postulate of parallels.</i> By Professor M. J. M. HILL, Peterhouse. (With Eight Text-figures)	964
Proceedings at the Meetings held during the Session 1924—1925	970

Dutch reprint