Transactions of the Cambridge Philosophical Society

RECENT PAPERS

Vol. XXII.

XXII.

No. XIX. On Integers which satisfy the Equation

 $t^3 \pm x^3 \pm y^3 \pm z^3 = 0.$

By H. W. RICHMOND, M.A., King's College. Pp. 15. Price 2/6.

"XX and XXI. On Cyclical Octosection. By W. Burnside, M.A., F.R.S., Hon. Fellow of Pembroke College, Cambridge. Congruences with respect to Composite Moduli.

By Major P. A. MacMahon, R.A., F.R.S. Pp. 20. Price 3/-.
On the Stability of the Steady Motion of Viscous Liquid contained between two Rotating Co-axal Circular Cylinders. By K. Tamari and W. J. Harrison, M.A., Fellow of Clare College, Cambridge.

Pp. 13. Price 2/6.

- " 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.
 - J. 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/-.

CONTENTS.

	PAGE
Complexes of conics and the Weddle surface. By Mr C. G. F. James, Trinity College	201
Trajectories of small horizontal velocity in a resisting medium. By Mr J. E. Littlewood, Trinity College, Cayley Lecturer	217
Two notes on the Riemann zeta-function. By Mr J. E. LITTLEWOOD, Trinity College, Cayley Lecturer	234
On the applicability and deformation of surfaces. By B. M. Sen, King's College. (Communicated by Professor H. F. BAKER)	243
The quadratic form for radial acceleration, in the theory of relativity. By Mr R. Hargreaves, St John's College	248
The statistical theory of dissociation and ionization by collision, with applications to the capture and loss of electrons by a-particles. By	
Mr R. H. FOWLER, Trinity College	253
CHERRY, Trinity College A system of linear equations with an infinity of unknowns. By E. C.	273
TITCHMARSH. (Communicated by Mr G. H. HARDY, Trinity College)	282
On Poincaré's theorem of "the non-existence of uniform integrals of dynamical equations." By Dr T. M. Cherry, Trinity College. On the zeros of the Riemann zeta-function. By Mr J. E. LITTLEWOOD,	287
Trinity College, Cayley Lecturer	295
RICHMOND and F. BATH, King's College	319
On integrals developable about a singular point of a Hamiltonian system of differential equations. By Dr T. M. Cherry, Trinity College	325
On a case of steady flow of a gas in two dimensions. By Mr S. Lees, St John's College. (With One Text-figure)	350
The thallows thallic halides. By Mr A. J. Berry, Downing College. The high energy groups in the magnetic spectrum of the radium C β -rays.	363
By Dr C. D. Ellis, Trinity College. (With One Text-figure). The relative absorbing powers of the L-levels for radiation of varying wave-length. By H. W. B. SKINNER, Trinity College. (With Two	369
Text-figures) Some electrical properties of liquid sulphur. By D. H. BLACK,	379
Emmanuel College. (Communicated by Dr F. W. Aston.) (With Four Text-figures)	393
The number of β-particles from Radium E. By K. G. EMELÉUS, B.A., St John's College. (Communicated by Professor Sir E. RUTHERFORD.) (With Two Text-figures)	400
On the measurement of the critical potentials of gases. By Mr E. G. Dymond, St John's College. (With Two Text-figures).	405
The spectra of some lithium-like and sodium-like atoms. By Mr D. R. HARTREE, St John's College	409
Improvements in the apparatus for measuring the velocity of very rapid chemical reactions. By Dr H. HARTRIDGE, King's College, and	100
Mr F. J. W. ROUGHTON, Trinity College, (With Three Text-figures)	426
Note on the Doppler principle and Bohr's frequency condition. By P. A. M. DIRAC, St John's College. (Communicated by Mr R. H.	400
FOWLER) Some experiments with an a-particle counter. By Mr E. V. APPLETON,	432
K. G. EMELÉUS, B.A., and M. A. F. BARNETT. (With Eleven Text-figures) A helical method of focussing β-rays. By R. A. R. TRICKER, B.A.,	434
Trinity College. (Communicated by Professor Sir E. RUTHERFORD.) (With Three Text-figures.) (With Plate III)	454
Some methods of estimating the successive ionisation potentials of any element. By Mr D. R. HARTREE, St John's College	464
An optical interference method of measuring Young's modulus for rods.	404