

TRANSACTIONS

OF THE

ROYAL SOCIETY OF EDINBURGH.

VOLUME XLVIII. PART IV.—SESSION 1912-13.

CONTENTS.

	PAGE
XXVIII. <i>The Loss of Energy at Oblique Impact of Two Confined Streams of Water.</i> By Professor A. H. GIBSON, D.Sc., University College, Dundee. (With Five Diagrams), (Issued January 10, 1913.)	799
XXIX. <i>On Rhetinangium arberi, a new genus of Cycadofilices from the Calciferous Sandstone Series.</i> By W. T. GORDON, M.A., B.A., D.Sc., Lecturer in Palæontology, Edinburgh University. Communicated by Professor JAMES GEIKIE, D.C.L., LL.D., etc. (With Three Plates), (Issued December 23, 1912.)	813
XXX. <i>Scottish National Antarctic Expedition: Observations on the Anatomy of the Weddell Seal (Leptonychotes Weddelli).</i> Part IV.: The Brain. By DAVID HEPBURN, M.D., C.M., Professor of Anatomy, University College, Cardiff (University of Wales). (With One Plate), (Issued February 8, 1913.)	827
XXXI. <i>Scottish National Antarctic Expedition: A Contribution to the Histology of the Central Nervous System of the Weddell Seal (Leptonychotes weddellii).</i> By HAROLD AXEL HAIG, M.B., B.S. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Lecturer in Histology and Embryology, University College, Cardiff. Communicated by Dr W. S. BRUCE. (With Two Plates and Nine Text Figs.), (Issued February 17, 1913.)	849
XXXII. <i>Jurassic Plants from Cromarty and Sutherland, Scotland.</i> By A. C. SEWARD, M.A., F.R.S., Professor of Botany, Cambridge; and N. BANCROFT, B.Sc., F.L.S., Newnham College, Cambridge. Communicated by Dr R. KIDSTON, F.R.S. (With Two Plates and 6 Text-Figs.), (Issued February 19, 1913.)	867
XXXIII. <i>The Right Whale of the North Atlantic, Balæna biscayensis: its Skeleton described and compared with that of the Greenland Right Whale, Balæna mysticetus.</i> By Principal Sir WM. TURNER, K.C.B., D.C.L., F.R.S., President of the Society, Knight of the Royal Prussian Order Pour le Mérite. (With Three Plates, and Figures in Text) (Issued March 24, 1913.)	889
XXXIV. <i>The Geology of South-Eastern Kincardineshire.</i> By ROBERT CAMPBELL, M.A., D.Sc., Lecturer in Petrology in the University of Edinburgh. Communicated by Professor JAMES GEIKIE, D.C.L., LL.D., F.R.S. (With Three Plates), (Issued April 3, 1913.)	923

Title, Contents, and Index.

EDINBURGH:

PUBLISHED BY ROBERT GRANT & SON, 107 PRINCES STREET,
AND WILLIAMS & NORGATE, 14 HENRIETTA STREET, COVENT GARDEN, LONDON.

MDCCCXIII.

Price Sixteen Shillings and Eightpence.

CONTENTS.

PART I. (1911-12.)

NUMBER		PAGE
I.	<i>The Nemertines of Millport and its Vicinity.</i> By J. STEPHENSON, M.B., D.Sc. (Lond.); Major, Indian Medical Service; Professor of Biology in the Government College, Lahore. (With One Plate), . . .	1
II.	<i>On some littoral Oligochata of the Clyde.</i> By J. STEPHENSON, M.B., D.Sc. (Lond.); Major, I.M.S.; Professor of Biology in the Government College, Lahore. (With Two Plates),	31
III.	<i>Les Mousses de l'Expédition nationale antarctique écossaise.</i> Par JULES CARDOT. (Avec trois Planches),	67
IV.	<i>The Pharmacological Action of Harmine.</i> By JAMES A. GUNN, M.A., M.D., D.Sc. (From the Pharmacology Laboratory of the University of Edinburgh),	83
V.	<i>On the Resistance to Flow of Water through Pipes or Passages having Divergent Boundaries.</i> By Professor A. H. GIBSON, D.Sc., University College, Dundee,	97
VI.	<i>The Significance of Maximum Specific Electrical Conductivity in Chemistry.</i> By Professor JOHN GIBSON, Ph.D.,	117
VII.	<i>Nuclear Osmosis as a Factor in Mitosis.</i> By A. ANSTRUTHER LAWSON, Ph.D., D.Sc., F.L.S., Lecturer in Botany, University of Glasgow. (With Four Plates),	137
VIII.	<i>On the Structure and Affinities of Metaclepsydropsis duplex (Williamson).</i> By W. T. GORDON, M.A., B.A., D.Sc., Falconer Fellow of Edinburgh University, Lecturer in Palæontology, Edinburgh University. (With Four Plates),	163
IX.	<i>Scottish National Antarctic Expedition: Observations on the Anatomy of the Weddell Seal (Leptonychotes Weddelli).</i> Part II. By DAVID HEPBURN, M.D., C.M., Professor of Anatomy, University College, Cardiff (University of Wales),	191

NUMBER	PAGE
X. <i>The Influence of the Ratio of Width to Thickness upon the Apparent Strength and Ductility of Flat Test-bars of Mild Steel.</i> By W. GORDON, B.Sc., A.M.I.Mech.E., Lecturer in Mechanical Engineering in Leith Technical College; and G. H. GULLIVER, B.Sc., A.M.I.Mech.E., Lecturer in Engineering in the University of Edinburgh,	195
XI. <i>A Monograph on the general Morphology of the Myxinoïd Fishes, based on a study of Myxine. Part IV.—On some Peculiarities of the Afferent and Efferent Branchial Arteries of Myxine.</i> By F. J. COLE, D.Sc., Oxon., Professor of Zoology, University College, Reading. (With One Plate),	215
<hr style="width: 20%; margin: 10px auto;"/>	
PART II. (1911–12.)	
XII. <i>The Effect of changing the Daily Routine on the Diurnal Rhythm in Body Temperature.</i> By SUTHERLAND SIMPSON, M.D., D.Sc. (From the Physiological Laboratory, Medical College, Cornell University, Ithaca, N.Y., U.S.A.) (With Thirteen Figures in the Text),	231
XIII. <i>On the Carboniferous Flora of Berwickshire. Part I.—Stenomyelon Tuedianum Kidston.</i> By R. KIDSTON, LL.D., F.R.S.; and D. T. GWYNNE-VAUGHAN, M.A., Professor of Botany, Queen's University, Belfast. (Plates I.-IV.),	263
XIV. <i>The Cephalopoda of the Scottish National Antarctic Expedition.</i> By WILLIAM EVANS HOYLE, M.A., D.Sc.,	273
XV. <i>On Branchiura sowerbyi Beddard, and on a new species of Limnodrilus with distinctive characters.</i> By J. STEPHENSON, M.B., D.Sc. (Lond.); Major, Indian Medical Service; Professor of Biology, Government College, Lahore. (With Two Plates),	285
XVI. <i>The Tunicata of the Scottish National Antarctic Expedition, 1902–1904.</i> By W. A. HERDMAN, D.Sc., F.R.S., Professor of Zoology in the University of Liverpool. (With One Plate),	305
XVII. <i>Scottish National Antarctic Expedition: Observations on the Anatomy of the Weddell Seal (Leptonychotes Weddelli).</i> Part III. By DAVID HEPBURN, M.D., C.M., Professor of Anatomy, University College, Cardiff (University of Wales),	321

CONTENTS.

vii

NUMBER		PAGE
XVIII.	<i>The Marine Mollusca of the Scottish National Antarctic Expedition.</i> Part II. By JAMES COSMO MELVILL, M.A., D.Sc., F.L.S.; and ROBERT STANDEN, Assistant Keeper, Manchester Museum. (With One Plate),	333
XIX.	<i>The Brachiopoda of the Scottish National Antarctic Expedition (1902 to 1904).</i> By J. WILFRID JACKSON, F.G.S., Assistant Keeper, Manchester Museum. (With Two Plates),	367
XX.	<i>The Equilibrium of the Circular-Arc Bow-Girder.</i> By Professor A. H. GIBSON, D.Sc., A.M.I.C.E., University College, Dundee. (With Eleven Diagrams),	391
XXI.	<i>Experiments to show how Failure under Stress occurs in Timber, its Cause, and Comparative Values of the Maximum Stresses induced when Timber is fractured in Various Ways.</i> By ANGUS R. FULTON, B.Sc., A.M.Inst.C.E., Engineering Department, University College, Dundee. (With Eight Plates and Five Text Illustrations),	417
XXII.	<i>The Cestoda of the Scottish National Antarctic Expedition.</i> By JOHN RENNIE, D.Sc.; and ALEXANDER REID, M.A., University of Aberdeen. (With Two Plates),	441
XXIII.	<i>The Amphipoda of the Scottish National Antarctic Expedition.</i> By CHAS. CHILTON, M.A., D.Sc. (N.Z.), M.B., C.M. (Edin.), Hon. LL.D. (Aber.), F.L.S.; Professor of Biology, Canterbury College, New Zealand. (With Two Plates),	455

PART III. (1912-13.)

XXIV.	<i>The Entomostraca of the Scottish National Antarctic Expedition, 1902-1904.</i> By THOMAS SCOTT, LL.D., F.L.S. (With Fourteen Plates),	521
XXV.	<i>A Study in Chromosome Reduction.</i> By A. ANSTRUTHER LAWSON, Ph.D., D.Sc., F.L.S.; Lecturer in Botany, University of Glasgow. (With Three Plates),	601
XXVI.	<i>Temperature Observations in Loch Earn. With a further Contribution to the Hydrodynamical Theory of the Temperature Seiche.</i> By E. M. WEDDERBURN, W.S.	629

NUMBER		PAGE
XXVII.	<i>Multiple Neuromata of the Central Nervous System: their Structure and Histogenesis.</i> By the late ALEXANDER BRUCE, M.D., LL.D., F.R.C.P.E.; and JAMES W. DAWSON, M.D. (Carnegie Research Fellow). (With Eight Plates),	697
PART IV. (1912-13.)		
XXVIII.	<i>The Loss of Energy at Oblique Impact of Two Confined Streams of Water.</i> By Professor A. H. GIBSON, D.Sc., University College, Dundee. (With Five Diagrams),	799
XXIX.	<i>On Rhetinangium arberi, a new genus of Cycadofilices from the Calciferous Sandstone Series.</i> By W. T. GORDON, M.A., B.A., D.Sc., Lecturer in Palæontology, Edinburgh University. (With Three Plates),	813
XXX.	<i>Scottish National Antarctic Expedition: Observations on the Anatomy of the Weddell Seal (Leptonychotes Weddelli).</i> Part IV.: The Brain. By DAVID HEPBURN, M.D., C.M., Professor of Anatomy, University College, Cardiff (University of Wales). (With One Plate),	827
XXXI.	<i>Scottish National Antarctic Expedition: A Contribution to the Histology of the Central Nervous System of the Weddell Seal (Leptonychotes weddelli).</i> By HAROLD AXEL HAIG, M.B., B.S. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), Lecturer in Histology and Embryology, University College, Cardiff. (With Two Plates and Nine Text-Figs.),	849
XXXII.	<i>Jurassic Plants from Cromarty and Sutherland, Scotland.</i> By A. C. SEWARD, M.A., F.R.S., Professor of Botany, Cambridge; and N. BANCROFT, B.Sc., F.L.S., Newnham College, Cambridge. (Plates I. and II.; Text-Figs. 1-6),	867
XXXIII.	<i>The Right Whale of the North Atlantic, Balæna biscayensis: its Skeleton described and compared with that of the Greenland Right Whale, Balæna mysticetus.</i> By Principal Sir WM. TURNER, K.C.B., D.C.L., F.R.S., President of the Society, Knight of the Royal Prussian Order Pour le Mérite. (With Three Plates, and Figures in Text)	889
XXXIV.	<i>The Geology of South-Eastern Kincardineshire.</i> By ROBERT CAMPBELL, M.A., D.Sc., Lecturer in Petrology in the University of Edinburgh. (With Three Plates),	923
INDEX,	961