ADVERTISEMENT.

The Committee appointed by the Royal Society to direct the publication of the Philosophical Transactions, take this opportunity to acquaint the Public, that it fully appears, as well from the Council-books and Journals of the Society, as from repeated declarations which have been made in several former Transactions, that the printing of them was always, from time to time, the single act of the respective Secretaries till the Forty-seventh Volume; the Society, as a Body, never interesting themselves any further in their publication, than by occasionally recommending the revival of them to some of their Secretaries, when, from the particular circumstances of their affairs, the Transactions had happened for any length of time to be intermitted. And this seems principally to have been done with a view to satisfy the Public, that their usual meetings were then continued, for the improvement of knowledge, and benefit of mankind, the great ends of their first institution by the Royal Charters, and which they have ever since steadily pursued.

But the Society being of late years greatly enlarged, and their communications more numerous, it was thought advisable that a Committee of their members should be appointed, to reconsider the papers read before them, and select out of them such as they should judge most proper for publication in the future Transactions; which was accordingly done upon the 26th of March 1752. And the grounds of their choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them; without pretending to answer for the certainty of the facts, or propriety of the reasonings, contained in the several papers so published, which must still rest on the credit or judgement of their respective authors.

It is likewise necessary on this occasion to remark, that it is an established rule of the Society, to which they will always adhere, never to give their opinion, as a Body,
upon any subject, either of Nature or Art, that comes before them. And therefore
the thanks, which are frequently proposed from the Chair, to be given to the authors
of such papers as are read at their accustomed meetings, or to the persons through
whose hands they received them, are to be considered in no other light than as a
matter of civility, in return for the respect shown to the Society by those communi-
cations. The like also is to be said with regard to the several projects, inventions,
and curiosities of various kinds, which are often exhibited to the Society; the authors
whereof, or those who exhibit them, frequently take the liberty to report and even to
certify in the public newspapers, that they have met with the highest applause and
approbation. And therefore it is hoped that no regard will hereafter be paid to such
reports and public notices; which in some instances have been too lightly credited,
to the dishonour of the Society.
A List of Public Institutions and Individuals, entitled to receive a copy of the Philosophical Transactions of each year, on making application for the same directly or through their respective agents, within five years of the date of publication.

In the British Dominions.
The King's Library.
The British Museum.
The Bodleian Library, Oxford.
The Radcliffe Library, Oxford.
The Cambridge University Library.
The University of Trinity College, Dublin.
The Royal Geographical Society.
The United Service Museum.
The Royal College of Physicians.
The Society of Antiquaries.
The Linnean Society.
The Royal Institution of Great Britain.
The Society for the Encouragement of Arts.
The Geological Society.
The Horticultural Society.
The Royal Asiatic Society.
The Royal Society of Literature.
The Medical and Chirurgical Society.
The London Institution.
The Entomological Society of London.
The Zoological Society of London.
The Institute of British Architects.
The Institution of Civil Engineers.
The Cambridge University Philosophical Society.
The Royal Society of Edinburgh.
The Royal Irish Academy.
The Royal Dublin Society.
The Asiatic Society at Calcutta.
The Royal Artillery Library at Woolwich.
The Royal Observatory at Greenwich.
The Observatory at Dublin.
The Observatory at Armagh.
The Observatory at the Cape of Good Hope.
The Observatory at Madras.
The Observatory at St. Helena.
The Observatory at Paramatta.

Denmark.
The Royal Society of Sciences at Copenhagen.
The Royal Observatory at Altona.

France.
The Royal Academy of Sciences at Paris.
The Royal Academy of Sciences at Toulouse.

The École des Mines at Paris.
The Entomological Society of France.
The Dépôt de la Marine, Paris.
The Geological Society of France.
The Jardin des Plantes, Paris.

Germany.
The University at Göttingen.
The Caesarian Academy of Naturalists at Bonn.
The Observatory at Manheim.

Italy.
The Italian Society of Sciences at Modena.
The Royal Academy of Sciences at Turin.

Switzerland.

Belgium.
The Royal Academy of Sciences at Brussels.

Netherlands.
The Royal Institute of Amsterdam.

Spain.
The Royal Observatory at Cadiz.

Portugal.
The Royal Academy of Sciences at Lisbon.

Prussia.
The Royal Academy of Sciences at Berlin.

Russia.
The Imperial Academy of Sciences at St. Petersburg.

Sweden and Norway.
The Royal Academy of Sciences at Stockholm.
The Royal Society of Sciences at Drontheim.

United States.
The American Philosophical Society at Philadelphia.
The New York Philosophical Society.
The American Academy of Sciences at Boston.

The fifty Foreign Members of the Royal Society.
A List of Public Institutions and Individuals, entitled to receive a copy of the Astronomical Observations made at the Royal Observatory at Greenwich, on making application for the same directly or through their respective agents, within five years of the date of publication.

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<td>The President of the Royal Society.</td>
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<td>The Plumian Professor of Astronomy, Cambridge.</td>
<td>The Observatory at Vienna.</td>
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<td>Francis Baily, Esq. V.P. and Treas. R.S.</td>
<td>The Observatory at Tubingen.</td>
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<td>Thomas Henderson, Esq. of Edinburgh.</td>
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<td>John William Lubbock, Esq.</td>
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<td>Captain W. H. Smyth, R.N. of Bedford.</td>
<td>Dr. William Olbers, of Bremen.</td>
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<td>Sir James South, Observatory, Kensington.</td>
<td>The Dépôt de la Marine, Paris.</td>
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<td>Lieutenant Stratford, R.N.</td>
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ROYAL MEDALS.

HIS MAJESTY KING WILLIAM THE FOURTH, in restoring the Foundation of the Royal Medals, graciously commanded a Letter, of which the following is an extract, to be addressed to the Royal Society, through His Royal Highness the DUKE OF SUSSEX, K.G., President:

"Windsor Castle, March 25, 1833.

"It is His Majesty's wish,—

"First, That the Two Gold Medals, value of Fifty Guineas each, shall henceforth be awarded on the day of the Anniversary Meeting of the Royal Society, on each ensuing year, for the most important discoveries in any one principal subject or branch of knowledge.

"Secondly, That the subject matter of inquiry shall be previously settled and propounded by the Council of the Royal Society, three years preceding the day of such award.

"Thirdly, That Literary Men of all nations shall be invited to afford the aid of their talents and research: and,

"Fourthly, That for the ensuing three successive years, the said Two Medals shall be awarded to such important discoveries, or series of investigations, as shall be sufficiently established, or completed to the satisfaction of the Council, within the last five years of the days of award, for the years 1834 and 1835, including the present year, and for which the Author shall not have previously received an honorary reward.

(Signed) "H. TAYLOR."
The Royal Medals for the year 1833 were awarded to

Sir John Frederick William Herschel, K.H. F.R.S.,
for his Paper on the Investigation of the Orbits of Revolving Double Stars; and to

Professor Auguste Pyrame de Candolle, of Geneva, Foreign Member
of the Royal Society,

for his Discoveries and Investigations in Vegetable Physiology.

Those for 1834 were awarded to

John William Lubbock, Esq., V.P. & Treas. R.S.,
for his Papers on the Tides published in the Philosophical Transactions; and to

Charles Lyell, Esq., F.R.S.,
for his Work entitled "Principles of Geology."

Those for 1835 were awarded to

Michael Faraday, D.C.L., F.R.S.,
for his Investigations and Discoveries contained in the Series of Experimental Researches in Electricity, published in the Philosophical Transactions, and more particularly for the Seventh Series, relating to the definite nature of electro-chemical action; and to

Sir William Rowan Hamilton, Andrews' Professor of Astronomy in the University of Dublin, and Royal Astronomer of Ireland,
for the Papers published by him in the 16th and 17th volumes of the Transactions of the Royal Irish Academy, entitled "Supplement to an Essay on the Theory of "Systems of Rays," and more particularly for those Investigations at the conclusion of the third and last Supplement, which relate to the discovery of Conical Refraction.

The Council propose to give one of the Royal Medals in the year 1836, to the most important unpublished paper in Astronomy, communicated to the Royal Society for insertion in their Transactions, after the present date (May 13th, 1833,) and prior to the month of June in the year 1836.

The Council also propose to give one of the Royal Medals in the year 1836 to the
most important unpublished paper in Animal Physiology, communicated to the Royal Society for insertion in their Transactions, after the present date (May 13th, 1833,) and prior to the month of June in the year 1836.

The Council propose to give one of the Royal Medals in the year 1837 to the most important unpublished paper in Physics, communicated to the Royal Society for insertion in their Transactions, after the present date (November 27th, 1834,) and prior to the month of June in that year.

The Council also propose to give one of the Royal Medals in the year 1837 to the author of the best paper, to be entitled "Contributions towards a System of Geologic Chronology founded on an examination of fossil remains, and their attendant phenomena," such paper to be communicated to the Royal Society after the present date (December 1st, 1834,) and prior to the month of June 1837:—but in case no paper is presented to the Society fulfilling the conditions implied by the above Resolution, or possessing sufficient merit, the Council propose to give one of the Royal Medals in the year 1837 to the author of the best paper in Geology and Mineralogy, communicated to the Royal Society for insertion in their Transactions after the present date and prior to the month of June in that year.

The Council propose to give one of the Royal Medals in the year 1838 to the most important unpublished paper on Chemistry, communicated to the Royal Society for insertion in their Transactions, after the present date (November 12th, 1835,) and prior to the month of June 1838.

The Council also propose to give one of the Royal Medals in the year 1838 to the most important unpublished paper in Physics, communicated to the Royal Society for insertion in the Philosophical Transactions, after the present date (November 19, 1835,) and prior to the month of June 1838.

Those for 1836 were awarded to

Sir JOHN FREDERICK WILLIAM HERSCHEL, K.H. F.R.S.,
for his Papers on Nebulae and Clusters of Stars, published in the Philosophical Transactions for 1833; and to

GEORGE NEWPORT, Esq.,
for his Series of Investigations on the Anatomy and Physiology of Insects, contained
MDCCXXXVII.
in his two Papers published in the Philosophical Transactions within the last three years.

The Council propose to give one of the Royal Medals in the year 1839 to the most important unpublished Paper in Astronomy, communicated for insertion in their Transactions after the present date, (November 30th, 1836,) and prior to the termination of the Session in June 1839.

The Council also propose to give one of the Royal Medals in the year 1839 to the most important unpublished Paper in Physiology, communicated for insertion in their Transactions after the present date, (November 30th, 1836,) and prior to the termination of the Session in June 1839.

The Council have appointed Mr. H. F. Talbot's Paper, entitled "Further Observations on the Optical Phenomena of Crystals," the Bakerian Lecture for the present year.
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I. Researches in the Integral Calculus.—Part II. By H. F. Talbot, Esq. F.R.S. ........................................... page 1

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ADJUDICATION OF THE MEDALS OF THE ROYAL SOCIETY BY HIS ROYAL HIGHNESS THE PRESIDENT AND COUNCIL.

The Copley Medal, for the year 1833, was not awarded.

A Copley Medal, for the year 1834, to Professor Plana, of Turin, for his work, entitled, "Théorie du Mouvement de la Lune."

The Rumford Medal, for the year 1835, to M. Melloni, for his discoveries relative to radiant heat.

A Copley Medal, for the year 1835, to William Snow Harris, Esq., F.R.S., for his "Experimental Investigations of the Forces of Electricity of High Intensity," contained in his paper published in the Philosophical Transactions for the year 1834.

A Copley Medal, for the year 1836, to Professor Berzelius, for his Systematic Application of the Doctrine of Definite Proportions to the Analysis of Mineral Bodies, as contained in his "Nouveau Système de Minéralogie," and in other of his works.

A Copley Medal, for the year 1836, to Francis Kiernan, Esq., F.R.S., for his Discoveries relating to the Structure of the Liver, as detailed in his paper communicated to the Royal Society, and published in the Philosophical Transactions for 1833.

A Copley Medal, for the year 1837, to M. Becquerel, for his various Memoirs on the subject of Electricity, published in his "Mémoires de l'Académie Royale des Sciences de l'Institut de France," and particularly those on the Production of Crystals of Metallic Sulphurets and Sulphur, by the long-continued action of Electricity of very low tension, and published in the tenth volume of those Mémoires.

Another Copley Medal, for the year 1837, to John Frederick Daniell, Esq., F.R.S., for his two papers "On Voltaic Combinations," published in the Philosophical Transactions for 1836.

The Royal Medal, in the department of Physics, for the year 1837, to the Rev. William Whewell, M.A., F.R.S., for his "Researches connected with the Theory of the Tides," communicated to the Royal Society, and published in its Transactions within the last three years.

The Royal Medal, in the department of Geology, for the year 1837, was not awarded.

The Council propose to give one of the Royal Medals in the year 1838 for the most important unpublished paper on Chemistry, &c.

The Council also propose to give one of the Royal Medals in the year 1838 for the most important unpublished paper on Mathematics, &c.
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XII. First Memoir on the Theory of Analytical Operations. By the Rev. R. Murphy, M.A. Fellow of Caius College, Honorary Member of various Philosophical Societies. Communicated by J. W. Lubbock, Esq. F.R.S. ... page 179

XIII. On the Adaptation of different Modes of Illuminating Lighthouses; as depending on their Situations and the Object contemplated in their Erection. By William Henry Barlow, Esq. In a Letter addressed to Peter Barlow, Esq. F.R.S. &c., and communicated by Him ... 211

XIV. Researches on the Tides.—Eighth Series. On the Progress of the Diurnal Inequality Wave along the Coasts of Europe. By the Rev. W. Whewell, M.A. F.R.S., Fellow of Trinity College, Cambridge ... 227

XV. On the Connexion between the Phenomena of the Absorption of Light, and the Colours of thin Plates. By Sir David Brewster, K.H. LL.D. F.R.S. ... 245


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XX. On the Hereditary Instinctive Propensities of Animals. By Thomas Andrew Knight, Esq. F.R.S., President of the Horticultural Society, &c. &c. ... 36

XXI. On the Elementary Structure of the Muscular Fibre of Animal and Organic Life. By Frederic C. Skey, Esq. F.R.S., Assistant Surgeon to St. Bartholomew's Hospital ... 371

XXII. Observations on the Minute Structure of some of the higher forms of Polypi, with views of a more Natural Arrangement of the Class. By Arthur Farre, M.B.
Lecturer on Comparative Anatomy at St. Bartholomew's Hospital. Communicated by Richard Owen, Esq. F.R.S. page 387

XXIII. On the Ipoh or Upas Poison used by the Jacoons and other Aboriginal Tribes of the Malay Peninsula. By Lieut. T. J. Newbold, A.D.C. to Brigadier-General Wilson, C.B. Communicated by P. M. Roget, M.D. Sec. R.S. 427

XXIV. Description of a new Barometer, recently fixed up in the Apartments of the Royal Society; with Remarks on the mode hitherto pursued at various periods, and an account of that which is now adopted, for correcting the observed height of the Mercury in the Society's Barometers. By Francis Baily, Esq., Vice-President and Treasurer R.S. 431

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Meteorological Journal kept at the Apartments of the Royal Society, by order of the President and Council.

Erratum.

In announcing the Prize Questions for the Royal Medals to be given in the year 1838, as published in the Philosophical Transactions for 1835, Part II.; 1836, Parts I. and II.; and 1837, Part I.; for "Physics" read "Mathematics."