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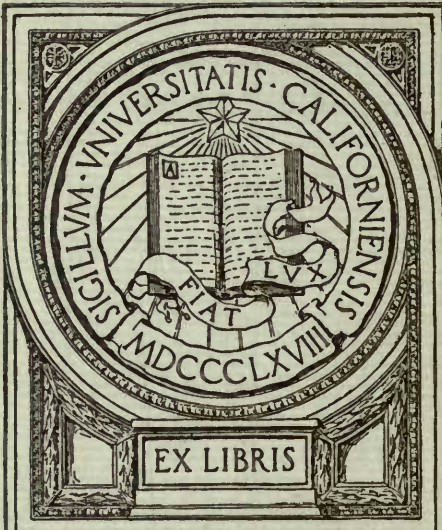
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**The Nature and Objects**  
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**Count Rumford**

*Founder of the Royal Institution*

*From the Painting by J. K. Smith*

The Nature and Objects

of the

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of

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The Royal Institution Buildings

The Davy-Faraday Research Laboratory

## THE ROYAL INSTITUTION OF GREAT BRITAIN

(FOUNDED BY COUNT RUMFORD IN 1799)

Charter granted 1800; Enlarged by Act of Parliament 1810

**Objects of Foundation—To prosecute Scientific and Literary Research; to illustrate and diffuse the principles of Inductive and Experimental Science; to promote social intercourse among lovers of Science, men and women; and to afford them opportunities for collective and individual Study.**

For more than a century the ROYAL INSTITUTION OF GREAT BRITAIN has carried on a work which gives it a strong claim to the gratitude and support not only of all who are interested in science, but of all who benefit by the

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immense industrial expansion which science has rendered possible. In its LABORATORY have been worked out many of the fundamental ideas upon which is reared the vast fabric of our chemical industries. Within its walls Faraday achieved the epoch-making discoveries which are the basis of the manifold applications of electricity that enrich the modern world. The eminent men who have successively directed its continuous research have collectively made contributions of incalculable value to the wealth and comfort which the community enjoy to-day.

These results have been attained with very exiguous resources. The ROYAL INSTITUTION has never been wealthy, and has sometimes known very straitened circumstances. It has never enjoyed either the opulence that comes from rich endowments or the assured ease that may be conferred by the assistance of the State. Its income has always depended, as it depends to-day, upon the subscriptions of its Members, and therefore upon the number of persons who recognise the advantages of Membership, or the importance of maintaining its beneficent activities. For its ability to undertake specially extensive and important researches it has been indebted to the supplementary contributions of Members and others capable of estimating the value of the new knowledge which success would bring to the service of man.

Those who can realise the value to the country of fruitful scientific work, carried on in honourable independence, have an easy means of showing their appreciation by enrolling themselves among the Members of the Royal Institution. While thus contributing to secure the continuance of labours rich in scientific and practical benefaction to the community, they will not fail to derive immediate personal advantage. They will find in the building in Albemarle Street spacious rooms, well lighted and comfortably furnished, in which an unusually copious supply of current literature and periodicals is at their disposal. They will find a LIBRARY of some 60,000 volumes, principally scientific, but containing a large proportion of works of general interest, many of them rare and not easily accessible. They will find almost every book of reference that can be named, and every needful facility for study or correspondence.

Then they obtain what clubs do not offer—a social gathering every Friday evening during the session of Members and their friends of both sexes. There is a lecture of an hour's duration upon some topic of the day, perhaps some novel research in some branch of science; perhaps the most recent archæological discoveries in some old Greek colony; perhaps the newest exploration of some little-known portion of the globe; perhaps a new inquiry into the life and works of some eminent author; or perhaps the last word upon the causation of some devastating malady. These lectures are illustrated by experiments or lantern slides, according to the nature of the subject. When the lecture is over the audience can saunter through the wide libraries, in which there is always to be found an exhibition of the latest products of invention or ingenuity in some department or other, keeping the spectators abreast of what is going on in the world.

During the week men of eminence in their special studies deliver courses of LECTURES upon a great variety of subjects—scientific, artistic, literary, and musical. At Christmas time there is a special course, originated by Faraday, of Juvenile Lectures (copiously illustrated), and now (1914-15) in the 89th season.

The ROYAL INSTITUTION comprises—

## LABORATORIES

For the Promotion of Chemical and Physical Science.

The Laboratories have been associated with the researches of THOMAS YOUNG, HUMPHRY DAVY, WILLIAM THOMAS BRANDE, MICHAEL FARADAY, JOHN TYNDALL, EDWARD FRANKLAND, WILLIAM ODLING, JOHN HALL GLADSTONE, JAMES DEWAR, LORD RAYLEIGH, and JOSEPH JOHN THOMSON.

The work of original research done in the Laboratories of the Royal Institution during the last hundred years has led to discoveries in Science which have been of the highest importance to the world.

The following are some of the subjects of investigation:—Photographic Action—the Laws of Electro-Chemical Decomposition—Electrolysis—the Decomposition of the fixed Alkalies—the Establishment of the nature of Chlorine—the Philosophy of Flame—the Condensibility of Gases—the Science of Magneto-Electricity—the Magnetic and Diamagnetic Properties of Matter—the Relation of Magnetism and Light—the Physical Effects of Pressure on Diamagnetic Action—the Absorption of Heat by Gases and Vapours—the Transparency and Opacity of our Atmosphere—Sound—Capillarity and Surface Tension—Laws of



The Old Laboratory of Davy and Faraday at the Royal Institution  
*From the Water Colour Drawing by Miss Harriet Moore*

Reflection of Light near the Polarising Angle—Organic Synthesis—Spectrum Analysis—Chemistry of the Electric Arc—Liquid Oxygen and its Magnetic Properties—Liquid Atmospheric Air—Liquid Fluorine—Argon and its Properties—Densities of Gases—Liquid and Solid Hydrogen—and the Properties of Matter near the Zero of Absolute Temperature.

The demands of modern scientific research, and the demonstration of the results in the Lecture-room on the scale to which the Members of the Royal



**Statue of Michael Faraday at the Royal Institution**

*By J. H. Foley, R.A.*

Institution have been accustomed, involve the provision of most complicated and costly apparatus, and also a large and continual expense in working this apparatus when provided. It is to the great credit of the Members of the Royal Institution that, up to the present time, all these expenses have been defrayed by the contributions of the Members and of others appreciating the value of its work, powerfully aided by the self-denial of the eminent men whose achievements shed

lustre upon its annals. It has been questioned whether any foundation in the world, however richly endowed, can boast such a record of original research and pregnant discovery as that of the Royal Institution for the last hundred years. Upon the work of its professors have been founded industries already gigantic, to the development of which it would be rash to assign any limit, save such as may be drawn by new triumphs of experimental research, as epoch-making as those of the past. Yet the expenditure of the Royal Institution on the work in question averages for the last century about £1,000 per annum; thus showing an efficiency of stewardship which constitutes the strongest claim to generous support in the future. Modern conditions, general as well as scientific, preclude the hope that equality of output can be maintained, even by the most careful husbandry, upon resources as exiguous as those that have sufficed in the past.

The Davy-Faraday Research Laboratory is a perfectly distinct though affiliated institution, founded and endowed by the late Dr. Ludwig Mond, F.R.S., with the object of providing opportunity and facility of research for persons who have credentials of Scientific Training and some experience in original investigation.

## **PUBLIC LECTURES**

Intended to supply that which Books or Private Instruction can rarely afford—Experimental illustration and detailed descriptions of matters connected with Science or Art. These Lectures usually comprehend a short Course for a juvenile auditory at Christmas, and Six or more Courses before and after Easter; the Season lasting from the middle of January to the middle of June.

The Subjects of these Lectures are generally some of the different branches of Inductive Science—as Mechanics, Chemistry, Heat, Light, Electricity, Astronomy, Geology and Biology, and sometimes on Literature, the Fine Arts, and Music.

## **FRIDAY EVENING MEETINGS**

Of the Members of the Institution. These are held on every Friday evening during the Session, and to them the Members have the privilege of introducing two Friends, by cards. At these Meetings a lecture of one hour is delivered by some recognised authority either upon some novel discovery, some recent development of scientific speculation, or some fresh aspect of a social, literary, artistic, or scientific problem. These lectures are illustrated, so far as the subject permits, by experiments, diagrams, and lantern slides. Interesting and sometimes unique exhibits, illustrative of some subject of current discussion, are arranged in the spacious Library, on the same floor as the Lecture Room, which is at the disposal of Members and their guests for social and conversational purposes, both before and after the Lectures.

Abstracts of the weekly Discourses, prepared by the Speakers, are printed in the "PROCEEDINGS OF THE ROYAL INSTITUTION," copies of which are sent to the Members.\*

\* Volumes I. to XX. (1851 to 1913), extra copies, price, to Members, from 7s. 6d. and upwards; to Non-Members, 10s. 6d. and upwards, each volume, bound. The numbers are sold separately.

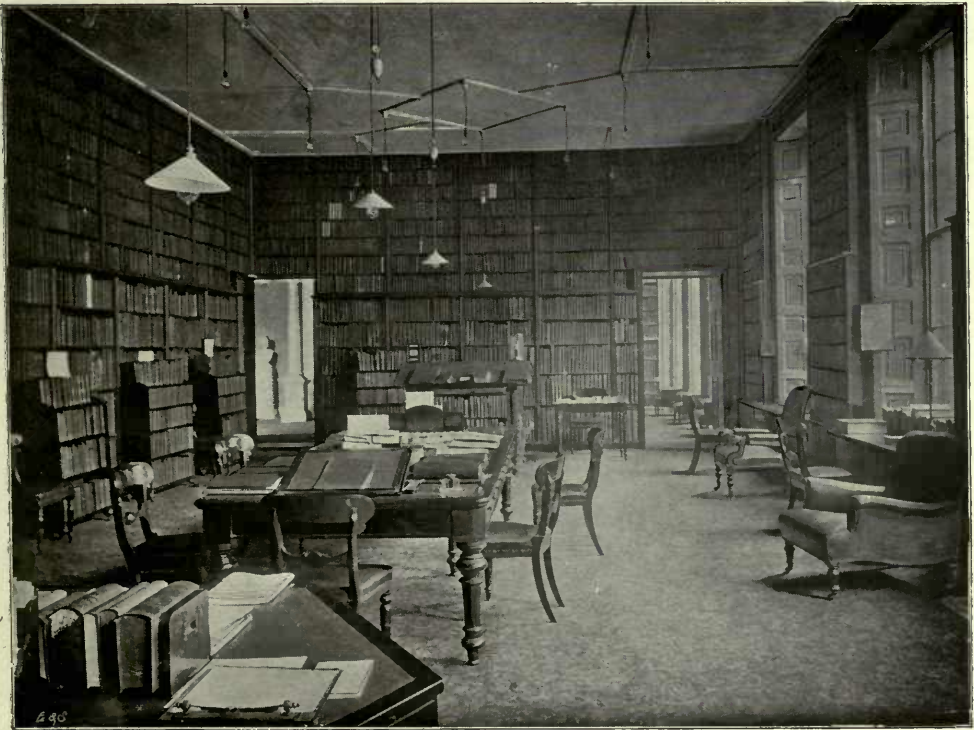
## A MODEL ROOM

Containing Scientific Apparatus of Historical Interest and of Present Use.

The chief objects of this collection are to furnish apparatus for research, and for the illustrations of the Lectures and of the Friday Evening Discourses.

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The Library of the Royal Institutio

rare publications relating to these subjects—Works on Literature, Art, and Anti-quarian Research—the best Editions of the Greek and Latin Classics and the Fathers of the Church—British and Foreign Literature—and an extensive collection of Historical and Miscellaneous Tracts, commencing with the sixteenth century.\*

In the **Upper Library** will be found a collection of Encyclopædias, Dictionaries, and Scientific Text-books, in Book Stands, with a Classified Catalogue.

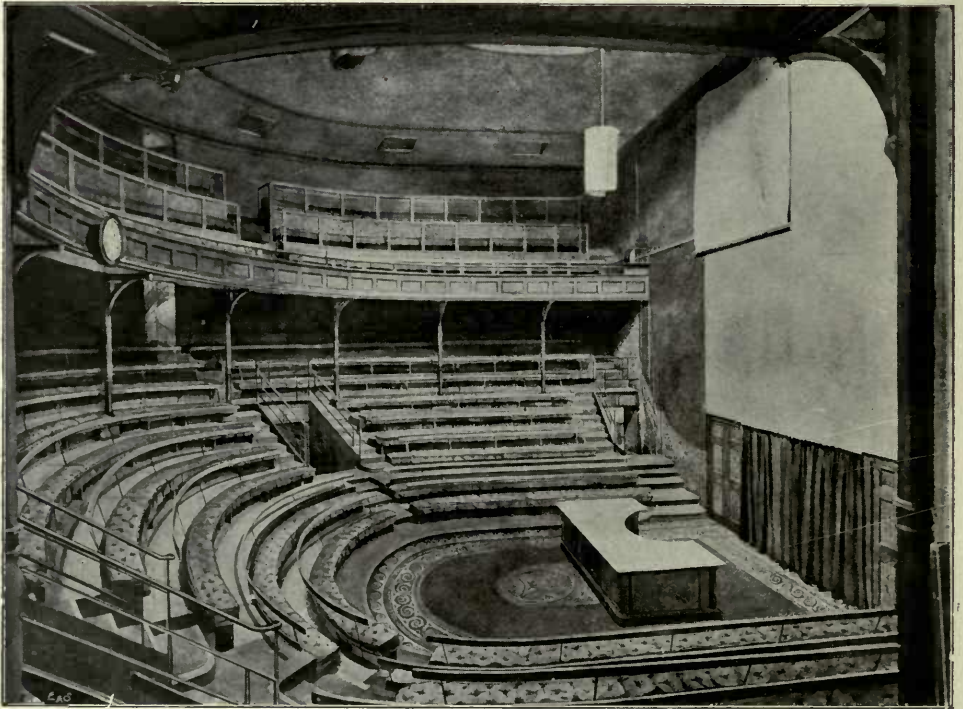
\* THE CLASSIFIED CATALOGUE OF THE LIBRARY (with a Synopsis of Contents and Indexes of Authors and Subjects), in two volumes, by BENJAMIN VINCENT, is sold (*bound*) to the Members of the Royal Institution for 14s.; to Non-Members for 21s. 6d. Volume II. (*alone*) to Members for 6s.; to Non-Members for 8s. 6d. With Additions, 1882-1914.

## READING ROOMS

In which the principal Journals, Magazines, and Reviews, English and Foreign, are provided, and in some cases filed for scientific and literary reference.

*\*\* The READING ROOMS are open every week day from Nine in the morning till Eleven in the evening.*

*The UPPER LIBRARY is open every day from Ten in the morning till Ten in the evening, except on the Fridays during the Season, when it is closed at Four in the afternoon.*



The Lecture Room at the Royal Institution

*K. M. Reynolds (Regd.)*

## PRIVILEGES AND CONDITIONS OF MEMBERSHIP

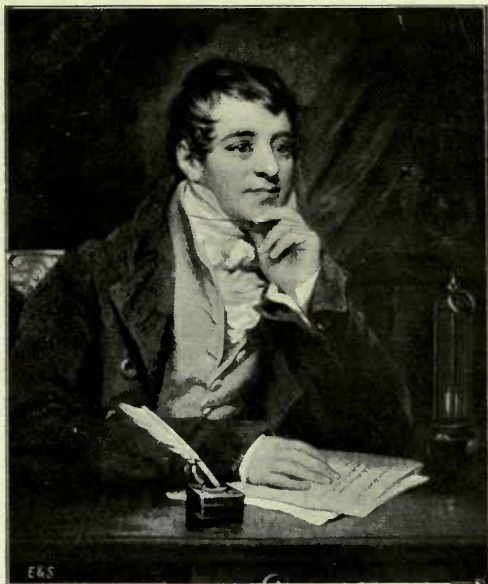
CANDIDATES, when duly Proposed, in accordance with the By-laws, are temporarily admitted, by courtesy, to all the privileges of the Institution. They are balloted for at the next General Monthly Meeting, and pay an Admission Fee of Ten Guineas on Election (which includes the First Annual Contribution), and, in each subsequent year, an Annual Subscription, in January, of Five Guineas, or Sixty Guineas in lieu of all payments.





**Thomas Young, M.D. F.R.S.**

*From the Painting by Sir Thomas Lawrence, P.R.A.*



**Sir Humphry Davy, Bart., LL.D. P.R.S.**

*From the Painting by T. Phillips, R.A.*



**Michael Faraday, D.C.L. LL.D. F.R.S.**

*From the Drawing by George Richmond, R.A.*



**John Tyndall, D.C.L. LL.D. F.R.S.**

*From the Drawing by George Richmond, R.A.*

MEMBERS are entitled to attend ALL Lectures delivered in the Institution, the Libraries, and the Friday Evening Meetings; they have the right of voting at the Monthly Meetings; they may also issue two invitation cards to the Friday Evening Meetings. Their Families have the privilege of attending the Lectures at a Reduced Charge; and for every Additional Subscription of Twenty Guineas at one time, or Three Guineas per annum, each Member is entitled to introduce personally, or by a written order, one Visitor to each of the Public Lectures.

LADY MEMBERS have the special privilege of introducing personally one Lady Visitor to the Reserved Seats at the Friday Evening Meetings.

Tickets for admission of Friends to the Friday Evening Meetings will be forwarded to Members for their signature on application to the Secretary.

PERSONS desirous of becoming MEMBERS are requested to apply to the Secretary.

WIVES of MEMBERS: SONS and DAUGHTERS (under the age of Twenty-one) admitted to all Courses of Lectures (extending from Christmas to Midsummer) on the payment of One Guinea, and to any separate Course on the payment of Half-a-Guinea.

MEMBERS may purchase *not less than Three Single Lecture Tickets*, available for any Afternoon Lecture, for *Half-a-Guinea*.

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## ORIGINAL WORK OF THE PROFESSORS

### THOMAS YOUNG,

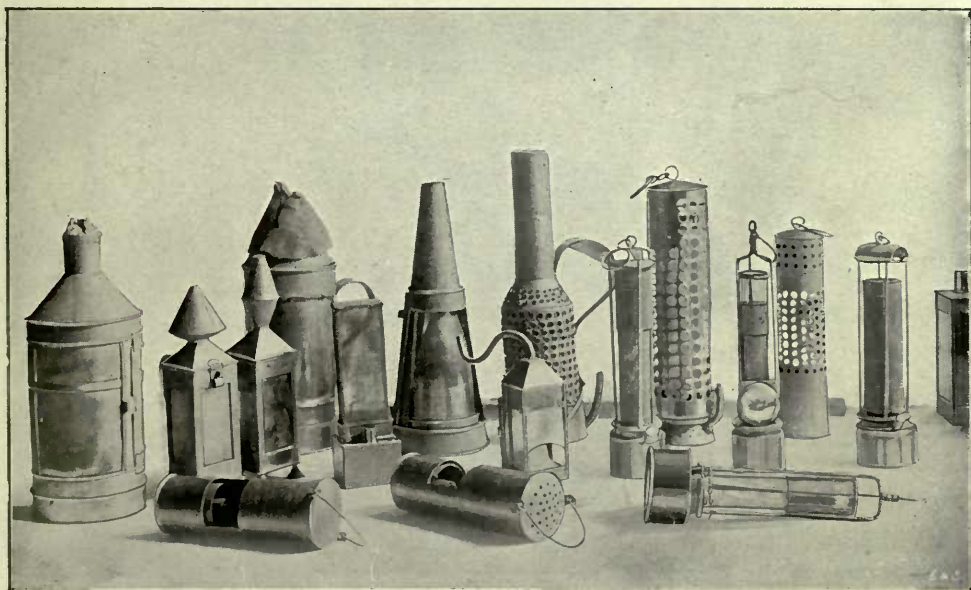
*Professor Royal Institution from 1801 to 1803.*

Interference of Light. Undulatory Theory of Light. Sound. Colours of Thin Plates. "Lectures on Natural Philosophy and the Mechanical Arts (including a Catalogue of Works relating to these subjects)" 1807.

### HUMPHRY DAVY,

*Professor Royal Institution from 1802 to 1813; Honorary Professor from 1813 to 1823.*

Galvanic and Electro-Magnetic Phenomena. Chemical Action of the Voltaic Battery. Discoveries in Electro-Chemical Science. Lectures on Agricultural Chemistry. Decomposition of Potash. Isolation of Potassium and Sodium. Chlorine. Discourse on Radiant or Ethereal Matter. Iodine. Researches on Fire-damp and Flame. The Safety Lamp.

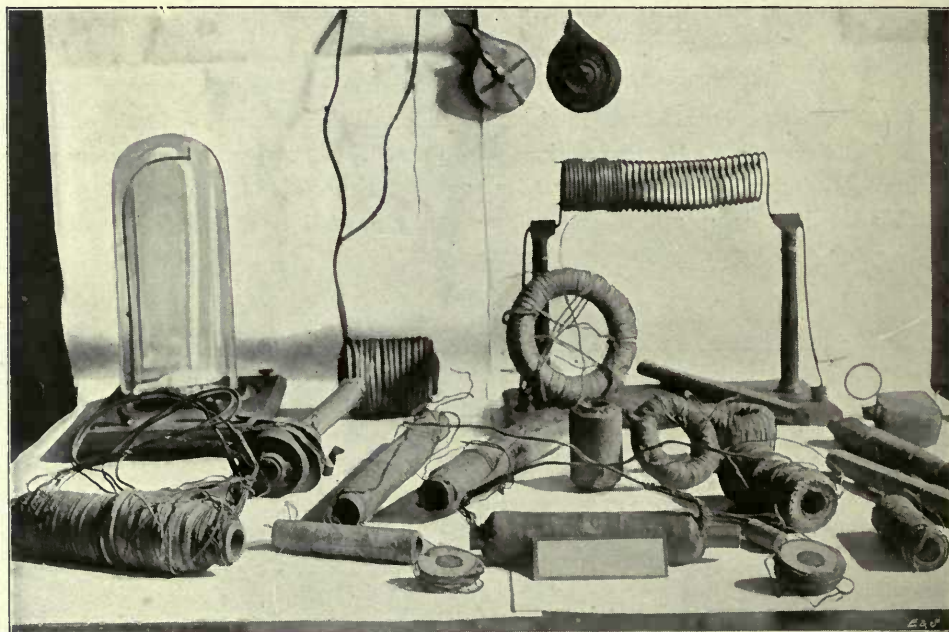


**Historical Apparatus of Davy in the Royal Institution**

## MICHAEL FARADAY,

*Professor Royal Institution from 1833 to 1867.*

Alloys of Steel. History of Electro-Magnetism. Magnetic Rotations. Liquefaction of Chlorine and other Gases. New Compounds of Carbon and Hydrogen. Manufacture of Optical Glass. Vibrating Surfaces. Magneto-Electricity. Terrestrial Magneto-Electric Induction. Identity of Electricities. Electro-Chemical Decomposition. Electricity of the Voltaic Pile. The Extra Current. Frictional Electricity. Specific Inductive Capacity. Magnetisation of Light. Lines of Magnetic Force. Magnetic Condition of all Matter. Diamagnetism. Magneto-Crystallic Action. Magnetism of Flame and Gases. Atmospheric Magnetism. Relations of Gold and other Metals to Light. The Regelation of Ice. Platinum. Gas Furnaces.



**Historical Apparatus of Faraday in the Royal Institution**

## WILLIAM THOMAS BRANDE,

*Professor Royal Institution from 1813 to 1852; Honorary Professor from 1852 to 1866.*

Chemical Investigations. Electro-Chemical Phenomena. Report on the Manufacture of Iron and Steel for Dies. "Dictionary of Science and Art," "Manual of Chemistry," and other Works.

## EDWARD FRANKLAND,

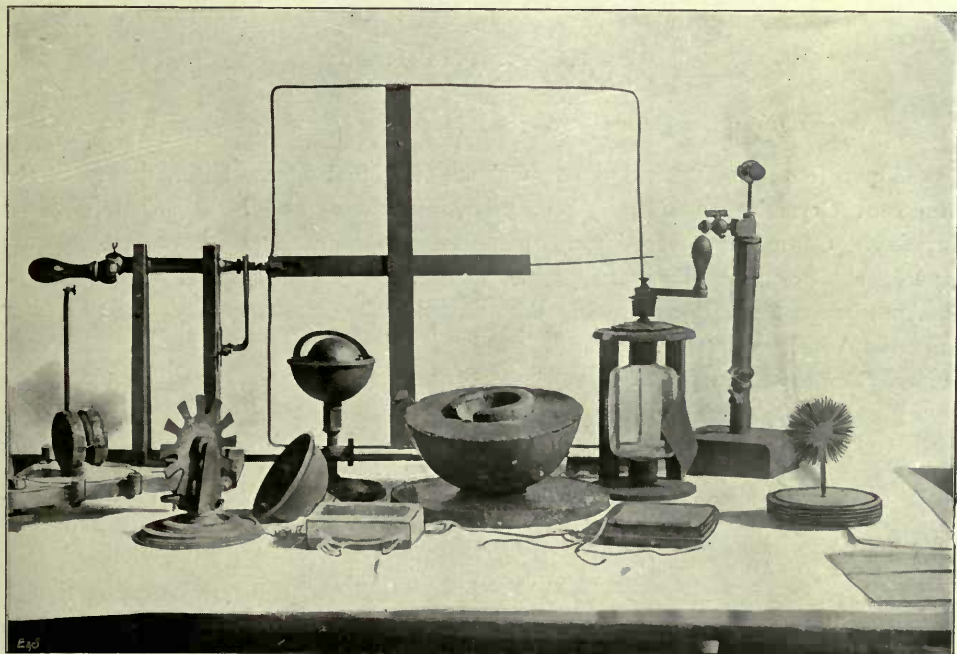
*Professor Royal Institution from 1863 to 1868.*

Synthesis of Acids of the Lactic Series. Mercury-methyl, Mercury-ethyl, and Mercury-amyl. Transformation of Organo-Mercury Compounds into Organo-Zinc Compounds. Combustion of Iron in Compressed Oxygen. Synthesis of Acids of the Acrylic Series. Synthesis of Fatty Acids. New Organic Radical Oxatyl. The Source of Muscular Power. Potential Energy in various kinds of Food. Source of Light in Flame. Effect of Pressure upon Luminosity of Flame.

## WILLIAM ODLING,

*Professor Royal Institution from 1868 to 1873.*

The Simplest Organic Compounds. Ammonia Compounds of Platinum. Manufacture of Chlorine. Iridium. Ozone. Evaporation and Diffusion.



**Historical Apparatus of Faraday in the Royal Institution**

## JOHN TYNDALL,

*Professor Royal Institution from 1853 to 1887; Honorary Professor from  
1887 to 1893.*

Transmission of Heat through Organic Substances. Vibrations due to Contact of Bodies at Different Temperatures. Researches on Diamagnetic Force. Slaty Cleavage. Physical Properties of Ice and Glaciers. Absorption and

Radiation of Heat by Gases. Calorescence. Action of Heat of High Refrangibility. Formation of Clouds. Colour and Polarisation of the Sky. Smoke and Dust Respirator. Colour of Water. Dust and Smoke. Light and Radiant Heat. Acoustic Transparency and Opacity of the Atmosphere. Acoustic Reversibility. Optical Condition of the Atmosphere. The Vital Resistance of Putrefactive and Infective Organisms. Fog Signals. Radiant Heat and Sound. Action of Molecules on Radiant Heat. Radiation. The Rainbow. Living Contagia.

### JOHN HALL GLADSTONE,

*Professor Royal Institution from 1874 to 1877.*

The Copper-Zinc Couple. Chemical Decomposition. Influence of Chemical Constitution on the Refraction of Light.

### LORD RAYLEIGH,

*Professor Royal Institution from 1887 to 1905; Honorary Professor, 1905.*

Water Jets and Water Drops. Colours of Thin Plates. Diffraction of Sound. Iridescent Crystals. Foam. Applications of Photography. Physical Work of Faraday. Composition of Water. Interference Bands. Densities of Oxygen and Hydrogen. Scientific Work of Tyndall. Argon. Investigations on Argon. Limits of Audition. Experiments with the Telephone. Transparency and Opacity. Scientific Work of Young. Flight. Polish. Interference of Sound. Drops and Surface Tension. Shadows. The Law of Pressure of Gases below Atmosphere.

### JAMES DEWAR,

*Professor Royal Institution from 1877 to the present date.*

Temperature of the Sun and Work of Sunlight. Physiological Action of Light. Electro-Photometry. Liquefaction of Gases. Spectroscopic Investigations. High Temperature Investigations. Origin and Identity of Spectra. Researches of Henri Sainte-Claire-Deville. Electric Arc and Chemical Synthesis. Researches on Liquefied Gases. Liquid Air and the Zero of Absolute Temperature. Researches on Meteorites. Light as an Analytic Agent. Phosphorescence and Ozone. Optical Properties of Oxygen and Ozone. Scientific Work of Joule. Chemical Work of Faraday in Relation to Modern Science. Magnetic Properties of Liquid Oxygen. Liquid Atmospheric Air. Scientific Uses of Liquid Air. Phosphorescence and Photographic Action at Low Temperatures. New Researches on Liquid Air. Properties of Liquid Oxygen. Liquid Air as an Analytical Agent. Liquid Hydrogen. Solid Hydrogen. Gases at the Beginning and End of the

Century. Problems of the Atmosphere. Low Temperature Investigations. Liquid Hydrogen Calorimetry. New Low Temperature Phenomena. Studies on Charcoal and Liquid Air. Studies in High Vacua and Helium at Low Temperatures. The Nadir of Temperature and Allied Problems. Problems of Helium and Radium. Light Reactions at Low Temperatures. Chemical and Physical Change at Low Temperatures. Heat Problems. The Coming of Age of the "Vacuum Flask."

## JOSEPH JOHN THOMSON,

*Professor Royal Institution from 1905 to the present date.*

Application of Theory of Electric Discharge to Spectroscopy. Rays of Positive Electricity. Carriers of Positive Electricity. Electrical Striations. The Dynamics of a Golf Ball. A New Method of Chemical Analysis. Results of the Application of Positive Rays to the Study of Chemical Problems. Further Applications of the Method of Positive Rays. Further Researches in Positive Rays.







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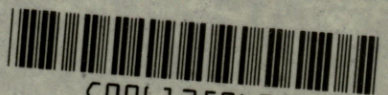
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