

= Royal Society =

The President , Council , and Fellows of the Royal Society of London for Improving Natural Knowledge , commonly known as the Royal Society , is a learned society for science and is possibly the oldest such society still in existence . Founded in November 1660 , it was granted a royal charter by King Charles II as " The Royal Society " . The Society is the United Kingdom 's and Commonwealth of Nations ' Academy of Sciences and fulfills a number of roles ; promoting science and its benefits , recognising excellence in science , supporting outstanding science , providing scientific advice for policy , fostering international and global cooperation , education and public engagement .

The society is governed by its Council , which is chaired by the Society 's President , according to a set of statutes and standing orders . The members of Council and the President are elected from and by its Fellows , the basic members of the society , who are themselves elected by existing Fellows . There are currently about 1 @, @ 450 fellows , allowed to use the postnominal title FRS (Fellow of the Royal Society) , with up to 52 new fellows appointed each year . There are also royal fellows , honorary fellows and foreign members , the last of which are allowed to use the postnominal title ForMemRS (Foreign Member of the Royal Society) . As of 2015 the Royal Society President is Venkatraman Ramakrishnan , who took up the post on November 30 , 2015 .

Since 1967 , the society has been based at 6 ? 9 Carlton House Terrace , a Grade I listed building in central London which was previously used by the Embassy of Germany , London .

= = History = =

= = = Founding and early years = = =

The Royal Society started from groups of physicians and natural philosophers , meeting at variety of locations , including Gresham College in London . They were influenced by the " new science " , as promoted by Francis Bacon in his New Atlantis , from approximately 1645 onwards . A group known as " The Philosophical Society of Oxford " was run under a set of rules still retained by the Bodleian Library . After the English Restoration , there were regular meetings at Gresham College . It is widely held that these groups were the inspiration for the foundation of the Royal Society .

Another view of the founding , held at the time , was that it was due to the influence of French scientists and the Montmor Academy in 1657 , reports of which were sent back to England by English scientists attending . This view was held by Jean @-@ Baptiste du Hamel , Giovanni Domenico Cassini , Bernard le Bovier de Fontenelle and Melchisédech Thévenot at the time and has some grounding in that Henry Oldenburg , the society 's first secretary , had attended the Montmor Academy meeting . Robert Hooke , however , disputed this , writing that :

[Cassini] makes , then , Mr Oldenburg to have been the instrument , who inspired the English with a desire to imitate the French , in having Philosophical Clubs , or Meetings ; and that this was the occasion of founding the Royal Society , and making the French the first . I will not say , that Mr Oldenburg did rather inspire the French to follow the English , or , at least , did help them , and hinder us . But ' tis well known who were the principal men that began and promoted that design , both in this city and in Oxford ; and that a long while before Mr Oldenburg came into England . And not only these Philosophic Meetings were before Mr Oldenburg came from Paris ; but the Society itself was begun before he came hither ; and those who then knew Mr Oldenburg , understood well enough how little he himself knew of philosophic matter .

On 28 November 1660 , the 1660 committee of 12 announced the formation of a " College for the Promoting of Physico @-@ Mathematical Experimental Learning " , which would meet weekly to discuss science and run experiments . At the second meeting , Sir Robert Moray announced that the King approved of the gatherings , and a royal charter was signed on 15 July 1662 which created the " Royal Society of London " , with Lord Brouncker serving as the first president . A second royal charter was signed on 23 April 1663 , with the king noted as the founder and with the name of " the

Royal Society of London for the Improvement of Natural Knowledge " ; Robert Hooke was appointed as Curator of Experiments in November . This initial royal favour has continued and , since then , every monarch has been the patron of the society .

The society 's early meetings included experiments performed first by Hooke and then by Denis Papin , who was appointed in 1684 . These experiments varied in their subject area , and were both important in some cases and trivial in others . The society also published an English translation of Essays of Natural Experiments Made in the Accademia del Cimento , under the Protection of the Most Serene Prince Leopold of Tuscany in 1684 , an Italian book documenting experiments at the Accademia del Cimento . Although meeting at Gresham College , the Society temporarily relocated to Arundel House in 1666 after the Great Fire of London , which did not harm Gresham but did lead to its appropriation by the Lord Mayor . The Society returned to Gresham in 1673 .

There had been an attempt in 1667 to establish a permanent " college " for the society . Michael Hunter argues that this was influenced by " Solomon 's House " in Bacon 's New Atlantis and , to a lesser extent , by J. V. Andreae 's Christianopolis , dedicated research institutes , rather than the colleges at Oxford and Cambridge , since the founders only intended for the society to act as a location for research and discussion . The first proposal was given by John Evelyn to Robert Boyle in a letter dated 3 September 1659 ; he suggested a grander scheme , with apartments for members and a central research institute . Similar schemes were expounded by Bengt Skytte and later Abraham Cowley , who wrote in his Proposition for the Advancement of Experimental Philosophy in 1661 of a " ' Philosophical College " , with houses , a library and a chapel . The society 's ideas were simpler and only included residences for a handful of staff , but Hunter maintains an influence from Cowley and Skytte 's ideas . Henry Oldenburg and Thomas Sprat put forward plans in 1667 and Oldenburg 's co - @ - secretary , John Wilkins , moved in a council meeting on 30 September 1667 to appoint a committee " for raising contributions among the members of the society , in order to build a college " . These plans were progressing by November 1667 , but never came to anything , given the lack of contributions from members and the " unrealised ? perhaps unrealistic " ? aspirations of the society .

= = = 18th century = = =

During the 18th century , the gusto that had characterised the early years of the society faded ; with a small number of scientific " greats " compared to other periods , little of note was done . In the second half , it became customary for His Majesty 's Government to refer highly important scientific questions to the council of the society for advice , something that , despite the non @ - @ partisan nature of the society , spilled into politics in 1777 over lightning conductors . The pointed lightning conductor had been invented by Benjamin Franklin in 1749 , while Benjamin Wilson invented blunted ones . During the argument that occurred when deciding which to use , opponents of Franklin 's invention accused supporters of being American allies rather than being British , and the debate eventually led to the resignation of the society 's president , Sir John Pringle . During the same time period , it became customary to appoint society fellows to serve on government committees where science was concerned , something that still continues .

The 18th century featured remedies to many of the society 's early problems . The number of fellows had increased from 110 to approximately 300 by 1739 , the reputation of the society had increased under the presidency of Sir Isaac Newton from 1703 until his death in 1727 , and editions of the Philosophical Transactions of the Royal Society were appearing regularly . During his time as president , Newton arguably abused his authority ; in a dispute between himself and Gottfried Leibniz over the invention of infinitesimal calculus , he used his position to appoint an " impartial " committee to decide it , eventually publishing a report written by himself in the committee 's name . In 1705 , the society was informed that it could no longer rent Gresham College and began a search for new premises . After unsuccessfully applying to Queen Anne for new premises , and asking the trustees of Cotton House if they could meet there , the council bought two houses in Crane Court , Fleet Street , on 26 October 1710 . This included offices , accommodation and a collection of curiosities . Although the overall fellowship contained few noted scientists , most of the council were

highly regarded , and included at various times John Hadley , William Jones and Hans Sloane . Because of the laxness of fellows in paying their subscriptions , the society ran into financial difficulty during this time ; by 1740 , the society had a deficit of £ 240 . This continued into 1741 , at which point the treasurer began dealing harshly with fellows who had not paid . The business of the society at this time continued to include the demonstration of experiments and the reading of formal and important scientific papers , along with the demonstration of new scientific devices and queries about scientific matters from both Britain and Europe .

Some modern research has asserted that the claims of the society 's degradation during the 18th century are false . Richard Sorrenson writes that " far from having ' fared ingloriously ' , the society experienced a period of significant productivity and growth throughout the eighteenth century " , pointing out that many of the sources critical accounts are based on are in fact written by those with an agenda . While Charles Babbage wrote that the practice of pure mathematics in Britain was weak , laying the blame at the doorstep of the society , the practice of mixed mathematics was strong , and although there were not many eminent members of the society , some did contribute vast amounts ? James Bradley , for example , established the nutation of the Earth 's axis with 20 years of detailed , meticulous astronomy .

Politically within the society , the mid @-@ 18th century featured a " Whig supremacy " as the so @-@ called " Hardwicke Circle " of Whig @-@ leaning scientists held the society 's main Offices . Named after Lord Hardwicke , the groups members included Daniel Wray and Thomas Birch and was most prominent in the 1750s and 60s . The circle had Birch elected secretary and , following the resignation of Martin Folkes , the circle helped oversee a smooth transition to the presidency of Earl Macclesfield , whom Hardwicke helped elect . Under Macclesfield , the circle reached its " zenith " , with members such as Lord Willoughby and Birch serving as vice @-@ president and secretary respectively . The circle also influenced goings @-@ on in other learned societies , such as the Society of Antiquaries of London . After Macclesfield 's retirement , the circle had Lord Morton elected in 1764 and Sir John Pringle elected in 1772 . By this point , the previous Whig " majority " had been reduced to a " faction " , with Birch and Willoughby no longer involved , and the circle declined in the same time frame as the political party did in British politics under George III , falling apart in the 1780s .

In 1780 , the society moved again , this time to Somerset House . The property was offered to the society by His Majesty 's Government and , as soon as Sir Joseph Banks became president in November 1778 , he began planning the move . Somerset House , while larger than Crane Court , was not satisfying to the fellows ; the room to store the library was too small , the accommodation was insufficient and there was not enough room to store the museum at all . As a result , the museum was handed to the British Museum in 1781 and the library was extended to two rooms , one of which was used for council meetings .

= = = 19th century to the present = = =

The early 19th century has been seen as a time of decline for the society ; of 662 fellows in 1830 , only 104 had contributed to the Philosophical Transactions . The same year , Charles Babbage published Reflections on the Decline of Science in England , and on Some of Its Causes , which was deeply critical of the Society . The scientific Fellows of the Society were spurred into action by this , and eventually James South established a Charters Committee " with a view to obtaining a supplementary Charter from the Crown " , aimed primarily at looking at ways to restrict membership . The Committee recommended that the election of Fellows take place on one day every year , that the Fellows be selected on consideration of their scientific achievements and that the number of fellows elected a year be limited to 15 . This limit was increased to 17 in 1930 and 20 in 1937 ; it is currently 52 . This had a number of effects on the Society : first , the Society 's membership became almost entirely scientific , with few political Fellows or patrons . Second , the number of Fellows was significantly reduced ? between 1700 and 1850 , the number of Fellows rose from approximately 100 to approximately 750 . From then until 1941 , the total number of Fellows was always between 400 and 500 .

The period did lead to some reform of internal Society statutes , such as in 1823 and 1831 . The most important change there was the requirement that the Treasurer publish an annual report , along with a copy of the total income and expenditure of the Society . These were to be sent to Fellows at least 14 days before the general meeting , with the intent being to ensure the election of competent Officers by making it readily apparent what existing Officers were doing . This was accompanied by a full list of Fellows standing for Council positions , where previously the names had only been announced a couple of days before . As with the other reforms , this helped ensure that Fellows had a chance to vet and properly consider candidates . The Society 's financial troubles were finally resolved in 1850 , when a government grant @-@ in @-@ aid of £ 1 @,@ 000 a year was accepted . This was increased to £ 4 @,@ 000 in 1876 , with the Society officially acting merely as the trustee for these funds , doling them out to individual scientists . This grant has now grown to over £ 47 million , some £ 37 million of which is to support around 370 fellowships and professorships .

By 1852 , the congestion at Somerset House had increased thanks to the growing number of Fellows . Therefore , the Library Committee asked the Council to petition Her Majesty 's Government to find new facilities , with the advice being to bring all the scientific societies , such as the Linnean and Geological societies , under one roof . In August 1866 , the government announced their intention to refurbish Burlington House and move the Royal Academy and other societies there . The Academy moved in 1867 , while other societies joined when their facilities were built . The Royal Society moved there in 1873 , taking up residence in the East Wing . The top floor was used as accommodation for the Assistant Secretary , while the library was scattered over every room and the old caretaker 's apartment was converted into offices . One flaw was that there was not enough space for the office staff , which was then approximately eighty . When , for example , the Society organised the British contribution to the International Geophysical Year in 1954 , additional facilities had to be found for the staff outside Burlington House .

On 22 March 1945 , the first female Fellows were elected to the Royal Society . This followed a statutory amendment in 1944 that read " Nothing herein contained shall render women ineligible as candidates " , and was contained in Chapter 1 of Statute 1 . Because of the difficulty of co @-@ ordinating all the Fellows during the Second World War , a ballot on making the change was conducted via the post , with 336 Fellows supporting the change and 37 opposing . Following approval by the Council , Marjory Stephenson , Kathleen Lonsdale and Edith Bülbring were elected as Fellows .

= = Coat of arms = =

The Coat of arms of the Royal Society is " in a dexter corner of a shield argent our three Lions of England , and for crest a helm adorned with a crown studded with florets , surmounted by an eagle of proper colour holding in one foot a shield charged with our lions : supporters two white hounds gorged with crowns " , with the motto of " nullius in verba " . John Evelyn , interested in the early structure of the society , had sketched out at least six possible designs , but in August 1662 Charles II told the society that it was allowed to use the arms of England as part of its coat and the society " now resolv 'd that the armes of the Society should be , a field Argent , with a canton of the armes of England ; the supporters two talbots Argent ; Crest , an eagle Or holding a shield with the like armes of England , viz . 3 lions . The words Nullius in verba " . This was approved by Charles , who asked Garter King of Arms to create a diploma for it , and when the second charter was signed on 22 April 1663 the arms were granted to the president , council and fellows of the society along with their successors .

The helmet of the arms was not specified in the charter , but the engraver sketched out a peer 's helmet on the final design , which is used . This is contrary to the heraldic rules , as a society or corporation normally has an esquire 's helmet ; it is thought that either the engraver was ignorant of this rule , which was not strictly adhered to until around 1615 , or that he used the peer 's helmet as a compliment to Lord Brouncker , a peer and the first President of the Royal Society .

= = Motto = =

The society 's motto , Nullius in verba , is Latin for " Take nobody 's word for it " . It was adopted to signify the fellows ' determination to establish facts via experiments and comes from Horace 's Epistles , where he compares himself to a gladiator who , having retired , is free from control .

= = Functions and activities = =

The Society has a variety of functions and activities . It supports modern science by disbursing nearly £ 42 million to fund approximately 600 research fellowships for both early and late career scientists , along with innovation , mobility and research capacity grants . Its Awards , prize lectures and medals all come with prize money intended to finance research , and it provides subsidised communications and media skills courses for research scientists . Much of this activity is supported by a grant from the Department for Business , Innovation and Skills , most of which is channeled to the University Research Fellowships . In 2008 , the Society opened the Royal Society Enterprise Fund , intended to invest in new scientific companies and be self @-@ sustaining , funded (after an initial set of donations on the 350th anniversary of the Society) by the returns from its investments .

Through its Science Policy Centre , the Society acts as an advisor to the European Commission and the United Nations on matters of science . It publishes several reports a year , and serves as the Academy of Sciences of the United Kingdom . Since the middle of the 18th century , government problems involving science were irregularly referred to the Society , and by 1800 it was done regularly .

= = Publishing = =

The society introduced the world 's first journal exclusively devoted to science in 1665 , Philosophical Transactions , and in so doing originated the peer review process now widespread in scientific journals . Its founding editor was Henry Oldenburg , the society 's first secretary .

Through Royal Society Publishing , the society publishes the following journals :

Philosophical Transactions of the Royal Society A (mathematics and the physical sciences)

Philosophical Transactions of the Royal Society B (biological sciences)

Proceedings of the Royal Society A

Proceedings of the Royal Society B

Biology Letters

Open Biology

Royal Society Open Science

Journal of the Royal Society Interface

Interface Focus

Notes and Records : the Royal Society journal of the history of science

Biographical Memoirs of Fellows of the Royal Society

Philosophical Transactions is the oldest and longest @-@ running scientific journal in the world , having first been published in March 1665 by the first secretary of the society , Henry Oldenburg . It now publishes themed issues on specific topics and is currently divided into two parts ; A , which deals with mathematics and the physical sciences , and B , which deals with the biological sciences . Proceedings of the Royal Society consists of freely submitted research articles and is similarly divided into two parts . Biology Letters publishes short research articles and opinion pieces on all areas of biology and was launched in 2005 . Journal of the Royal Society Interface publishes cross @-@ disciplinary research at the boundary between the physical and life sciences , while Interface Focus , publishes themed issue in the same areas . Notes and Records is the Society 's journal on the history of science . Biographical Memoirs is published annually and contains extended obituaries of deceased Fellows . Open Biology is an open access journal covering biology at the molecular and cellular level . Royal Society Open Science is an open access journal publishing high @-@ quality original research across the entire range of science on the basis of objective peer @-@ review . All

the society 's journals are peer @-@ reviewed .

= = Structure and governance = =

The society is governed by its council , which is chaired by the society 's president , according to a set of statutes and standing orders . The members of council , the president and the other officers are elected from and by its fellowship .

= = = Fellows = = =

The society 's core members are the fellows : scientists and engineers from the United Kingdom and the Commonwealth selected based on having made " a substantial contribution to the improvement of natural knowledge , including mathematics , engineering science and medical science " . Fellows are elected for life and gain the right to use the postnominal Fellow of the Royal Society (FRS) . The rights and responsibilities of fellows also include a duty to financially contribute to the society , the right to stand for council posts and the right to elect new fellows . Up to 52 fellows are elected each year and in 2014 there were about 1 @, @ 450 living members in total . Election to the fellowship is decided by ten sectional committees (each covering a subject area or set of subjects areas) which consist of existing fellows .

The society also elects royal fellows , honorary fellows and foreign members . Royal fellows are those members of the British Royal Family , representing the British monarchy 's role in promoting and supporting the society , who are recommended by the society 's council and elected via postal vote . There are currently five royal fellows : The Duke of Edinburgh , The Prince of Wales , The Duke of Kent , the Princess Royal , and The Duke of Cambridge . Honorary fellows are people who are ineligible to be elected as fellows but nevertheless have " rendered signal service to the cause of science , or whose election would significantly benefit the Society by their great experience in other walks of life " . Six honorary fellows have been elected to date , including Baroness O 'Neill of Bengarve . Foreign members are scientists from non @-@ Commonwealth nations " who are eminent for their scientific discoveries and attainments " . Eight are elected each year by the society and also hold their membership for life . Foreign members are permitted to use the post @-@ nominal ForMemRS (Foreign Member of the Royal Society) and currently number about 140 .

The appointment of fellows was first authorised in the second charter , issued on 22 April 1663 , which allowed the president and council , in the two months following the signing , to appoint as fellows any individuals they saw fit . This saw the appointment of 94 fellows on 20 May and 4 on 22 June ; these 98 are known as the " Original Fellows " . After the expiration of this two @-@ month period any appointments were to be made by the president , council and existing fellows . Many early fellows were not scientists or particularly eminent intellectuals ; it was clear that the early society could not rely on financial assistance from the king , and scientifically trained fellows were few and far between . It was therefore necessary to secure the favour of wealthy or important individuals for the society 's survival . While the entrance fee of £ 4 and the subscription rate of one shilling a week should have produced £ 600 a year for the society , many fellows paid neither regularly nor on time . Two @-@ thirds of the fellows in 1663 were non @-@ scientists ; this rose to 71 @. @ 6 % in 1800 before dropping to 47 @. @ 4 % in 1860 as the financial security of the society became more certain . In May 1846 , a committee recommended limiting the annual intake of members to 15 and insisting on scientific eminence ; this was implemented , with the result being that the society now consists exclusively of scientific fellows .

= = = Council = = =

The council is a body of 21 fellows , including the officers (the president , the treasurer , two secretaries ? one from the physical sciences , one from life sciences ? and the foreign secretary) , one fellow to represent each sectional committee and seven other fellows . The council is tasked with directing the society 's overall policy , managing all business related to the society , amending ,

making or repealing the society 's standing orders and acting as trustees for the society 's possessions and estates . Members are elected annually via a postal ballot , and current standing orders mean that at least ten seats must change hands each year . The council may establish (and is assisted by) a variety of committees , which can include not only fellows but also outside scientists . Under the charter , the president , two secretaries and the treasurer are collectively the officers of the society . The current officers are :

President : Venkatraman Ramakrishnan

Treasurer : Anthony Cheetham

Biological Secretary : Sir John Skehel

Physical Secretary : Alex Halliday

Foreign Secretary : Sir Martyn Poliakoff .

= = = President = = =

The President of the Royal Society is head of both the society and the council . The details for the presidency were set out in the second charter and initially had no limit on how long a president could serve for ; under current society statute , the term is five years .

The current president is Venkatraman Ramakrishnan , who took over from Paul Nurse on 30 November 2015 . Historically , the duties of the president have been both formal and social . The Cruelty to Animals Act 1876 left the president as one of the few individuals capable of certifying that a particular experiment on an animal was justified . In addition , the president is to act as the government 's chief (albeit informal) advisor on scientific matters . Yet another task is that of entertaining distinguished foreign guests and scientists .

= = = Permanent staff = = =

The society is assisted by a number of full @-@ time paid staff . The original charter provided for " two or more Operators of Experiments , and two or more clerks " ; as the number of books in the society 's collection grew , it also became necessary to employ a curator . The staff grew as the financial position of the society improved , mainly consisting of outsiders , along with a small number of scientists who were required to resign their fellowship on employment . The current senior members of staff are :

Executive Director : Julie Maxton

Director of Science Policy : Claire Craig

Publishing Director : Stuart Taylor

Chief Strategy Officer : Lesley Miles

Chief Financial Officer : Mary Daly

Director of International Affairs : Rapela Zaman

Director of Communications : Bill Hartnett

Director of Grants : Paul McDonald

Director of Development : Jennifer Cormack

= = Carlton House Terrace = =

The premises at 6 ? 9 Carlton House Terrace is a Grade I listed building and the current headquarters of the Royal Society , which had moved there from Burlington House in 1967 . The ground floor and basement are used for ceremonies , social and publicity events , the first floor hosts facilities for Fellows and Officers of the Society , and the second and third floors are divided between offices and accommodation for the President , Executive Secretary and Fellows . The first Carlton House was named after Baron Carleton , and was sold to Lord Chesterfield in 1732 , who held it on trust for Frederick , Prince of Wales . Frederick held his court there until his death in 1751 , after which it was occupied by his widow until her death in 1772 . In 1783 , the then @-@ Prince of Wales George bought the house , instructing his architect Henry Holland to completely remodel it .

When George became King , he authorised the demolition of Carlton House , with the request that the replacement be a residential area . John Nash eventually completed a design that saw Carlton House turned into two blocks of houses , with a space in between them . The building is still owned by the Crown Estates and leased by the Society ; it underwent a major renovation from 2001 to 2004 at the cost of £ 9 @. @ 8 million , and was re @- @ opened by the Prince of Wales on 7 July 2004 .

Carlton House Terrace underwent a series of renovations between 1999 and November 2003 to improve and standardise the property . New waiting , exhibition and reception rooms were created in the house at No.7 , using the Magna Boschi marble found in No.8 , and greenish grey Statuario Venato marble was used in other areas to standardise the design . An effort was also made to make the layout of the buildings easier , consolidating all the offices on one floor , Fellows ' Rooms on another and all the accommodation on a third .

= = Kavli Royal Society International Centre = =

In 2009 Chicheley Hall , a Grade I listed building located near Milton Keynes , was bought by the Royal Society for £ 6 @. @ 5 million , funded in part by the Kavli Foundation . The Royal Society spent several million on renovations adapting it to become the Kavli Royal Society International Centre , a venue for residential science seminars . The centre held its first scientific meeting on 1 June 2010 and was formally opened on 21 June 2010 .

= = Honours = =

The Royal Society presents numerous awards , lectures and medals to recognise scientific achievement . The oldest is the Croonian Lecture , created in 1701 at the request of the widow of William Croone , one of the founding members of the Royal Society . The Croonian Lecture is still awarded on an annual basis , and is considered the most important Royal Society prize for the biological sciences . Although the Croonian Lecture was created in 1701 , it was first awarded in 1738 , seven years after the Copley Medal . The Copley Medal is the oldest Royal Society medal still in use and is awarded for " outstanding achievements in research in any branch of science " .

= = = Citation = = =