

December 1, 1884.

ANNIVERSARY MEETING.

THE TREASURER in the Chair.

The Report of the Auditors of the Treasurer's Accounts on the part of the Society was presented, by which it appears that the total receipts during the past year amount to £6,147 14s. 2*d.*, and that the total expenditure in the same period amounts to £5,456 7s. 10*d.*, leaving a balance of £691 6s. 4*d.* at the Bankers', and £22 19s. 9*d.* in the hands of the Treasurer.

The thanks of the Society were voted to the Treasurer and Auditors.

The Secretary then read the following Lists :—

Fellows deceased since the last Anniversary.

On the Home List.

Balfour, John Hutton, M.D., F.L.S.	Merrifield, Charles Watkins.
Bentham, George, F.L.S.	Rennie, James.
Buccleuch, Walter Francis Mon-	Smith, Robert Angus, Ph.D.
tagu Douglas-Scott, Duke of,	Thomson, Allen, M.D., D.C.L.
K.G., D.C.L.	Todhunter, Isaac, M.A.
Fawcett, Right Hon. Henry, M.A.	Townsend, Rev. Richard, M.A.
Frere, Right Hon. Sir Henry	Tweedie, Alexander, M.D.
Bartle Edward, G.C.B., G.C.S.I.	Watts, Henry, B.A.
Godwin - Austen, Robert Alfred	Wilson, Sir Erasmus, Knt.,
Cloyne, F.G.S.	F.R.C.S.
Hawkins, Cæsar Henry, F.R.C.S.	Wright, Thomas, M.D., F.G.S.
Manby, Charles, F.G.S.	

On the Foreign List.

Dumas, Jean Baptiste.
Kolbe, Adolph Wilhelm Hermann.
Würtz, Karl Adolph.

Withdrawn.

Carnarvon, Henry Howard Molyneux Herbert, Earl of.

Defaulters.

Bateman, James, M.A.		Clarke, Alex. Ross, Col. R.E.
VOL. XXXVII.		2 F

Fellows elected since the last Anniversary.

Allman, Prof. George Johnston, LL.D.	Hudleston, Wilfrid H., M.A., F.G.S.
Balfour, Prof. Isaac Bayley, D.Sc.	Lamb, Prof. Horace, M.A.
Baxendell, Joseph, F.R.A.S.	McKendrick, Prof. John G., M.D.
Bell, James, F.I.C.	Ransome, Arthur, M.D.
Fry, Right Hon. Lord Justice Sir Edward.	Roy, Prof. Charles Smart, M.D.
Hartley, Prof. Walter Noel, F.R.S.E.	Rücker, Prof. Arthur William, M.A.
Herschel, Prof. Alexander Stewart, M.A.	Thomson, Joseph John, B.A.
	Warren, Sir Charles, Colonel R.E., C.M.G.
	Watson, Prof. Morrison, M.D.

On the Foreign List.

De Bary, Anton.	Virchow, Rudolph.
Gegenbaur, Carl.	Wiedemann, Gustav.
Kronecker, Leopold.	

The Treasurer then addressed the Society as follows:—

The absence of our President from his post to-day must of necessity cast a certain amount of gloom over the proceedings at this our anniversary meeting, and, personally, I feel additional regret that it devolves upon me, as your Senior Vice-President and Treasurer, to be the unworthy occupant of the Chair on the present occasion. My regret at the absence of the President is, however, in one respect tempered by a strong hope, in which, I am sure, that you will all fervently join, that the timely retirement from arduous work which has been enforced upon him by his medical advisers may produce those beneficial results which we all so cordially desire, and that we may ere long again see among us our accomplished and valued President in renewed health and strength.

I must, however, turn from the expression of our hopes for the future, to that of our regrets for the past, and for a short time dwell upon the mournful list of vacancies which the ever-active hand of death has caused in our ranks during the past twelve months. In one respect only can a topic of consolation be found in this list. It is that in extent it is less than that of last year, the total number of our deceased Fellows being only eighteen on the home list and three on the foreign list, while those numbers were twenty-one and two respectively at our last anniversary.

All three foreign members whose loss we have on the present occasion to deplore were men of the highest distinction in chemical

science. Two were residents at Paris, both of whom had Chairs in the French Academy, of which the one had been since 1868 one of the Permanent Secretaries. I cannot dwell upon the discoveries and the remarkable career of M. Jean Baptiste André Dumas, whose energy and perspicuity even when past the limit of fourscore years, all those who of late have had the opportunity of being present at a meeting of the French Academy must have found reason to admire. An appreciative memoir of him by one of our own Fellows, who of all men living is perhaps the best qualified to judge of the value of his labours—Professor Hofmann—written while Dumas was still among us, will be found in the pages of “*Nature*,”* and a biographical notice by the same hand has appeared in our own “*Proceedings*.” It will give some slight idea of the extent of time over which the labours of M. Dumas have extended if I mention that, so long ago as in 1843, he received the Copley Medal at our hands, at a time when his chemical and physiological researches had already extended over a period of twenty-two years. M. Dumas died at Cannes on the 11th of April last, and among the most touching of the speeches at his obsequies was that of M. Würtz, whose own decease took place on the 12th of the following month.

Although nearly twenty years younger than M. Dumas, M. Karl Adolph Würtz had for a long time been one of the most distinguished leaders of modern chemical science, especially in the department of organic chemistry, and his merits were recognised by this Society in 1864, when he was elected one of our foreign members, and again in 1881, when the Copley Medal was awarded to him.

The third chemist on the foreign list whom we have lost is our Davy Medallist, Professor Kolbe, whose sudden death took place only on Wednesday last, and of whose merits I shall have to say a few words later on.

Among our English Fellows was a contemporary of Würtz, who, like him, had been a pupil of the illustrious Liebig, but whose bent was more on the practical than on the theoretical side of chemistry—I mean Dr. Angus Smith, whose official labours in favour of pure air and pure water combined both tact and zeal, and were productive of highly beneficial results.

One other chemist has been taken from among us, Mr. Henry Watts, the well-known editor of the “*Dictionary of Chemistry*,” and of more than one issue of “*Fownes's Manual*.”

Our other losses extend over various departments of science. In botany our ranks are thinned by the death of Dr. John Hutton Balfour, formerly Professor of Botany at Glasgow and the Emeritus Professor of that Chair in the University of Edinburgh; and of the

* “*Proc. Roy. Soc.*,” vol. xxxviii, x. “*Nature*,” vol. xxi, February 6, 1880.

veteran Mr. George Bentham, who had nearly completed his eighty-fourth year. During his long and varied experiences of life, botany was his constant pursuit and study; and some thirty years ago, after presenting his fine collections and library to the Royal Gardens at Kew, he devoted himself to labouring there on the Floras of Hong Kong and Australia, and, in conjunction with Sir Joseph Hooker, on the "*Genera Plantarum*," until his health gave way in the spring of last year. The exceptional value of his botanical work was recognised by this Society in 1859, when a Royal Medal was awarded to him, and his regard for the Society has been testified by his making a bequest of 1,000*l.* to our Scientific Relief Fund.

Among mathematicians we have lost Dr. Isaac Todhunter, whose educational treatises have for many years been recognised as standard works, and whose elaborate histories of different branches of mathematical science have earned for him a high reputation; and Mr. Charles W. Merrifield, who, in addition to achieving distinction by his educational works on arithmetic and mathematics, did much in the direction of the practical application of science, and at the Royal School of Naval Architecture and Marine Engineering successfully laboured in improving the stability and the sea-going powers of the British Navy.

Another distinguished mathematician whom we have within the last few weeks had the misfortune to lose, was the Rev. Richard Townsend, Professor of Natural Philosophy in the University of Dublin, whose labours in the more abstruse fields of geometrical speculation extended over a period of nearly forty years. Mr. James Rennie was also a votary of mathematical research.

Among practical men of science, the veteran Mr. Charles Manby, who for forty-five years had been Secretary or Honorary Secretary of the Institution of Civil Engineers, will deservedly take a high place.

The anatomical and physiological labours of Professor Allen Thomson had extended over the longer term of fifty-four years, and few possessed the power of clearer exposition than he, while for acts of personal kindness there must be many besides myself who owe him a deep debt of gratitude.

Among others connected with the medical profession we miss the distinguished surgeon Mr. Cæsar Hawkins, Dr. Alexander Tweedie, and Sir Erasmus Wilson, whose name will long survive, not only in connexion with dermatology and the Chair of Pathological Anatomy at Aberdeen, but with the Egyptian obelisk, known as Cleopatra's Needle, the presence of which in London is entirely due to his liberality.

In Mr. R. A. C. Godwin-Austen we have lost one who for nearly fifty years had ranked among the foremost of English geologists. His manifold observations will be recorded elsewhere, but as an instance of his critical powers, I may mention his now classical paper on the

possible extension of the Coal Measures beneath the south-eastern part of England, read in 1855, his speculations in which as to the western extension of the axis of Artois, all recent deep borings within the Thames basin have so fully substantiated.

In Dr. Wright we have lost an accomplished palæontologist whose knowledge of the fossil echinodermata and ammonitidæ was almost unrivalled.

The Duke of Buccleuch had for fifty years been one of our Fellows, and in 1867 occupied the position of President of the British Association; while Sir Bartle Frere, although an ethnologist and geographer, will probably be better known as an able and energetic public servant and administrator than as a man of science.

In common with the nation at large, we have to deplore the untimely and unexpected decease of another distinguished statesman, the late Postmaster-General, Mr. Fawcett. A man of rare mental powers, the effect upon him of the greatest of all physical deprivations, the loss of sight, was only to make him rise superior to his misfortune. As a student of political economy he attained a high reputation, and he turned his mastery of the subject to good account when he entered into the sphere of public life, towards which his natural aspirations led him. His singleness and honesty of purpose, the inborn justice of his well-balanced mind, his devotion to the public good, and his invariable courtesy, endeared him alike to political friends and opponents; while to those who were brought into more immediate contact with him, his truly sympathetic nature and the marvellous memory, which preserved even minute details of former conversations, gave a charm to his intercourse which none who enjoyed it will ever forget.

As I have already observed, our losses on the home list, including one resignation of Fellowship and one removal from our list, are less than in many former years, being altogether twenty-one in number; we have, on the other hand, elected sixteen Fellows, including one Privy Councillor. It would, however, appear that our numbers are gradually attaining to something like a state of equilibrium, and that if our elections continue to be limited as at present, the roll of the Society will remain at its present standard of about 470 Fellows. Looking at the recognised longevity of scientific men and the age at which many now achieve the distinction of being elected into the Society, it seems to me not improbable that our numbers will ere long show a tendency to increase rather than to diminish.

Of the "Philosophical Transactions," three parts, and of the "Proceedings," eleven numbers, have been published; while the number of papers received during the past year was 100, as compared with 103 in the previous year. Of these the most numerous have been in the departments of electricity and magnetism, though

physics and mathematics, chemistry, mineralogy, anatomy and physiology, botany, and morphology have all had their share.

It is hardly within my province to select any papers that we have published as being the most worthy of mention. The mere fact that they have appeared in the "Philosophical Transactions" is a sufficient voucher for their value. I may, however, call attention to the report of Captain Abney and Dr. Schuster, our Bakerian lecturer for the present year, on the total Solar Eclipse of May 17, 1882, which is the outcome of an expedition, towards which a grant of 350*l.* was made from our Donation Fund. Some of the results were mentioned by Mr. Spottiswoode in his Presidential Address of 1882, but the value of the details with regard to the corona, and the success which attended the efforts of the photographers, can only be estimated from an examination of the paper itself. The detailed results obtained by the photographers who accompanied the American expedition to Caroline Island in the South Pacific in order to observe the Solar Eclipse of the 5th of May, 1883, have not yet been brought before the Society.

In respect to biological studies, our record of the past year, though it does not contain the announcement of any very startling results, gives evidence of fruitful activity along various lines of research.

In Botany, Mr. Gardiner has continued his observations on the important subject of the continuity of protoplasm in vegetable cells, which was referred to in the President's Address of last year; he has also brought forward some interesting results derived from an examination of the changes in the gland-cells of *Dionæa*, which serve still further to illustrate the identity of the fundamental physiological processes in plants and animals. Mr. Bower has dealt with the morphology of the leaf in certain plants, in a memoir both valuable in itself, and noteworthy because hitherto the study of abstract vegetable morphology has perhaps not obtained in this country the attention which it deserves, and which has been given to it in other countries, especially in Germany.

In Physiology two important papers have been presented on the difficult subject of the functions of the cerebral convolutions, one by Drs. Ferrier and Yeo, and the other by Professor Schäfer and Mr. Horsley. Both contain observations which demand careful consideration by all physiologists.

The results of the study of animal forms which is happily being carried on with great activity, I may say, all over the United Kingdom, are for various reasons principally recorded elsewhere than in the pages of the "Transactions" or "Proceedings" of this Society. Nevertheless, this subject has also been fairly represented at our meetings. Our distinguished and unwearied Fellow, Professor W. Kitchen Parker, is still continuing his elaborate and valuable researches on the vertebrate skull, and during the past session the Society has

had the pleasure of receiving several short papers, expounded in person by their author, from a veteran in the study of animal morphology, whose first communication to the Society bears the date of 1832. I need hardly say I mean Sir Richard Owen.

A few words must be said with regard to the acquisitions made by our library and collections. Our gallery of portraits has, through the kind liberality of Dr. Wilson, of Florence, received two important additions in the form of half-length original portraits of the distinguished mathematicians and philosophers, Leibnitz and Viviani, both of whom were Foreign Members of this Society. When we remember the warmth of feeling with which the rival claims of Newton and Leibnitz to the invention of Fluxions or the Differential Calculus were for many years discussed, and call to mind that the question occupied the attention of a Committee of this Society in 1712, which reported in favour of Newton's claims, we may rejoice that the heat of the controversy is long since over, and congratulate ourselves that the portraits of these rival intellectual giants now hang peacefully side by side on our walls. The portrait of Viviani, the great geometrician, the pupil of Galileo and the associate of Torricelli, and a contemporary of Newton and Leibnitz, finds also a fitting resting-place in our gallery.

Our portfolio of engraved and lithographic portraits of scientific men has been considerably augmented by liberal donations from the executors of our former President, the late Sir Edward Sabine, through Mr. R. H. Scott.

The Lalande medal, which had been awarded by the French Academy to Sir Edward in 1826, and which, together with a Royal Gold Medal, was presented to the Scientific Relief Fund, was by the Council redeemed from the Fund, and will be preserved among our other medals as a memorial of one who for so long a period rendered important services to the Society. A bronze medal of our distinguished Fellow, Professor Sylvester, has been presented to our collection by the Johns Hopkins University, at Baltimore.

The library itself has during the past year received by donations about 380 complete volumes, besides about 240 pamphlets, and more than 2400 parts of serials; 24 charts have also been presented to it.

With regard to our finances, I may venture to say, as your Treasurer, that I consider them to be in a satisfactory condition.

I must now turn to some of the subjects which, during the past year, have occupied the attention of the President and Council, and which in more than one instance have brought them into communication with Her Majesty's Government.

In July of last year a letter from the Treasury was received requesting our opinion as to the desirability of subsidising the Armagh Observatory, the income of which had been materially reduced, owing to recent legislation in Ireland. In reply to this an answer

was sent pointing out the good work that had been done in the Observatory, and the exceptional character of the institution, and recommending it to the favourable consideration of the Government. Unfortunately, however, the loss of income applicable to the maintenance of an observatory has not been made good, though the Treasury, "having regard to the advice of the Royal Society, and to the diminution in the income of the Observatory," has granted a sum of 2,000*l.* in aid of its funds, the annual income derived from which sum is to be applied by trustees to the maintenance and purchase of instruments and apparatus.

Another correspondence with the Treasury as to the bathymetrical survey of the lakes within the British Isles did not lead to any concession in favour of such a necessary complement to the National Ordnance Survey, though the omission in our maps of all details relating to the depth of our lakes and the contour of their beds, cannot be justified on practical, and much less on scientific grounds.

In May last the Astronomer Royal brought under our notice the position of this country with respect to the International Bureau des Poids et Mesures, an institution established by what is commonly known as the Metric Convention; and it was resolved that in the opinion of the President and Council it is highly desirable that our country should take part in the International Commission of Weights and Measures, and contribute the sum which our adhesion would entail. A deputation was appointed to bring the subject under the notice of the Lords of the Treasury, and after some correspondence, the Society was authorised to enter into informal negotiations with the officers of the Bureau, with the happy result that Great Britain was invited to join the Metric Convention, and through her Ambassador at Paris has, I believe, now given in her adhesion to it, and is entitled to all the privileges accorded by the Bureau. The appliances at the command of the Bureau for the verification not only of the standards of the metric system, but of other units of measure, far surpass in scientific accuracy anything that is at present available in this country, and we now enjoy the double advantage of being removed from the state of isolation in which for some years we have stood in regard to the other nations of Europe, and of now being affiliated to an establishment in which the verification of standards has been carried to the highest perfection. At the same time it is distinctly understood that our adhesion to the Bureau in no way commits the Government of this country to any change of opinion favourable to the adoption of the metric system, but that our entire freedom to retain our own system of weights and measures is absolutely preserved. Whatever may be the advantages of the metric system from a scientific point of view, the question whether a scale of weights, money, and measures, which in its lowest denominations follows a duodecimal

rather than a decimal system, is not better adapted for the convenience of daily life, is one that by many is regarded as fairly open to discussion.

Another event of both scientific and national importance has been the meeting of an International Conference on the subject of a Prime Meridian of Longitude. The desirability of a common starting-point from which to reckon degrees of longitude has long been felt among all civilised nations, especially those of a maritime character, and was discussed at some length during the Congress of the International Geodetic Association at Rome in October, 1883. It was not, however, until the end of last year that invitations were issued by the United States Government for different countries to send representatives to an International Conference to be held in the city of Washington, for the purpose of discussing and, if possible, fixing upon a meridian proper to be employed as a common zero of longitude and standard of time-reckoning throughout the globe. The letter of invitation addressed to this country was referred to the President and Council of this Society with a request to advise the Government whether it was desirable in the interests of science to accept the invitation. In reply an opinion was expressed as to the high importance both for the interests of science in general, and of our own country in particular, that our Government should be represented at the Conference, and the Treasury at once sanctioned the expense of sending two delegates to Washington. These were Sir Frederick Evans, the late Hydrographer to the Admiralty, and Professor J. C. Adams. General Strachey, the Chairman of the Meteorological Committee, was also nominated to represent India, and Mr. Fleming to represent the Dominion of Canada. The delegates assembled at Washington in the month of October last, and proceeded to discuss the questions whether a single prime meridian for all countries could be adopted, and if so, through what point on the earth's surface should that meridian be drawn. After long discussion it was eventually resolved that the meridian of Greenwich should be generally adopted, twenty-two* of the nations voting in favour of this measure, and only one; San Domingo, against it. The representatives of France and Brazil abstained from voting. The proposal for the adoption of Greenwich was made by one of the representatives of the United States of America, and was fully discussed. Our own representatives ably supported the proposal, and another of our most distinguished Fellows, Sir William Thomson, who happened to be in America at the time, was courteously invited to attend the meetings of the Conference, and on the request of the President to express

* The following nations voted in favour of Greenwich :—Austria, Chili, Colombia, Costa Rica, Great Britain, Guatemala, Hawaii, Italy, Japan, Liberia, Mexico, Netherlands, Paraguay, Russia, Salvador, Spain, Sweden, Switzerland, Turkey, United States, and Venezuela.

his opinions. The arguments adduced in favour of the adoption of Greenwich were such as must commend themselves to all unprejudiced minds. It could hardly be expected that there should be any special spot upon the earth's surface from which longitude would naturally be reckoned, and the whole question, apart from any sentimental or patriotic feelings, is therefore one of the greatest convenience. Were the employment of degrees of longitude as general geographical units entirely unheard of up to the present time, it would, of course, be a matter of perfect indifference whether the datum was at Greenwich, Paris, the Ferroe Isles, or any other spot. The meridians most in use are those of the two former places, and when we come to consider that, as was pointed out, the shipping tonnage controlled by the Greenwich standard of longitude is about 14 million tons, while that controlled by the longitude of Paris amounts to $1\frac{3}{4}$ million tons only, the preponderance of convenience in favour of the former is placed beyond all dispute. The use of nautical charts constructed from the meridian of Greenwich, and also of the Greenwich Nautical Almanack, is by no means confined to the British Navy, for numerous other nations have availed themselves of the long-extended labours of our hydrographers, and the computations of our astronomers. At the same time there is no one among us who would for a moment venture to dispute the vast services to science which have been rendered by French astronomers and geographers, nor should we contest the right of French *savants* to regard Paris as the *μεσόμφαλος ἑστία* of all other branches of science; the question of a common zero of longitude, however, is not only of scientific but of commercial importance, and we may be confident that eventually our friends on the other side of the Channel, whose metric system has been so largely adopted by other countries, will in their turn sacrifice their own meridian, and adopt that which all neighbouring countries have declared to be the most convenient for general use. If some French locality on the meridian of Greenwich, such for instance as Argentan, were nominally the French datum, the results would be the same so far as maps and charts are concerned, and the natural patriotism of the French nation would remain uninjured.

The adoption of an universal day has also been recommended by the Conference. It is to be a mean solar day to begin for all the world at the moment of mean midnight of the initial meridian, coinciding with the beginning of the civil day and date of that meridian, and is to be counted from zero up to twenty-four hours.

The great volcanic eruption of Krakatoa, in the Straits of Sunda, which took place in August of last year, was followed by remarkable atmospheric and other disturbances, observations on which have been communicated to this and various other learned Societies, and have led to much interesting discussion. The fact, as pointed out by

General Strachey and Mr. Scott, that at some barometrical stations the atmospheric wave caused by the eruption was still to be traced until about 122 hours after its origin, and that it must have travelled more than three times round the entire circuit of the earth, shows how vast must have been the initial disturbance causing the wave. The possibility of the remarkable atmospheric appearances which so constantly accompanied the rising and setting of the sun for some months subsequent to the eruption, being due to volcanic dust in suspension in the air, offered a farther incentive to investigate the whole history of the eruption. In consequence the Council in January last nominated a Committee to collect the various accounts of the volcanic eruption at Krakatoa and attendant phenomena, in such form as shall best provide for their preservation and promote their usefulness, and a sum of 100*l.* in all has been granted from the Donation Fund to defray the expenses of the Committee. A Committee of the Royal Meteorological Society, which had already been appointed to study the sunset phenomena of 1883-84, joined forces with our Committee, and their united labours, with Mr. A. Ramsay as secretary, have resulted in the accumulation of a voluminous mass of material. The accounts given in the chief British and foreign scientific serials have been extracted and classified, and the times of the various observations reduced to Greenwich mean time.

The literature on the subject, as Mr. Symons informs me, seems almost inexhaustible, and the Committee, feeling that some limit must be adopted, have now stopped the collection of further data, and are engaged in the discussion of what have already been obtained. The MS. is classified according to subjects, and each of these is being studied by the members of the Committee most familiar with it. It is to be hoped that in the ensuing session we shall be favoured with some of the results of their labours.

In the Presidential Address of last year mention was made of a series of borings which it was proposed to make across the delta of the Nile in Egypt, and which, with the sanction of the Secretary of State for War, had been entrusted to the officer commanding the Royal Engineers attached to the army of occupation in Egypt. Shortly afterwards a Report from Colonel Heriot Maitland, R.E., and Major R. H. Williams, R.E., was received, giving an account of a boring at Kasrel-Nil, near Cairo, which had been carried to a depth of 45 feet, and of a second boring at Kafr Zaiyat, where a depth of 84 feet was attained. In both cases great difficulties had to be surmounted, but in neither was the solid rock reached beneath the superficial deposits. A second Report from the same officers, dated January 18th last, states that a third boring had been executed at Tantah, this time by the sappers of the Royal Engineers, and not by Arab workmen, though still with but imperfect tools. In this instance a depth of 73 feet was reached, but

again without finding the solid rock. Samples of the materials obtained at different depths in these three borings have been forwarded to the Society by the War Department, and Professor Judd has kindly undertaken their microscopic examination, and will shortly report the results of his labours to the Committee in charge of the subject.

With regard to the continuance of the borings, which seem to promise information of great value and interest, it is to be feared that the attention of the military authorities will for some time to come be attracted to more urgent business, though the Council of this Society has expressed its willingness to grant from the Donation Fund a further sum of 200*L.*, with the view of obtaining better apparatus for boring than that which has hitherto been employed.

The publication of the results of the "Challenger" Expedition, with which a Committee of this Society is to some extent concerned, has made considerable progress during the past year. Mr. Murray informs me that 47 Reports, forming 13 large quarto volumes, with 6276 pages of letter-press, 1051 lithographic plates, many woodcuts, charts, and other illustrations, have now been published. Nine other Reports are now being printed, and the eleventh Zoological volume and the first Botanical volume will be issued during the present financial year.

The work connected with the remaining thirty-six memoirs is making satisfactory progress, a large instalment of the manuscript being already prepared, and many of the plates either already printed off or drawn on the stone.

There has been an unavoidable delay in the case of the two volumes containing the narrative of the cruise, and a general account of the scientific results of the Expedition, but it is expected that they will be issued within the next three months, and possibly before the end of the current year.

It was estimated that the investigations connected with the collections and observations made during the Expedition would be completed and published in 1887, and Mr. Murray has every reason to believe that the work will be finished within the estimated time.

The tenth Zoological volume which has just been issued, contains important Reports on the Nudibranchiata, Myzostomida, and Cirripedia, by Drs. Rudolph Berg, L. von Graff, and P. P. C. Stock, as well as on the Cheilostomata, a sub-order of the Polyzoa, by Mr. George Busk. A first instalment of the Anthropological Report is also given by Professor William Turner, in a detailed examination of the human crania, upwards of 60 in number, brought home by the Expedition. The total number of crania, however, described and tabulated in the memoir is 143, the whole from aboriginal and as yet uncivilised people. The previous Zoological volume is devoted to an exhaustive examination of the Foraminifera, by Mr. H. B. Brady.

The subject of the International Polar Observations, which were carried out during the twelve months ending with August, 1883, has been touched on in recent Presidential Addresses, and in that for 1881 the general outline of the whole scheme was indicated. Now, however, the programme then only sketched out has been more than fulfilled, no less than 14 stations for observers, 12 for the Northern and 2 for the Southern Hemisphere, having been organised. Of all the expeditions, one only, that from Holland, failed to reach its destination, Dickson Harbour, at the mouth of the Obi river, as it was beset by ice in the Kara Sea, in the month of September, 1882. The ship which carried the members of the expedition sank in the month of July, 1883, but they all reached home in safety, having carried out their observations as fully as lay in their power. One of the two expeditions sent out by the Chief Signal Office, Washington, was not so fortunate. The party under Lieutenant Greely, after spending over two years at Lady Franklin Bay, Smith's Sound, was eventually rescued at Cape Sabine, in July last, but not before many of its members had succumbed beneath the fearful hardships of their protracted Arctic sojourn.

The actual points of observation, going eastwards from Behring's Straits, and the States, which sent out the expedition, are tabulated below:—

Point Barrow.....	The United States.
Fort Rae.....	Great Britain and Canada.
Lady Franklin Bay	The United States.
Cumberland Sound	Germany.
Godthaab	Denmark.
Jan Mayen	Austria.
Spitzbergen.....	Sweden.
Bossekop.....	Norway.
Sodankylä	Finland.
Nova Zembla	} Russia.
Mouth of the Lena.....	
The Kara Sea	Holland.

In the Southern Hemisphere—

Cape Horn	France.
South Georgia	Germany.

At all of these stations observations were carried on for a year, and at some for even a longer period.

In the month of April last a conference was held at Vienna, to decide as to the form and mode of discussion and publication of the results, and it may be hoped that these will appear before the end of 1885.

Of the serial publication, "Communications from the International Polar Commission," six parts, with an aggregate of 334 pages, have already appeared, and in it will be found all particulars of the undertaking.

The regulations under which the Government Grant of 4,000*l.* is administered have during the past year been again under discussion, and have in some respects been slightly modified. It is, of course, needless to repeat that this grant, though nominally made to the Royal Society, in no way adds to its funds, while its administration rests with a Committee of from sixty or seventy members, many of whom are not of necessity Fellows of our Society. As the grant is now made in two instalments, it has been arranged that the meetings of the Committee shall be held twice in each year, viz., in May and December, which it is hoped will amply meet the convenience of applicants for grants.

In looking back upon the grants which have been made during the past year, I think that a tendency may be observed on the part of the Committee to devote considerable sums in aid of extensive researches rather than to fritter away the money at their disposal in a series of small grants. They have, for instance, allotted the sum of 500*l.* towards the exploration of Kilimandjáro and the adjoining mountains of Tropical Africa, and 200*l.* in aid of an expedition for the exploration of the mountain of Roraima in British Guiana. A grant of 200*l.* has also been made towards a report on the Flora of China; while 300*l.* has been allotted towards the extra accommodation and instruments for magnetic observations in the new Observatory of the Royal Cornwall Polytechnic Society. It will be remembered that, in his Address last year, the President called attention to the discovery by Dr. Huggins of a method of photographing the solar corona without an eclipse; and, for the purpose of making further experiments in this direction, and for carrying on other physical observations at some place of high elevation and of easy access, a grant of 250*l.* was placed at the disposal of a Committee. The place of observation selected by the Committee was the Riffel, near Zermatt, in Switzerland, which has an elevation of 8500 feet, and possesses important advantages both of access, and of hotel accommodation. They appointed Mr. C. Ray Woods, who had had experience in photographing the corona during the eclipse of 1882 in Egypt, and again in Caroline Island in 1883, to take charge of the work under the instructions of Dr. Huggins and Captain Abney.

Mr. Woods arrived at the Riffel in the beginning of July, when he erected the necessary instruments under a tent of "Willesdenized" paper, and continued at work there until the 21st of September. Unfortunately, the present year has been exceptionally unfavourable for work on the corona, in consequence of an unusual want of trans-

parency in the higher regions of the atmosphere. This probably may be owing to the presence there of ice-crystals or of small particles of matter of some kind, such as, personally, I am tempted to think, might be due to the Krakatoa eruption. Whatever the cause, the sky as seen from the Riffel was far from being so clear as it has been during former years. Mr. Woods observed that the freer the lower air was from cloud and mist, the more distinctly came out a great aureola around the sun, which he found to have a diameter of about 44° , and to be of a faint red near the outer boundary, and bluish-white within, up to the sun's limb.

These unfavourable conditions of the atmosphere have made it impossible for Dr. Huggins to obtain any photographs of the corona in England. The great advantage at the Riffel of being free from the light scattered from the lower 8000 feet of air has enabled Mr. Woods, notwithstanding the serious drawback of the persistent aureola, to obtain about 150 photographs, of which more than half are sufficiently good to show the general form of the corona, and a smaller number, the stronger details of that part of it which lies within from 8' to 12' of the sun's limb. It would be premature to express any opinion as to the information which may eventually come out from the Riffel plates. They are now being drawn preparatory to a full discussion. In the meantime I may congratulate the Society upon the confirmation of the hope expressed by our President at the last anniversary, "that a new and powerful method of investigation has been placed in the hands of students of solar physics."

Another of the grants made by the Committee has also contributed to important scientific results, as it has enabled Mr. Caldwell to make some important observations on the early stages of the monotreme ovum, a brief account of which was communicated to the meeting of the British Association for the Advancement of Science at Montreal. A fuller account of the observations, such as is necessary for the adequate appreciation of their importance and bearings, will, I hope, be laid before the Society during the ensuing session, when we shall also probably hear the result of similar investigations in like manner rendered possible by the existence of the Government Grant.

Some slight aid has been rendered from the same source towards the reduction of observations carried on at the meteorological station on the summit of Ben Nevis. This Observatory, situated on the highest point within the United Kingdom, has through the past year been under the charge of Mr. R. T. Osmond and two assistants. During the summer months the buildings of the Observatory have been enlarged by the addition of new observing-rooms and increased accommodation for the observers and any scientific workers who may desire to carry on those physical researches for which the climate and position of Ben Nevis afford many facilities.

The erection and equipment of the Observatory have cost more than 5,000*l.*; and, in connexion with the observations carried on at the top of the mountain, others have been daily made near the sea-level at Fort William. A first report on these conjoint high and low level observations, which began in 1881, has been prepared by Mr. Buchan.* The monthly normals for atmospheric pressure and temperature have been approximately determined for the Observatory. Important results have also been obtained relating to the decrement of temperature with height, for different months of the year and hours of the day, the diurnal variations of the wind's velocity, the very large increase in the rainfall on and near the summit, and the altogether unexpected hygrometric conditions of the air in their relation to the cyclones and anti-cyclones of north-western Europe.

Another of the funds at our disposal, the Scientific Relief Fund, requires a few words of mention. Its resources have been considerably enriched during the past year by the legacy of 1,000*l.* from Sir William Siemens, and nearly 50*l.* from the medals offered by the executors of the late Sir E. Sabine; and the legacy of 1,000*l.* from the late Mr. Bentham will, it is hoped, ere long be received; but even with these munificent additions the income of the fund will amount to only 250*l.* per annum, while last year the calls upon it amounted, I regret to say, to no less than 450*l.* The incalculable value of such a fund to men of science or their families requiring temporary aid must be apparent to all, and looking at the unfortunate necessity for its existence which the calls upon it prove, I venture to commend it to your support. It will, perhaps, not be out of place here to say a few words with regard to the administration of this fund, the existence of which dates from 1859, and is in a great degree due to the exertions of the late Mr. Gassiot. The Council of the Royal Society takes charge of any sums contributed to the fund and invests them, applying the interest in grants for the relief of such scientific men or their families as may from time to time require or deserve assistance. These grants are, however, made only on the recommendation of a committee of seven members who investigate the cases before them, and applications for relief cannot be entertained except on the recommendation of the President of one of the following chartered societies, the Astronomical, Chemical, Geographical, Geological, Linnean, Royal, and Zoological Societies. Since January, 1861, when the first grant was made, the total number of grants is eighty-eight, and the total sum distributed 4,340*l.*

Our Donation Fund has also proved of much service, and several of the applications for comparatively small amounts, which were referred by the Government Grant Committee for the consideration of the Council of the Royal Society, were met by grants from this source.

* "*Journ. of the Scottish Meteorol. Soc.*," 3rd Series, No. 1 (1884), p. 4.

This most valuable fund, the annual income of which is now about 400*l.*, has, during the past year, rendered important aid to various scientific objects. From it considerable grants have been made towards obtaining specimens of Hatteria and Apteryx ; for expenses incurred on account of the voyage and investigations of the surveying ship "Triton ;" for collection of materials relating to the Krakatoa eruption ; towards the borings in the Delta of Egypt ; and, lastly, in aid of the Marine Biological Association.

The close connexion of the future of our fisheries with the advancement of certain branches of zoological science was commented upon by our President in his last anniversary address, and I have now to record the foundation of two establishments devoted to marine research. The first of these is the station established at Granton, near Edinburgh, mainly through the energetic labours of Mr. John Murray of the "Challenger" expedition. It consists of a floating laboratory where physical and biological investigations are carried on, and it is provided with a steam yacht for taking observations at sea and procuring specimens for examination. Chemical and other laboratories are now being erected on the shore, close to the enclosed piece of water where the floating laboratory is moored. Two naturalists, a chemist and a botanist, are permanently attached to the station, and have an engineer, a fisherman, and three attendants to assist them in conducting regular systematic observations. £2,500 have been spent on the equipment of the station, and it has at present an income of 400*l.* a-year, independent of the grants which some of the permanent staff have received from the Government Grant Committee to aid them in their researches. It is well that it should be known that any scientific observer is at liberty to make use of the station free of charge ; indeed, during the past year five gentlemen and one lady have availed themselves of this privilege during short periods of time.

But the movement in favour of such stations has not been confined to Scotland, for I have also to chronicle the foundation of the Marine Biological Association, which originated in a meeting held in these rooms on March 31st last, our President being in the chair, and many of our principal naturalists taking part in the proceedings. The formation of such an Association has long been hoped for by many interested in obtaining a correct knowledge of the life and conditions of our sea-coast, who are now principally indebted to Professor Ray Lankester for the realisation of their hopes. The operations of the Association will in no way clash with those of the station at Granton, but both institutions will work towards a common end. One effect, indeed, of the new Association will probably be to render all the more fruitful the labours on the more northern shores by instituting similar researches at other parts of the coast of our island.

The work of the Association is as yet in the inceptive stage, but a site well adapted for a marine observatory will, through the liberal endeavours of the Mayor and Corporation of Plymouth, probably be secured in that town; some citizens of which have also promised a noble donation of 1,000*l.* towards its erection. The Clothworkers' Company has contributed 500*l.*, and the Mercers' Company 250 guineas, while the Council of this Society has also shown its sympathy with the movement by a grant of 250*l.*, and the British Association by one of 150*l.* Handsome donations have also been made by private individuals, and the number of members of the Association is gradually increasing. When once the station is completed and at work, and its aims and operations become better known, I make little doubt that it will receive a much larger share of public support. But before the station can be erected and in work, it is calculated that an outlay of 10,000*l.* is necessary for its building and equipment, of which as yet not quite half is forthcoming, and I venture to take this opportunity of enforcing the claims of the Association upon all who are interested in "improving natural knowledge." As has already been well pointed out in the memorandum issued by the Association, "great "scientific and practical results have been obtained in other countries, "notably in the United States of America, in Germany, France, and "Italy, by studies carried on through such laboratories as the Marine "Biological Association proposes to erect in this country," and I may add as that already at work at Granton. When we consider the enormous importance of our fisheries, and how large may be the amount of material benefit derived from a scientific investigation of the causes of their increase and diminution, it will, I think, be evident that the work to be carried on at these stations is not only for such a purpose as the development of abstract biological science, important as that may be, but for the advancement of our national resources. It is, therefore, to be hoped that in addition to the private support which they will receive, they may in some manner be recognised by the nation at large as centres for carrying out systematic investigations into the circumstances determining marine life, from which a portion of our food supply is drawn, and a much larger portion might probably be derived. The importance of our sea fisheries, which it will be one of the principal objects of the Association to promote, has of late years been more fully recognised, and the recent International Fisheries Exhibition has done much to popularise the subject; while the official appointment of our President also proves that in the opinion of our Government the scientific aspects of our fisheries are not to be neglected.

In the last Presidential Address reference was made to the great desirability of carrying out, on the part of this country, investigations into the nature of cholera in continuation and extension of

those so zealously and bravely initiated by the distinguished German inquirer Koch. Although the Society has had no very direct influence in the matter, the Fellows will, I venture to think, regard it as a subject for congratulation that the wish then expressed from this chair has been fulfilled, and that the distinguished expert in such questions—our Fellow, Dr. Klein—is at present engaged in India in the investigation of cholera at the instance of the Indian Government. It is sad to think how much nearer our own shores such investigations might have been conducted; may it be long ere they can be instituted on this side of the Channel.

These remarks have already extended to such a length that I can now only briefly refer to a few of the events of scientific interest which have during the past year occupied the attention of the Society or of a large number of its Fellows. In the month of April last the University of Edinburgh celebrated its tercentenary with great pomp and no less hospitality, upwards of 120 delegates from various universities and other learned bodies being invited as guests. On this occasion Lord Rayleigh kindly consented to be our representative, and was among those on whom the University conferred the honorary degree of LL.D. The same distinguished Fellow occupied the Presidential chair at the meeting of the British Association for the Advancement of Science at Montreal, on which occasion many of our body took the opportunity of crossing the Atlantic. Owing to the munificent liberality and ungrudging hospitality of our brethren in the Dominion of Canada, the somewhat bold experiment of holding a meeting of the Association beyond the limits of the British Isles has proved a great success, though, perhaps, it is an experiment which would require exceptional conditions to be successfully repeated.

The Society was represented by delegates at the meeting of the American Association for the Advancement of Science at Philadelphia in September last. The Electrical Exhibition at the same place resulted in the formation of a Memorial Library in connexion with the Franklin Institute, to which separate copies of the Papers relating to Electricity that have appeared in the "Philosophical Transactions" have been granted by the Council. An Electrical Congress at Paris, and an Ornithological one at Vienna have also been among the events of the year.

Subscribers to the Darwin Memorial Fund will be pleased to hear that a fine block of marble has been secured for the statue to be erected in the Natural History Museum at South Kensington, and I am glad to learn from Mr. Boehm that his work will probably be completed by the end of this year. When the total cost of the statue has been ascertained, it will be necessary to hold a meeting of the Committee in charge of the Memorial Fund to determine the manner in which the balance is to be applied.

It now only remains for me to thank the Fellows and others conversant with the subjects on which I have touched, for information kindly afforded me; to thank you for the attention with which you have listened to me, and to express a hope that it may not again for many years occur that the Anniversary Address from this Presidential chair shall have to be delivered by deputy.

The Vice-President in the Chair then proceeded to the presentation of the medals.

The Copley Medal has been awarded to Professor Carl Ludwig, of Leipzig, for his investigations in Physiology, and the great services which he has rendered to Physiological Science. During the last forty years, the advances that have been made both in the powers of the microscope and in the methods of exact physical and chemical observation have reacted in a remarkable manner on the development of physiological knowledge, and during nearly the whole of that long period the name of Carl Ludwig has been prominent on the list of investigators, and to the progress that marks that period he has probably contributed more than any man living. The determination of the exact share in this progress really due to himself alone is perhaps somewhat obscured by the generous way in which he has always placed his ideas and his knowledge at the service of those who have assisted in his laboratory, but there can be no doubt that a large proportion of our present knowledge of the phenomena of blood pressure and of the vaso-motor system, of the physiology of the heart, and of the spinal cord, and of digestion and nutrition, is due to him and to his numerous pupils.

Moreover, the very fact that he has allowed so many others to share in his experience and to become trained in his methods, would in itself entitle him to some mark of our gratitude and esteem.

A Royal Medal has been awarded to Professor George H. Darwin for his mathematical investigations on the effects of an imperfect rigidity of the earth, and on tides. The principal results of these researches have already been published in the "*Philosophical Transactions*," and are in the hands of the Fellows, who will no doubt rejoice to see the son of so distinguished a father still doing honour to the name of Darwin.

A Royal Medal has been awarded to Professor Daniel Oliver for his investigations in the classification of plants, and the services which he has rendered to taxonomic Botany. These services have been of the highest order; but apart from his numerous published papers, and his work on the Flora of Tropical Africa, his fertile labours in the Kew Herbarium would alone entitle him to recognition at the

hands of this Society. When it is borne in mind that the labours of Sir Joseph Hooker and the late Mr. Bentham, upon the great work the "*Genera Plantarum*," now so happily completed, have been materially lightened by the skilful aid of Professor Oliver, there will, I am sure, be a general feeling of satisfaction that this year his name should also be added to the list of the recipients of the Royal Medals, on which the distinguished names of the more immediate authors of the work are already enrolled.

The Rumford Medal has been awarded to Professor Tobias Robert Thalén, of Upsala, for his spectroscopic researches; his labours in other fields of research, such as elasticity, magnetism, and meteorology, lying outside the limits contemplated by the founder of this medal. Partly in conjunction with Ångström and partly by himself Professor Thalén has produced accurate and elaborate maps, drawn according to the natural scale of wave-lengths, of the spectra of a great number of metals and metalloids. He has also made a careful determination of the absorption-bands of iodine vapour, and of late has been engaged on the difficult problem of determining and properly assigning the spectral lines of bodies of the yttrium and cerium groups, the number of which has recently been so largely augmented by discoveries of new members of those groups, which as yet are only imperfectly studied.

The Davy Medal has been awarded to Professor Hermann Kolbe of Leipzig for his researches in the isomerism of alcohols; but sad to say, though he was aware of the award, he has not lived to receive the medal. While still occupied in his usual avocations, he died suddenly on descending from his carriage at his own door less than a week ago. During a period of upwards of forty years Professor Kolbe devoted his principal attention to some of the most difficult and complicated questions of organic chemistry, many of the important reactions in which have been discovered through his researches. One remarkable result of his study has been that he was able to predict the existence of the chief groups of isomeric alcohols, and even to describe beforehand their characteristic reactions. In one case, at least, his prophecy may, in a certain sense, be said to have fulfilled itself, for it has been by his own experimental evidence that its truth has been confirmed. It may be some slight consolation to his family to think on seeing this medal how highly Professor Kolbe's labours were appreciated, even beyond the limits of his own country.

The Statutes relating to the election of Council and Officers were then read, and Dr. George Harley and Mr. R. H. Inglis Palgrave having been, with the consent of the Society, nominated Scrutators, the votes of the Fellows present were taken, and the following were declared duly elected as Council and Officers for the ensuing year:—

President.—Professor Thomas Henry Huxley, LL.D.

Treasurer.—John Evans, D.C.L., LL.D.

Secretaries.—{ Professor George Gabriel Stokes, M.A., D.C.L., LL.D.
{ Professor Michael Foster, M.A., M.D.

Foreign Secretary.—Professor Alexander William Williamson, LL.D.,

Other Members of the Council.

Captain W. de Wiveleslie Abney, R.E.; William Henry M. Christie Astron. Royal; Professor George H. Darwin, M.A., F.R.A.S.; Warren De La Rue, M.A., D.C.L.; Robert Etheridge, F.R.S.E., F.G.S.; Sir Frederick J. O. Evans, K.C.B.; Professor William Henry Flower, LL.D.; Professor George Carey Foster, B.A.; Sir Joseph D. Hooker, K.C.S.I.; Professor Henry N. Moseley, M.A., F.L.S.; Hugo Müller, Ph.D.; Captain Andrew Noble, R.A., C.B.; the Lord Rayleigh, D.C.L.; Professor J. S. Burdon Sanderson, LL.D.; Lieutenant-General R. Strachey, R.E., C.S.I.; Professor J. J. Sylvester, M.A., D.C.L., LL.D.

The thanks of the Society were given to the Scrutators.

The following Table shows the progress and present state of the Society with respect to the number of Fellows:—

	Patron and Royal.	Foreign.	Com- pounders.	£4 yearly.	£3 yearly.	Total.
Nov. 30, 1883 ..	5	44	209	200	64	522
Since Elected ..		+ 5	+ 2		+ 14	21
Since Withdrawn				— 1		— 1
Since Deceased ..		— 3	— 9	— 8	— 1	— 21
Defaulters ..				— 2		— 2
Dec. 1, 1884 ..	5	46	202	189	77	519

Financial Statement.

[Dec. 1,

Brought over		£	s.	d.	
		5,526	3	11	4,811 2 6
<i>Trust Funds.</i>					
Donation Fund Dividends		£	s.	d.	
Rumford Fund Dividends		418	10	6	463 0 0
Wintringham Fund "		68	4	10	62 12 0
Copley Metal Fund ".....}		35	5	0	35 0 6
Davy Medal Fund ".....}		61	6	2	54 14 4
Groonian Lecture Fund Dividend		32	6	3	4 0 0
		5	17	6	2 18 9
Donation Fund					
Davy Medal Fund					
Wintringham Fund					
Copley Metal Fund					
Bakerian Lecture					
Groonian Lecture					
Balances on hand, Catalogue Account					
" Petty Cash					
"					
Balance					
					15 4 3 7 15 6 691 6 4
					£6,147 14 2

JOHN EVANS,
Treasurer.

Estates and Property of the Royal Society, including Trust Funds.

Estate at Mablethorpe, Lincolnshire (55A. 2R. 2P.), rent £110 per annum.

Ground Rent of House No. 57, Basinghall Street, rent £380 per annum.

” of 23 houses in Wharton Road, West Kensington, rents £253 per annum.

Fee Farm Rent, near Lewes, Sussex, £19 4s. per annum.

One-fifth of the clear rent of an estate at Lambeth Hill, from the College of Physicians, £3 per annum.

Stevenson Bequest. Chancery Dividend. One-fourth annual interest on £85,336, Government Annuities and Bank Stock (produced £500 16s. 10d. in 1882-83).

£21,000 { £14,952 12s. 3d. Reduced 3 per Cent. Annuities.
£6,047 7s. 9d. ” ” Handley Fund.

£15,000 Mortgage Loan, 4 per Cent.

being £15,861 19s. 1d., namely:—

	£	s.	d.
Donation Fund	6,339	0	1
Rumford Fund	2,322	19	0
Wintringham Fund	1,200	0	0
Gassiot Trust	200	0	0
Sir J. Copley Fund	1,606	13	4
General Purposes	4,133	6	8

and £3,452 1s. 1d. in Chancery, arising from sale of the Coleman Street Estate.

£19,314 0s. 2d. Consolidated Bank Annuities,

£403 9s. 8d. New 2½ per Cent. Stock—Bakerian and Copley Medal Fund.

£11,337 17s. 3d. New Threes { £8,155 2s. 5d. Scientific Relief Fund.

{ 5,182 14s. 10d. Jodrell Fund.

Estates and Property of the Royal Society, including Trust Funds—continued.

£667 5s. 6d. India Fours.

Keck Bequest, £600 Midland 4 %.

£660 Madras Guaranteed 5 per Cent. Railway Stock.—Davy Medal Fund.

£10,000 Italian Irrigation Bonds.—The Gassiot Trust.

£1,396 Great Northern Railway 4 per Cent. Debentures.—The Trevelyan Bequest.

£100 Metropolitan 3½ per Cent. Stock.—Scientific Relief Fund.

£2,200 " " —Fee Reduction Fund.

£7,000 London and North Western Railway 4 per Cent. Debentures.—Fee Reduction Fund.

Two Hundred Shares in the Whitworth Land Company, Limited.—Fee Reduction Fund.

£5,000 Madras Railway Guaranteed 5 % Stock.

£5,000 North Eastern Railway 4 % Stock.

£5,000 London and North Western Consolidated 4 % Preference Stock.

£1,000 Great Northern 4 % Debenture Stock.—Scientific Relief Fund.

We, the Auditors of the Treasurer's Accounts on the part of the Council, have examined these Accounts and found them correct; and we find that the Balance at the Bankers is £691 6s. 4d.

FRANCIS GALTON.
HUGO MÜLLER.
G. G. STOKES.

We, the Auditors of the Treasurer's Accounts on the part of the Society, have examined these Accounts and found them correct; and we find that the Balance at the Bankers is £691 6s. 4d.

JOHN BALL.
J. T. BOILEAU.
JAMES COCKLE.
JOHN RAE.
G. J. SYMONS.

Trust Funds. 1884.

Scientific Relief Fund.

	£	s.	d.		£	s.	d.
<i>Dr.</i>				<i>Cr.</i>			
New 3 per Cent. Annuities	6,155	2	5	By Grants	450	0	0
Great Northern 4 per cent. Debenture Stock	1,000	0	0	" Bought £1,000 Great Northern Debenture Stock... 1,223	0	6	
Metropolitan 3½ Consols	100	0	0	" £48 14s. 8d. New 3%	49	3	3
				" Balance	9	5	10
					£1,731	9	7
To Balance	252	14	3				
" Dividends	207	3	1				
" Siemens' Bequest	1,000	0	0				
" Executors of Sir E. Sabine, Metals	49	3	3				
" Sale of £222 3s. 5d. New 3%	222	9	0				
					£1,731	9	7

Donation Fund.

	£6,339	0s.	1d.	Consols.			
				The Trevelyan Bequest.			
	£1,396	Great Northern Railway 4 per Cent. Debentures.					
To Balance	782	19	9	By Grants	463	0	0
" Dividends	240	17	8	" Balance	738	10	3
" Transferred from Handley Fund	177	12	10				
					£1,201	10	3

Runford Fund.

£2,322 19s. Consols.

	£	s.	d.		£	s.	d.
To Balance	67	16	2		136	1	0
„ Dividends, 1884	68	4	10	By Balance			
					136	1	0

Bakerian and Copley Medal Fund.

Sir Joseph Copley's Gift, £1,666 13s. 4d. Consols.

£403 9s. 8d. New 2½ per Cent.

	£	s.	d.		£	s.	d.
To Balance	102	8	3	By Gold Medal	4	14	4
„ Dividends, five quarters	12	7	0	„ Sir W. Thomson, Sir J. Copley's Gift	50	0	0
„ Dividend—Sir J. Copley's Fund	48	19	2	„ Bakerian Lecture	4	0	0
				„ Balance	105	0	1
					163	14	5

The Keck Bequest.

£600 Midland Railway 4 per Cent. Debenture Stock.

	£	s.	d.		£	s.	d.
To Dividends, 1884	23	10	0	By Payment to Foreign Secretary	23	10	0

Wideningham Fund.

£1,200 Consols.

	£	s.	d.		£	s.	d.
To Balance, 1883	35	0	6	By Payment to Foundling Hospital, 1884	35	0	6
„ Dividends, 1884	35	5	0	„ Balance	35	5	0
					70	5	6

Croonian Lecture Fund.

	£	s.	d.		£	s.	d.
To Balance, 1883	2	18	9	By Croonian Lecture-fee—Poor of St. James' Parish	2	18	9
„ One-fifth of Rent of Estate at Lambeth Hill, receivable from the College of Physicians	2	18	9	„ Balance	2	18	9
	£5 17 6				£5 17 6		

Davy Medal Fund.

	£	s.	d.		£	s.	d.
£660 Madras Guaranteed 5 per Cent. Railway Stock.				By Gold Medals	62	12	0
	108	10	6	„ Balance	78	4	9
To Balance	32	6	3		£140 16 9		
„ Dividends	£140 16 9						

The Gassiot Trust.

	£	s.	d.		£	s.	d.
£10,000 Italian Irrigation Bonds.				By Payments to Kew Committee	494	4	10
£200 3 per Cent. Consols.				„ Balance	291	19	8
	168	15	0		£786 4 6		
To Balance	500	2	4				
„ Dividends	117	7	2				
„ Drawn Bonds	£786 4 6						

Handley Fund.

£6,047 7s. 9d. Reduced.

	£	s.	d.		£	s.	d.
Dividends, 1884	177	12	10	By transferred to Donation Fund.....	177	12	10

The Jodrell Fund.

£5,182 14s. 10d. New 3 per Cent. Stock.

	£	s.	d.		£	s.	d.
To Dividends, 1884	152	4	10	By transferred to Royal Society General Account.....	152	4	10

Fee Reduction Fund.

£2,200 Metropolitan Consols 3½ per Cent.

£7,000 London and North Western Railway 4 per Cent. Debentures.

Two Hundred Shares in the Whitworth Land Company, Limited.

	£	s.	d.		£	s.	d.
To Balance (1883)	347	8	1	By purchase of £400 Metrop. 3½ per Cent.	437	0	0
„ Dividends (1884)	542	10	11	„ transferred to Royal Society General Account (1884)	223	0	0
				„ Balance	229	19	0
	£889	19	0		£889	19	0

Account of the appropriation of the sum of £4,000 (the Government Grant) annually voted by Parliament to the Royal Society, to be employed in aiding the advancement of Science (continued from Vol. XXXVI, p. 83).

1883-84.

	£
Council of the Royal Society, towards defraying the expenses of the "Eclipse" Expedition	500
Prof. Ramsay and Dr. Young, for apparatus to be used in determining the truth of Prof. James Thomson's theory that the vapour-pressure of a substance in the liquid state is higher than that of the same substance when solid	15
A Committee of the Royal Society, for the purpose of photographing the Corona without an Eclipse, and for carrying out other physical observations at some place of high elevation and of easy access.....	250
W. Lloyd Fox, to provide extra accommodation and instruments for Magnetic Observations in a new Observatory about to be built by the Royal Polytechnic Society of Cornwall (granted contingently on the Society being able to afford to the Council of the Royal Society reasonable assurance of the continuance of the observations)	300
A. W. Hare, for materials and apparatus to be used in an Investigation into the nature and causation of Septicæmia, Gangrene, and Erysipelas	50
Prof. Lankester, for payment of a skilled assistant to aid in carrying on an investigation of the Comparative Histology of the Arthropoda and Mollusca	200
R. Milne Murray, for an investigation into the Physiology of the Pregnant Uterus, with a view to determine (1) the nature of the uterine contraction, (2) the innervation of the uterus, (3) the effect of drugs on the pregnant uterus, (4) the effect of uterine contraction on blood pressure, &c. (materials, assistance, and apparatus not of permanent value)	50
Dr. G. S. Woodhead, for materials and apparatus to aid in an inquiry into the relations of micro-organisms to specific infective diseases, with special reference to the modifying influences which may be brought to act upon the mode and rate of development of these organisms both within and without the body	50
Carried forward.....	<u>£1,415</u>

Brought forward.....	£1,415
D'Arcy W. Thompson, for aid in preparing a Zoological Bibliography (to be printed at the cost of the University of Cambridge).....	50
A. Sedgwick, for aid in publishing a complete illustrated monograph of all known species of <i>Peripatus</i>	50
H. H. Johnston, to supplement a grant made by the British Association, for the exploration of Kilimandjáro and the adjoining Mountains of Tropical Africa	500
A Committee of the Royal Society, for payment of an experienced Botanist to draw up a report on our present knowledge of the Flora of China, and for expense in printing the same	200
F. R. Japp, for an Investigation of the Reactions of Quinones, Diketones, and allied Compounds	75
T. Rupert Jones, for further determination and publication of the fossil Entomostraca	100
V. H. Velej, for an Investigation whether the combinations of the most simple and best defined Molecules occur in simple or more complex proportions	50
A. Gray, T. Gray, and J. J. Dobbie, for continuation of experiments on the relation between the Electrical Conductivity, Specific Inductive Capacity, and Chemical Composition of Glass and allied substances	100
E. Douglas Archibald, for continuation of experimental researches into the Physics of the Atmosphere and its Meteorology, by means of kites	50
Prof. Ramsay and Dr. Young, for apparatus and materials to be used in a Research already in progress on the Relations between Evaporation and Dissociation	50
Prof. G. H. Darwin, towards the cost of publication of a set of computation forms for the reduction of tidal observations by harmonic analysis (granted on the understanding that copies be given gratis to Government Institutions).....	50
J. T. Bottomley, for expense of a Research on Cooling of Heated Bodies under different circumstances in air and other gases, and in vacuo	75
Dr. Wallich, for experiments connected with the completion of an entirely new form of Condenser for the Microscope....	20
A. Buchan, G. Chrystal, and A. Crum Brown (on behalf of the Directors of the Ben Nevis Observatory), for the construction of Self-registering Apparatus for recording the Direction and Force of the Wind	50

Carried forward..... £2,835

Brought forward.....	£2,835
Dr. Schuster, towards the expense of a Research on the Discharge of Electricity through Gases.....	100
Dr. Tilden, for materials, and payment of an assistant, in Researches on the Phenomena of Solution	100
F. H. Nalder and C. F. Cross, for Researches on the properties of Spiral Springs and Special Applications of the same for the purpose of measurement.....	25
W. E. Hoyle, for an Investigation into the development of the Cephalopoda, with reference more particularly to the Renal Organ and its connexion with the vascular system	50
Prof. Schäfer, for assistance and apparatus required in Researches into the Physiology of the Nervous System	50
G. R. Vine, for a Research on the Jurassic Polyzoa, their structure, affinities, and distribution	25
A. G. Bourne, for continuation of his Research into the Development of <i>Myxine glutinosa</i>	30
H. T. Stainton, in aid of the Publication Fund of the Zoological Record Association	150
Dr. F. Warner, for continuation of a Research on Muscular Movements in the Human Body by a graphic method.....	50
J. T. Cunningham, for a Series of Researches on the embryology of Marine Teleostean fishes.	100
A Committee of the Royal Society, in aid of an Expedition for the Exploration of the Mountain of Roraima, in British Guiana.....	200
W. Bateson, for aid in Investigating the Anatomy and Development of <i>Balanoglossus</i> in the United States.....	100
W. Topley, towards the cost of the preparation and publication of a Geological Map of Europe, under the authority of the International Geological Congress (Third Grant).....	75
T. S. Humpidge, for completion of Researches on Metallic Glucinum	20
C. F. Cross and C. S. Webster, for aid in continuing Researches on the Action of the Halogens upon the Trihydric Phenols	25
W. R. Hodgkinson, for materials and assistance in a Research on Fluorene and its Derivative Difluorenes	25
H. B. Dixon, for Researches (1) on the Velocity of Explosion of Gaseous Mixtures; (2) on a Case of Incomplete Combustion; (3) on the Decomposition of Dry CO ₂ by the Electric Spark	200
Carried forward.....	£4,160

Brought forward.....	£4,160
A Committee appointed in respect of applications made by H. R. Mill and J. Rattray, for a Research upon the General Physical Conditions of the Water, and for aid in Investigating the Algoid Flora of the Firth of Forth.....	200
H. Tomlinson, for maintenance while continuing his researches on the Influence of Stress and Strain on the Action of Physical Forces	50
W. E. Adeney, for the determination of the wave-lengths of the lines of the Ultra-violet Spark Spectra of nickel, cobalt, palladium, gold, and platinum	50
Prof. W. K. Parker, for continuation of Researches into the Morphology of the Vertebrata.....	300
	<u>£4,760</u>

Dr.

	£	s.	d.
To Balance on hand, Nov. 30, 1883	232	18	9
To Grant from Treasury	4,000	0	0
To Repayments	232	2	0
To Interest on Deposit.....	20	1	11
To Balance	338	19	6
	<u>£4,824</u>	<u>2</u>	<u>2</u>

Cr.

	£	s.	d.
By Appropriations, as above.....	4,760	0	0
Printing, Postage, Advertising, and other Administrative Expenses	64	2	2
	<u>£4,824</u>	<u>2</u>	<u>2</u>

Account of Grants from the Donation Fund in 1883-84.

	£
Prof. T. Jeffrey Parker, for the obtaining of Specimens of Hatteria, Apteryx, and other species	75
G. Murray, to aid in his Investigation of the causes of the Salmon Disease	10
Prof. Schäfer, towards the Cost of Researches into the Mechanism of Secretion, and the Physiology of the Heart in Fishes	20
Profs. Reinold and Rücker, for New Apparatus for Investigating the Properties of thin Liquid Films	20
Prof. W. N. Hartley, for construction of an Instrument for the Micrometric Measurement of Spectra	7
Rev. S. J. Perry, for comparison of Kew and Stonyhurst Magnetograms	10
Prof. T. Rupert Jones, for continuing the Illustration of Fossil Entomostraca	25
Messrs. Langley and Gaskell, for assistance in Physiological Investigations on Sauropsida	50
Dr. Brunton, for a Research to be made by Dr. Th. Cash ..	10
J. Murray, for Expenses related to the "Triton" Surveying Expedition	126
The Krakatoa Committee, for Expenses in collecting and classifying notices of the Volcanic Outbursts in the Straits of Sunda	100
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	£463
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