double-image prism was placed between the eyepiece and the eye. The prism was brought into four different positions 90° apart. At each position of the prism an attempt was made to estimate the relative brightness of the two images. The power of the prism was just sufficient to give two images of the comet without their overlapping. The difference in brightness of the images was exceedingly small; I could not be certain that any appreciable difference really existed. However, I attempted in each case to select one of the two images as the brighter one. Afterwards I determined the position of the prism at the four different estimations, and I then found that three of the estimations were in accordance with a portion of the comet's light being polarized in a plane passing through the sun, and one in opposition to that supposition. I hesitate to attach any positive value to these observations; but they may perhaps be taken as showing that no considerable part of the comet's light is polarized.

The foregoing observations appear to show that the spectrum of this comet is identical with that of Comet II. 1868, a description of which I had the honour to present to the Royal Society*.

It is worthy of notice that the cometary matter appears drawn out and diffused towards the sun, and that it has not yet come under the influence of the force, or been subjected to the conditions, whatever they may be, by which in most cases cometary matter appears to be powerfully repelled from the sun.

The observations were made with the telescope belonging to the Royal Society, of 15 inches aperture. The spectroscope contained one prism with a refracting angle of 60, and the small observing telescope magnified six times.

November 30, 1871.

ANNIVERSARY MEETING.

General Sir EDWARD SABINE, K.C.B., President, in the Chair.

Dr. Blakiston, for the Auditors of the Treasurer's Accounts on the part of the Society, reported that the total receipts during the past year, including a balance of £127 9*s*. 3*d*. carried from the preceding year, and £706 17*s*. 2*d*. balance of the Oliveira bequest, amount to £5095 15*s*. 7*d*.; and that the total expenditure in the same period, including £518 2*s*. 10*d*. from the Society's funds to complete the payment for the Equatorial Telescope, amounts to £5169 13*s*. 2*d*., leaving a balance of £28 2*s*. 2*d*. in the hands of the Treasurer, and of £101 19*s*. 9*d*. due to the Bankers.

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

* Phil. Trans. 1868, p. 555 and plate xxxiii.

The Secretary read the following Lists:—

Fellows deceased since the last Anniversary.

On the Home List.

Sir Thomas Dyke Acland, Bart., M.A., D.C.L.
Charles Babbage, M.A.
Field-Marshal Sir John Fox Burgoyne, Bart., G.C.B., D.C.L.
Colonel Sir Proby T. Cautley, K.C.B.
Major-General Sir William Thomas Denison, R.E., K.C.B.
Edwin Richard Wyndham-Quin, Earl of Dunraven and Mount-Earl.
Commander Matthew Curling Friend, R.N.
George Grote, LL.D.
Thomas Henry Hall, M.A.
The Rev. William Vernon Harcourt, M.A.
Philip Hardwick, R.A.
Sir John Frederick William Herschel, Bart., K.H., D.C.L.
Thomas Mayo, M.D.
Sir Roderick Impey Murchison, Bart., K.C.B.
The Rev. Joseph Bancroft Reade, M.A.
Henry Hyde Salter, M.D.
Samuel Solly, F.R.C.S.
James Yates, M.A.

On the Foreign List.

Wilhelm Karl Haidinger.

Change of Title.

Earl De Grey and Ripon *to* Marquis of Ripon.

Fellows elected since the last Anniversary.

William Henry Besant, M.A.
William Budd, M.D.
George William Callender, F.R.C.S.
William Carruthers, F.L.S.
Robert Etheridge, F.R.S.E.
Frederick Guthrie, B.A.
John Herschel, Capt. R.E.
Right Hon. Robert Lowe, LL.D., Chancellor of the Exchequer.
Alexander Moncrieff, Capt. M.A.
Richard Quain, M.D.
Carl Schorlemmer.
Edward Thomas, Treas. R.A.S.
Edward Burnet Tylor.
Cromwell Fleetwood Varley, C.E.
Arthur, Viscount Walden, P.Z.S.
John Wood, F.R.C.S.

His Majesty Pedro II., Emperor of Brazil.

The President then addressed the Society as follows :—

Gentlemen,

By the publication of Volume V. of the Catalogue of Scientific Papers, the alphabetical list of titles according to authors' names is brought down to the letters T I Z. The remainder of the series, with the supplementary matter, will fill one more volume, thus making six volumes for the completion of this part of the work. The preparation of Volume VI. is in a forward state, some sheets are printed, and its publication may be confidently looked for before our next Anniversary.

We have to regret that, in consequence of Dr. Carus having been for some time incapacitated by illness, but little progress has been made this year with the 'Index Rerum.'

We have lost this year three distinguished Fellows of our Society,—Sir John Herschel, Mr. Babbage, and Sir Roderick Murchison. Of the first-named, and most illustrious, Sir John Herschel, you might well expect from me a much more than ordinary notice; but, happily, such a notice (at once far more worthy of the occasion than any thing which I could have been competent to furnish, and more full than could have fallen within the limits of an Anniversary Address) will be in your hands within a few days in our Obituary Notices. I would only add my own most warm and cordial assent to every part thereof which falls within my capability of judgment. The deaths of Mr. Babbage and of Sir Roderick Murchison are more recent; but we may be sure that the care of our excellent senior Secretary will, at the proper time, supply suitable obituary notices of their scientific achievements,—perhaps, in the case of Mr. Babbage, obtaining such a notice from some eminently qualified member of the great University to which he belonged. All these three gentlemen were of advanced age, and the health of all three had been failing for a more or less considerable interval; yet it is comparatively but a short time since the last departed (Sir Roderick Murchison) still displayed such an energetic and vigorous activity as will make his loss severely felt, most especially by the Royal Geographical Society, from whom and from the Geological Society large and worthy notices may doubtless be expected in their respective obituaries; while our own obituary may contain such a brief but valuable statement of the wider bearings of his geological labours as may still come appropriately from the Royal Society. It might be an indulgence to myself, but perhaps scarcely appropriate from this Chair, if, in speaking of Sir Roderick Murchison, I were to permit myself to advert to our long, joint, and friendly labours together at the British Association for the Advancement of Science.

By the munificence of one of our Fellows, Mr. John Peter Gassiot, the Kew Observatory has taken its place amongst the permanent in-

stitutions of our country. Mr. Gassiot has transferred to the Royal Society, in Trust, certain securities, producing a net income of £500 per annum, towards the cost of carrying on and continuing magnetical and meteorological observations with self-recording instruments, and any other physical investigations that may from time to time be found practicable and desirable, in the present building at Kew belonging to Her Majesty's Government; or in the event of the Government at any time declining to continue to place that building at the disposition of the Royal Society, then in any other suitable building which the Council of the Royal Society may determine. It is further provided that, "in the event of the Royal Society at any future time declining to continue such an observatory, either, as at present, at Kew or elsewhere, the securities producing the income shall be transferred to another corporation for educational purposes." The cost of the *meteorological* observations by self-recording instruments at Kew is at present defrayed from public funds placed at the disposal of a Committee nominated, at the request of Her Majesty's Government, by our President and Council, and consisting of Fellows of the Society serving gratuitously. Carrying out Mr. Gassiot's views, the Council of the Royal Society has formed the same individuals into a "Kew Committee," also serving gratuitously, and having the proceeds of the Gassiot Fund at their disposal, and applying them to the maintenance of *magnetical* observations by self-recording instruments *primarily*; and *secondarily*, as far as may be practicable, to aiding any other suitable physical investigations for which it may be possible to find space and adequate supervision.

Among the first duties which have required the attention of the Kew Committee has been the agreeable one of responding to an application made to them by Dr. Jelinek, Director of the Central-Anstalt für Meteorologie und Erdmagnetismus, to procure for that establishment a set of self-recording magnetographs similar to those at Kew. The request has been of course complied with; and it is hoped that the apparatus will be ready for transmission to Vienna in March next, being the time named by Dr. Jelinek as that at which the new building in course of erection in that city is expected to be completed. The Committee has also been apprised by a letter (dated in June last) from Mr. Stone, Astronomer Royal at the Cape of Good Hope, that he had at that date applied to the Admiralty (being the Department of Her Majesty's Government under which the Cape Observatory is placed) for a set of magnetographs, similar to those at Kew, to be employed at the Cape. The Kew Committee hold themselves in readiness to supply the desired apparatus when they may receive directions to that effect from the Admiralty; such directions, however, have not yet been received. If Mr. Stone's request is granted, the Cape Observatory will be the third in the British Colonial Dominions employing such instruments, the other two being the Colaba Observatory, under Mr. Chambers, at Bombay (for which our thanks are due to Sir Stafford North-

cote, when Secretary of State for India), and the Mauritius Observatory, under Mr. Meldrum (that establishment itself, as well as its magnetographs, being mainly due to the action of Sir Henry Barkly, F.R.S., when Governor of that colony).

The care of our Foreign Secretary in watching scientific proceedings in other countries has recently called our attention to the investigation of a new feature in the cosmical connexions of terrestrial magnetism, in a paper by Professor Hornstein, of Prague, entitled, "On the dependence of the Earth's Magnetism on the Rotation of the Sun"*. From an examination of the magnetic records at Prague and Vienna, Professor Hornstein infers the existence of a periodic magnetic disturbance in very close accord with the synodic period of the rotation of the sun-spots in the sun's equator.

As the existence of the Great Melbourne Telescope is in no small degree owing to the exertions of Members of this Society, and to their influence, you will be glad to hear that it is now in regular and successful work, after several difficulties and misadventures, such as often occur in the early trials of uncommon instruments or new sorts of observations. Some of these will be found in the volume of correspondence which your Council has thought it desirable to publish, both as containing a complete history of this great work from its first conception to its complete execution, and also as presenting a collection of the opinions of persons whose knowledge of large telescopes must make these opinions specially valuable to any who may hereafter be engaged in similar undertakings. In particular one matter, about which considerable apprehension was entertained, the repolishing the specula at Melbourne, has been well performed. The speculum, described as A in the correspondence, which had become tarnished (under circumstances described there), has been repolished, and Mr. Ellery reports that "its performance is highly satisfactory." In a subsequent part of his last Report, he thus summarizes his estimate of the instrument:—"Further experience with the Great Telescope, and of "the conditions which affect its performance, have very much enhanced "our opinion of it; and the drawings and other results obtained unmis- "takably show that excellent work can be done with it. On really "favourable occasions the performance, even with very high powers, is "exceedingly good. It is evident, however, that a telescope of such "large dimensions requires a very long practice before it can be fairly or "successfully used. The mechanical arrangements are all in perfect order; "and the moving and setting the telescope from one object to another is "performed almost as quickly and easily as with a five-feet equatorial. "The clock has worked well and with great regularity from the first." This is in full accordance with the Reports of the Telescope Committee and of Mr. Lassell: the chief remaining difficulty is how the results

* *Vide suprà*, p. 31.

may best be published, especially the drawings of nebulæ; but there is no doubt that this will soon be overcome.

In my Address of 1869 I had the pleasure of announcing to the Society the advanced state of the fine equatorially-mounted telescope, fitted more especially for spectroscopic research (therefore rather for celestial physics than for more strictly astronomical work), which, while it was to remain the property of the Royal Society, was intended by the President and Council to be placed in the able and zealous hands of Mr. Huggins, who was preparing at his own expense a suitable building for its reception. The necessary spectroscopic apparatus for use with it has not been long completed; but some of our Fellows are aware that Mr. Huggins has been already doing work with this fine instrument in his observations of the spectrum of Uranus, and in his quite recent examination of the spectrum of Encke's Comet, which he finds to agree with that of carbon, and to be apparently identical with that of Comet II. 1868, of which a description appears in the Phil. Trans. for 1868, p. 555. His other observations have been hitherto mainly confirmatory of those he had previously obtained of the spectra of the nebulæ and stars; but he hopes for more definite results regarding the approach or recession of stars, and in particular the rate of the recession of Sirius.

In my last Address I spoke with pleasure of the approaching completion of the fine series of Pendulum Experiments extending throughout the continent of India, from Cape Comorin to the high tablelands of the Himalayas (to which it was further proposed to add two stations on the homeward route, *i. e.* Aden, and a station near the "Bitter Lakes"). Of this magnificent series, designed to comprise thirty Indian stations, twenty-five Indian stations had then been completed by the skilled and indefatigable exertions of Captain Basevi of the Royal Engineers. Only five more remained, one on the Indus, and four in the higher Himalayas; but, alas! while engaged on these, Captain Basevi's health yielded to the combined effects of arduous exertion, of climate, and finally of mountain exposure. His last completed station (to the south of Leh, in lat. 33°) was at an altitude of 15,500 feet. He then proceeded to one still higher, closely approaching 17,000 feet, which was to be the last of all, and there died. His character, services, and the sacrifice of his valuable life have received a fitting tribute from his immediate chief, Colonel Walker, head of the Trigonometrical Survey of India. We may securely anticipate that, under the superintending care of Colonel Walker, not only will the programme of operations in India be carried out with entire satisfaction, but also that effectual provision will be made for that repetition of the determinations in England which is essential to the completion and full assurance of the scientific results of Captain Basevi's labours in this great undertaking.

The existence of a Lunar Atmospheric Tide, as indicated by differences of barometric pressure corresponding systematically to differences of the moon's position relatively to the meridian, has received a further confirmation by the discussion by Mr. Bergsma, of the Royal Netherlands Observatory at Batavia, of a series of hourly observations of the barometric pressure at that Observatory, extending (Sundays excepted) from January 1866 to January 1869, made specially with a view to this investigation. The discussion is on the same plan (slightly modified and thereby improved) as that by myself of the observations at St. Helena, from October 1843 to September 1845 inclusive, in the Phil. Trans. for 1847; and that by Captain Elliot of the observations at Singapore, from 1841 to 1845, in the Phil. Trans. for 1852. The results, as regards the existence of the periodic tide, are substantially the same in the three cases, but may probably be more approximatively exact in value in the more recent investigation. From the observations of the three years at Batavia, Mr. Bergsma finds that the Lunar Tide has at that station two maxima and two minima. The two highest barometric pressures are those for the lunar hours 1 and 13, being the hours following the two passages of the moon through the meridian. The two lowest pressures are those for the lunar hours 7 and 19, being those following the two passages of the moon through the horizon. The means found for each of the years 1866, 1867, and 1868 show nearly the same features as the means for the three years. The difference between the mean of the two maxima and the mean of the two minima is 0·107 millim. at Batavia: this difference was found for St. Helena 0·094 millim., and for Singapore 0·145 millim.

The Fellows will remember that in my two last Addresses (for 1869 and 1870) I referred to the valuable memoirs of Professor Heer, of Zurich, on the fossil plants brought of late, at various times, from the Arctic regions. Professor Nordenskiöld revisited the shores of West Greenland in 1870; and on learning that he had given the principal geological facts and fossils collected in that expedition to Professor Heer, I lost no time in communicating with the latter gentleman, and received from him (through Mr. Robert Scott, F.R.S., Director of the Meteorological Office) a reply, which appeared to me so interesting that I placed it in the hands of Sir Charles Lyell, asking him, if he would be so kind, to furnish me with a notice sufficiently brief to be included in this Address. He has done so, and I subjoin it in his own words:—"The first voyage of Parry in 1819–20 made "the naturalist acquainted with the marvellous fact that plants similar to "those of our ancient coal once flourished in Melville Island, lat. 75° N.; "and now we learn more exactly, from the fruits of Nordenskiöld's late "Expedition, that the arctic plants of that early Palæozoic period are not "only traceable over a wide area, but that not a few of them are identical "with European species; and it is remarkable that the specimens which "have been brought from these high latitudes are equal in size and show

" as vigorous a growth as those found fossil in Europe. Plants that are " comparatively modern, of Miocene date, discovered by various explorers " in Greenland and Spitzbergen, had already testified to the existence of a " mild climate in Tertiary times, such as formerly prevailed in Central " Europe, and which, according to Heer, had probably reached to the pole " itself. Now we learn, from the same eminent botanist, that the fossils " brought in 1870 from Atarne and Atarnekerdluk, in Greenland, by Nor- " denskiöld and his companions, throw light on the flora of a geological " period, the Cretaceous, intermediate between the Carboniferous and Mio- " cene; for among these newly found fossils are plants referable both " to the Lower and Upper Cretaceous formation, which prove, says Pro- " fessor Heer, that in these high latitudes, as in Central Europe, the " Lower Cretaceous flora consisted principally of Ferns, Conifers, and " Cycads; while in the Upper Cretaceous, Dicotyledones appear; and both " these great divisions of the Upper Mesozoic flora show a warmer climate " than the Miocene."

It is satisfactory to learn that there is a probability that these researches will be resumed in 1872 by a second North-German Expedition to East Greenland.

The Scientific Institutions and establishments of our country have been honoured this summer by long and careful visits from His Majesty Pedro II., Emperor of Brazil, whose remarkable competence to appreciate such Institutions may be said to be universally recognized. At a recent Meeting of the Royal Society, we have had the pleasure of enrolling His Majesty's name in the List of our Fellows. We have only to regret the Emperor's unavoidable absence from our Meetings; unavoidable because the Society having been in recess during his visit to England, the election could not have taken place until the new Session, when he had quitted our shores. It was pleasing to hear on this occasion, from Fellows distinguished in different branches of science, the warm and competent testimony borne to his Majesty's acquirements and to his rare scientific intelligence.

As your President, I have been called upon, by the Royal Commission on Scientific Instruction and the Advancement of Science, to give evidence regarding the assistance which, in the course of the last fifty years, has been rendered from time to time by Her Majesty's Government in the advancement of science, on the recommendation of the Scientific Institutions of the country, and especially on the recommendation of the Royal Society. The evidence thus given has been printed by the direction of the Commission, and is procurable in the usual manner.

I proceed to the award of the Medals.

The Copley Medal has been awarded to Dr. Julius Robert Mayer, of Heilbronn, for his researches on the Mechanics of Heat, including essays on:— 1. The Forces of Inorganic Nature; 2. Organic Motion in connexion with

Nutrition; 3. Fever; 4. Celestial Dynamics; 5. The Mechanical Equivalent of Heat.

I may presume that the last named, viz. the Mechanical Equivalent of Heat, though not the sole, is yet the principal ground on which the award of the Copley Medal was made; and, so far as this may have been the case, the award may perhaps be considered to require some explanation on the part of the President and Council, inasmuch as this is the second of two Copley Medals awarded (and, I believe, in each case rightly awarded) for what may, perhaps, be mainly regarded as one and the same discovery,—the later (which is the present award to Dr. Mayer) being for investigations earlier in date than those of our countryman Mr. Joule, to whom the first Medal of the two was awarded. This seeming inconsistency can, I believe, be fully justified. Seeing also the scientific interest of the history of the double investigation, I have thought it desirable to obtain a short but comprehensive notice on the subject from the able hands of our junior Secretary, Professor Stokes; it is as follows:—

"In a paper published in 1842, Mayer showed that he clearly conceived "the convertibility of falling force, or of the *vis viva*, which is its equiva- "lent or representative in visible motion, into heat, which again can dis- "appear as heat by reconversion into work or *vis viva*, as the case may be. "He pointed out the mechanical equivalent of heat as a fundamental "datum, like the space through which a body falls in one second, to be "obtained from experiment. He went further. When air is condensed "by the application of pressure, heat, as is well known, is produced. "Taking the heat so produced as the equivalent of the work done in com- "pressing the air, Mayer obtained a numerical value of the mechanical "equivalent of heat which, when corrected by employing a more precise "value of the specific heat of air than that accessible to Mayer, does not "much differ from Joule's result. This was undoubtedly a bold idea, "and the numerical value obtained by Mayer's method is, as we now "know, very nearly correct. Nevertheless it must be observed that an "essential condition in a trustworthy determination is wanting in Mayer's "method; *the portion of matter operated on does not go through a cycle of "changes*. Mayer reasons as if the production of heat were the sole effect "of the work done in compressing air. But the volume of the air is "changed at the same time, and it is quite impossible to say *à priori* "whether this change may not involve what is analogous to the statical "compression of a spring, in which a portion, or even a large portion of the "work done in compression may have been expended. In that case the "numerical result given by Mayer's method would have been erroneous, "and *might* have been even widely erroneous. Hence the practical cor- "rectness of the equivalent obtained by Mayer's method must not lead us "to shut our eyes to the merit of our own countryman Joule, in being the "first to determine the mechanical equivalent of heat by methods which "are unexceptionable, as fulfilling the essential condition that no ultimate "change of state is produced in the matter operated upon."

Professor Miller,

As Dr. Mayer's health and the inclemency of the weather, combined with the length of the journey, deprive us of the pleasure of his presence at our Meeting, I will request you to transmit this Medal to him, and with it the assurance of our cordial respect and regard.

The Council has awarded a Royal Medal to Dr. John Stenhouse, F.R.S., for his researches on the Lichens and their proximate constituents and derivatives, including erythrite, and for his researches on the action of charcoal in purifying air.

Dr. Stenhouse,

I have great pleasure in delivering to you this Medal, awarded to you by the Royal Society for the long, laborious, and valuable researches with which from time to time you have enriched our Transactions.

The Council has awarded a Royal Medal to Mr. George Busk, F.R.S., for his researches in Zoology, Physiology, and Comparative Anatomy.

Mr. Busk,

I present you with this Medal in testimony of the appreciation by the Royal Society of the results of your researches in Zoology, Physiology, and Comparative Anatomy.

In conclusion, I desire to avail myself of this occasion to express my warmest acknowledgments to the Fellows of the Society for the kind consideration which I have received from them at all times and in all circumstances, and, in particular, for their attendance at, and thereby their support of, the President's soirées, in which I have attempted to follow in the footsteps of my predecessors. Since the date of Sir Joseph Banks's Presidency, at the close of the last century, it has been regarded as the privilege of the President to receive the Fellows, either at his own house or at that of the Society, together with others whom he might think it would be agreeable to them to meet. There has thus been afforded to persons engaged in mechanical or other inventions, auxiliary to science or otherwise connected therewith, a convenient opportunity for the exhibition and discussion of their various apparatus. The soirées have also been described, and I believe justly so, as affording suitable opportunities for the interchange of kindly feeling and good companionship between the President and the Fellows. I may venture to say that I have found them thoroughly so in the ten years during which I have had the honour of the Presidency; and I beg to express my grateful acknowledgments accordingly to the Fellows, collectively and individually.

On the motion of Mr. De La Rue, seconded by Colonel Walker, and supported by the Astronomer Royal, it was resolved,—"That the thanks of the Society be returned to the President for his Address, and for the admirable and dignified manner in which he has presided over the Society; and that he be requested to allow his Address to be printed."

The Statutes relating to the election of the Council and Officers having been read, and Mr. Cæsar Hawkins and Admiral Ommaney having been, with the consent of the Society, nominated Scrutators, the votes of the Fellows present were collected, and the following were declared duly elected as Council and Officers for the ensuing year:—

President.—George Biddell Airy, C.B., M.A., D.C.L., LL.D., Astronomer Royal.

Treasurer.—William Spottiswoode, M.A.

Secretaries.—William Sharpey, M.D., LL.D.
George Gabriel Stokes, M.A., D.C.L., LL.D.

Foreign Secretary.—Professor William Hallowes Miller, M.A., LL.D.

Other Members of the Council.—George James Allman, M.D.; John Ball, M.A.; George Burrows, M.D.; Mr. George Busk, P.R.C.S.; Professor Robert Bellamy Clifton, M.A.; Heinrich Debus, Ph.D.; Professor Peter Martin Duncan, M.B.; Professor George Carey Foster, B.A.; Mr. Francis Galton; Thomas Archer Hirst, Ph.D.; Sir John Lubbock, Bart.; Sir James Paget, Bart., D.C.L.; The Earl of Rosse, D.C.L.; General Sir E. Sabine, R.A., K.C.B.; Isaac Todhunter, M.A.; Sir Charles Wheatstone, D.C.L.

The thanks of the Society were voted 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.	Compounders.	£4 yearly.	Total.
November 30, 1870.	3	50	281	263	597
Since elected	+1		+7	+9	+17
Since compounded..			+1	−1	
Since deceased		−1	−11	−7	−19
November 30, 1871.	4	49	278	264	595

Receipts and Payments of the Royal Society between December 1, 1870, and November 30, 1871.

	£	s.	d.
Balance at Bank and on hand	127	9	3
Annual Subscriptions, Admission Fees, and Compositions	1706	0	0
Rents	257	4	4
Dividends	1476	3	4
Ditto, Trust Funds	314	2	2
Oliveira Bequest (balance of Deposit)	706	17	2
„ „ (Interest)	14	14	3
Sale of Transactions, Proceedings, &c.	490	7	4
Petty Repayments	2	17	9
	5095	15	7
Balance due to Bankers	101	19	9
	£5197	15	4

	£	s.	d.	£	s.	d.
Salaries, Wages, and Pension				1057	5	4
The Scientific Catalogue				266	19	0
Equatoreal Telescope and Spectroscope				1302	14	5
Books for the Library and Binding				211	11	3
Printing Transactions, Proceedings, and Catalogue, Paper, Binding, Engraving, and Lithography				1634	19	3
General Expenses (as per Table subjoined)				349	15	4
Donation Fund	160	0	0			
Rumford Fund	136	9	4			
Wintringham Fund	35	6	6			
Copley Medal Fund	4	15	2	346	8	7
C. W. Siemens, Bakerian Lecture	4	0	0			
Rev. T. S. Evans, Fairchild Lecture	2	18	10			
Croonian Lecture, Poor of St. James' Parish	2	18	9			
				5169	13	2
Balance of Catalogue Account				25	13	9
„ Petty Cash Account				2	8	5
				£5197	15	4

W. SPOTTISWOODE,
Treasurer.

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

Estate at Mablethorpe, Lincolnshire (55 A. 2 R. 2 P.), £136 per annum.
Estate at Acton, Middlesex (34 A. 2 R. 27½ P.), £109 10*s.* per annum.
Fee Farm near Lewes, Sussex, rent £19 4*s.* per annum.
One-fifth of the clear rent of an estate at Lambeth Hill, from the College of Physicians, £3 per annum.
£14,000 Reduced 3 per Cent. Annuities.
£29,569 15*s.* 7*d.* Consolidated Bank Annuities.
£513 9*s.* 8*d.* New 2½ per Cent. Stock—Bakerian and Copley Medal Fund.
£660 Madras Guaranteed 5 per Cent. Railway Stock—Davy Medal Fund.
£10,000 Italian Irrigation Bonds—The Gassiot Trust.

Scientific Relief Fund.

Investments up to July 1870, New 3 per Cent. Annuities	£6202	15	6
„ „ Metropolitan 3½ Consols	£ 100	0	0
	£6302	15	6

Dr. *Cr.*

	£	s.	d.		£	s.	d.
Balance	174	3	6	By Grants	175	0	0
Dividends	182	4	0	Balance	281	7	6
Donation	100	0	0		£456	7	6
	£456	7	6				

Statement of Income and Expenditure (apart from Trust Funds) during the Year ending November 30, 1871.

	£	s.	d.		£	s.	d.
Annual Subscriptions	1076	0	0	Salaries, Wages, and Pension	1057	5	4
Admission Fees	170	0	0	Equatoreal Telescope (balance)	518	2	10
Compositions	460	0	0	Spectroscope for India	77	14	5
Rents	257	4	4	The Scientific Catalogue	266	19	0
Dividends on Stock (exclusive of Trust Funds)	1010	12	6	Books for the Library	128	9	11
„ on Stevenson Bequest	465	10	10	Binding ditto	83	1	4
Sale of Transactions, Proceedings, &c.	490	7	4	Printing Transactions, Part II. 1870 and Part I. 1871	384	1	3
Oliveira Bequest (Interest)	14	14	3	Ditto Proceedings, Nos. 123-129	354	11	4
Petty Repayments	2	17	9	Ditto Miscellaneous and Library Catalogue	167	14	11
				Paper for Transactions and Proceedings	246	10	6
Income available for the Year ending Nov. 30, 1871	3947	7	0	Binding and Stitching ditto	79	9	6
Expenditure in the Year ending Nov. 30, 1871	4116	7	5	Engraving and Lithography	402	11	9
				Fittings, Cleaning, and Repairs	87	12	10
Excess of Expenditure over Income in the Year ending Nov. 30, 1871	£169	0	5	Miscellaneous Expenses	44	3	1
				Coal, Lighting, and Gas Repairs	100	4	6
				Tea Expenses	24	3	6
				Fire Insurance	20	1	6
				Taxes	13	17	6
				Advertising	15	16	6
				Postage, Parcels, and Petty Charges	41	13	11
				Mablethorpe Schools, Donation	2	2	0
							£4116 7 5

W. SPOTTISWOODE, *Treasurer.*

Account of the appropriation of the sum of £1000 annually voted by Parliament to the Royal Society (the Government Grant), to be employed in aiding the advancement of Science (continued from Vol. XIX. p. 144).

1871.

1. To E. T. Chapman, for continuing his Researches on the Physical Properties of Organic Bodies	£50
2. To R. H. Scott and Dr. J. Rae, to defray expenses in obtaining Specimens of Fossil Plants from N.W. America	50
3. To E. J. Mills, for a Research on Chemical Activity	50
4. To Dr. Stenhouse, for continuation of Researches on Orcin and its Homologues, Furfurol and its Isomers, and on Bromanil	100
5. To W. De La Rue, for completing the ten years' Series of Observations with the Kew Photo-heliograph	200
6. To Dr. C. R. A. Wright, for continuation of Researches on the Chemistry of the Opium Alkaloids	20
7. To A. Dupré, for continuing Investigations on the Specific Heat and other Physical Characters of Aqueous Mixtures and Solutions	80
8. To Prof. Guthrie, for continuation of Experiments on Approach caused by Vibration	100
9. To the Eclipse Committee, towards the expenses of the Expedition, December 1870	250
10. To R. Etheridge, for assisting in the publication of a complete Catalogue of British Fossils, Stratigraphically and Palæontologically arranged	150
11. To J. N. Lockyer, for mounting equatorially a Reflecting Telescope, and for procuring another Spectroscope	150
12. To Dr. Andrews, for a Research on the Behaviour of Gases under great Pressure	100
13. To Prof. W. C. Williamson, for Researches into the Organization of the Fossil Plants of the Coal-measures	25
14. To Dr. Pettigrew, for Experiments on Artificial Flight	100
15. To Dr. Wright, for continuation of Researches on the Chemistry of the Opium Alkaloids	40
16. To W. N. Hartley, for a Microscope for Researches in Spontaneous Generation	15
17. To Dr. Carpenter, for further Deep-Sea Researches in the Mediterranean	100
18. To Dr. Divers, for Chemicals and Apparatus required for Researches into the Salts of Nitrous Oxide	25
	£1605

Dr.

	£	s.	d.
To balance on hand, Nov. 30, 1870....	1627	4	2
To Grant from the Treasury (1871)..	1000	0	0
To interest	9	4	6
	£2636	8	8

Cr.

	£	s.	d.
By appropriations as above	1605	0	0
Balance on hand, Nov. 30, 1871	1031	8	8
	£2636	8	8

Account of Sums granted from the Donation Fund in 1871.

1. Mr. J. P. Gassiot, to defray expense of making prints from Negatives of Sun-Pictures taken at Kew Observatory (second instalment. See Vol. XIX. p. 145)..... £60
2. Dr. Carpenter, towards the expenses of his return journey from Alexandria 50
3. Mr. E. Whymper, for operations to investigate the Structure of Glacier Ice 50

£160

Presents received November 16, 1871.

Transactions.

Bologna:—Accademia delle Scienze dell' Istituto. Memorie. Serie Seconda. Tomo X. 4to. *Bologna* 1870–71. Rendiconto delle Sessioni. Anno Accademico 1870–71. 8vo. *Bologna* 1871. The Academy.

Calcutta:—Geological Survey of India. Memoirs. Vol. VII. Part 1–3. roy. 8vo. *Calcutta* 1869–71. Palæontologia Indica (Cretaceous Fauna of Southern India). Vol. III. No. 1–8. 4to. *Calcutta* 1870–71. Records. Vol. II. Part 2–4; III., IV. Part 1, 2. Title-pages. roy. 8vo. *Calcutta* 1869–71. The Survey.

Cherbourg:—Société des Sciences Naturelles. Mémoires. Tome XV. 8vo. *Cherbourg* 1870. Catalogue de la Bibliothèque. Partie 1. Publications des Académies. 8vo. *Cherbourg* 1870. Complèment à l'étude sur la Houle et le Roulis par E. Bertin. 8vo. *Cherbourg* 1870. The Society.

Danzig:—Naturforschende Gesellschaft. Schriften, Neue Folge. Band II. Heft 3, 4. roy. 8vo. *Danzig* 1871 (duplicate with photographs). The Society.

Dresden:—Kais. Leopoldino-Carolinische deutsche Akademie der Naturforscher. Verhandlungen (Nova Acta). Band XXXV. 4to. *Dresden* 1870. The Academy.