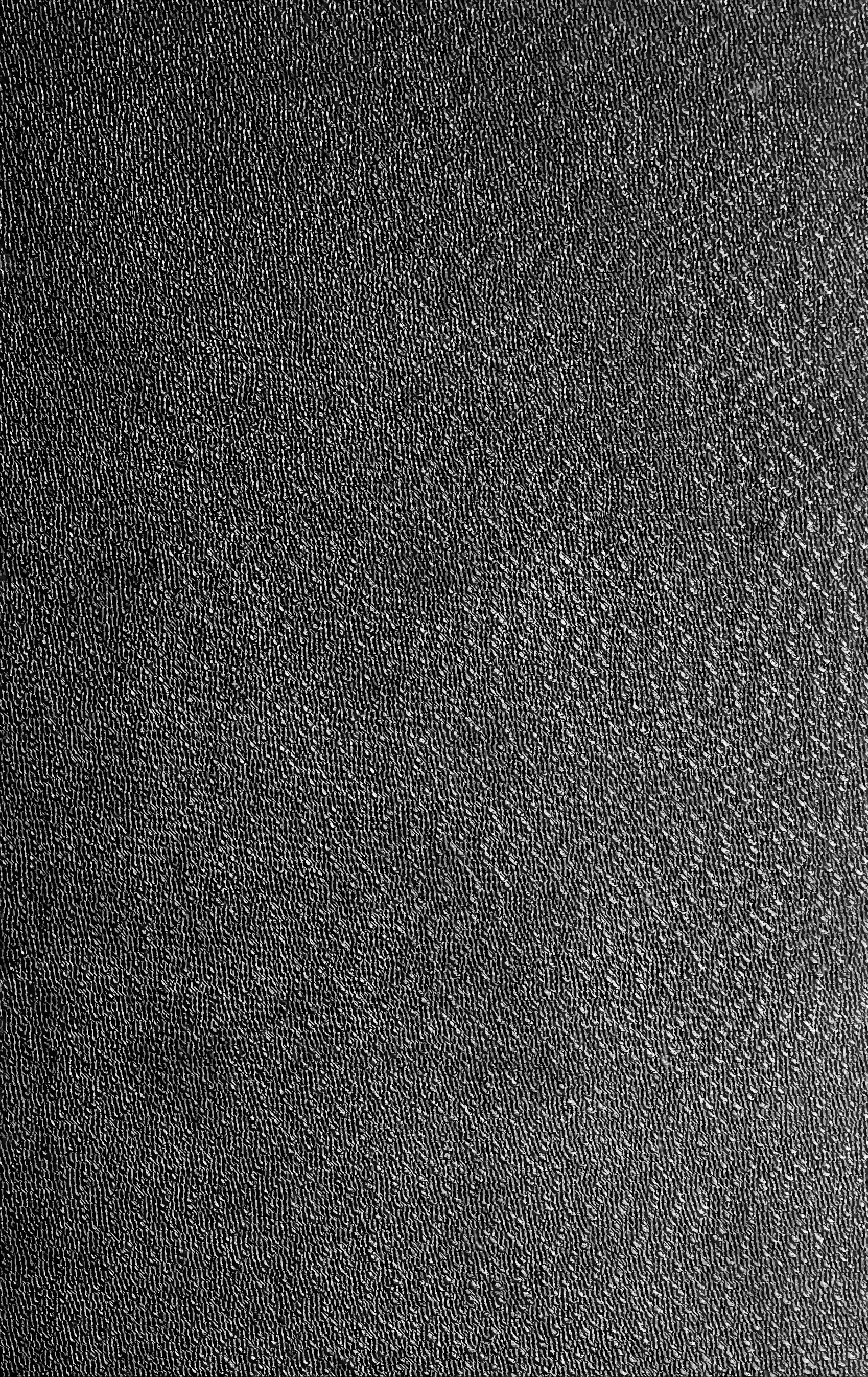

Yorkshire Philosophical Society.

ANNUAL REPORT

FOR

MDCCCLXVIII.

ANNUAL REPORT

OF THE COUNCIL

OF THE

YORKSHIRE

PHILOSOPHICAL SOCIETY

FOR

MDCCCLXVIII.

PRESENTED TO THE ANNUAL MEETING,

FEBRUARY 2nd, 1869.

YORK:

J. SOTHERAN, BOOKSELLER, CONEYSTREET.

1869.

TRUSTEE

OF

THE YORKSHIRE MUSEUM,

APPOINTED BY ROYAL GRANT.

REV. WILLIAM VERNON HARCOURT, F. R. S.

PATRONESSES

OF THE

Yorkshire Philosophical Society.

HER MAJESTY THE QUEEN.

H. R. H. THE PRINCESS OF WALES.

PATRONS.

H. R. H. THE PRINCE OF WALES.

THE ARCHBISHOP OF CANTERBURY.

THE ARCHBISHOP OF YORK.

OFFICERS OF THE SOCIETY, 1869.

PRESIDENT:

His Grace the Archbishop of York.

VICE-PRESIDENTS.

The Earl of Zetland, K. T.
The Lord Londesborough.
The Hon. & Very Rev. The Dean of York.
William Rudston Read, F. L. S.
John Phillips, F. R. S.
The Rev. W. V. Harcourt, F. R. S.
The Rev. Canon Hey.
Thomas Allis, F. L. S.
The Rev. John Kenrick, M. A., F. S. A.
Robert Davies, F. S. A.
W. Procter, M. D., F. C. S.

TREASURER:

William Gray, F. R. A. S., F. G. S.

COUNCIL:

Elected 1867. . J. G. Fitch, M. A.
S. W. North.
William Reed, F. G. S.
George Shann, M. D.
Elected 1868. . Alderman Weatherley.
Rev. Richard Elwyn.
Thomas Lockley, M. D.
Henry J. Ware.
Elected 1869. . The Hon. Payan Dawnay.
John Ford.
W. C. Anderson.
J. H. Gibson, M. D.

HON. SECRETARY:

T. S. Noble, F. R. A. S.

CURATORS:

Geology and Mineralogy .	Wm. Procter, M.D., F.C.S.
Comparative Anatomy . .	Thomas Allis, F.L.S.
British Ornithology . .	W. Rudston Read, F.L.S.
Insects and Crustacea . .	Rev. Canon Hey.
Ethnographical Collection	S. W. North.
Antiquarian Department .	Rev. John Kenrick, F.S.A. Wm. Procter, M.D., F.C.S.
Library	Rev. G. V. Smith, M. A.
Botany	William Matterson, M.D.
Observatory&Meteorology, *under the care of a Committee consisting of*	Rev. W. V. Harcourt, F.R.S. W. Gray, F.R.A.S., F.G.S. John Ford. Rev. Canon Hey. T. S. Noble, F.R.A.S.

SUBCURATOR OF THE MUSEUM & GARDENS:

Henry Baines.

REPORT OF THE COUNCIL

OF THE

YORKSHIRE PHILOSOPHICAL SOCIETY,

FEB. 2ND, 1869.

IN their Report for the year 1868, the Council propose briefly to lay before the Members the present condition and prospects of the Yorkshire Philosophical Society. Although the Treasurer's statement to be appended to the Report discloses a small amount of expenditure in excess of income, the Council have every reason to congratulate the Members on the continued prosperity of the Society.

The Curators of ANTIQUITIES have few additions to their Department to record during the past year.

The tessellated pavement, transferred from Toft Green in 1853 to the lower room of the Hospitium, having been laid down below the level of the floor, had suffered greatly from two inundations of the river. It was determined, therefore, to take it up, and relay it at such a height as to prevent future injury from the same cause. This has been successfully accomplished, and in its new position, the design and execution of this valuable monument of Roman Art may be better appreciated, than at any time since it came into the possession of the Society. Several silver coins of the class called Counterfeit Sterlings have been added to our Cabinet, of which a detailed notice will be found in the Reports of the Monthly Meetings. The Antiquarian Department of the library has been enriched by the present of the second volume of the "Sculptured Stones of Scotland," by the Spalding Club, and "Isca Silurum," by the author, J. E. Lee, Esq., of Caerleon. Robert Davies, Esq., has also kindly presented to the Library a copy of his "Memoir of

the York Press," in which, with his usual accuracy and comprehensiveness of research, he has established the claim of our city to have been the first place in the provinces in which the profession of a printer was exercised, and chronicled its productions from the close of the 15th to that of the 18th century.

The only additions to the GEOLOGICAL Department of the Museum, of sufficient importance to deserve notice, are some good specimens of Eocene Tertiaries, presented by Mr. J. F. Walker, and Mr. Barkas' fish remains from the Low Main Coal Seams. The principal work done has been the naming, remounting, and rearranging of the Eocene Fossils in accordance with modern classification, and the rearrangement of the whole of the side of the Geological Room occupied by the Tertiary and Cretaceous Fossils, so as to get the deposits in their proper sequence, the tickets indicating the nature of the deposits in each case and on each shelf being also inserted.

The Curator of COMPARATIVE ANATOMY reports that there has been no addition to the Osteological collection during the past year. The Typical value of our skeleton of Dinornis Robustus, presented to the Museum by Dr. Gibson, has been remarkably illustrated during the past year. The Illustrated London News of the 8th of February last contained figures of the skeletons of six different species of Dinornis, then mounted and standing in the Canterbury Museum, New Zealand. The bones of which these skeletons are composed had been discovered, assorted and mounted, with much care, labour, and ability, under the auspices of Dr. Julius Haast, Government Geologist for the Province of Canterbury; but as he had not a typical form to which to refer, errors were committed in the construction of the skeletons. The sternum was placed too high on the vertebral column, they all wanted the first pair of dorsal ribs, they also wanted a third pair of sternal ribs, and the Scapula coracoids, to which the bones of the wing should have been articulated, if the bird had possessed a wing, which however it did not.

A friendly notice of these errors was sent to Dr. Haast, together with such photographs of our skeleton as would enable

him to correct them; the communication was received by him in the same friendly spirit in which it was sent, and a letter was received from him expressing his cordial thanks, and accompanied by a copy of the photograph from which the figures in the Illustrated News were taken, together with the promise of another photograph of the same skeletons when restored to their normal condition.

Dr. Haast says that 15 specimens of Dinornis were discovered in an area of peaty soil, six feet square and four feet deep; other skeletons were however found separate; he only succeeded in procuring one perfect specimen of the Scapula coracoid, though he met with several fragments of that bone. It therefore appears that the Scapula coracoid belonging to our skeleton and the one found by Dr. Haast are the only two perfect bones of the kind known to be in existence.

The Curator of Entomology reports that during the past year Mr. Dallas has completed the arrangement of a selection of specimens intended to illustrate the different orders, and to show their relation to one another. These have been placed in the gallery of the room containing the Rudston Read collection of Birds. The general collections in the cabinets are in a fair state of preservation, but they are in much disorder. The rearrangement of them, so as to adapt them to the present state of science, will require much time and labour.

The Curator of Botany, and Mr. Baines the Sub-Curator have examined the British Herbaria, presented by Mr. Dalton and Mr. Hailstone, and found them in a good state of preservation. Mr. Baines has also spent considerable time and labour in examining the Foreign Herbarium, and after removing a few specimens which had been affected by the damp, has left it in a very good condition. A miscellaneous collection of dried Foreign Plants, presented by Giles Munby, Esq., of Algeria, and some by the late S. Stapylton, Esq., from America, which had not been named and arranged, were found to have been attacked by moths. The Curator therefore advised Mr. Baines to destroy those that were thus rendered useless, as the existence of the whole foreign Herbarium might have been endangered by their preservation. The Curator also thinks it

right to say that the pupils of the York School of Art have the privilege of visiting the Gardens and Conservatory for the purpose of drawing from nature as models for designs, and several have availed themselves of the privilege.

In the Ornithological Department the Curator has only to report the addition of one valuable specimen, the "Little Kestril Hawk, Falco Cenchris" presented by John Harrison, Esq., of Wilstrop Hall, which is added to the Rudston collection. He takes the opportunity of referring to an "Association for the protection of sea birds on the English coast," hoping that persons interested in natural history will give their support to it.

The Curators of Astronomical Instruments report that the large Telescope in the Observatory has been remounted equatorially by Messrs. Cooke. A Clock-work movement has been also added, and the instrument is now one of the most perfect of its class. The cost of this improvement has been upwards of £60. The adjustment of this instrument was superintended by our late honorary member and fellow-citizen, Mr. Thomas Cooke, whose death shortly after, at the comparatively early age of 62, the Society in common with all lovers of Astronomy has to lament.

By the subjoined table, prepared by Mr. Ford, it appears that the mean Temperature of York for the year 1868 was 49·5 or two degrees above a mean of 30 years. This mean had only been surpassed three times in the last 37 years, viz., in 1831, 1834, 1846. The Thermometer denoted 80° and upwards, twice in June, six times in July, five times in August, and twice in September. The highest point, 86°, was attained August 6th. The lowest temperature of the year was 24° on the 4th of January, and again on the 29th of November. The rain-fall was below a mean eight months of the year; above, in April, September, October, and December. In the last named month, six inches fell, being more than three times the mean of thirty years. This extraordinary amount carried the rain-fall to 25·8 inches, or two inches above a mean. In November and December the variations in barometrical pressure were extreme, the range in November being 1·6 inch, and in December 1·4 inch.

METEOROLOGICAL REGISTER, YORK, 1868.

	BAROMETER.			RAIN.		THERMOMETER.					Prevailing Wind.	
	Highest.	Lowest.	Mean.	Inches.	Days.	Average Mx.	Average Mm.	Mean Temp.	Highest.	Lowest.		
Jan.	30·260	28·744	29·787	1·45	17	41·5	33·9	38·2	53·5	24	S. & S. W.	17
Feb.	30·538	28·850	29·920	1·33		47·7	37·7	42·6	55·0	26	„ „	18
Mar.	30·584	28·942	29·792	1·52	16	49·8	37·2	43·2	60·0	28	„ „	17
April	30·380	28·772	29·817	1·82	17	54·2	40·2	46·0	64·5	27	S. S. W. & W.	16
May	30·298	29·302	29·884	1·28	8	65·1	47·2	55·3	81·5	35	S. S. W.	21
June	30·390	29·636	30·026	1·26	6	69·0	51·0	59·6	81·0	43	S. S. W. W.	20
July	30·512	29·522	29·975	0·40	2	73·0	54·9	62·9	86·0	46	N. E.	17
Aug.	30·312	29·050	29·770	2·56	11	69·5	54·9	61·2	85·0	46	S. S. W. W.	18
Sept.	30·498	29·106	29·791	3·24	15	65·0	50·6	56·7	83·0	41	E. S. E.	17
Oct.	30·260	29·014	29·792	2·89	14	52·3	39·6	45·9	58·0	29	S. S. W.	21
Nov.	30·638	28·932	29·913	2·00	17	45·5	35·8	40·5	65·0	24	E. S. E.	19
Dec.	30·012	28·588	29·838	6·07	29	46·8	35·1	42·7	56·0	27	S. E. S. W.	23
	30·638	28·588	29·850	25·82				49·5	86·0	24		

RAIN FALL, 1868.

	Scarbro'.	Malton.	Flaxton.	York.	Ackworth.	Sheffield.	Settle.
Jan.	1·75	2·21	1·63	1·45	2·45	2·47	4·37
Feb.	1·30	1·12	1·37	1·33	0·77	1·88	4·45
Mar.	1·16	1·84	1·36	1·52	1·27	2·64	4·21
April	2·01	1·66	1·90	1·82	1·77	2·17	3·10
May	1·10	1·59	0·89	1·28	0·765	0·94	1·56
June	0·40	0·88	1·50	1·26	1·40	0·47	0·20
July	0·78	0·92	0·62	0·40	0·24	0·09	0·35
Aug.	2·50	2·16	2·00	2·56	2·135	2·67	4·74
Sept.	2·72	2·81	2·00	3·24	3·975	3·32	2·82
Oct.	3·10	2·94	2·93	2·89	2·135	3·37	4·37
Nov.	2·14	1·58	1·31	2·00	1·01	1·99	3·05
Dec.	4·94	6·24	6·09	6·07	5·78	9·03	8·70
	23·90	25·95	23·60	25·82	23·07	31·04	41·92

As has been stated before, the list of the Society's Hon. Members has sustained a great loss in the death of Mr. Thomas Cooke, an Optician and Astronomical Mechanician of the highest repute. Mr. Cooke was born at Allerthorpe, near Pocklington, and resided nearly all his life in this city, where he settled as a mathematical teacher. Being possessed of great Mathematical and Mechanical talents, he turned his attention to Optical researches, and began the construction of Achromatic Object Glasses. It is interesting to record that the first telescope which he made for sale was for our former Secretary, Professor Phillips, and after more than thirty years it is as clear and good as ever: it was of $2\frac{1}{2}$ inches aperture and $37\frac{1}{2}$ focus. That which he was engaged upon at his decease was of 25 inches aperture and 30 feet focus. Besides the making of object glasses of large dimensions and unprecedented accuracy, by the aid of steam power, his genius was shewn in the improvement of the principal Astronomical Instruments—and certainly he deserved the praise of "being one of the most "Scientific Opticians in Europe, perhaps the most able of them "all for solid and perfect work."

J. D. Forbes, formerly Professor of Natural Philosophy and Principal of the United Colleges of St. Andrews, died on the last day of 1868. He was one of the originators of the British Association, and in company of Sir David Brewster and Sir John Robison, Secretary of the Royal Society of Edinburgh, came to York in September 1831, to concert with the Rev. Wm. Vernon Harcourt and Mr. Phillips the necessary measures for its establishment and organization. His name appears as an Honorary Member in the Report of that year. While he was eminent in many branches of Natural Philosophy, his researches on the formation of Glaciers, and their influence on the ancient history of the Earth's surface, have chiefly contributed to the establishment of his scientific reputation.

The Society have also lost by death during the past year another Hon. Member, who has won for himself a distinguished reputation in the science of Archæology. M. Boucher de Perthes died at Abbeville in August last, at the age of 80 years, and was the first to draw attention to the discovery of

works of Art in the gravel beds of the Somme. He was the Author of several important works illustrating the Archæology and ancient literature of his native Province, Brittany, all of which he kindly presented to the Library of this Institution, along with a collection of flint implements found in the drift. A name of the highest renown will disappear this year from the list of Honorary Members, Henry Lord Brougham, who was elected an Hon. Member of this Society in 1860, died at Cannes last year at the advanced age of 89.

The Council cannot close this part of the Report without drawing attention to the great loss the Society has experienced in the death of Robert Denison, Esq., one of the Vice-Presidents of the Society. Mr. Denison was one of the first to enrol his name on the list of the Society's members, and from that period to almost the close of his life always manifested a lively and active interest in the welfare of this Institution.

The Council have to inform the Members that Mr. Dallas, the late keeper of the Museum, resigned his office at the close of the year on being elected Assistant Secretary to the Geological Society. On his leaving York the Council granted to Mr. Dallas £100, being half a year's salary, in consideration of his services to the Society which extended over a period of ten years.

The Council propose for election as Honorary Member, Mr. Norman Lockyer, Fellow and Member of Council of the Royal Astronomical Society. By his application of the Spectroscope to the observation of the sun's disc, Mr. Lockyer's name is associated with one of the most important discoveries in Solar Physics. It will suffice to state that he was one of the first observers to obtain evidence of the existence of the flame-colored prominences on the sun's unobscured disc; phenomena which had hitherto been observed only during the time of a total eclipse of the sun. These prominences Mr. Lockyer identified, by the aid of Spectrum Analysis, as immense volumes of hydrogen gas, surrounding the sun's photosphere in a state of intense combustion.

The Council propose the Hon. Payan Dawnay, W. C. Anderson, Esq., John Ford, Esq., and J. M. Gibson, Esq., M.D.,

as new Members of Council in the room of the Ven. Archdeacon Jones, James Meek, Esq., J. Oldfield, Esq., and W. B. Richardson, Esq., who retire by rotation.

The following LECTURES have been delivered in the Theatre of the Museum during the past year:—

SUBJECT.	NAME OF LECTURER.
Sponges	W. S. DALLAS, Esq., F. L. S.
Lake Habitations	S. W. NORTH, Esq.
The Labours of Livingstone	The Rev. L. J. PROCTER, M. A.
The Chemistry of Wines	W. PROCTER, Esq., M. D.
Some Account of St. Leonard's Hospital	The Rev. Canon RAINE.
A Cruise amongst the Light-houses	J. H. GLADSTONE, Esq., Ph. D., F. R. S.
Electro-Magnetism and some of its applications	W. PROCTER, Esq., M. D.
Analysis of Darwin's variations of Animals under domestication	W. S. DALLAS, Esq., F. L. S.
The Portraits of the Yorkshire Worthies in the Leeds Exhibition	E. HAILSTONE, Esq.

An Abstract of Papers read will be appended to this Report.

THE

TREASURER OF THE YORKSHIRE PHILOSOPHICAL SOCIETY

IN ACCOUNT FOR THE YEAR 1868.

Cr. INCOME.

	£. s. d.	£. s. d.
Annual Subscriptions, &c.:		
Members	624 3 0	
Ladies	63 1 0	
Associates	18 0 0	
Arrears	18 0 0	
		723 4 0
Admission Fees of New Members:		
Paid in full	12 0 0	
Paid by Instalments	23 0 0	
		35 0 0
Composition in lieu of Subscriptions		25 0 0
Keys of the Gates		50 10 0
Temporary Subscribers		4 0 0
Rents:		
New Manor Shore Property	193 16 10	
Miss Briskham's House	48 15 0	
Prof. Phillips' House	15 0 0	
Cottages in Marygate	31 13 4	
		199 5 2
Gate Money		196 12 3
Swimming Bath		33 6 0
Sale of Guide to Antiquities, &c.		7 18 4
Use of Tent		42 10 0
Donation from Mr. Kenrick, towards the reparation of the Roman Pavement		10 0 0
		£1327 5 9
Excess of Expediture 1868		2 15 11
		£1330 1 8
Permanent Debt:		
Yorkshire Insurance Company	1900 0 0	
Due to Five Members, at £50 each	250 0 0	
		2150 0 0
Balance due to Treasurer, 31st Dec., 1867		237 8 9
		£2387 8 9
Excess of Expenditure for 1868		2 15 11
		£2390 4 8

Dr. EXPENDITURE.

	£. s. d.	£. s. d.
Crown Rents	118 0 0	
Corporation Rent	50 19 0	
Rates and Taxes	9 18 10	
Insurance & Water Rent	23 1 10	
		201 19 8
Salaries and Wages:		
Keeper of the Museum	200 0 0	
Subcurator	100 0 0	
Servant	20 0 0	
Lodge Keeper	39 0 0	
Attendant (Museum)	10 14 3	
Attendant (Hospitium)	7 4 0	
Collector	7 12 0	
Labourers	211 9 6	
		595 19 9
Interest to Insurance Co.		74 2 0
Interest, &c. to Bankers		10 8 0
Museum Gardens, &c.:		
General Expenses and Repairs		146 10 8
Purchase & Preparation of Specimens		6 0 3
Library for Books and Binding		38 5 10
Swimming Bath		31 0 0
Miscellaneous Expenses:		
Printing Report	15 10 0	
Printing, Stationery, &c.	12 5 11	
Coals and Gas	48 16 11	
Expenses of Band	20 4 5	
Expenses of Lectures	19 13 0	
Expenses of Observatory	70 15 5	
Expenses of Tent	1 16 8	
Trees, Shrubs, Seed, &c.	31 11 11	
Postages and petty Expenses	5 1 3	
		225 15 6
		£1330 1 8
Permanent Debt:		
Yorkshire Insurance Company	1900 0 0	
Due to Five Members, at £50 each	250 0 0	
		2150 0 0
Balance due to Treasurer, 31st Dec., 1868		240 4 8
		£2390 4 8

W. GRAY,
Treasurer.

Audited and found correct, Feb. 12th, 1869,
S. W. NORTH.

MEMBERS ELECTED SINCE FEB. 1868.

Capt. Benwell, *Militia Depôt.*
Mrs. Bolam, *Bootham Terrace.*
Charles Croskell, *Parliament Street.*
John Deighton, *The Mount.*
Stephen Davis, *St. Helen's Square.*
Miss Foster, *Minster Yard.*
E. Robinson, *St. Anthony's Hall.*
F. Rawling, *Swinegate.*
Henry Richardson, *Cherry Hill.*
Charles Smith, *Portland Street.*
John Terry, *Lord Mayor's Walk.*
Rev. J. Gilchrist Wilson, *Ogleforth.*
James Wilson, *St. Paul's Square.*

ASSOCIATES.

C. E. Gouldsbury, 8, *South Parade.*
Richard Thompson, 5, *Park Street, The Mount.*

LADY SUBSCRIBERS, ADMITTED 1868.

Mrs. W. Fox Clark, *The Mount.*
Mrs. Fowler, 1, *St. Olave's Terrace.*
Mrs. Gouldsbury, 8, *South Parade.*
Miss Hanks, 1, *St. Olave's Terrace.*
Miss Leetham, *Monkgate.*
Mrs. Pritchett, *St. Mary's.*
Mrs. Stevens, 16, *Spurriergate.*
Miss Wombwell, 13, *St. Mary's.*

RESOLUTIONS

PASSED AT THE ANNUAL MEETING, FEB. 2ND, 1869.

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1. That the Report of the Council now read be adopted and printed for circulation amongst the Members, Lady Subscribers, and Associates of the Society.

2. That the thanks of the Society be given to the Members of the Council retiring from office, also to the Treasurer, Secretary, and Curators, for their valuable services, and that authority be given to the Council to hold Horticultural Meetings in the Museum Grounds, and to give admission to the Public to the Museum and Hospitium, on Whit-Monday and Tuesday, under the same regulations as last year.

3. That the thanks of the Meeting be given to the Chairman.

COMMUNICATIONS

TO THE

MONTHLY MEETINGS,

1868.

January 7.—J. Ford, Esq., read some "Notes on Abraham Sharp and his equatorial." He said that Abraham Sharp, an eminent mathematician, mechanist, and astronomer, descended from an ancient family at Little Horton, near Bradford, was born about the year 1651. He was put apprentice to a merchant at Manchester, but his genius led him strongly to the study of mathematics, both theoretical and practical. By the consent therefore of his master, he quitted business and removed to Liverpool, where he studied mathematics, astronomy, &c., and where for a subsistence, he opened a school and taught writing and accounts, &c. He had not been long at Liverpool when he fell in with a merchant from London, in whose house the astronomer, Mr. Flamsteed, then lodged. To become acquainted with this eminent man, Mr. Sharp engaged with the merchant as a book-keeper, and soon contracted an intimate friendship with Mr. Flamsteed, by whose interest and recommendation he obtained a more profitable employment in the dockyard at Chatham, where he continued till his friend and patron, knowing his great merit in astronomy and mechanics, called him to his assistance in contriving, adapting, and fitting up the astronomical apparatus in the Royal Observatory at Greenwich, which had been recently built, about 1676. He was principally employed in the construction of the mural arch, which in fourteen months he finished, greatly to the satisfaction of Mr. Flamsteed. According to Mr. Smeaton, this was the first good instrument of the kind, and Mr. Sharp the first artist who cut accurate divisions upon astronomical instruments. When it was constructed Mr. Flamsteed was thirty, and Mr. Sharp twenty-five years of age. These two friends

continued together for some time, making observations on the meridional zenith distances of the fixed stars, sun, moon, and planets, with the times of their transits over the meridian; also the diameters of the sun and moon, and their eclipses, and those of Jupiter's satellites, the variation of the compass, &c. Mr. Sharp assisted Mr. Flamsteed also in making a catalogue of nearly three thousand fixed stars, with their longitudes and magnitudes, their right ascensions and polar distances, with the variations of the same while they change their longitude by one degree. Among other indications of great genius it was stated that Mr. Sharp made most of the tools used by joiners, clockmakers, opticians, and mathematical instrument makers. The telescopes he made use of were all of his own making, and the lenses were ground, figured, and adjusted with his own hands. The quadrature of the circle was undertaken by him for his own private amusement in 1699, deduced from two different series, by which the truth was proved to seventy-two places. Mr. Sharp continued all his life a bachelor, and spent his time as recluse as a hermit. He was very irregular in his meals, and sparing in his diet. His breakfast, dinner, and supper often remained untouched when his servant went to clear away. He was of middle stature, of a delicate constitution, and very thin. He died July 18, 1742, aged 91. Mr. Ford described the equatorial of Mr. Sharp's own making (in the possession of the Society), which had been purchased by the late Mr. W. L. Newman, and from his description it appeared that, notwithstanding some defects, the instrument had been considered a very fine one.

Mr. Ford alluded to another astronomer, who resided in this city, namely, John Goodricke, who was born at Gröningen, on the 17th of September, 1764. At five years old he had scarlet fever ending in total deafness. His father removed to York in 1774, and he was three years in a deaf and dumb asylum at Edinburgh. In 1778, he was under Dr. Enfield, at the Academy at Warrington, an accomplished mathematician and natural philosopher. In 1781, he returned to York, and made acquaintance with Edward Pigott, Esq., a gentleman well versed in astronomy, residing in the house now occupied by J. R. Mills, Esq., in Bootham. In the garden attached to this house Mr. Pigott's father had constructed an observatory, and here, in 1782, Mr. Goodricke observed variations in the star Algol, in the constellation Medusa. For this he was awarded the annual gold medal of the Royal Society, when he was only eighteen years of age. In 1796, he was elected a Fellow of

the Royal Society, and died in the same year, April 20th, at the early age of thirty-two. Mr. Goodricke's home was with his mother in Lendal.

March 3.—The Rev. J. Kenrick read a notice of some silver coins presented to the Society. The first of them is a penny of Edward the Confessor, found on Heslington Field. It has on the obverse the head of the King in profile, with the legend Aedward Rex. On the reverse Ulfcetel on Eofri. The name of this moneyer does not occur in this form in Mr. Davies's list, given in his paper, p. 210 of the volume of our Proceedings, but the names Ulfcutel and Ulccetel, given by him, are probably the same. The name of the East Anglian chief who fought so valiantly against the Danes in A. D. 1004 is variously spelt Ulfketel and Ulfcytel by the chroniclers. The name written as on our coin occurs on those of Harold II., and again on the coins of the Conqueror, found in 1845 at the corner of Coney-street, and what was then known as Jubbergate. Probably the same name should be read on an imperfect coin of Stephen, found at Watford.

All the rest of the coins belong to the class which have been called "Counterfeit Sterlings"*—money coined in foreign mints, in imitation of genuine English silver pennies, but of inferior value to our currency. That they were meant to impose on the English appears from the image on the obverse being a manifest copy of that of our Edwards, and though the superscriptions are those of the Dukes and Counts by whom they were issued, there would not be many, in an unlettered age, who could read them. They were all of Princes of States in the Low Countries. Between these States and the English there had long been great commercial intercourse. Their manufacturers were supplied with wool by the English. The Edwards endeavoured by law to prevent the exportation of this article, but at the same time invited the foreign manufacturer to transfer his industry to England. Political circumstances conspired to increase the intercourse of England and the Low Countries under the Edwards. John II., Duke of Brabant, married a daughter of Edward I.; a Count of Hainault another daughter; the first wife of Edward III. was Philippa of Hainault. These petty princes seem to have made a profitable trade by coining below the standards of their neighbours in Germany, France, and England. The Sovereigns of these countries were not scrupulous about robbing

* Hawkins in Num. Chron., xiii. 86.

their subjects by debasing their own currency, but did not like them to be robbed by foreigners, and very stringent laws were passed in England to prevent these coins from being imported. No man was to bring more with him than sufficient for his necessary expenses, nor land elsewhere than at Dover, Sandwich, Southampton, or St. Botolph's, London, unless he could prove that he had been driven by stress of weather to some other port. The practice of counterfeiting the English sterling seems only to have ceased when the petty States of the Low Countries merged into the Duchy of Burgundy in the fifteenth century. No. 2 is a coin of John Duke of Brabant, having on the obverse a head copied from that of an Edward, and the legend Moneta Bruxellei; on the reverse in the field I. Dux; round the edge De Brabantie. The first of the Dukes of Brabant who bore the name of John succeeded in 1261, and he had two successors of the same name, the third having died in 1355. As no number is joined to the name we do not know to which of them to assign this coin; it is probably the second or the third. No. 3. Three coins of Gaucher de Chatillon, Count of Porcien, Neufchateau and Ivé in Lorraine. The legend on the obverse is Galch. Comes Porc.; on the reverse Monet. Nova Yve. Where Yve was is not certainly known. It is supposed to have been on the Moselle. Nova probably stands for Neufchateau; in Latin, Nova Castra. Galcher succeeded to his dominions in 1313, and died in 1329, between which dates these coins fall. No. 4 are two imperfect coins of William, Count of Namur. There were two of this name; the first succeeded in 1337, the second in 1390. We see therefore that this whole class belongs to the time of our Edwards. Besides those which were issued from known mints and bore the titles of known rulers, there are many which seem to have fictitious names. Such is No. 5, which has the usual head of an Edward with the the legend on the obverse Hans Dns de Sonek; on the reverse Moneta Delise. Hans, the vulgar German for John, would be a singular designation of a prince on his coin, and Sonek, of which he is said to be lord, is unknown. So is the meaning of Delise. In the Numismatic Journal (xiii. 67) there is a communication from Professor Thomsen, of Copenhagen, giving an account of the discovery of coins in Denmark, closely resembling the long-cross pennies of Henry III., but with such variations as to render it improbable that they can have proceeded from an English mint. They seem to show that the practice of imitating the English coin prevailed even before the Edwards.

Perhaps the most singular example of the imitation of the coin of one nation by another is that practised by the Arab Moslems, who placed on their coins the heads of the Byzantine Emperors with Latin letters on the reverse, forming the initials of a Mahommedan confession of faith, In Nomine Domini Non Est Deus Nisi Deus, or In Nomine Domini Miserentis Misericordis.* In this case the object of the imitation does not appear to have been to defraud, but merely to take advantage of a type generally recognised in the commercial dealings of the East. It is possible that this may have been the case with some of those which we call Counterfeit Sterlings, and that they only prove the estimation in which the English silver coinage was held in the Low Countries. The coinage of Edward the Confessor appears to have been imitated by a contemporary King of Ireland. Num. Chron. I., 78. Our English Kings struck coins for their dominions in France. Henry II. acquired by marriage the duchy of Aquitaine, and put AQUITANIE on his coins. On Henry the Sixth's coronation, A. D. 1423, coins were issued with the Legend, FRANCORUM ET ANGLIE REX and SIT NOMEN DNI BENEDICTUM, and the shields of England and France, the lilies being placed quarterly in the shield of England.

APRIL 7.—The REV. J. KENRICK read an extract from a communication he had received from the Rev. W. Greenwell, relative to the explanation of the devices on the boss of a shield found in the Tyne, together with one of the cheek pieces of a helmet. "The shield has eight divisions, each containing some device. 1. A naked figure, holding something over his head, which appears to be blown out by the wind. 2. A figure with a spear and shield, possibly Mars. 3. A naked figure with a scythe. 4. A naked figure, holding a bunch of grapes in one hand and a basket in the other. 5. A bull, above it a crescent. 6. A figure, clothed apparently in skins. 7. The standard of the legion. 8. A boss, with an eagle, and a wreath round it. 1, 3, 4, 6, I take to be the four seasons; 5, the emblem of the legion. The owner has rudely punched his name where I have placed a row of dots. So far as I can make it out, for there is a slight damage at the commencement, it reads CN MAGN F IVNI DVBITATI.† Circular bosses have been frequently found, but I believe this is the first instance of the

* Sabatier, Monnaies Byzantines i. 89.

† Dubitatus is a name which occurs in inscriptions. Grater, DCCXXXI. 1. MCXXXI. 8.

occurrence of one of this shape. The chest piece has a naked figure, standing by the side of a horse. The eighth legion was in Germany, but never in England, and it is probable that a soldier belonging to it, coming on business to England, may have been wrecked at the mouth of the Tyne, where the boss was found, and that the rest of his equipment is still lying at the bottom of the river, whence the boss and chest piece were dredged up."

Mr. J. F. Walker read a paper on some Terebratulæ which he had presented to the society. He said:—On a former occasion I communicated to this society some account of the discovery of a deposit of lower greensand at Upware. This deposit is remarkable for the numerous species of Brachiopoda which occur in it, and also for the numbers of specimens found. I have been able to obtain several specimens of the Waldheimias which I described under the name of W. Woodwardii. I am therefore able to present a specimen to the Society. I have been able to see the loop, which justifies me in having regarded this shell as a Waldheimia. I also present to the Society some specimens of W. pseudojurensis. This fossil occurs in Neocomian deposits in France, and has never before been found in England. This species was described by Leymérie in the Memoirs of the Geological Society of France. He gave it this name on account of the shell possessing a jurassic aspect. He thought it was nearly allied to T. (or more properly) W. ornithocephala, a species found in the Kelloway rock, and in the Cornbrash. D'Orbigny says that it is nearly allied to W. tamarindus. I have also seen the loop of this shell which is that of a Waldheimia. I think that there will be nearly twenty species of Brachiopoda in this deposit, a larger number of species than occurs in any other English locality. It is also interesting to observe the influence of this locality on the development of the shells. The plentiful supply of calcareous matter was highly favourable to the proper growth of the shells, hence the individuals attain a very large size. The contrast of the shells of this deposit with those found at Farringdon is very striking, showing the power of favourable conditions at least to modify species.

May 5.—The Rev. J. Kenrick read a paper on the foundation and history of the Benedictine Abbey of Monte Cassino of which the following is an abstract:—After a description of the site of the Abbey, and the descent and early history of St. Benedict, the author

gave an account of the principles of his Rule, and its relation to others previously in existence. It was less severe and ascetic, gave a greater prominence to labour and study, and was altogether more adapted for practical and missionary work. Being favoured by Gregory the Great and other pontiffs, many of whom had been Benedictine Monks, it spread rapidly throughout Europe, several other orders being merged in it. The chief rivalry was on the part of Columbanus, an Irish Monk, who founded Luxeuil, in France, and Bobbio, in Italy; but the Benedictine rule ultimately prevailed. In England it was strenuously upheld by Dunstan and Wilfrid. Most of our old cities became the seat of Benedictine monasteries, and all the mitred abbots were of this order. Monte Cassino suffered by the Italian wars of the middle ages, especially those of the Guelphs and Ghibellines, but it always recovered itself. Its discipline, however, and that of the Benedictine order generally, became relaxed, and various reforms were undertaken to re-establish its primitive character. Of these the most remarkable was that in which the Cistertian order originated. It was not acceptable to the Benedictine Monks generally, and the history of St. Mary's Abbey shows with what violence they could contend against its introduction. After a vain struggle the monks who desired reform seceded and established the Cistertian Abbey of Fountains. During the 17th century, Monte Cassino maintained its character as a learned establishment; the course of events, and the progress of ideas in the 18th century, were unfavourable to it, as to all monastic institutions. It suffered no outward violence, however, till the war of the French Revolution brought the French armies into Southern Italy. The Monks favoured the Pope and the King of Naples, and were threatened and plundered by the French. King Joachim Murat, though he abolished the order in his kingdom, allowed Monte Cassino to retain fifty Monks, who were charged with the care of the library and archives. The financial wants of the newly-established kingdom of Italy led to the secularisation of all ecclesiastical establishments, and it was feared that even the venerable Abbey of Monte Cassino might be involved in the general fate. Remonstrances were addressed to the Italian Government by various archæological bodies in England, and the result has been that it is to be preserved as a repository for the national monuments and archives. The Benedictine order has been conspicuous for the persevering labour which it has bestowed in past times on literary undertakings, prolonged through many years;

and it had been feared that no successors would be found to carry on their work. This apprehension, however, has proved unfounded, and it is not probable that any really useful work will drop for want of hands to carry it on.

June 9.—Dr. Procter read a paper "On Silica and the Formation of Granite," of which the following is an abstract:—He remarked, that as facts in geology accumulate, new explanations of them are demanded, and this, coupled with the advance of experimental science, renders many theories at one time universally accepted, at the present time untenable, and the object of his present paper was to show that the generally received opinion in respect to the origin of certain so-called igneous rocks, admitted of some doubt. After stating the more general constituents of the crust of the earth, silica was said to be one of the most common under the form of quartz, flint, &c., and the object of the present paper was an endeavour to show that the arguments are stronger which give to that substance an aqueous origin than those which refer it to the result of cooling from a former fusion by heat. Silex exists in two conditions, crystallized and amorphous: the former has a specific gravity of 2·6, the latter from 2·2 to 2·3. M. Senarmont has obtained crystals of Silex by acting upon a solution of that substance at an elevated temperature in closed tubes, and these crystals were in every respect identical with those of rock crystal. The same results have been obtained by other experimentalists, but up to the present time all attempts to obtain silica in crystals by fusion has failed, for when intensely heated, it runs into small globules of an amorphous character, and acquires the low specific gravity. Quartz contains a large number of substances imbedded in it, and amongst them water and other comparatively volatile substances; if, therefore, in the very centre of the crystal matter is found which cannot exist at a high temperature without being dissipated, the conclusion is justified that rock crystal could not have been subjected to a very considerable heat. If Silica is supposed to be the product of igneous action, the same difficulty is present in explaining the preservation of the ligneous structure in silicified wood, the presence of infusoria, &c., in flint, and the general fossilization of organic remains. Other arguments were then drawn from the pseudomorphic crystals of quartz and the loss of water, changes of colour, specific gravity, &c., which varieties of that substance undergo by the action of heat. The great interest

which attaches to the formation of silica is especially in relation to the origin of numerous so-called igneous rocks, of which granite may be taken as the type. It is well known that the theory of Werner on the Neptunian origin of granite was afterwards abandoned by geologists, and replaced by the Plutonic theory, and for a long time it has been the received opinion that all granite has been the result of rock fusion at a very high temperature. But those persons who have been accustomed to make experiments on the fusion of mineral substances at high temperatures have been familiar with certain difficulties which stood in the way of accepting this view of the formation of the so-called igneous rocks. Dr. Procter then considered the formation of the other constituents, and showed that felspar and mica could be formed by both the dry and wet method, but more readily by the latter. In examining the structure of granite, it is always found that quartz, the least fusible of the three constituent minerals, appears to have been the last to crystallize, whilst felspar, the least fusible of them, appears to have crystallized first; the felspathic crystals being imbedded in those of mica and quartz. Hence it would appear that the constituent minerals of these rocks are not crystallized in such an order of succession as would be indicated by their relative degree of fusibility, and as might be expected if they were of igneous origin. It was then shown that the doctrine of superfusion was insufficient to account for the phenomena, besides certain chemical reasons which rendered such explanation highly improbable. Other arguments were drawn from the presence of certain minerals in granite, such as allanite, gadolinite, which become altered by the action of heat in their chemical and physical characters. It was then shown that lava, the well-known result of fusion, rarely, if ever, in the recently ejected strata, contained crystals of any size. Such are most frequently found in old lavas, and are formed by accretion, from the water permeating and taking up the necessary ingredients to produce the special crystal by deposition from the solution, in the same manner that crystals of calc-spar have originated from coralline limestones. Hence there is no real analogy between the crystalline granite and lava. An extract was then read from a paper by Mr. Sorby, in which he concludes that granite has originated from aqueous solution under great pressure. In conclusion, it was said that it can scarcely be conceived that the elements of granite have been in a complete state of watery solution, from which by degrees they have been separated by crystallization.

It is possible that these elements are derived from an anterior rock which had an igneous origin, and have assumed the crystalline state under the influence of heat, water, and pressure, as explained by Mr. Sorby, or as in the experiments by which M. Daubree succeeded in obtaining several crystalline minerals.

November 3.—The following paper on "The State Swords of the York Corporation," contributed by Robert Davies, Esq., F. S. A., was read :—Mr. Drake, in his "History of the City of York," informs us that in his time the Corporation had four state swords, and that the least sword among them, but the greatest in value, was that which King Richard the Second, in the year 1389, took from his side and gave to be borne before William de Selby, as first Lord Mayor of York. Another, and the largest, was that which had belonged to the Emperor Sigismund. The third, which was the most beautiful, was given by Sir Martin Bowes, Lord Mayor of London. The fourth (to use Mr. Drake's peculiar phraseology) "was formerly made use of whenever the Lord Mayor went abroad or stirred from home." (*) In another chapter of the same work we read that "the Mayor of York by ancient prescription assumes the title of Lord in all writing or speaking to him, which honour was bestowed on our chief magistrate by King Richard II. That monarch after granting the citizens a new and most extensive charter of privileges in the year 1389, at his coming to the city that year, took his sword from his side, and gave it to William de Selby, then Mayor, to be borne before him and his successors :—"From this emblem of justice (Mr. Drake tells us) we deduce our title of Lord Mayor, he being by it constituted the king's more immediate vice-gerent than before."(†) This statement of our venerable historian is not free from inaccuracy. The great charter of privileges he alludes to was not granted until the year 1396, seven or eight years subsequent to the presentation of the sword, which took place in 1388, during the third mayoralty of William de Selby. In a clause of that charter the fact of a sword having been given to the citizens by King Richard the Second is expressly mentioned, and authority is given to the Mayor and his successors for the time being to have that, or any other sword they pleased, borne before them with the point erect in the presence of all persons whatsoever, the sovereign himself and his heirs only

(*) Eboracum, p. 223. (†) Ibid, p. 181.

excepted. Mr. Drake's account of the origin of the title of Lord Mayor rests entirely upon tradition, and must be received with some qualification. No record or document is known to be now extant from which it can be shown that the title of Lord was conferred upon the Mayor of York by King Richard II., or that the title was first assumed upon that monarch's presentation of a sword to the citizens. But there is no doubt that our chief municipal officer for the time being has been styled Lord Mayor of York for many centuries past. His right to enjoy that dignified title has never been disputed, and on numberless occasions has been recognised by the highest authorities in the realm, and especially by the Sovereign, the fountain of all honour. The most satisfactory evidence we possess of the time of the presentation of the sword is afforded by a document which was entered upon the records of the Corporation in the reign of King Henry the Sixth, within half a century after the date of the charter of 1396. It is there stated that the late King Richard the Second, being desirous of conferring honour upon the city of York, in the year of our Lord 1388, and in the twelfth year of his reign, and in the time of William de Selby, then Mayor, among other gracious gifts, did confer upon the Mayors for the time being the privilege of having borne before them the sword which was then by the King himself first given to the citizens. Hence we are enabled to ascertain that the presentation took place during the latter half of the year 1388, and this date is confirmed by the circumstance that at the annual election of civic officers on the 3rd of February, 1389, the Corporation appointed for the first time a person to perform the special duty of carrying the sword before the Mayor; "Servientem ad portandum gladium coram Majore." It is much to be lamented that the identical sword which was presented to the city by King Richard II., and was in existence in the latter part of the last century, (*) is not now in the possession of its rightful owners. At what time, or by what means, this ancient symbol of dignity passed from the hands of the Corporation is not known. Of the two swords now remaining in the city treasury, one is that which belonged to the Emperor Sigismund; the other is that which was the gift of Sir Martin Bowes. I propose first to offer you some account of the sword which is of the earliest date.

(*) See the 8vo. edition of Drake—Vol. i., page 7, note.

The Sword of the Emperor Sigismund.

The circumstances attending the presentation to the citizens of York of an ensign of dignity, which had originally belonged to a personage of such exalted rank as Sigismund, Emperor of Germany and King of the Romans, were deemed worthy of being recorded in the archives of the Corporation with great particularity. The document, composed in the Latin of that period, is drawn up in a very formal manner, most probably by the Town-Clerk of the city, who appears to have been somewhat of a humourist. It runs thus:—"In the name of the Lord, Amen. Whereas many Catholic kings in the exercise of their most valued prerogative of love, have in former times granted ensigns of honour to their cities and other places, yet it happens that with the lapse of years not only the names of such benefactors, but often the dates of their gifts, have passed away from the minds of men. That such noble grants might be more firmly held in remembrance, the wisdom of our ancestors devised a precaution of this kind, namely, that what is worthy of commendation should be reduced into writing, so that by frequent perusal it might obtain more serious attention; and by the aid of reflection even this present slight written memorial may be impressed upon the minds of posterity. In the year of our Lord 1421, and in the eighth year of the reign of King Henry the Fifth, it happened that the most Christian Prince Sigismund, by divine permission Emperor of Germany, and King of the Romans, came into England, and was forthwith constituted a knight and brother of the military order founded in the royal chapel of Saint George at Windsor, where all the knights of the same order, upon their reception, offer their swords to be there suspended during the life of the offerer, upon whose decease such swords are at the disposal of the Deans of the same chapel for the time being, according to the custom of the chapel hitherto observed: and the aforesaid Emperor being now dead, the sword by him offered in the said chapel the Dean of the same chapel presented to that discreet person, Master Henry Hanslap, canon of the same chapel and prebendary of the prebend of Skipwith, in the collegiate church of Howden, and rector of the church of Middleton, near Pickering, and not far from the city of York, from whence he sprang, as it pleased him to say. Therefore the aforesaid Master Henry, preferring in his mind as a man of much gratitude to distinguish his own country by such a gift, on the 5th day of May, in

the year of our Lord 1439, and in the 17th year of the reign of King Henry the Sixth, came to the city of York, as the chief place of all the north, and the same sword formerly of the aforesaid Emperor, covered with ruby-coloured velvet upon the scabbard thereof, together with red scorpions worked in silk thereupon, he delivered to that honourable man Thomas Ridley, then Mayor of the same city, and gladly presented the same to be borne for ever before every Mayor of the same city for the time being at their pleasure. So that every Mayor in his time should rejoice in a variety of so many principal swords, and thence praise and honour should increase and multiply to all, and the people in passing might exclaim with joy and commendation, 'Behold the two swords of the city of York, the first, namely, of King Richard; the other, indeed, of the Emperor.' A third sword remains for daily use, not obtained by the gift of a king, but, truly, provided at the cost of the citizens. And thus the city of York is adorned with as many as three swords, each having two edges." Such is the account of the presentation of the sword of the Emperor Sigismund as it appears in the contemporary record entered upon the archives of the Corporation. The visit of the Emperor-elect to England, a few months after the victory achieved by King Henry the Fifth at Agincourt, was an event of deep significance in the eyes of all Europe. It took place during the sitting of the Council of Constance, that solemn ecclesiastical congress which had been brought about chiefly by the exertions of Sigismund, who was intrusted by the Council with the task of effecting a union of all the western powers of Christendom to support the Papal authority, and to arrest the progress of those heretical doctrines of which Huss in Germany, and Wickliffe in England, were the great teachers. He found the English monarch but too ready to listen to his overtures, and to enter into any engagement that might contribute either to the suppression of the new heresy, or to the accomplishment of Henry's favourite design of subjecting France to his sway. Sigismund landed at Dover on the 30th of April, 1416, and was welcomed by the English monarch with the most elaborate pomp and magnificence. He was entertained with a succession of those splendid feasts and knightly sports which the English court was so well able to devise. Soon after his arrival the Emperor was created a knight of the Garter. He was solemnly enstalled on the 7th of May, the day on which the festival of St. George was celebrated at Windsor. In an account of his master's visit to England, given by Sigismund's

German secretary, he speaks in raptures of the festivities, and of the honours conferred upon the Emperor, and especially of the gorgeous collar and garter richly adorned with jewels, with which the Sovereign of the order himself invested his illustrious guest. In compliance with the statutes of the Order of the Garter the newly created knight made an offering of a sword, which, with other achievements, was to be suspended above his stall in the chapel of St. George, at Windsor, and to remain there during his lifetime. The death of the Emperor Sigismund took place on the 9th of December, 1437, and within two years afterwards the sword which he had offered at Windsor became one of the state swords of the municipality of York. Of Master Henry Hanslap, the generous donor of the Sigismund sword, who boasts that he was a native of York, little can be told more than is stated in the document by which his gift is recorded. King Henry the Sixth presented him to his canonry in the chapel of St. George, at Windsor, on the 23rd of April, 1437. In June, 1448, he exchanged his prebend of Skipwith, and his rectory of Middleton, for the prebend of Langstowe, in the diocese of Lincoln, which was then held by Mr. William le Scrope. There is reason to believe that the dignitary, by whom the sword was presented to Hanslap, was himself a native of Yorkshire, and was not unacquainted with the disposition intended to be made of his splendid gift. It is upon record that Robert Ayscough was the name of the ecclesiastic who was Dean of Windsor, in the year 1447, and as his predecessor, John Arundel, was appointed in 1417, and is not named as Dean later than 1428, we may reasonably infer that Dr. Ayscough had succeeded to the Deanery previously to the death of the Emperor Sigismund in 1437, and that he was the same person who in 1441 was made a prebendary of Fenton, in the Cathedral church of York, and at the time of his death in 1448, was a prebendary of Southwell, and rector of Campsall, near Doncaster, to which he had been presented by the Crown, in 1443. There can be little doubt that the Dean was a member of the well-known family of Ayscough, of the parish of Bedale-cum-Ayscough, or Aiskew, in the North Riding, from which sprang two persons bearing the same christian and surname, each of whom was twice Lord Mayor of York: Robert Askwith, the father, in the reign of Queen Elizabeth, and Robert Askwith, the son, in the reign of her successor, King James the First, at whose hands he received the honour of Knighthood in the year 1617. Perhaps neither of them was aware that one of the swords of State

borne before him as an ensign of his civic dignity had once belonged to a dean of Windsor, who was his collateral ancestor. The Sigismund sword is a two-hand one, the blade is double-edged, the hilt has a plain cross-guard, and a pear shaped pommel; the grip is wrapped with silver wire. The scabbard is covered with ruby coloured velvet and decorated with ornaments of silver, or some other metal, gilt, representing dragons or scorpions. In 1478, preparatory to a visit paid to the city by King Edward the Fourth, the Corporation had the velvet covering of the scabbard renewed, and the metal ornaments regilt. The blade now bears an inscription which was engraved upon it in the year 1586, during the mayoralty of Henry May, when the sword was newly decorated, preparatory to the reception of the Earl of Huntingdon, Lord President, in his official character of Lord-Lieutenant of the city and county. The inscription in Roman capitals is the same on both sides. It runs thus:—

Sigismundi imperat. dat. M. C. Eb. 1439.
Ornat. Henri. May Maior. 1586.

A shield of the royal arms, England and France quarterly, surmounts the inscription on one side, and a shield of the armorial bearings of the city on the other.

Sir Martin Bowes's Sword.

The State Sword, which Mr. Drake pronounces to be "the most beautiful," was a memorial of the donor's love for his native city. We have its history in the inscription engraved upon the blade:— "Syr Martyn Bowes Knight borne within this citie of Yorke and Maior of the citie of London 1545, for a remembrance gave thys sword to the Maior and Communaltie of this said honorable citie." Sir Martin Bowes sprang from a family of eminent York merchants who had resided for several generations in the parish of St. Cuthbert,—very probably in the picturesque timber-house with its two gables that now stands much defaced and altered opposite to St. Anthony's Hall on Peasholme Green. William Bowes, who was Sheriff in 1402, and Lord Mayor in 1417, and again in 1428, represented the city in four of the parliaments held in the reigns of King Henry V. and his successor. He built a mansion for his own residence on Peaseholme, in the parish of St. Cuthbert, upon the site of a house which had previously belonged to Sir John Langton, Knight. He died in the year 1439, and was succeeded by his eldest son, a second William Bowes, to whom he devised by his

will his capital messuage in Peaseholme. William Bowes, the son, was Sheriff in 1432, sat in parliament for the city in 1434, and was Lord Mayor in 1443. He had a numerous family, and one of his sons was the father of Sir Martin Bowes, Knight, the donor of the sword. At an early age, Martin Bowes was transplanted from the quiet home of his fathers to the great and busy metropolis of the kingdom, where, in the reign of King Henry the Eighth, he was established as a goldsmith and attained a high degree of honour and prosperity. He was a member of the goldsmith's company, and an Alderman of the Corporation of London, and in the year 1545 was elected to the office of Lord Mayor. Under King Henry VIII. and King Edward VI., he held the important appointment of sub-treasurer of the royal mint, which he resigned in the year 1551. He was jeweller to Queen Elizabeth, and in right of certain duties performed by him at the coronation of his royal mistress, he had for his fee a splendid cup of gold and crystal, out of which the Queen drank during that ceremonial. In the midst of his prosperity, Sir Martin Bowes was never forgetful of the city of his birth, nor did he ever neglect any opportunity of promoting its welfare. Upon several occasions of difficulty the Corporation sought his advice and assistance, which he always afforded them with the utmost kindness and alacrity. After the accession of King Edward the Sixth, when the act of parliament for the union of churches and parishes in York was about to be put into execution, Sir Martin Bowes manifested great anxiety lest the church of his native parish of St. Cuthbert, where the remains of many of his ancestors and near relatives were deposited, should be removed or desecrated. On the 8th of March, 1548-9, he addressed a letter to the Lord Mayor of York and his brethren, earnestly entreating that the parish church of St. Cuthbert might be one of those which should be allowed to stand, and representing to them that although it was then something decayed, yet it was a new church and strong; able with a little help to stand longer than any church near thereabouts. We have it upon record that to the gentle request contained in this letter the Corporation did fully consent and agree; and we may doubtless ascribe it to the pious reverence for the memory of his ancestors thus displayed by Sir Martin Bowes that the picturesque little church of St. Cuthbert, in Peaseholme, is now in existence. In the following year Sir Martin Bowes testified his gratitude to the Corporation for their ready compliance with his wishes, by presenting to the city the beautiful sword of state, which has now for more

than three centuries been borne, as an ensign of authority, before those eminent persons who have been the successors of his grandfather and great grandfather in the office of Lord Mayor of York. The letter which accompanied this "pretty token of remembrance," as the donor himself calls it, was dated the 20th day of September, 1549. When that letter was written, Sir Martin Bowes had been nearly forty years a resident of London, yet it is obvious that his memory often carried him back to the city of his birth, and

> "Told of days long past, when there he roved
> With friends and kindred tenderly beloved."

The scenes and incidents of his early youth—the old house in Peaseholme where he first saw the light—the quaint little church of St. Cuthbert, where he was first taught to worship—the narrow streets where "oft his careless childhood strayed"—were present to his recollection long after he had taken rank among the merchant princes of the great metropolis. The wealthy goldsmith retained these feelings of veneration for the place of his nativity until the very close of his prosperous career. By his last will he bequeathed a sum of money to be given yearly to the parson and wardens of the parish church of St. Cuthbert, in the city of York, for the relief of the poor of the same parish, and for the maintenance of the same church and ornament of the same. Sir Martin Bowes died in the year 1566, in the 70th year of his age, and was buried in the parish church of St. Mary Woolnoth, in Lombard-street. The Bowes sword is much smaller than that which belonged to the Emperor Sigismund. The blade is about 3ft. 2in. long, and the whole length of the sword about four feet. The sheath was originally covered with crimson velvet, garnished with pearls and stones set upon silver gilt. In the early part of the 17th century the sword appears to have sustained considerable injury. The velvet of the scabbard required to be renewed, and the ornaments to be re-gilt. The gems and pearls with which it was decorated had disappeared, and new stones were purchased of a London lapidary to replace them. There is reason to suppose that the sword had been carried away by some officer of the Court of King James the First, during that monarch's visit to the city in the year 1603, and that it was not recovered without much delay and difficulty.

Mr. Noble read, on behalf of Robt. Davies, Esq., the following notice of the fragment from the Porcelain Tower at Nankin, con-

tributed by Mr. G. R. Davies :—This block of composition formed a portion of the once famous porcelain tower at Nankin, which was destroyed by the rebels in 1851, and of which scarcely a vestige now remains. This fragment was sent to York by my relative, Mr. Geo. Robt. Davies, lately residing at Shanghai and since at Yokohama, who desires to present it to the Yorkshire Philosophical Society. Captain Blakiston, in his book on the Yangtaye, says :—Passing by a wall and strong stockade you enter into a space formerly covered by the southern suburb, in which rose the Porcelain Tower. This splendid pagoda, once reputed to be one of the wonders of the world, is now a white hill of ruins. Two immense walls, divided by a narrow aperture, are the only portions of the tower now standing. Every ship that has touched at Nankin, has made a looting excursion to the white heap, and boat-loads of porcelain bricks have been carried away. Now, unless by bribery, not a brick can be got. Mr. Noble also read the following extract from *Notes and Queries*, January, 1867, respecting the Porcelain Tower :—The Lew-le-paon-t'ah, or Vitreous precious-stone pagoda, was built about A. D. 200, and rebuilt as it recently stood A. D. 1400, occupied nineteen years in construction, and cost £600,000. Height, 261 feet; diameter at base, 96 feet; 150 bells, and 40 lamps in it. In 1856 it was blown up with gunpowder, and nothing of it remains but fragments. The fragment now presented to the Yorkshire Philosophical Society was purchased upon the spot by Mr. George Robert Davies, then residing at Shanghai, and afterwards at Yokohama, from whence he has recently returned.

W. Barnby, Esq., gave a brief notice of the virginals presented by him to the Society, stating that it was supposed that only two were to be found in this part of the country. The date of the virginals in question was 1651, and they were considered as the oldest form of piano-forte. After referring to the fact that Queen Elizabeth is said to have excelled in performances on the virginals, he explained some of the peculiarities of the instrument.

December 1.—W. S. Dallas, Esq., said that Mr. Barkas, the donor of the specimens of fossil bones and teeth of fishes from the coal measures of Northumberland, presented at this meeting, had offered prizes to the workmen employed at the Northumbrian collieries for the best collection of fossil bones, &c. This plan had been so successful that he gave an intimation, through the medium

of the *Geological Magazine*, to the effect that he had a quantity of fossils from the coal measures, for distribution amongst those interested in such objects who should make application for them. As keeper of the Museum of the Yorkshire Philosophical Society, he (Mr. Dallas) applied, and in return received the specimens which were exhibited to the meeting. Mr. Dallas then gave some particulars respecting them, and stated that several were very distinct teeth, scales, vertebræ, rib bones, and other miscellaneous remains of fossil fishes, and that although the Society had in its collection duplicate specimens of some of them, the donation would prove a very acceptable acquisition to the Museum.

DONATIONS TO THE MUSEUM.

GEOLOGY.

Walker, J. F., Esq., B. A., F. G. S.	Claw joint and tooth of *Iguanodon* from Potton.
	Specimens of *Waldheimia pseudo-jurensis* and *W. Woodwardi* from Upware.
	Fossils from the Bracklesham Tertiary beds.
Barkas, T. P., Esq., *(Newcastle)*.....	Fossil bones and teeth of Fishes from the Coal measures (Lower Main) of Northumberland.

ZOOLOGY.

Dallas, W. S., Esq., *(York)* .	A Specimen of *Euplectella aspergillum.*
Harrison, J.Esq., *(Wilstrop Hall*	A Specimen of *Tinnunculus Cenchris* killed near Greenhammerton (new to Britain).
Reilly, Mrs., *(Heworth Moor)*	Two Scorpions from India.
Knocker, Comm. H. H., *(Bridlington Quay)*	Shells and Crustacea from various parts of the World.
Simpson, Mr., *(Petergate)*	Three young Hedgehogs.
Dawnay, Hon. Payan, *(Beningbrough)*	A specimen of *Sphinx Convolvuli.*
Purchased	A specimen of *Euplectella aspergillum.*
,,	Thirty-six skins of Mexican Birds.
Procter, W. Esq., M. D., *(York)*	A curiously marked and wrinkled Hen's Egg.

ANTIQUITIES.

Kenrick, Rev. John	A Roman Vase from the Crescent, York.
	A Coin of Quintillus.
Barnby, W., Esq., *(York)*	Virginals, dated 1651.
Morrell, Mr. W. W.	A bead from a coffin found at Church Hill, Selby (see Report Y. P. S. 1860).
Holmes, Rev. G. S.	A Roman Vase from Holme-on-Spalding-Moor.
Owles, A. J., Esq., (*6th Enniskillen Dragoons)* ..	A Horse Shoe from Marston Moor.
Reynard, E. H., Esq., *(Sunderlandwick)*	A stone Axe found at Hutton Cranswick.
Purchased	Vases from St. Mary, Bishophill Junior.

MISCELLANEOUS.

Monkhouse, Mr. W., *(York)*	A sketch of the Hospitium of St. Mary's Abbey, taken in 1832.
Davies, G. R., Esq.	Fragment from the Porcelain Tower at Nankin.
Raper, Mr. G., *(Wigginton)*	Piece of Bark Cloth from the Friendly Islands.
Jessop, Rev. W. *(Stockport)*	Two large Wooden Bowls united by a ring and cut out of the solid wood, from West Africa.
Bayly, Rev. Thos., *(Clifton, York)*	A model of a Boat and an iron Water bottle from India.

LIBRARY.

Admiralty, Lord of the	Greenwich observations for 1865 and 1866.
Association, British, for the Advancement of Science	Report for 1867.

The Author	A Memoir of the York Press; by Robert Davies, Esq., F. S. A.
The Author	The authorship of the Practical Electric Telegraph of Great Britain; by T. Fothergill Cook, M. A.
The Author	Three Addresses to the Members of the Historic Society of Lancashire and Cheshire; by Joseph Mayer, Esq., F. S. A.
The Author	On the Preparations of the County of Kent to resist the Spanish Armada; by Joseph Mayer, Esq., F. S. A.
The Author	Essai sur la Métaphysique des Forces, par Alexandre Schyanoff (de Kiew).
The Author	On the Species of Brachiopoda which occur in the Lower Greensand at Upware; by J. F. Walker, Esq., B. A., F. G. S.
Davies, Robert, Esq., *(York)*	Bishop Percy's Folio MS. Ballads and Romances; 3 vols.
Gray, W., Esq., *(York)* ..	The Ruins of Palmyra and Balbec, by Robert Wood.
	The Neapolitan Earthquake of 1857, by Robert Mallett.
India, Geological Survey of	Memoirs, vol. v. 1—4 and vi. 1 and 2.
	The Gasteropoda of the Cretaceous Rocks of India.
	Catalogue of Meteorites.
	Annual Report for 1866—67.
Institution, Royal, of Great Britain	Proceedings, vol. v., parts 3 and 4.
Monkhouse, Mr. W., *(York)*	Report of the Executive Committee of the Yorkshire Fine Art and Industrial Exhibition.
Read, W. H. R., Esq., *(York)*	Journal of the Linnean Society, Zoology, Nos. 39, 40, 41, 43; Botany, Nos. 42, 43, 44, 45, 46, 47.
	Transactions of the Linnean Society, vol. xxv., part 3, vol. xxvi., part 1 and index to vols. i.—xxv.

Read, W. H. R., Esq., *(York)*	Journal of the Royal Horticultural Society, vol. ii., part 5.
Society, Chemical	Journal for 1868.
Society, Geological	Quarterly Journal, Nos. 93, 94, 95, 96. Transactions, vol. vi., parts 5, 6, 7.
Society, Geological and Polytechnic of the West Riding	Report of Proceedings for 1867.
Society, Leeds Literary and Philosophical.....	Annual Report for 1867—68.
Society, Ripon Scientific ..	On Roman Camps in the neighbourhood of Ripon, by T. C. Heslington.
Tyneside Naturalists' Field Club	Natural History Transactions of Northumberland and Durham, vol. ii.

BOOKS PURCHASED.

The Origin of Species by Natural Selection; by Charles Darwin, F. R. S.

The Variation of Animals and Plants under domestication; by Charles Darwin, F. R. S.

The Principles of Geology; by Sir Charles Lyell, F. R. S.; 2 vols.

Palæontological Memoirs; by the late Hugh Falconer, M. D., F. R. S.; 2 vols.

Ornithologie Européenne; par C. D. Degland et Z. Gerbe; 2 vols.

SERIAL WORKS SUBSCRIBED FOR.

Birds of Australia, by John Gould, F. R. S., supplementary parts (4 published).

Birds of Asia, by the same (20 parts published).

Exotic Butterflies, being Illustrations of New Species chiefly selected from the Collection of W. Wilson Saunders and W. C. Hewitson. By W. C. Hewitson. (23 nos.)

Fauna Antiqua Sivalensis, or Geology of the Sewalik Hills, in the North of India, by Dr. Falconer and Major Cautley. (Parts 1 to 9 of Illustrations, and part 1 of Letter-press.)

Proceedings of the Zoological Society, with Illustrations.

Publications of the Palæontographical Society.
Publications of the Ray Society.
Sowerby's Thesaurus Conchyliorum, col. plates (25 parts published).
The Zoological Record *(Annual)*.
London, Edinburgh, and Dublin Philosophical Magazine.
Annals and Magazine of Natural History.
Archiv für Naturgeschichte. Berlin. von Troschel.
Geological Magazine.
Gentleman's Magazine, from 1862.
Journal of the British Archæological Association.
Numismatic Chronicle.