

PROCEEDINGS
OF THE
GEOLOGICAL & POLYTECHNIC SOCIETY
Of the West-Riding of Yorkshire,

AT THE FIFTEENTH QUARTERLY MEETING, HELD AT WAKEFIELD,
ON THURSDAY, THE 23RD SEPTEMBER, 1841.

ON the motion of the Rev. SAMUEL SHARP, seconded by
T. W. TOTTIE, Esq.,

Earl FITZWILLIAM, the President of the Society, was
called to the Chair.

The following gentlemen were elected Members of the
Society :—

WILLIAM PEEL, Esq., Frickley Hall, Doncaster.
WALTER SOBBY, Esq., Rotherwood, Rotherham.
RICHARD SOBBY, Esq., Rotherwood, Rotherham.
JOHN FREEMAN, Esq., Huddersfield.
THOMAS FIRTH, Jun., Esq., Huddersfield.
FOSTER SHAW, Esq., Huddersfield.
Rev. JOHN GEORGE MORRIS, St. Austin's, Wakefield.
Mr. JOSEPH ABBOTT, Normanton, Wakefield.

His LORDSHIP then called upon the Secretary to read the
Report of the Council.

Before doing this, Mr. WILSON read a communication from
that eminent geologist, Dr. Buckland, regretting his inability
to attend the meeting, as he had contemplated doing, owing
to an engagement he had previously made with a scientific gen-
tleman, Mr. Hopkins, to examine the evidence of the action of
Glaciers on the mountains of Cumberland and Westmoreland.

The SECRETARY then proceeded to read the following Report :—

REPORT OF THE COUNCIL OF THE GEOLOGICAL AND
POLYTECHNIC SOCIETY OF THE WEST RIDING OF
YORKSHIRE, PRESENTED AT THE THIRD ANNUAL
MEETING, ON THE 23RD SEPTEMBER, 1841.

The progress of the Society during the past year may on the whole be considered satisfactory. At the close of the last annual meeting, the number of members was 280, since which time 68 new members have been elected; but, as within the same period there has been a loss by deaths and resignations of 22, the total number on the society's list at the close of this day's proceedings will be 326. The annual income of the Society will consequently be £211 18s.

The Accounts, as examined by the Auditors, are given at the end of the Report, and exhibit the income and expenditure of the Society classed under the most important heads, from the 1st January, 1840, to the 22nd September, 1841: they show a balance in favour of the Society of £15 13s. 9d.; that there are outstanding debts, recently incurred, to the amount of £72 14s. 2d., and that the subscriptions yet due are £251, leaving a final balance in favour of the Society of £193 19s. 7d. The amount of subscriptions yet due is undoubtedly very large; but, when it is considered that the smallness of the individual subscriptions, and the distance at which the Members reside from one another render it impossible to employ a paid Collector, it will be seen how difficult it is for the Treasurer to collect them; but at the same time this difficulty would be easily obviated by the Members regularly transmitting their subscriptions, either by a post-office order, or through the Society's banker.

By the publication of the Reports, the Members are from time to time made acquainted with the principal labours and proceedings of the Society. The papers that have been read during the past year have been in no way inferior in interest to any that have preceded them. Those which describe the Geology of Yorkshire, or speculate on the causes by which its actual condition has been produced, or offer suggestions for the improvement of the Arts, founded on Geological considerations, are the following:—“Illustrations of Yorkshire Geology,” by Rev. W. Thorp; “Three Reports on the Agriculture of Yorkshire, Geologically considered,” by the same gentleman; “A Report on the Geology of the North Midland Railway from Leeds to Darfield,” by Messrs. Embleton and Morton; “On the Mineral Springs of the Parish of Halifax, Geologically considered,” by Dr. Wm. Alexander; “On the Vegetable Origin of Coal,” by Mr. Morton; “On the occurrence of Shells in the Yorkshire Coal Field,” by Mr. Hartop; and “On the occurrence of Boulders of Granite and other Crystalline Rocks in the Valley of the Calder, near Halifax,” by Mr. J. T. Clay.

The other communications which have been made to the Society have been—Mr. Hartop’s “Observations on the occurrence of Titanium in Blast Furnaces;” Mr. Holmes’s Description of an Ingenious Modification of Upton and Roberts’s Safety Lamp; Mr. Todd’s “Account of Experiments on the relative Strength of Pig Iron of various Qualities and from different Makers;” and Mr. Embleton’s paper “On the Museum of the Society.”

Of these papers, two seem to call for special remark. The paper of Mr. Embleton on the Museum contains an enumeration of the various objects which it is desirable that it should contain, and of the uses which they would subserve; and is intended as a manual, by consulting

which, each Member, in his respective locality, may discover in what way he may best promote the objects of the Society. While on this subject, the Council cannot but express their regret that the Museum has not received those contributions from the Society at large, which might be made with so much ease by each Member, and which collectively would be of so much value to the Society. In the meantime, the Council would earnestly invite the Members to an inspection of their collection, which has been carefully arranged by Mr. Embleton, and will be found, even in its present imperfect state, well worth a visit.

The valuable papers of Mr. Thorp on Agricultural Geology have opened out a new field for the labours of the Society, the importance of which it is not easy to overrate, since thereby the Yorkshire Agriculturist will not only be made acquainted with the geological character of the soil he cultivates, but also with those principles of cultivation which the recent discoveries of science have suggested. So highly indeed have they been appreciated by the Members of the Yorkshire Agricultural Society, that they invited the Society to hold a Special Meeting at Hull concurrently with their Annual Meeting, for the express purpose of adding to their ordinary proceedings the discussion of the scientific principles of cultivation adapted to certain geological conditions. If the result of this Meeting shall be to give to the assemblies of the Agricultural classes a more scientific character, and to lead the great body of the cultivators of the soil to perceive the advantage which they may derive from the application of scientific principles to the art of Agriculture, the Society will have reason to congratulate itself on having lent its willing aid to forward so desirable a result.

The operations of the Society have not, however, been confined to the discussions which take place at its meetings.

Having obtained permission from the Directors of the Leeds and Manchester Railway, the Council have, by the assistance of Mr. Bull, procured a Section of the Cuttings on that Railway from Hebden Bridge to the Terminus at Normanton. A detailed description of the Geological and Mineral information thus displayed, will afford materials for the labours of a Committee, and may be expected to give interest to the subsequent Meetings of the Society. In the last Report it was announced that a section of the Yorkshire Coal field, from Northowram to Elmsall, was in contemplation: considerable progress has been made in the survey, and the completion of the undertaking may be looked for in the Spring.

The Council have only farther to report, that in December and March last the Society held its meetings for the first time in the towns of Doncaster and Halifax; that in both places it was received with the utmost cordiality, and obtained a considerable accession to its numbers; and in conclusion, to bespeak from the Members of the Society that cordial support and co-operation which can alone enable them to accomplish the objects for which they are associated.

ABSTRACT OF THE RECEIPTS & EXPENDITURE OF THE SOCIETY,
 FROM 1ST JANUARY, 1840, TO 22ND SEPTEMBER, 1841.

RECEIPTS.		EXPENDITURE.	
	£ s. d.	£ s. d.	£ s. d.
Subscriptions from		Printing	14 6 4
19 Members, for 1838 ..	9 19 6	Stationery	3 7 10
92 Members, for 1839 ..	48 6 0	Advertising	22 4 8
206 Members, for 1840 ..	108 3 0	Printing Reports	57 1 2
79 Members, for 1841 ..	51 3 0	Carriage of Ditto	2 8 9
	<u>217 11 6</u>		<u>59 9 11</u>
Subscriptions for the Cases in the		Postages	15 5 7½
Museum	74 10 0	Carriage of Parcels and Sundries	8 4 11
Sale of Reports	0 18 6	Expense of Museum (Annual) ..	18 18 4
Loan from Earl Fitzwilliam, for the		Expense of Museum (Extraordinary)	148 3 5
Purchase of Building Ground	331 10 0	Purchase of Books and Map	23 16 0
Interest allowed by the Bank	2 5 3	Purchase of Building Ground	359 16 9
Error of 2s. in the Cash paid to the		Expenses of Meetings	17 7 3
Bank, 9th Jan. 1840	0 2 0		<u>691 1 0½</u>
Balance in hand on 1st Jan. 1840 ..	79 17 6½	Balance in the Treasurer's hands	8 12 10
	<u>£796 14 9½</u>	Ditto in the Bank ..	7 0 11
			<u>15 13 9</u>
			<u>£706 14 9½</u>

BENJAMIN BIRAM, Auditor.

ASSETS AND LIABILITIES OF THE SOCIETY, ON THE 23RD SEPT. 1841.

ASSETS.		LIABILITIES.	
	£ s. d.	£ s. d.	£ s. d.
Subscriptions yet due		Joseph Batty, for Cases for the	
for 1838	6 16 6	Museum	35 8 0
for 1839	15 15 0	Edw. Baines and Sons, for print-	
for 1840	43 11 6	ing the Reports	25 12 2
for 1841	167 17 0	Wm. Dodgson, for preparing Plat-	
	<u>234 0 0</u>	form &c. for the Meeting	1 14 0
Subscriptions for Cases for the		Stationery, Advertisements, and	
Museum	17 0 0	sundry small Accounts, esti-	
	<u>251 0 0</u>	mated at	10 0 0
Balance in the Treasurer's and			<u>72 14 2</u>
Banker's hands	15 13 9	Balance in favour of the Society ..	193 19 7
	<u>£266 13 9</u>		<u>£266 13 9</u>

The following resolutions were then passed :—

1. That the Report of the Council be received and printed.
2. That the Accounts of the Treasurer up to 22nd September, 1841, showing a balance in favour of the Society of £8 12s. 10d., be passed.
3. That the next meeting of the society be held at Huddersfield, on Thursday, the 2nd of December.
4. That the thanks of the society be given to Earl Fitzwilliam, Rev. Theophilus Barnes, Mr. Henry Morton, and Mr. Farrar, for donations of fossils to the Museum.

The Secretary then laid on the table the list of names, proposed for the several offices at the June meeting, to be marked by the members : the following were selected :—

PRESIDENT.

EARL FITZWILLIAM.

VICE PRESIDENTS.

DUKE OF NORFOLK.	T. W. BEAUMONT, ESQ.
EARL OF EFFINGHAM.	E. B. BEAUMONT, ESQ.
EARL OF DARTMOUTH.	C. J. BRANDLING, ESQ.
LORD WHARNCLIFFE.	T. D. BLAND, JUN., ESQ.
LORD STOURTON.	J. W. CHILDERS, ESQ.
VISCOUNT MILTON.	MICHAEL ELLISON, ESQ.
VISCOUNT HOWARD.	G. LANE FOX, ESQ.
HON. W. S. LASCELLES.	R. O. GASCOIGNE, ESQ.
HON. J. S. WORTLEY.	W. BENNET MARTIN, ESQ.
SIR F. L. WOOD, BART.	J. G. MARSHALL, ESQ.
SIR W. B. COOKE, BART.	J. S. STANHOPE, ESQ.
REV. DR. SCORESBY.	GODFREY WENTWORTH, ESQ.
REV. T. BARNES.	REV. SAMUEL SHARP.

COUNCIL.

MR. W. BILLINGTON.	MR. HENRY HARTOP.
MR. J. BRAKENRIDGE.	MR. HENRY HOLT.
MR. HENRY BRIGGS.	MR. CHARLES MORTON.
MR. J. C. D. CHARLESWORTH.	MR. J. M. STANSFELD.
MR. T. W. EMBLETON.	REV. W. THORP.
MR. W. T. HALL.	MR. GEO. WILSON.

SECRETARY AND TREASURER.

MR. THOMAS WILSON.

CURATORS.

MESSRS. T. W. EMBLETON AND HENRY HOLT.

AUDITORS.

MESSRS. B. BIRAM AND G. W. CHAMBERS.

The Rev. WILLIAM THORP, of Womersley, then read a continuation of his "Illustrations of Yorkshire Geology." The Council regret that they are not permitted to publish it, but they trust that Mr. Thorp will in some other form give to the world this valuable series of papers on the Yorkshire Coal field, the result of many years' laborious investigation of the mineral geology of this county.

Mr. LAURENCE, of Leicester, referred to several specimens of fossil fruits which he had brought from the coal formation of Lancashire. He wished to ask of any practical geologist who might happen to be present, whether similar specimens were found in the Yorkshire coal formation. He had never heard of any or seen them, and he was inclined to believe that they existed only in the locality near Bolton.

Mr. SHARP believed that similar fossils had been found in many other parts of the country.

EARL FITZWILLIAM remarked, that it was very desirable that they should obtain as much knowledge as possible of the fossils contained in the different strata, that they might by that means be enabled to identify the various beds of coal in different localities. He believed that five or six years ago the remains of the scales and shells of fish were found imbedded in some of the coal seams. Now if they found the scales of fish in connection with a particular seam in the northern part of the Yorkshire coal field, and also found the same scales in a bed, even of different thickness, in the southern part of the coal field, it would be a strong reason for believing that the two beds were identical.

Mr. SOPWITH observed, that although vegetable impressions were extremely abundant in the shales and other strata associated with coal, yet he believed that such impressions on the surface of the coal itself, were of rare occurrence, and he had met with persons of great experience and observing

habits, who did not remember to have met with vegetable impressions in coal. He had lately seen some beautiful specimens distinctly marked on the surface of anthracite coal at a mine in Pembrokeshire, and these impressions he was informed were peculiar to one seam or vein of coal. He should be glad, therefore, to learn from any of the gentlemen present, whether in the coal seams of Yorkshire vegetable impressions were found on the substance of the coal itself, or chiefly, as in most of the coal fields with which he was acquainted, in the associated beds of shale, sandstone, &c.

Mr. EMBLETON remarked that Mr. Sopwith's question, whether fossil plants were ever found in the coal itself, could be answered in the affirmative. At Ardsley Colliery, in the Haigh Moor coal, impressions of the *Stigmaria Ficoides* are often found, and in some localities, in such numbers that the working of the coal is very much obstructed and its quality deteriorated; and an instance of fossils being found imbedded in coal is to be seen in the Stanley main coal, at the Groves Colliery, near Wakefield; indeed, the presence of fossils in coal was of frequent occurrence in Yorkshire, and was a sure sign of the inferiority of the coal. In answer to the observations made by his Lordship with respect to identifying strata by means of fossils, he was sorry to say that, with their present limited knowledge on the subject, the question could not be answered, for we have yet to learn the particular species of fossils that each stratum in the coal field contains. Take as an example the strata in the neighbourhood of Barnsley, where the thick coal has been sunk to at a considerable depth in many places, and where there are many collieries. We do not know in what order the fossils are found in the strata, nor do we even know what fossils they contain. How, then, can we answer this important question? for the same remark is equally as applicable to every other district of the Yorkshire coal field,

as to the Barnsley district. If, however, every worker of coal, and those who have extensive tracts of mineral property, were to send to the Society's Museum, at Wakefield, specimens of fossils discovered in their collieries and estates, labelled with a particular description of the strata in which they were found, they might probably arrive at a solution of the problem which the noble lord had proposed; and not only would this important question be truly solved, but we should be able to ascertain if there be any fixed sequence in the depositions of these fossils—if certain plants always accompany certain shells—if fish are found in a perfect state only when the strata contain no entomostraca—and we should further be able to state the nature of the strata in which the various kinds of fossils are found; for he was inclined to think that the nature of the strata is in some way connected with the species of fossil found in it. Having thus related the state in which this interesting question now stands, it is hoped that the friends of the society will exert themselves, and follow the example of the noble President, in contributing largely to the present collection in the museum.

Mr. WALLEN, F.S.A., of Huddersfield, read the following paper:—

AN ELUCIDATION OF THE GEOMETRICAL PRINCIPLES OF
GOTHIC ARCHITECTURE.—BY WM. WALLEN, ESQ., F.S.A.,
ARCHITECT, HUDDERSFIELD.*

Architecture, as the eldest sister of the arts, naturally claims attention from the members of a Polytechnic Society. It has ministered alike to the necessities, the comforts, and the luxuries of mankind.

The architectural remains of the nations of antiquity

* Mr. Wallen is about to publish a work fully elucidating the principles of Gothic architecture. Subscribers' names to be forwarded to West-Parade, Huddersfield.