

LEEDS GEOLOGICAL ASSOCIATION

Rooms - Leeds Mechanics' Institution,  
Cookridge Street.

PRESIDENT: C. D. HARDCASTLE.  
HON. SEC.: S. A. ADAMSON, F.G.S.

52, Well Close Terrace,

LEEDS, May 11 1887

Dear Sir Wm Dawson,

I beg to thank you  
in deepest sincerity for the honour  
of the pamphlet by yourself, upon  
Canadian Fossil Plants, but still  
more for the most kindly and  
encouraging letter which accompanied  
it - Such a recognition of my  
humble efforts in geology from one  
whom I look up to as a master, is  
the very best reward, and an  
incentive to future efforts - I thank  
you <sup>also</sup> in anticipation for the geological  
work, also by yourself, you so  
generously promise to me, when ready.

Such a work would be amongst the most cherished of my possessions, to be carefully preserved the whole of my life; for ~~so~~ what little I have learnt in geology, I stand very much to thank you and your writings, and I can thankfully say that imbibing the doctrinal spirit pervading throughout your works, my geological studies do lead me and will lead me more reverently in heart to the Almighty Father of all - To carefully study your works in a right spirit, must lead by degrees to that desirable frame of mind -

I was glad to know that our Transactions would interest you, I thought the articles on 'Yorkshire Carboniferous Discoveries' and the excursions in the lower Coal Measures would please you, and now I enclose proof slip of an account of a rather

interesting discovery close by of some  
pebbles embedded in the coal and  
shales - We found it impossible to  
give anything but vague surmises  
as to their presence the subject not  
having received as yet much attention -  
My few remarks on the Bunter pebble  
beds were intended to point out a  
common origin for the quartzite pebbles.  
This discovery, I have little doubt, will  
also interest you.

We are very actively and  
successfully engaged in geological  
pursuits in Yorkshire at present, and  
the students of the science are rapidly  
increasing in number - It is really  
a delightful change to engage in such  
work after the monotonous business  
we are compelled to follow during the  
day, such researches find new charms  
to our lives, and in addition, when  
some practical good is achieved and  
also kind words <sup>received</sup> from the high and

lofty minds who are our leaders in the  
science when our enthusiasm is redoubled  
and fresh efforts are made —

I thank you most heartily  
for the honour of the acceptance of our  
publications, and with profound and  
affectionate regards, believe me, dear  
Sir Wm Dawson,

Yours faithfully & firmly

Saml Aldamson  
#

Sir Wm Dawson  
The McGill College  
Montreal.

I trust the enclosed extracts will gratify  
you and also show what we are doing  
to promote geology in the North of  
England —

## GEOLOGICAL WORK.

The geological section of the Yorkshire Naturalists' Union, being presided over at Monday's meeting at Dewsbury by Mr. J. E. Bedford, a report of the proceedings of the section for the last year was presented by Mr. Adamson, F.G.S., who stated that the excursions had been most practical and instructive, with an exceptionally large attendance.

The first meeting, at Askern, was a case of geology under difficulties, the weather being so unfavourable; moreover the previous heavy rainfall had flooded a wide expanse of the district intended to be visited. Still, some sections of the lower magnesian limestone were examined in several quarries, and thus opportunity was afforded to study the variable character and stratification of the beds.

The second meeting, at Bridlington, was largely attended, and the splendid sections seen in the cliffs *en route* were fully detailed by the leaders of the excursion. Mr. Lamplugh described the sections in the boulder clay with which his name is so intimately connected, and from the south landing to Bempton along the cliffs the party was under the guidance of the President, the fault at Selwick's Bay, the erosion of the chalk cliffs, and the contortions near Scale Nab being specially pointed out.

The third meeting, at Pateley Bridge, gave the members an opportunity rarely occurring to study the geology of that beautiful and secluded part of Yorkshire, Upper Nidderdale. The journey by road from Pateley Bridge to Lofthouse was most pleasurable, from the variety of the physical geology to be seen. Objects, too, of special note were the phenomenon near Lothouse of the river Nidd issuing from its underground course, the fine example of a fault seen in passing up the bed of Blayshaw Gill, the good sections of encrinital limestone, &c., and at How Stean the canon or ravine excavated by the grinding action of running water. At the general meeting, Professor Green, F.R.S., made some valuable observations on the geology of the district.

The fourth meeting, at Pickering, was probably the largest gathering of geologists that the union has witnessed, arising from the fact that the President had undertaken to conduct the investigation of that grand valley of denudation Newtondale. On the moorland walk from Levisham to Saltersgate, from the wide expanse of view, and from the lucid explanations given, continual opportunities were presented of grasping the physical features of the surrounding country and the changes effected by denudation. The gigantic natural amphitheatre known as the "Hole of Horcum," the result of erosion arising from the drainage of its slopes, and the small springs issuing from the Oxford clay, was the special feature of the day's excursion. On the return the sections in the middle oolites near Pickering Castle were examined and numerous fine fossils obtained.

The President of the Section (Rev. E. Maule Cole, M.A.) and the secretaries (Messrs. S. A. Adamson, F.G.S., and S. Chadwick) were re-elected.

### YORKSHIRE BOULDER COMMITTEE.

The meeting of this committee, held in connection with the Yorkshire Naturalists' Union on Monday, was under the presidency of Mr. C. D. Hardcastle, and the first annual report was presented by the Secretary, Mr. Adamson, F.G.S., who recited the various steps which led to the formation of the committee. In response to a circular issued by Mr. Adamson, a meeting of Yorkshire geologists was held on November 23rd, 1886, at the Mechanics' Institution, Leeds. Letters were then read warmly approving the movement and promising practical support from Professor Green, F.R.S., Professor Miall, F.L.S., Dr. Crosskey, F.G.S., and Messrs. J. W. Davis, F.G.S., S. Chadwick, and Jas. Spencer. A letter similar in spirit was afterwards received from the Rev. E. Maule Cole, M.A. The following resolution was then unanimously passed:—"That in connection with the Yorkshire Naturalists' Union, a committee be and is hereby formed, to be named the Yorkshire Boulder Committee; the duty of this committee being to receive reports and conduct observations relative to the erratic blocks of Yorkshire, including particulars as to their position, height above the sea, lithological character, size, and origin, and to work upon the same lines generally as the Boulder Committee of the British Association, to whom annual reports will be presented." The following gentlemen were then placed upon the committee, with power to add to their number, viz.:—Professor Green, F.R.S., &c., Headingley, chairman; Mr. C. D. Hardcastle, Leeds, vice-chairman; Professor Miall, F.L.S., Leeds; the Rev. E. Maule Cole, M.A., Wetwang; Messrs. J. W. Davis, F.G.S., Halifax; B. Holgate, F.G.S., Hunslet; T. Tate, F.G.S., Leeds; J. W. Woodall, F.G.S., Scarborough; C. Brownridge, F.G.S., Horsforth; J. E. Bedford, Headingley; Wm. Chestnam, Horsforth; S. Chadwick, Malton; John Hill, Morley; Wm. Horne, Leyburn; J. R. Mortimer, Driffield; and S. A. Adamson, F.G.S., Leeds, hon. secretary. A meeting of the executive of the Yorkshire Naturalists' Union was held on November 27th, at which the above propositions were cordially received, and the resolutions passed at the meeting of geologists unanimously adopted. The Boulder Committee was now in actual existence, and its first meeting was held on December 23rd, 1886, when a draft schedule upon which to record observations was submitted and adopted. This has since been printed and issued to each society affiliated with the Union, with a circular drawing attention to the importance of the subject. The result has been a large amount of correspondence and a number of inquiries and applications for further schedules. Three detailed reports of boulders have been sent in, viz.:—From Mr. J. H. Phillips, secretary to the Philosophical and Archaeological Society of Scarborough, on "The block at Seamer and numerous smaller ones at Scarborough;" from Dr. E. Taylor Manson, Medical Officer, Darlington, on "The Bulmer's Stone, Darlington;" and from Mr. C. D. Hardcastle, President of the Leeds Geological Association, on "The Greystone, Leeds." The consideration of these reports was deferred to a special meeting of the committee, to be held in Leeds in May. The names of Dr. Veitch (Middlesbrough) and J. Spencer (Halifax) were added to the committee.

*This is a good excursion, about 2300 members and an order, we work in sections like the Baked Area*

*A new branch formed, with very successful results so far —*

THE HISTORY OF THE UNITED STATES

The first part of the history of the United States is the period of discovery and settlement. It begins with the arrival of Christopher Columbus in 1492, followed by other explorers such as John Cabot and Amerigo Vesputi. The early years of settlement are marked by the struggles of the Pilgrims and the Puritans in New England, and the growth of the Southern colonies. The French and Indian War (1754-1763) is a significant event in this period, leading to the American Revolution. The Declaration of Independence is signed in 1776, and the Constitution is adopted in 1787. The early years of the new nation are characterized by westward expansion and the development of a national identity.

The second part of the history of the United States is the period of the American Civil War and Reconstruction. The Civil War (1861-1865) is a pivotal event in the nation's history, fought over the issue of slavery. The Union emerges victorious, but the Reconstruction period (1865-1877) is marked by the struggle to integrate the freed slaves into the nation. The Reconstruction era is followed by the Gilded Age (1870-1900), a period of rapid industrialization and economic growth. The Progressive Era (1900-1920) is a period of social and political reform, leading to the passage of the 16th, 17th, and 18th Amendments. The 1920s are a period of economic prosperity and social conservatism, leading to the Great Depression of the 1930s. The New Deal (1933-1945) is a period of economic recovery and social reform, leading to the United States' entry into World War II (1941-1945). The post-war period (1945-1960) is a period of economic growth and social change, leading to the Vietnam War (1955-1975). The 1960s are a period of social and political upheaval, leading to the Vietnam War and the Civil Rights Movement. The 1970s are a period of economic stagnation and social conservatism, leading to the Watergate scandal (1972-1974). The 1980s are a period of economic growth and social conservatism, leading to the end of the Cold War (1991). The 1990s are a period of economic growth and social change, leading to the end of the Vietnam War (1975) and the Gulf War (1990-1991). The 2000s are a period of economic growth and social change, leading to the end of the Vietnam War (1975) and the Gulf War (1990-1991). The 2010s are a period of economic growth and social change, leading to the end of the Vietnam War (1975) and the Gulf War (1990-1991).

## LEEDS GEOLOGICAL ASSOCIATION:

### INTERESTING DISCOVERY AT WORTLEY.

The April meeting of the members of the above association was devoted to an exhibition of specimens, accompanied generally by a few descriptive remarks by the exhibitors. In the absence of the President (Mr. C. D. Hardcastle) from illness, the chair was occupied by Mr. W. H. Gill, who called upon Mr. C. Brownridge, F.G.S., to read a short paper, entitled "Notes on Four Boulders found in the Black Bed Coal and overlying shales and ironstone at Wortley." Mr. Brownridge, after alluding to the fact that the presence of boulders in the coal measures is becoming an important question, said that these interesting discoveries occur from time to time, some having been found in the coalfields of Leicestershire, Lancashire, and the Forest of Dean; but none hitherto appear to have been recorded from our immediate district. As evidences of this character may eventually become powerful factors in determining geological problems, it is essentially desirable such discoveries should be recorded. The position where these boulders were found is situated in the fork of land bounded by the London and North-Western and Great Northern Railways, the Gelderd-road and the Farnley Beck, and were got out of the pit known as the "No. 1 Black Bed Pit." The whole of this neighbourhood is worked for the Wortley fire clay by Messrs. Ingham and Sons, in the commercial manipulation of which they have achieved such a wide reputation. Along with the fire-clay the better bed coal above is got, and at a still higher level the black bed coal and the overlying ironstone are worked. It was in the last-named beds that the specimens were found. The depth of the black bed coal from the surface is here 30ft. The largest of the boulders is a coarse gritstone, and nearly spherical in shape. Its dimensions are 2ft. 6in. by 2ft., and it has a fairly smooth, polished face, with slight striæ. This example was found embedded in the "bind," or clayey shales, just overlying the coal. The other three boulders (or pebbles) are much smaller in size, varying from 1lin. by 9in. to 3½in. by 2½in., and were all found embedded in the black bed coal itself. One of the specimens is a fine-grained grit, the other two being quartzites. The two latter are rather angular in general shape than the grit specimens, but in all of them the angles are well rounded off and the faces polished. The reason why these stones are thus found located in such phenomenal positions can only at present be surmised, as the subject is at present rather vague; but the theory has been adduced that they have been carried down by masses of floating vegetation in a manner similar to that recorded by travellers on the Amazon, where in the swamps and shallows such masses are seen floating, carrying foreign matter along with them. A leading London newspaper in recently reporting a similar specimen gravely alleged it to be a meteorite. This singular idea would, however, be instantly rejected by the most credulous novice as being utterly untenable. The matter has lately been brought up before the Geological Society of London, when an interesting discussion took place. This report by Mr. Brownridge was rightly deemed by the members to be extremely valuable, the more so that the paper was accompanied by specimens of the rocks composing the boulders. Thanks are also due to Messrs. W. Brogden and J. Parkin, of Messrs. Ingham and Sons, for their kindness in rendering every facility in furnishing the specimens and particulars.

### THE BUNTER PEBBLE BEDS AT SUTTON PARK.

The Hon. Secretary (Mr. Adamson, F.G.S.) exhibited a portion of a quartzite pebble he had obtained on a geological excursion in connection with the British Association to Sutton Park, near Birmingham, under the leadership of Mr. W. J. Harrison, F.G.S., and read a few notes upon the same, from information then received. This specimen was obtained from a splendid vertical section of conglomerate at the quarry in the Park, close to Blackroot Pool, the section here being 30ft. high. This conglomerate, or what is generally known as the Pebble Beds, is the middle subdivision of the Bunter or the lower division of the Trias. It occupies the surface of the Birmingham area, along a line running from south-west to north-east. It extends from Worcester, by Bridgnorth, Stourbridge, Cannock Chase, and Sutton Park, to Lichfield. At all these places it is seen as a remarkable mass of rounded pebbles, mostly quartzites, and attains a thickness of 300ft. at Cannock Chase. This conglomerate becomes a pebbly sandstone at Nottingham, and coming northwards, at Selby, the pebble beds have thinned out and are wanting. Both at Selby and at York the lower mottled sandstone is the only representative of the Bunter. These pebbles, when extracted, show white indentations on the surface, or bruises caused by the immense pressure against each other; indeed, great numbers are cracked right across. This quartzite is an altered sandstone, very hard and compact in its character. This was once a fine-grained sandstone, but the microscope shows that the sand grains are stuck together by silica, which fills up the crevices. It is generally understood that this change, or metamorphic action as it is called, has been occasioned by the action of heat, combined with the percolation through the rock of hot water containing silica in solution. The great interest of these quartzites is that some contain fossils, and the collectors in the Midlands have long and patiently sought for them. Of course they are not of contemporaneous age with the Bunter conglomerate (this of itself being unfossiliferous), but are enclosed in these pebbles which have been derived from other formations. Thus one fossil has been discovered of the *Lingula* species which undoubtedly belongs to the lower Silurian (or termed by some geologists the Ordovician) formation. This particular fossil has not yet been found in its parent rock in England, although it is found *in situ* in the quartzites of Brittany in France, which are on the same horizon as the Shipper Stones. It should be said, too, that other pebbles occur besides quartzites in these beds, such as Silurian limestone, carboniferous chert and sandstone, mountain limestone, and occasionally a few fragments of granite, basalt, &c. Naturally, in many of these pebbles just named, fossils are found. Mr. Molyneux enumerates twenty-two species of mountain limestone fossils which he has obtained from the Bunter pebble beds. Brachiopods and trilobites of Devonian age are not unrequent, also similar fossils derived from the May Hill sandstones. The origin of these beds has long been a most interesting subject. The idea formerly was that they were derived from the old red sandstone of Scotland; but that has proved untenable, and the opinion now is that they are derived from the denudation of the ancient Palæozoic axis, ridge or land barrier, which once run across Central England. During carboniferous times this ancient axis of elevation formed a barrier between the South Staffordshire, Warwickshire, and Leicestershire coalfields on the north, and the Bristol and Somerset coalfields on the south. As pointed out by Mr. Harrison (who has made these beds a special study, and to whom I am so much indebted for the information given at the excursion), the existence of this ancient land surface is proved, firstly, that it has been reached in several deep borings; second, portions of it crop out from beneath newer strata; third, the upper Palæozoic and the lower Mesozoic rocks thin away as they approach the immediate neighbourhood of the old axis; fourth, there is a great unconformability between the rest upon them. Thus the opinion is confirmed "that in pre-Triassic times there existed a land surface composed of old rocks, and containing two or more beds of quartzite competent to furnish the fossiliferous and unfossiliferous pebbles occurring in such vast numbers in the Bunter conglomerate." Mr. Adamson exhibited, in addition to the quartzite, the following specimens he had obtained from the same section of the Bunter pebble beds:—Granite partially decomposed, chert with traces of encrinites, and May Hill sandstone. It was interesting to note also the exact similarity of the quartzite from Sutton Park and that obtained by Mr. Brownridge from Wortley. Is it not highly probable that both were derived originally from the ancient Palæozoic axis or ridge?

### PECULIAR MARKINGS IN YORKSHIRE CHALK.

Mr. S. Chadwick, of Malton, had forwarded for exhibition, two specimens of white chalk from Flamborough, with peculiar markings. It will be remembered that on the recent excursion of the association to Malton, some examples were obtained with markings of a long, needle-shaped, partially fibrous character; in the examples now shown the markings were somewhat different. As Mr. Chadwick stated in a letter accompanying the specimens, "In these instances, the striæ are much finer than are usually found." One specimen had the form of a semicircle, "the concave surface being most probably due to the disappearance of one of those soft sponges which generally leave no trace, except that now and then a cast of the exterior is found. It is supposed that this is owing to the absence of siliceous matter, such as is found in the spicules." A discolouration of the surface existed in one of the specimens. No opinion was expressed upon these markings, pending the microscopical examination which will shortly take place of them.

Mr. E. Hawkesworth exhibited a number of coal ferns, *Stigmaria* and *Lepidodendron*, from the grits at Pateley Bridge; encrinital limestone, from Clint, near Harrogate; ammonites, from Whitby; a block of marlstone, full of fossils; and a variety of rock specimens, obtained from the boulder clay of the Yorkshire coast.

Mr. T. F. J. Truss exhibited a large number of Oolitic and Liassic fossils from the West of England, and Mr. Turner showed a fine specimen of *Lima pletiniformis* from the Malton oolite.

S. A. A.

REPRODUCTION OF THE ORIGINAL