

THE
North Staffordshire Field Club

ANNUAL REPORT

AND

TRANSACTIONS

1908-1909.

Edited by

W. WELLS BLADEN,

Honorary Secretary.

VOL. XLIII.

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CONTENTS.

	PAGE
Council for 1909-10	5
Excursions and Evening Meetings	7
Past Presidents	8
Garner Medal Awards	9
Treasurer's Accounts	11
Members	13
Associated Societies	31
Rules	33
Garner Memorial Rules.	35
Annual Report—W. Wells Bladen	38
Natural History Museum, Opening of.	42
In Memoriam—Sir Thomas Wardle, F.G.S., F.C.S.	60
Zoological Report—J. R. B. Masefield, M.A.	69
The Evolution of the Cetacean Tail Fin—F. W. Ash	78
Bird Notes (1907-8), Chiefly taken at Stone—W. Wells Bladen	83
Entomological Report—E. D. Bostock, I.F.S.	96
Botanical Report—W. T. B. Ridge, F.C.S.	98
Staffordshire Ferns—J. R. B. Masefield, M.A.	102
Microscopical Report—Dr. John	108
Geological Report—F. Barke, F.G.S.	109
Lilleshall Hill—Dr. Wheelton Hind, F.G.S.	112
The Life-History of the River Trent—Dr. McAl Dowie F.R.S.Edin.	116
Meteorological Report—Graham C. Lawson.	127
Observations at Heath House	128
Observations at Mayfield	129
Rainfall in 1908 at The Meir—G. D. B. Soame	130
" " Wall Grange—G. D. B. Soame	130
Suggested Site of Mediomannum—Rev. T. Barns, M.A.	131
Traditional History in North Staffordshire—S. A. H. Burne	135
Photographic and Sketching Sections—E. B. Wain and W. H. Rider	147
Old Church Towers of Staffordshire, Part III.—J. H. Beckett, A.R.I.B.A.	149

CONTENTS—continued.

EXCURSIONS.

1.—Alton and Ilam	..	..	..	..	..	..	172
2.—Lilleshall	..	..	..	..	..	..	172
3.—Normandy	..	..	..	..	..	..	175
4.—Censall, Kingsley, and Cheadle	..	..	..	..	..	..	190
5.—Arbore Farm and Muckleston	..	..	..	..	..	..	195
6.—Shudlingslow	..	..	..	..	..	..	198
7.—Derby	..	..	..	..	..	..	204

EVENING MEETINGS.

1.—Stoke	..	..	..	..	..	..	207
2.—Hanley	..	..	..	..	..	..	210
3.—Stone	..	..	..	..	..	..	213
4.—Annual Meeting	..	..	..	..	..	..	215

ILLUSTRATION.

1.—W. D. Spanton, F.R.C.S.	..	..	..	..	..	42
2.—Sir Thomas Wardle, F.R.S., F.C.S.	..	..	..	..	..	60
3.—Swainsley	..	..	..	..	..	64
4.—The Life-History of the River Trent	..	..	..	..	..	124
5.—Adbaston Church	..	..	..	..	..	149
6.—Standon Church	..	..	..	..	..	153
7.—Barlaston Church	..	..	..	..	..	156
8.—Blurton Church	..	..	..	..	..	158
9.—Madeley Church	..	..	..	..	..	160
10.—S. Michael's Church, Stone	..	..	..	..	..	164
11.—Swynnerton Church	..	..	..	..	..	165
12.—Tower Arch, ditto	..	..	..	..	..	165
13.—Whitmore Church	..	..	..	..	..	168
14.—The Crypt, St. Gervais, Rouen	180

APPENDIX.

The Daltry Library—Additions	219
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APPENDIX II.

The Natural History Museum—Gifts and Loans	..	222
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Auditor :

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The SECRETARY.

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all Subscriptions, without exception, are to be paid.

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A.	ZOOLOGY	Chairman—	J. R. B. MASEFIELD.
B.	ENTOMOLOGY	„	E. D. BOSTOCK
C.	BOTANY	„	W. T. B. RIDGE
D.	MICROSCOPY	..	..	..	„	DR. JOHN.
E.	GEOLOGY	..	..	..	„	F. BARKE.
F.	METEOROLOGY	..	..	..	„	GRAHAM C. LAWSON.
G.	ARCHÆOLOGY	..	..	..	„	C. LYNAM.
H.	PHOTOGRAPHY	..	..	..	„	E. B. WAIN.
I.	SKETCHING	..	..	..	„	W. H. RIDER.

Members wishing to join any Section should inform the Chairman.

All Members of the Club are eligible to attend the Sectional Meetings.

COUNCIL FOR 1909-10—(Continued).

	<i>Local Secretaries :</i>	<i>Local Treasurers :</i>
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EXCURSIONS.

- 1.—Saturday, May 1st DYDON WOODS.
Leader—THE PRESIDENT.
- 2.—Saturday, May 2nd .. HIMLEY, HOLBEACH, AND KINVER.
Leader—MR. C. J. B. MASEFIELD.
- 3.—Thursday, June 24th to June 29th .. THE ENGLISH LAKES.
Leader—THE PRESIDENT.
- 4.—Saturday, July 10th GLUTTON DALE.
Leader—MR. BARKE.
- 5.—Saturday, August 21st FARLEY AND BLORE.
Leader—MR. MASEFIELD.
- 6.—Saturday, September 18th .. ABBOT'S BROMLEY & YOXALL.
Leader—MR. DANIEL.
- 7.—Saturday, October 9th NANTWICH.
Leader—MR. SCRIVENER.

EVENING MEETINGS.

- 1.—Thursday, November 18th CHEADLE.
Local Secretary—MR. MASEFIELD.
- 2.—Thursday, January 27th LEEK.
Local Secretary—MR. UNWIN.
- 3.—Thursday, February 24th STOKE.
Local Secretary—MR. BECKETT.
- 4.—Thursday, March 17th—ANNUAL MEETING .. STOKE.
Local Secretary—MR. BECKETT.

PAST PRESIDENTS.

1865, 6, 7, 8, 9.	JAMES BATEMAN, F.R.S., F.R.H.S., F.L.S. (1869. Chairman, ROBERT GARNER, F.R.C.S., F.L.S.)
1870, 93, 97.	J. T. ARLIDGE, B.A., M.D., F.R.C.P.
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1872, 91, 92.	THOS. WARDLE, F.C.S., F.G.S.
1873, 84.	JAMES YATES, M.R.C.S.
1874, 98.	CHARLES LYNAM, F.S.A., F.R.I.B.A.
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1879, 99, 1900.	REV. T. W. DALTRY, M.A., F.L.S., F.E.S.
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1881.	W. CHALLINOR, M.A.
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1885, 1905.	ALEX. SCRIVEN.
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1889, 1903.	J. R. B. MASEFIELD, M.A.
1890.	ALEX. M. McALDOWIE, M.D., F.R.S. (Edin)
1893, 4.	WHEELTON HIND, M.D., B.S., F.R.C.S., F.C.S.
1895.	W. WELLS BLADEN.
1896.	F. BARKE, F.G.S.
1897.	C. E. DeRANCE, Assoc. Inst. C.E., F.G.S., F.R.G.S., F.R.Met.S., H.M. Geological Survey.
1901.	REV. C. F. L. BARNWELL.
1902.	A. T. DANIEL, M.A.
1904.	REV. F. J. WROTTESLEY, M.A.

LIST OF MEMBERS.

CORRECTED TO MARCH 25TH, 1909.

TOTAL NUMBER, 570.

HONORARY MEMBERS.

Elected.

- 1886 Bonney, Professor, the Rev. T. G., D.Sc., LL.D., F.R.S.,
F.S.A., F.G.S., 8, Scroope-terrace, Cambridge
- 1899 Dawkins, Professor W. Boyd, M.A., D.Sc., F.R.S., F.S.A.,
F.G.S., Fallowfield House, Fallowfield, Manchester
- 1872 Dunedin, Most Rev. S. T. Nevill, D.D., Bishop of, Otago,
New Zealand
- 1903 Hardy, Sir Reginald, Bart., Dunstall Hall, Burton-on-Trent
- 1908 Lodge, Sir Oliver, D.Sc., LL.D., F.R.S., Mariemont, Edg-
baston, Birmingham
- 1887 Wragge, Clement L., F.R.G.S., F.R.Met.S., 26, Jasper-road,
Upper Norwood, London, S.E.
- 1892 Yates, James, M.R.C.S., 35, Dewhurst-road, Brook Green,
London, W.

ORDINARY MEMBERS.

- 1869 Adams, Frank, The Villas, Stoke-on-Trent
- 1908 Adams, Mrs. Frank, The Villas, Stoke-on-Trent
- 1898 Adams, Mrs. H., The Croft, Lancaster-road, Newcastle, Staffs.
- 1908 Adams, Percy W. L., Moreton House, Wolstanton, Stoke-
on-Trent
- 1908 Adcock, G. F., Trentham, Stoke-on-Trent
- 1908 Adcock, Mrs., Trentham, Stoke-on-Trent
- 1905 Adie, T. G., High-street, Stone
- 1908 Alcock, C., 46, Church-street, Hanley
- 1908 Alcock, Mrs. C., 46, Church-street, Hanley

- 1891 Alcock, S. King, M.D., Portland House, Burslem
 1906 Alcock, W., 3, Bank-street, Cheadle, Staffs.
 1903 Alexander, Rev. H. R., M.A., Tean Vicarage, Stoke-on-Trent
 1899 Allen, W. E., Rose Bank House, Leek
 1884 Allen, W. S., Woodhead Hall, Cheadle, Staffs.
 1909 Allott, J. R. L., Beechwood, The Avenue, Kids Grove, Staffs.
 1907 Anderson, J. B., M.B., C.M., Copeland-street, Stoke-on-Trent
 1906 Armitage, J. W., Ironmarket, Newcastle, Staffs.
 1905 Armitage, Mrs. J. W., Ironmarket, Newcastle, Staffs.
 1909 Arrowsmith, R., Junr., The Avenue, Stone
 1898 Arrowsmith, Thos., Lymewood, Wolstanton, Stoke-on-Trent
 1893 Ash, F. W., The Villas, Stoke-on-Trent
 1893 Ashcroft, S., Lightwood Lodge, Longton
 1906 Ashwell, J. B., The Quarry, Hartshill, Stoke-on-Trent
 1884 Astbury, G. S., Eccleshall, Staffs.
 1885 Audley, Jas. A., B.Sc., A.R.C.Sc., F.I.C., F.C.S., 17, Gladstone-place, Hanley
 1905 Babb, C. E.
 1905 Babb, Mrs.
 1891 Bagguley, John, High-street, Newcastle, Staffs.
 1883 Baines, Arthur, Lichfield House, Hanley
 1908 Balfour, Graham, M.A., Colwich, Stafford
 1884 Bamber, W. H., Hill-street, Stoke-on-Trent
 1906 Bamford, C. R., St. Mary's Mount, Uttoxeter
 1899 Bamford, H. B., The Old House, Uttoxeter
 1893 Bamford, S. B., Hawthornden, Uttoxeter
 1898 Bardsley, Rev. G. B., B.A., Windmill-street, Tunstall
 1876 Barke, F., F.G.S., Stoke Lodge, Stoke-on-Trent, *Vice-President*
 1876 Barke, Mrs., Stoke Lodge, Stoke-on-Trent
 1897 Barnes, Jonathan, F.G.S., South Cliff House, Higher Broughton, Manchester
 1898 Barns, Rev. Thomas, M.A., Hilderstone Vicarage, Stone, *Vice-President*
 1888 Barnwell, Rev. C. F. L., Stramshall Vicarage, Uttoxeter, *Vice-President*
 1901 Barnwell, F. A. L., Mayfield, Ashbourne, Derbyshire

REPORT.

*Read at the Forty-fourth Annual Meeting, held at Stoke-on-Trent,
March 25th, 1909.*

It is a pleasure to your Council, at the end of the forty-fourth year of the Club's existence, to be able to congratulate the members on its continued prosperity.

The most important event of the past year was one which has been looked forward to from the Club's earliest days—the opening of its Natural History Museum. The ceremony took place on October 19th, and was attended by a large gathering of members, and of the principal inhabitants of North Staffordshire. Sir Oliver Lodge, the Principal of Birmingham University, delivered a very valuable address on the occasion, a report of which will appear in the present volume of Transactions. The Club has marked its sense of the service rendered on this occasion by electing Sir Oliver an honorary member. The number (22,995) of visitors to the Museum from the date of its being opened to the end of February, a period of nineteen weeks, shows that the public has appreciated the opportunity of studying the natural objects on exhibition which has been afforded them.

A portrait of Mr. Spanton, the retiring President, to whose initiative the Museum is due, will appear with the account of the opening proceedings.

The Excursions were duly made as arranged—with the exception of the first, which it was found impossible to carry out in consequence of a heavy fall of snow. The dates, places of Excursions, Leaders, and numbers present have been:—

I.—Alton and Ilam, on Saturday, April 25th. Leader: Mr. Wilkins. Abandoned.

II.—Lilleshall, on Saturday, May 9th. Leaders: The President and Mr. Scrivener, 110,

III.—Normandy, Friday, June 12th, to Saturday, June 20th. Leaders: Mr. Lynam and Mr. Andrew Oliver. 30.

IV.—Consall, Kingsley, and Cheadle, on Saturday, July 25th. Leader: Mr. Masefield. 60.

V.—Norton-in-Hales and Mucklestone, on Saturday, August 15th. Leaders: Rev. T. Barns and Rev. A. C. Oliver. 74.

VI.—Snutlingslow, on Saturday, September 19th. Leaders: Mr. Barke and Mr. Ridge. 50.

VII.—Derby, on Tuesday, October 19th. Leader: Rev. F. C. R. Jourdain. 12.

The average attendance was 56.

Three Evening Meetings have been held:—

I.—Stoke, Thursday, November 19th. Local Secretary: Mr. Beckett. 70.

II.—Hanley, Thursday, January 21st. Local Secretary: Mr. Dix. 125.

III.—Stone, Thursday, February 13th. Local Secretary: Mr. Bostock. 80.

The average attendance was 92.

The Addresses and Papers given have been as follows:—

I.—Lilleshall Hill, by Dr. Wheelton Hind, F.G.S.

II.—Lilleshall Church, by Mr. Alex. Scrivener.

III.—Lilleshall Abbey, by Mr. Alex. Scrivener.

IV.—Places visited in Normandy during the Long Excursion by Mr. Lynam, F.S.A., F.R.I.B.A., and Mr. Andrew Oliver A.R.I.B.A.

V.—Stone Quarry, Consall, by Mr. F. Barke, F.G.S.

VI.—Kingsley Church, by Mr. Alex. Scrivener.

VII.—“Devil’s Ring and Finger,” by the Rev. T. Barns, M.A.

VIII.—Suggested Site of Mediomannum, by the Rev. T. Barns, M.A.

IX.—Mucklestone Church, by the Rev. E. H. Hinchcliffe, M.A.

X.—Lord Audley’s Cross, by Mr. Wells Bladen.

XI.—St. Peter's Church, Derby, by Mr. P. H. Currey.

XII.—All Saints' Church, Derby, by Mr. P. H. Currey.

XIII.—Derby Museum, by Mr. W. Crowden.

XIV.—The Evolution of the Cetacean Tail Fin, by Mr. F. W. Ash.

XV.—The Life History of the River Trent, by Dr. McAl dowie, F.R.S.E.

XVI.—Egypt: The Nile from Cairo to Assuan, by Mr. T. Taylor.

XVII.—Bird Notes (1907-8), chiefly taken at Stone, by Mr. Wells Bladen.

XVIII.—Traditional History in North Staffordshire, by Mr. S. A. H. Burne.

XIX.—Notes on Staffordshire Ferns. by Mr. J. R. B. Masefield, M.A.

The Council recommends that the Papers on local subjects be printed in the Transactions. Notices of the Addresses will appear in the Proceedings. A third instalment of Mr. Beckett's Paper on Some Old Church Towers of Staffordshire will be given.

Croxden Abbey.—Mr. Lynam's present intention is to issue a prospectus and to solicit subscriptions. If the result should prove satisfactory the publication will then proceed.

The total number of members at the time of the last Annual Meeting was 522. Since that date, one honorary and 75 ordinary members have been elected, five members have been re-instated, 22 have resigned, seven have died, and four have been struck off the list for non-payment of subscriptions. The number of members of which the Club now consists is 570.

Amongst those who have passed away during the year was Sir Thomas Wardle, one of the earliest members of the Club, of which he was President in 1872 and again in 1892 and 1893. He was a regular leader of Excursions, and contributor of papers and addresses. On more than one occasion he extended his hospitality to the Club at his beautiful home in the Manifold Valley. By his charming personality he endeared himself to

all who had the privilege of his friendship. The Club is the poorer for his loss. Of the others, whose loss we lament, Mr. G. W. Rhead and Mr. Joseph Griffith frequently attended our Excursions, and Mr. J. T. Harris will be well remembered by those who accompanied Mr. Barnwell on his delightful Excursion to Ireland in 1901.

Mr. Goddard, who was appointed Librarian a year ago, has already done good work. The books are now arranged in a systematic way, so that it is possible to find anything required without the slightest difficulty. This has very much increased the usefulness of the Daltry Library.

In drawing this report to a close, your Council would again impress upon all members the duty of giving every possible support to the Club, and especially of using every exertion to add to the exhibits, and so to increase the usefulness of its Natural History and Archaeological Museum.

NORTH STAFFORDSHIRE NATURAL HISTORY MUSEUM.

OPENING BY SIR OLIVER LODGE.

October 19th, 1908.

(From Staffordshire Advertiser.)

The North Staffordshire Natural History Museum—opened at Hanley on Monday by Sir Oliver Lodge, Principal of the Birmingham University—supplies a much-needed addition to the educational institutions of the district. North Staffordshire is fairly well provided with museums of applied art, but hitherto no serious attempt has been made to assist students by providing collections of exhibits pertaining to those sciences which come within the term natural history. True, the North Staffordshire Field Club has for many years cultivated the study of natural history subjects by means of its Meetings and Excursions, and by means of exhibits shown at the Meetings, but previously there has been no place set apart for the permanent exhibition of natural history objects. Some five or six years ago, however, the Hanley Corporation, who had in their possession a good number of such exhibits, decided to devote the existing museum rooms to artistic and industrial objects, and to set apart a room, situate above them on the second floor, for the purpose of establishing a natural history museum. But it was not until about 12 months ago that the work was seriously taken in hand. It was at that time that the North Staffordshire Field Club offered to co-operate with the Hanley Corporation in the provision of the museum, which offer was largely owing to the earnest desire of their President, Mr. W. D. Spanton, to see such an institution established in the district. Indeed, the successful inauguration of the museum is chiefly due to the interest and support of Mr. Spanton and the indefatigable labours of Mr. L. H. Jahn (the Curator of the Hanley Museum). After negotiations, it was agreed that the Hanley Corporation should provide the necessary room and cases and equip it with the exhibits already in their possession, and that the members of the Field Club should also provide objects from time to time. The Com-



Yours very truly,
W.D. Spanton.

In Memoriam.

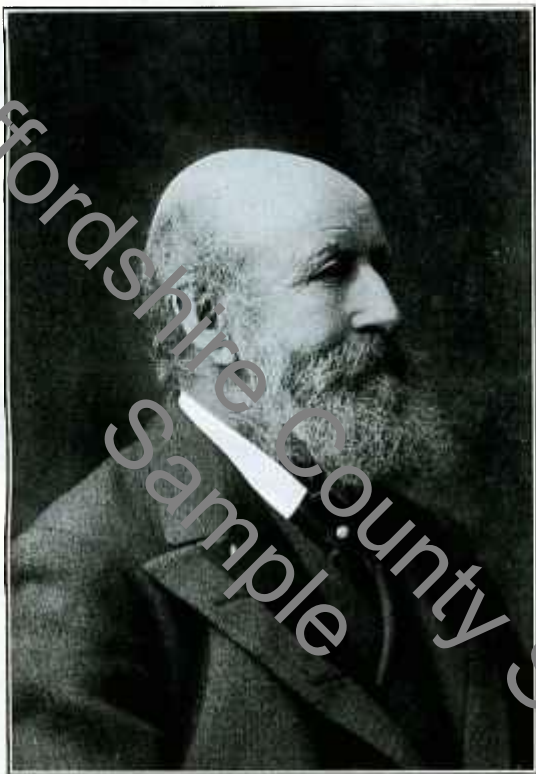
SIR THOMAS WARDLE, F.G.S., F.C.S.

Died January 3rd, 1909.

Sir Thomas Wardle, at the time of his death, was nearing the completion of his 78th year, having been born at Macclesfield on January 26th, 1831. He was the son of the late Joshua Wardle, of Cheddleton Heath. Educated at the grammar schools of his native town and of Leek, he entered commercial life at an early age, carrying on business as a silk-dyer, and subsequently as a silk and calico printer and finisher. With the late William Morris, one of the greatest decorative artists the last century produced, and Sir Philip Cunliffe Owen, he took a leading part in the movement for revolutionizing the taste of the public in the decoration of their homes. At his works the early Morris prints, and, later, the prints for Liberty, were produced. He consistently helped to bring all classes within the ennobling influences of art.

His work was spread over a wide area; that in connection with the silk industries of India was thus described by a writer in *The Times* :—

“He was the first business man to discover a satisfactory process of dyeing the wild *tusser* silk of India. At the request of the King (then Prince of Wales), specimens of the early results of his efforts in this direction were placed in the Indian section of the Paris Exhibition of 1878, and they were afterwards removed to the South Kensington Museum. They included the first piece of plush made from *tusser* silk, from which originated the now considerable Yorkshire industry of ‘seal cloth,’ an imitation of sealskin chiefly made from the waste of *tusser* silk. For several years a ‘Wardle collection’ of bleached and dyed Indian silks was on exhibition at Lyons, and their manufacturer came into close association with the conductors of the silk industry in France. He was a juror at the International Paris Exhibition of 1878-9, and was appointed a Chevalier of the Legion of Honour.



Your very truly
Thomas Wardle

“At the instance of Sir George Birdwood, who had been the first to call attention to the great possibilities of the commercial utilization of Indian *tusser*, the Secretary of State for India sent him out in 1885 to report on sericulture in Bengal and to collect typical silks from various parts of the country for the then approaching Colonial and Indian Exhibition at Earl's Court. This was the first of several visits to the Eastern dependency, followed by reports and recommendations which contributed substantially to improve the methods of sericulture and to the growth of this branch of Indian trade. Sir T. Wardle's most conspicuous service in this respect was the revival of the industry in the valley of Kashmir. The industry was of ancient standing, but had fallen into neglect; and successive epidemics among the silkworms threatened it with complete destruction. It is not too much to say that in the early nineties this fate could not have been averted had not Sir Walter (then Mr.) Lawrence taken up the matter in his capacity as Settlement Officer of the State. Subsequently the subject came to the notice of Sir George Birdwood, and it was upon his initiative that Sir T. Wardle went out to Kashmir as expert adviser to the Durbar. How innumerable difficulties were overcome, and how a moribund industry was placed upon a footing of prosperity such as it had never before experienced, is told in detail in Sir T. Wardle's *Kashmir and its New Silk Industry* (1904), in which he was able to state that sericulture, besides giving employment to large numbers of villagers in the 'Happy Valley,' brought the State Durbar a revenue of from £90,000 to £100,000 per annum. Sir Thomas had paid a further visit to Kashmir a few months before the book appeared, and had given advice as to the silk weaving possibilities of the country.”

The following extracts are from an appreciation of Sir Thomas Wardle which appeared in *The Leek Times* :—

“As President of the Silk Association of Great Britain and Ireland, he was practically concerned with the economics and politics of silk. Taking an all-round view of the subject of silk Sir Thomas was rightly regarded as the prime authority on the subject, and as such was invited to contribute the authori-

REPORTS OF SECTION.

A.—ZOOLOGY.—CHAIRMAN—MR. MASEFIELD.

MAMMALIA.

Through the kindness of Mr. Forrest, a specimen of the Lesser Horse-shoe Bat (*Rhinolophus hipposiderus*, Bechstein) has been supplied to our Museum, where the peculiar "nose-leaf" appendage and the light grey fur of the underparts can be studied. The ears will also be seen to be pointed, which is a feature peculiar to the Horse-shoe Bats. When asleep, this Bat folds its wings around its body, and the tail is recurved along the back, and Mr. T. A. Coward then compares this Bat in appearance to a two-stalked pear or to the pupa of some large moth. In Staffordshire this Bat has only once been recorded, taken by Mr. J. G. Millais, at Swythamley, as mentioned in my paper on Staffordshire Bats.

On 13th October last I saw a Noctule Bat flying near Cheadle, and Mr. T. Smith, at Whiston, and Mr. Bryn, at Longton, have reported to me this Bat abroad to the end of September last year. It was an unusually mild Autumn. Formerly, this Bat was only supposed to fly from May to August, but more careful observation shows that it is an active species from March to the end of October, unless the temperature falls very low. Mr. Forrest states that he saw this Bat as late as 12th November in 1903. On 20th December last, when the temperature was 47° Fahr., I saw a Pipistrelle flying at Cheadle at mid-day, but this Bat only lies up in severe weather, and is often tempted out by a gleam of sun. The Rev. F. C. R. Jourdain reports Daubenton's Bat, at Hanging Bridge and Okeover, hawking insects over the river. A type specimen of this Bat is a desideratum in our Museum. A Badger was seen near my house at Cheadle on 27th April last, and I have heard of many others having been dug out of their burrows during the past year. I can only once more appeal to landowners to put a stop to the threatened extermination of this interesting mammal. A Stoat

in full winter dress was seen at Whiston in January last by Mr. J. E. Smith, and I am told of a Stoat pursuing a Water Vole into its hole in the river bank at Froghall. Both emerged in the river, where the Stoat appeared glad to leave its prey and to make its escape.

AVES.

My notes on birds are again, I regret to say, mostly of the shooting of our rarer species of birds, rather than of observations and protection, as they should be. Owls, Kestrels, Cuckoos, and many other useful species continue to be trapped or shot in contravention of the Wild Bird Protection Orders, and the inevitable result must be their extermination, and the increase of Rats, Mice, Voles and other destructive animals.

The following birds have been reported to me :—

Osprey (*Pandion haliaetus*, L.), shot near Lichfield in October last. This was a mature male bird, and probably one, if not the last, of the very few survivors of this species in the British Isles.

Honey Buzzard (*Pernis apivorus*, L.). One shot near Tamworth on September 30th, 1908. This bird formerly nested on one occasion in this County, but the one recently shot was no doubt one of a "rush" of immigrant birds of this species which took place last autumn, many others having been reported as shot in other parts of England, Wales, and even Ireland, about this time.

The following birds occurred near Chasetown :—

Eared Grebe (*Podiceps nigricollis*, Brehm.), on 20th September, 1907, and another, 28th September, 1908, both immature birds. This gives us the first definite records of this species in Staffordshire, former records being vague and doubtful. Mr. Coburn, who identified these birds, says he was the first to record this species in our district some years back, and he goes on to say, "I have now established the fact that these birds cross the Midlands annually."

Grey Plover (*Squatarola helvetica*, L.) One, September, 1907, and another 21st October, 1908. These records establish this species on our list, Garner in his list not giving any details.

Snow Bunting (*Plectrophenax nivalis*, L.) One, October, 1907.

Great Northern Diver (*Colymbus glacialis*, L.) One, 5th December, 1907.

Long-tailed Duck (*Harelda glacialis*, L.) One, 18th December, 1907. This is the third instance of this Duck in the County.

Snow (*Mergus albellus*, L.) 2nd January, 1908. Immature female.

Turnstone (*Strepsilas interpres*, L.) 16th August, 1908. An immature specimen. This is another definite record of a species of which we only had a vague note of its occurrence before in the County near Burton.

Sanderling (*Calidris arenaria*, L.) 16th August, 1908. An immature specimen. Our second note only of this species in the County.

Common Scoter (*Edemia nigra*, L.) 7th October, 1908. A pair.

Manx Shearwater (*Puffinus anglerum*, Temminck). One, 2nd September, 1908.

Little Owl (*Athene nocturna*, Scopolio). The second occurrence of this species in the County was on the 13th March, 1909, when one was shot at Burton-on-Trent.

Mr. Wells Bladen has given us another instalment of his "Bird Notes," with interesting observations on the habits of Rooks, Starlings, and Swifts, and an account of the nesting of the Shoveler near Walsall in June last, for full particulars of which reference must be made to his paper.

Mr. T. Smith, of Whiston Eaves, tells me of a Peregrine Falcon which was seen there on two occasions in October last at close quarters and clearly identified. Also of a skein of about 25 Wild Geese flying over on 6th November, of a Teal and a Stonechat on 20th November, when a Skylark was singing above, and of Reed Buntings on the moors in January and February last. Stuffed specimens of birds at Whiston Eaves include a Goosander, shot there in 1870, and a Goldeneye, in 1860. Mr.

STAFFORDSHIRE FERNS.

BY. J. R. B. MASEFIELD, M.A.

Read February 18th, 1909.

No plants are more beautiful than Ferns, and the study of our local species has always had a fascination for me. When a boy I roamed the neighbourhood of Stone, and made myself acquainted with the various species of ferns that were to be found growing there. Some of our older members can no doubt look back with me to the time when the Sandstone rocks of our Dells or Ravines, locally called "Drumbles," were covered with the *Aspleniums*, and our damp, shady woods were the homes of the *Lastreas*. Within a few miles of Stone I could point out many spots where *Phyllitis* was to be found in abundance, and a wall which used to be covered with *Ceterach*. Some of our lanes then produced *Asplenium adnigrum-nigrum*, and this fern was also plentiful on the rocks of the Sandstone Quarry known as "The Lion's Den," close to Stone, whilst *Blechnum Spicant* filled every niche on the "Hayes Rock," on the road leading from Stone to Longton. The very beautiful *Phegopteris Dryopteris* was then growing in many of our woods. Down to more recent years almost every chink of the Limestone rocks of our Moorlands and the stone walls of the same district contained a plant of *Asplenium Ruta-muraria*, while the rarer *Cystopteris fragilis* was also commonly to be met with. These recollections of the abundance of many of our rarer ferns are of times prior to the unfortunate rage for "Fern Collecting," which attained its height about the years 1865 to 1870, and is responsible for the extermination, amongst other species, of *Osmunda regalis*, *Lastrea cristata*, and *L. Thelypteris* from our bogs and marshes, and *Phegopteris Robertiana*, Braun (*calcareae*, Fée) from our moorland hills.

On perusing our "Transactions" from their commencement in 1866 to the present time, I fail to find more than scattered records of our Staffordshire Ferns and their habitats, and I think

it is time that we had a reliable list of our local species put upon record. This must be my reason for bringing the subject before you to-night. The present list is indeed a sad one, as out of 29 species which we can include as *having been found* growing in our County by reliable Botanists from time to time, only ten or a dozen species remain at the present day. The late Mr. Garner's list⁽¹⁾ is an excellent one, and we can add but very little to it but new localities for some of the species included. His record of *Adiantum Capillus-Veneris*, L. Dovedale, on the "authority of Messrs. Butt and Foster, corresp. of Sir J. Smith," and that this fern had been brought to him from the rock below Thor's Cavern in the Manifold Valley, I am afraid we must expunge, as this is a coast species, and one can hardly believe that such a tender fern could possibly survive the rigours of our North Staffordshire climate. Its inclusion was probably a case of mistaken identity. Mr. J. E. Bagnall's list in the recently published *Victoria County History*⁽²⁾ is the most up-to-date list we possess, and contains 27 species and four varieties, as having occurred in our County, and to this list I am only able to add two species, namely *Hymenophyllum tunbridgense*, on the authority of Mr. Garner, and which Mr. Bagnall omits, and *Lastrea æmula*, on the authority of the late Mrs. Blagg, of Cheadle, who was far too good a Botanist to make a mistake, and I was with her on several occasions when she gathered friends and pointed out its distinctive character.⁽³⁾ It is only right in a paper on the subject I am dealing with to-night to refer to the splendid collection of living native British Ferns which was made by that enthusiastic collector, the late Mr. Swynfen Jervis, then owner of Darlaston Hall, near this town, and the discovery of many of the varieties mentioned in "Our Native Ferns" by E. J. Lowe is due to him, and several varieties were named "Jervisii" after him. The collection at Darlaston was one of the most complete ever made, especially in the family of *Lastrea*, and it was a great pleasure to have its treasures shown and explained by Mr. Jervis.

(1) *Natural Hist. of the County of Stafford*, pp. 418-419.

(2) *Victoria County History of Staffordshire*, p. 60.

(3) According to the 10th Edit. of *The London Catalogue*, *Lastrea cristata*, X. *spinulosa* (*uliginosa*, Newman) is regarded as a hybrid and not a true good species.

The Bibliography of the subject will be found in Mr. E. J. Bagnall's "Flora of Staffordshire,"⁽⁴⁾ and to this we must add Lowe's "Native Ferns" and Sowerby's "English Botany."

Before proceeding to a detailed list of our ferns, I should like to make an appeal to our larger landowners, and especially to those possessing marsh lands and rocky dells, to reintroduce some of the lost species of our local ferns, which if carefully protected (and why should not the *roots*, at all events, of our wild flowers and ferns be protected by Law ?) would soon increase to the delight of our present generation of Nature Lovers. I believe that with the increasing knowledge that is being acquired of wild life, and the measure that is now taken in its observation, the tendency to uproot and destroy is passing away. What pleasure it would afford us once more to see *Osmunda* growing in wild profusion in our peaty marshes, with fronds from six to eight feet in length as I have seen it growing in Ireland, or to find the little Filix ferns on the damp rocks of our waterfalls. *Osmunda* is one of the easiest ferns to grow, and, like *Cryptogramme crispa*, delights in the most open situations, exposed to the hot rays of the sun, provided the roots are in damp and cool ground. Cannot the members of our Club make an attempt to "re-affern," if I may coin a word for the occasion, suitable localities in our County ?

THE FILICES OR FERNS OF STAFFORDSHIRE.

1. *Hymenophyllum tunbridgense*, Smith. Bot. Guide as found in a spot near the last locality (Garner, 419).
2. *H. peltatum*, Desv. Clefts of the rocks at Gradbach, near Flash, Dr. Hewgill (Garner, 419).
3. *Pteris aquilina*, Linn. Abundant everywhere in woods and uncultivated ground. Var. *furcans*, near Birmingham (Lowe, Vol. II., p. 411).
4. *Blechnum Spicant*, With. Generally distributed, except on Limestone. Var., *imbricata* (Lowe, Vol. II., p. 393) ; Var., *ramosa-Cliftii* (Lowe, Vol. II., p. 398).

(4) Issued as a Supplement to *The Journal of Botany*, 1891.

LILLESHALL HILL.

BY WHEELTON HIND, M.D., F.G.S.

Read May 9th, 1908.

Many important geological lessons are to be demonstrated from the top of Lilleshall Hill, but of these I am only selecting two for special notice to-day—"The Composition of the Hill": "Its Life History."

In the first place it will be well to discuss the nature of Lilleshall Hill itself, and this is possible because its interior is exposed in several quarries at different points. The Geological map, which was published in 1855 shows the Hill to be made of greenstone, altered Caradoc sandstone, and Triassic rocks, but Dr. Callaway has shown that this is a mistake, and that there is a south-south-west ridge composed of hornstone and ashy slates and shales, about 1500 feet thick, bounded by two almost parallel faults, Bunter sandstone being thrown down on the north-west and holly-bush sandstone on the south-east.*

Now the interpretation of this is as follows. The rocks of Lilleshall Hill are of three different ages, separated from each other by immense periods of time.

The oldest series from the main ridge of the Hill, *i.e.*, its north-east to south-west axis, and they are largely of Igneous origin, due to volcanic agencies, which were specially active in Shropshire at that time, and to which the Wrekin, Wrockwardine, and Caer Caradoc group, and other portions of high ground were due. The volcanic outbursts occurred in pre-Cambrian times and represent some of the oldest rocks known in England. Probably the Charnwood Forest rocks are the same age.

On the south-east of the Hill are beds of sandstone, which represent the Holly-bush sandstone of the Malvern district, a correlation proved by the occurrences of similar fossils in both places.

* *Quart. Journ. Geol. Soc., Vol. xxv., p. 646.*

These sandstones are faulted against the pre-Cambrian rocks on the north-west and are bounded by Carboniferous Limestone on the north-east.

In these inliers of very ancient rocks we gain a small glimpse of a very early stage in the building of England.

The rocks which we now see so faulted and tilted were once deposited horizontally on a sea bottom, but in Post-Silurian time, gradually, owing to shrinkage in the earth's crust, they became buckled into folds, and the strata were broken or bent and forced up out of the sea bed and became a land surface. This surface was acted upon by the usual agencies of subaerial denudation, frost, rain, the sun, and river action, and was carved out into hill and dale. Thus, the Wrekin and the older part of Lilleshall Hill became part of an old land.

When, in process of time, the earth's crust again required re-adjustment, much of the pre-Cambrian and Cambrian areas again sank beneath the sea, but we may take it that the Wrekin, Lilleshall, and other Shropshire hills have remained land ever since, though probably at times only as small islands. The Wrekin has witnessed the whole of the Geological changes that have brought England into being.

In Carboniferous times these hills were part of a ridge of land which passed across what is now England as an isthmus, and divided the marine basin in which the Carboniferous rocks of North Wales, North Staffordshire, and Derbyshire were laid down from a southern basin which passed from Cork across the Mendips to Belgium. On the north side of this ridge, on a portion of which we stand to-day, the sea was much shallower than on the south, and it deepened gradually also to the north. This we infer from the fact that only 150 feet of Carboniferous limestone was deposited on the flank of Lilleshall Hill compared to 1,700 feet we find in North Staffordshire, and this Lilleshall limestone represents only the upper part of the North Stafford limestone, in the *Dibunophyllum* zone. So that the Lilleshall area only sank below the Carboniferous sea very late on in Carboniferous times, having been land previously.

TRADITIONAL HISTORY IN STAFFORDSHIRE.

BY S. A. H. BURNE, M.A.

Read February 19th, 1909.

Of many possible titles this seems to me the best, inasmuch as it summarises the proposition that this paper is written to illustrate. And that is: That Folklore and History are closely allied; that every single item of folklore has its origin in some definite fact in the history of man. If this is true of folklore generally, it is most evident, perhaps, when we consider traditional legends and ceremonies, I group these together under the term traditions, and propose to deal with them to-night.

The best definition of tradition in the abstract is the oral handing on of oral knowledge.

It is rather difficult at the present day to realise a state of society in which all learning and all history were communicated and preserved by word of mouth. Yet as late as the 17th century, we may take it that events of the day were published over the country by word of mouth only. In an address on the continuity of tradition, his latest published work Professor York Powell has shown how the early English poems of the late 11th and early 12th centuries must have been based upon oral traditions, referring back to events and persons of the 8th and 9th centuries.

The powers of memory and of narrative were naturally keener in a state of society which was dependent upon oral methods for the transmission and preservation of knowledge, than they are in the present generation; and naturally it is the bookless, the peasant, class, which at the present day best retains the traditional faculty, because its members have not yet come to regard books and newspapers as the only historical sources. Of later historians, Plot undoubtedly went to traditional sources for the material of his County history. Whether his traditions were genuine or not, or were merely the outcome

of the dreams of local antiquaries—an absolutely different thing—is a question the answer to which must determine our estimate of Plot's work.

Speaking generally however I believe anyone who investigates the subject will be convinced that Mr. Gomme has not overstated the case when he writes :—" The smallest local traditions throw light on great historical events. They tell us not merely of great historical events but of the peculiar relationship of parts of the kingdom to that event, which no purely historical evidence could by any possibility explain."

I propose then to examine a few traditions in Staffordshire from this standpoint to see whether there is any historical truth embedded in them, and to analyse them with the object of showing that at any rate they do not deserve to be contemptuously dismissed as worthless, or as " a collection of venerable and romantic blunders."

Taking first traditional place-names, these are of the utmost value in reconstructing the history of a locality.

Someone has well said that the place-names of England are the footmarks of the races that have inhabited it. They are essentially traditional. A farm labourer does not learn the names of the fields in which he works from a perusal of old deeds or the tithe map ; he uses the names his father used, his father learnt them in the same way, and so for centuries back. The tithe map, indeed, is itself nothing but a record of traditional names. Kemble, whilst editing and translating the Saxon Charters, felt a natural curiosity to visit some of the estates therein mentioned, and he was astonished to find the amazing correspondence of the names of fields, woods, and brooks, as related to him by farm labourers, with those appearing in the Saxon Charters of 1,000 years ago.

There is more history contained in an ordnance map than in many a library. Political, social, and military history is all crowded together on a few square feet of canvas. Dr. Cox has expressed this so neatly that it would be like re-writing a Collect to do anything but give his own words :—" Some

OLD CHURCH TOWERS OF STAFFORDSHIRE.

BY J. H. BECKETT, A.R.I.B.A.

In this the third instalment of notes on the old Towers of the County the Rural Deanery of Eccleshall will be completed by a description of the Churches at Adbaston and Standon. Those in the Rural Deanery of Trentham will then be proceeded with, including the Churches at Barlaston, Blurton, Madeley, S. Michael's, Stone, Swynnerton, and Whitmore.

S. MICHAEL'S, ADBASTON (*Plate V.*).

This Church, remotely situated near the Shropshire border, compares well in point of interest with the other churches of the Rural Deanery of Eccleshall, thickly studded as this district is with these fine old buildings.

The history of the church at Adbaston—as told by itself in its present condition—may be summarised thus. The original building was erected in Norman times; of this evidence exists in the chancel. Probably there then existed only a nave and chancel. The nave seems to have been replaced by an Early English one, and there are signs to show that a tower of this date also existed. Then, in the Perpendicular period, the north aisle was erected—the old masonry being re-used, the present tower built, doors and windows inserted, and the eastern portion of chancel added. There also existed a quaint Renaissance porch, but this has now disappeared as the result of the process known as “Restoration.”

Mr. Stanley Brampton, of Adbaston, to whom the writer is indebted for much valuable information with respect to this building, quotes Archdeacon Lane (now Dean of Rochester) to the effect that the chancel was the original church, and very Early Norman. Such being the case, the Early English nave just referred to would be an addition, and not a substitution for a Norman one.

The Tower.—This is a stone structure, built in three stages. The general character of it, together with that of the abutting portions of the church, &c., may be gathered from the sketch. This drawing was made in 1886, and therefore shows the 18th-century porch which then existed. It may serve to indicate to some small extent, the good architectural qualities of the tower, and how this, backed by fine trees and led up to by the base of an ancient cross, old tombs, and quaint porch, would form a worthy subject for the work of our combined Sections.

Externally, this tower measures 17 feet 8 inches by 16 feet, and the height to the top of the parapet is 51 feet.

The character of the masonry, although all good ashlar, varies to some extent, but this often occurs in these old churches of many styles, for the obvious reason that the old material is re-used in the sundry rebuildings. Therefore, in spite of the uncertain date of the actual stones, this tower is all good "Perpendicular," this character being maintained in the modern battlemented parapet and pinnacles.

On the western side is a good doorway, now partly walled up. Its head is of the four-centred arching characteristic of the period. Over this is a three-light window, the arched head of which has been tampered with and not improved, by the insertion of several stones, each of which bears the initials T.S. The two-light belfry windows are well designed, the tracery being simple, good, and rather unusual. Under the topmost string-course runs a band of quatrefoil panels, not uncommon in Staffordshire towers of the 15th-century.

The belfry inside has the old timber bell-framing still extant. There are four bells (in addition to the "call-bell") dated respectively:—Treble, 1627; 2nd, 1655; 3rd, 1640; Tenor, 1640. The inscription on the Treble and Tenor bells is "Gloria in Excelsus Deo." This, if bad Latin, is at least pious. On the third bell, in quaint old English lettering, is "Iesus bee our Speede."

Affixed to the north wall in the lowermost stage of the tower is a board on which are painted the Ten Commandments, flanked by the figures of Moses and Aaron. The work is well executed,

and appears to be of the 18th-century. Access to the upper portions of the tower is by a stone spiral stairway in the south-west angle.

Inside of Church.—Owing to the fact that nearly all the windows, especially the east window, as well as the tower arch and other features, being of 15th-century date, the general effect internally is that of a "Perpendicular" building, and this effect has little to mar it in any direction the eye may take.

Chancel.—The fine east window, with arched head acutely pointed, and in three lights, is one of the best features of the church. There is a two-light "Perpendicular" window in the north wall, and another in the south wall. Perhaps the most interesting work, however, is that of Early Norman date, which exists in the north and south walls of the sanctuary. This consists, in the first place, of a small round-headed window on each side of the chancel. Each of these has the glass space less than 5 inches wide, but the jambs internally—as was the custom—are widely splayed. Under the sills runs a string-course of the same period, square on the upper edge and chamfered on the lower. Under the window on the south side is an aumbrey or locker. The door of this has disappeared, but the rebate for it is intact. There is a "restored" doorway in the south wall. The chancel arch is pointed and in two chamfered rings. The partly-mutilated cap to the south-engaged shaft has the nail-head ornament, and therefore this arch is evidently 13th-century work. The alabaster slab in floor, Mr. Stanley Brampton says, is in memory of Reginald d'Adbaston. He is doubtful as to the date, but suggests it as 1413.

The roof and floor are modern.

Nave.—The internal face of the south wall is of the ancient masonry of 13th—possibly 12th—century date. The windows are insertions of the "Perpendicular" period, and square-headed. Of the same style is the south doorway, which has a rather curious stone-head, being cut to the shape of a very much depressed ogee arch. Over this doorway is a wooden mural tablet, with this inscription—"Near this place lieth the body of WM. WAKELEY, late of the Outlands, in this Parish, who died Nov, 28th, 1714. Aged 125 years,"

The tower arch—like the remainder of the tower—is of “Perpendicular” date, and turned in two chamfered rings springing from moulded capitals. The north arcade is in four bays, three of these being spanned by chamfered arches, each turned in a single sweep, from a centre considerably below the line of the springing. The arch stones are in long lengths of a quite neo-Gothic character. The capitals and bases are rude, and the whole suggests rough work of post-Gothic date. The easternmost arch of this arcade is only 5 feet in span. The arch is acutely pointed, and dies into the east wall without a respond. This arch, together with the pillar supporting it, is of new work, but probably on the old lines.

North Aisle.—The walling is all of very ancient character, and apparently old masonry used in the rebuilding of “Perpendicular” date. There are four windows in the north wall, each of three lights, with four-centred heads and tracery of a good simple Tudor type. There is also a built-up doorway in this wall, and a built-up window in the east wall, both of which will be noticed “Outside.”

The roofs, floors, and fittings of nave and aisle are modern.

The eastern portion of the north aisle has been recently raised to accommodate the organ—quite a good arrangement.

Outside.—Generally.—From whatever point this church may be viewed externally the building is architecturally almost entirely “Perpendicular,” the earlier styles asserting themselves in a very small degree. Even some of the walling, which is formed internally of the more ancient masonry, has been cased outside by ashlar of the 15th-century, for example, the south wall of the nave.

Chancel.—Here we do get a definite glimpse of the older work, the very Early Norman windows described “inside” on the north and south sides of sanctuary peeping out in very unobtrusive fashion among their more ambitious “Perpendicular” neighbours. The contrast between these tiny lights and the carefully-designed 15th-century east front with its fine window is most marked. This gable is finished with well-moulded



ALL SAINTS', STANDON.

JOURNAL OF PROCEEDINGS.

EXCURSIONS.

I.—ALTON AND ILAM.

This Excursion, which was to have been taken on Saturday, April 25th, under the leadership of Mr. Wilkins, was, in consequence of a heavy fall of snow, of necessity abandoned.

II.—LILLESHELL.

Saturday, May 9th, 1908.

LEADERS—THE PRESIDENT AND MR. ALEX. SCRIVENER.

The second excursion of the season consisted of an extremely pleasant and profitable tour around Lilleshall, in which district the Club found geological and architectural features of considerable interest. The morning looked unpromising when the members set out from Stoke, but the sky subsequently cleared, and brilliant sunshine was experienced for the remainder of the day. The journey was made *via* Stafford and Newport, and at the latter station brakes were waiting to take the party, which now numbered 120, to Lilleshall Hill. The drive itself was delightful, and on arriving at Lilleshall Dr. Wheelton Hind, F.G.S., at once commenced to explain the geological treasures which give the hill such an historical value. The members climbed to the top, and, having seated themselves round the monument, Dr. Hind proceeded with his paper, for which he was heartily thanked, on the proposition of the President.

The members then walked across to the church, where Mr. A. Scrivener explained its architectural features. Those who endeavoured to trace the history of a church from its stones always encountered considerable difficulty, he said, when that church came into existence near the ruins of a mediæval abbey. He should be able to show them that Lilleshall Church was

largely composed of stonework which had been brought from the Abbey of Lilleshall. That a church existed there in Anglo-Saxon times was, he thought, beyond question, and the one feature which was probably pre-Conquest was the font opposite the porch entrance, which was an interesting example of very early work.

It was known, of course, that Lilleshall was a Saxon village situated in the Kingdom of Mercia. It was first mentioned in history in Domesday Book, where it was stated that the church of St. Allmund, Shrewsbury, "held and holds Lilleshall." It was certain that a church existed there in the later Norman period because of the beautiful south doorway. They had another fragment of Norman architecture at the back of the pulpit, but there was no doubt these were fragments brought from the Abbey. He was of opinion that the stones in the arches were undoubtedly brought from the Abbey. If they looked at the arches closely they would see the stones were put together in such a way as to indicate they were brought from somewhere else. There were some features which were indigenous, and he was inclined to think the arch leading to the chapel was, and that it was worked to be placed in that position. The north aisle was said to be of the Decorated period, but there was very little to judge from, as the masonry of the walling was of all characters. The windows had been renewed. He was certainly inclined to think that a great amount of work had been done to the church after the dissolution of the monasteries, and that the Abbey had been used as a quarry. The tower arch looked as though it were an interesting piece of Early English work, but here again they found the stones fitted awkwardly together, and he was of opinion that the whole tower although of Perpendicular character, was post-Reformation, and built after the dissolution of the monasteries. Probably the western window was original at that time, and was the only new stonework. It was rudely executed, and the whole tower gave one the impression of being carelessly built. It was evident that local effort was employed and badly directed, the men making the best use, according to their own lights, of the material which they had from the Abbey. Looking at the western face of the wall, they would find that the lower plinth course was

out of level with the base course. The north wall of the chancel had square-headed windows of Perpendicular character, but of very rude workmanship, and he was inclined to think that the bulk of the church was built after the dissolution of the monasteries.

The Rector (the Rev. H. G. Roscher) said it seemed that the Abbey had been for about 100 years after its dissolution the happy hunting ground of anyone who wanted building material. Its stones could be traced in neighbouring farm-houses. The Rector afterwards read correspondence indicating a remote relationship between the Lilleshall family of Brodhurst and the Washingtons of America. Two members of the former family are buried in the churchyard.

Passing on to the beautiful ruins of the old Abbey, Mr. Scrivener said there was a mill referred to in Domesday Book, and another was subsequently mentioned as being within the precincts of the Abbey. There were also two large fish-ponds, the water from one of them being used to work the mill mentioned in Domesday Book. There was no doubt that this pond was of Saxon construction. Both were triangular, which was a curious feature and certainly pointed to their being connected with an ecclesiastical institution. In 1042 St. Alkmund's Church, Shrewsbury, held amongst other manors that of Lilleshall. Godebold the Priest held the manor, and it was supposed that it passed to his son, Richard de Belmeis, Bishop of London, who died in 1127. It descended to his son, Philip de Belmeis, who, in 1139, became so interested in the recently founded Abbey of Buildwas that he was admitted into that fraternity, but changed his mind before 1145. Philip was the first patron of the Augustinian order in Shropshire, and they settled, probably about 1143, at Lizard Grange, $2\frac{1}{2}$ miles north-east of Shifnal. Philip's brother, Richard *ii.* de Belmeis, became patron, and persuaded the Order to migrate in 1144 to "Doninton, which was part of the Prebendal Stall of Lilleshall." From here they moved, between 1145 and 1148, to Lilleshall Wood, where they built the Abbey, as proved by charters dated 1145 to Canons of "Doninton," and 1148, which spoke of an endowment of Richard de

EVENING MEETINGS.

I.—STOKE-ON-TRENT.

Thursday, November 19th, 1908.

The President, who was in the chair, at the opening of the proceedings, said they had just held a council meeting at which it was unanimously resolved to recommend the election of Sir Oliver Lodge, who had recently been amongst them to open their Natural History Museum, as an honorary member of that society. In doing so, he was quite sure they would all feel that if Sir Oliver would accept the honour—which he (the President) was perfectly sure he would—he would be honouring the society perhaps more than they would be honouring him. This recommendation was unanimously approved by the meeting.

The President then said he could not allow the occasion to pass without making a reference to the inauguration of the Natural History Museum. To the Council it was a matter of great satisfaction that they had been able to conclude this arrangement between the North Staffordshire Field Club and the Hanley Town Council in such a satisfactory manner. To show the manner in which the Museum had already been appreciated, he mentioned that Mr. Jahn had informed him that since it had been opened no less than 400 to 500 people had visited it every day. He thought they could congratulate themselves on the successful issue of their work in that direction.

The Hon. Secretary mentioned that he had received the following letter from Mrs. Sheldon, of Springfields House, Newcastle:—"I have been distressed to hear that daily for the last month numbers of men are snaring brown linnets in the field opposite here. I do not know if it is illegal. I fear not, but I think it is a great pity there is no restriction for birds of this sort. They will soon become extinct. I am not sure whether I am in order writing to you, or if the Field Club can do anything in the matter. The individual is so helpless. Probably the

Club may be sufficiently influential to take some steps to stop such wholesale destruction." Mr. Bladen said he had advised Mrs. Sheldon that the best way would be to interest the owner of the land in the matter. Mr. Masefield agreed. He said it was not illegal, but the owner of the land could prevent the snaring taking place. He mentioned that recently a man had been summoned in the south of the county for killing a Little Grebe. It turned out that the bird was not a Little Grebe at all, but a specimen of the rare Black-necked Grebe, which was not mentioned in the Protection Order, evidently because the County Council never imagined it would occur in the county. The Honey Buzzard, which fed entirely on insects, also was not protected at this time of the year, and they certainly wanted a revision of the Wild Birds' Protection Order in this respect. The President agreed, and Mr. Masefield promised to draw up a resolution to send to the authorities.

Mr. Wells Bladen produced an interesting block of wood showing a cavity in which had been found a bird's nest and two eggs. The eggs, curiously enough, were pretty well intact in spite of the fact that it would have taken at least 15 years, according to Mr. Arthur Bailey, for the wood to have completely grown around the nest in the manner it had. The nest had been found by North Staffordshire Railway employees in sawing up an elm tree, and had been forwarded to the Club by Mr. Adams, the Locomotive Engineer.

Mr. F. W. Ash then read a paper entitled "The Evolution of the Cetacean Tail Fin."

Mr. Masefield congratulated Mr. Ash on venturing on what was probably the most difficult of all zoological subjects. Sir William Flower contended that the origin of Whales was undoubtedly to be found in terrestrial mammals, but how the evolution had taken place was not at all clear. Mr. Masefield suggested that the Whale, which descended to great depths in the sea, was provided with a horizontal tail to enable it to come more quickly to the surface to breathe. Another point connecting the whale with terrestrial mammals was the fact that on the embryo Whale there were traces of hair. Owing to the invention

of gunpowder, Whales were rapidly decreasing in number, and he looked forward to some means being found for their preservation. He proposed a vote of thanks to Mr. Ash, which was heartily accorded. The President said Mr. Ash's had been one of those suggestive sort of addresses, which set them thinking. The great difficulty in this case was of seeing whales in their natural habitats. A peculiar fact about the cetacean tail fin was that it contained no bony substance whatever, but was an aggregation of tendons. In all probability, these tendons, which gave the tail enormous power, originally belonged to the hind limbs, and thus it was strong corroborative evidence of the view taken by Mr. Ash.

Dr. McAlldowie next read a paper on "The Life History of the River Trent."

Mr. Barke said it was a deeply interesting paper, and he congratulated the Society on the fact that although Dr. McAlldowie had retired to the more salubrious air of the Cotswolds he had not forgotten Staffordshire. The study of the evolution of rivers was a most interesting one, although it required a great deal of observation. There was no doubt that rivers often cut across escarpments. The cutting off of the head waters of the Trent by the deviation of the Biddulph Brook through the Millstone Grit gorge at Mossley to the river Dane, and the deviation of the Stockton Brook into the river Churnet at Val Grange was attributed by Mr. Walcot Gibson in his *Memoirs of the Coal-measures of North Staffordshire* to a platform of Triassic rock overlying the Carboniferous system and inaugurating a fresh system of drainage. Coming lower down to Stoke they found two valleys, one through which the Trent ran at Hanford, and the old valley, a much wider one, running down towards Trentham and Barlaston. Hanford Hill intervened between the two. Looking at the gorges, they found that the one through which the Trent now ran, between Oakhill and Hanford, was a very narrow one, being not more than 250 feet in width and not more than double that width at the 400 feet contour line. The old valley, from Hanford Hill to Blurton Waste, was as much as 1,200 yards in width at the 400 feet contour-line, so that it was prac-

APPENDIX.

GIFTS AND LOANS OF NATURAL HISTORY SPECIMENS TO THE NORTH STAFFORDSHIRE FIELD CLUB MUSEUM, HANLEY.

MAMMALIA.

- Staffordshire Rodents (stuffed).—Presented by Mr. J. R. B. Masfield.
- Otter (stuffed) and Head of Chartley Cow.—Lent by Mr. R. H. Read.
- Squirrel (mounted) and Skins of Squirrel and Mole.—Lent by Mr. B. Bryan, Longton.

AVES.

- Seventeen Mounted Staffordshire Birds and Fifty Bird Skins.—Lent by Mr. Bryan.
- A Collection of Several Hundred Birds and Bird Skins.—Lent by Mr. R. H. Read.
- Four Birds (stuffed), Ring Puzel, Young Cuckoo, Water Rail, and Tufted Duck.—Purchased.
- Thirty-six Boxes of Staffordshire Birds' Eggs.—Lent by Mr. Wells Bladen.
- Four Clutches of Eggs—Starling, Carrion Crow, Coot, and Mistle Thrush.—Presented by the Rev. F. C. R. Jourdain.
- Water-colour Sketch of Erythristic Variety of the Partridge.—Lent by Mr. Wells Bladen.
- Seventeen Skulls of Birds and Rodents.—Lent by Mr. J. R. B. Masfield.

PISCES.

- Three Cases of Fish.—Lent by the Hanley Angling Society.
- Grayling.—Purchased.
- Burbolt.—Presented by Mr. J. R. B. Masfield.
- Seven Water-colour Drawings of Staffordshire Fish.—Lent by Mr. J. R. B. Masfield.

INSECTA.

Lepidoptera.

A Collection of Staffordshire Macro-Lepidoptera.—Lent by Mr. J. R. B. Masefield.

Hymenoptera.

A Small Collection of Wild Bees, principally taken at Cheadle.—Lent by Mr. J. R. B. Masefield.

Coleoptera.

Ten Cases, containing about Seven Hundred Species of Staffordshire Beetles.—Lent by Mr. Louis H. Jahn.

Pseudo-Neuroptera.

A Case of Dragon-flies.—Part Gift and part Loan.

MOLLUSCA.

A Collection of Staffordshire Land and Fresh-water Shells.—Lent by Mr. J. R. B. Masefield.

Shell of *Dreissensia polymorpha*, containing Pearl.—Lent by Mr. Wells Bladen.

Ward Collection of Fossil Fish, Plants, Mollusca.—Acquired by Purchase.

Limestone and Coal-measure Mollusca.—Presented by Dr. Wheelton Hind.

Silurian Fossils.—Lent by Mr. J. F. Wattison, Cobridge.

Trias Fossils from Cheadle Gravel Beds.—Presented by Mr. J. R. B. Masefield.

Cheiroptera.

Ten Staffordshire Bats.—Presented by Mr. J. R. B. Masefield and Mr. B. Bryan.

BOTANY.

Mounted Specimens of Staffordshire Plants.—Lent by Mr. H. Emmett.

Specimens of Fossil Plants.—Lent by Mr. J. F. Wattison.

ARCHÆOLOGY.

Specimens of Celts of the Stone and Bronze Age, Iron Implements, &c.—Lent by Mr. J. R. B. Masefield.

Stone Hammer.—Lent by Mr. Simon James, Cheadle.

Stone Hammer.—Presented by the late Sir Thomas Wardle.

Two Stone Celts.—Presented by Mr. H. Dishley.

Spearhead of the pre-Historic Iron Age, found at Stone.—Lent by Mr. Wells Bladen.

Mediaeval Tiles from Stone Priory.—Presented by Mr. Wells Bladen.

Fragments of Mammalian Remains, found in Deep Drainage, Stone.—Presented by Mr. Wells Bladen.

A number of Fragments of Pottery, found during Excavations at Croxton Abbey.—Lent by Mr. C. Lynam.

Five Cards with Flint Implements.—Presented by Mrs. Kirkby.

Slab of Sandstone, with Reptile Footprints, from Hollington, Staffs.—Presented by Mr. J. Fielding, Alton.

MINERALS.

Specimens of Iron, Copper, Zinc, and other Ores, collected by Mr. W. D. Spanton during the Club's Excursion in 1906 to the Isle of Man, and presented by him to the Museum.

Ebonized Mahogany Museum Stand, with Rotating frames.—Presented by Mr. W. D. Spanton.