

NORTH STAFFORDSHIRE

NATURALISTS' FIELD CLUB

AND

ARCHÆOLOGICAL SOCIETY.

ANNUAL REPORT

AND

TRANSACTIONS.

Vol. xxviii.

STOKE-UPON-TRENT :
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EXCURSIONS AND EVENING MEETINGS.

FOR 1894-95.

EXCURSIONS.

- 1—Thursday, April 19th ... DUDLEY.
Leader—The PRESIDENT.
- 2—Saturday, May 19th (in conjunction with the Burton Club) ... ROLLESTON.
Leader—Mr WELLS BLADEN.
- 3—Wednesday, June 20th to Monday, June 25th ... THE NORTH OF IRELAND.
Leader—The PRESIDENT.
- 4—Saturday, July 21st ... QUARNFORD, AND GOLDSITCH MOSS.
Leader—Mr W. S. BROUGH.
- 5—Tuesday, August 21st ... KNYPERSLEY, BIDDULPH, AND THE BRIDESTONES.
Leader—Mr A. SCRIVENER.
- 6—Thursday, September 20th ... HADDON HALL.
Leader—Mr LYNAM.
- 7—Thursday, October 11th... ADJEFFLEY AND AUDLEM.
Leader—The SECRETARY.

EVENING MEETINGS.

- 1—Tuesday, November 20th... NEWCASTLE.
Local Secretary—Mr W. H. EARL.
- 2—Tuesday, January 22nd ... STOKE.
Local Secretary—Mr J. KIRKBY.
- 3—Tuesday, February 19th ... STONE.
Local Secretary—Mr WELLS BLADEN.
- 4—Thursday, March 21st ... ANNUAL MEETING ... STOKE.
Local Secretary—Mr J. KIRKBY.

THE TREASURER IN ACCOUNT WITH THE NORTH STAFFORDSHIRE NATURALISTS' FIELD CLUB,
AND ARCHÆOLOGICAL SOCIETY.

STATEMENT OF ACCOUNTS FOR THE YEAR 1893.

Dr.	RECEIPTS.				EXPENDITURE.				Cr.
		£	s.	d.		£	s.	d.	
By Balance from last year	...	35	7	6	To Expenses of Summer Excursions	0	17	6	
„ 384 Subscriptions @ 5/-	...	96	0		„ Expenses Cheadle Winter Meeting	2	16	6	
„ 56 Entrance Fees	...	14	0	0	„ „ Tunstall Winter Meeting	2	0	6	
„ Error, charged twice	...		1	0	„ „ Stoke Annual and Committee Meetings	5	8	9	
					„ „ Stoke Winter Meeting	4	4	6	
					„ Fixing Cases Stoke Free Library and Stamp	1	3	0	
					„ Subscription Palæontographical Society	1	1	0	
					„ Bagdley for Printing Circulars, etc.	27	4	0	
					„ Vyse and Hill, Printing Annual Report	78	13	6	
					„ Minery Bros., Reprints for Annual Report	2	14	0	
					„ Collector's Commission and Postage	6	16	8	
					„ Balance in Bank	13	8	7	
		£146	8	6		£146	8	6	

Examined to December 31st, 1893, and found Correct,

E. EARL.

GARNER MEMORIAL FUND.

						£	s.	d.
1893.	To Capital Amount invested in Queensland 4% Stock	...	...	...	...	50	0	0
	„ July 1st. 6 month Interest	...	...	...	...	1	0	0
1894.	„ January 1st. do.	...	...	...	...	1	0	0

ANNUAL REPORT.

REPORT.

*Read at the Twenty-Ninth Annual Meeting, held at Stoke,
on Thursday, March 15th, 1894.*

It is the good fortune of the Council to be able once more to congratulate the members of the North Staffordshire Naturalists' Field Club and Archæological Society assembled at the Twenty-Ninth Annual Meeting. The Excursions and Evening Meetings have all been held, with scarcely any alteration, in accordance with the authorized list; in one of the finest years on record the former could not fail to be successful, and the interest of the latter has been enhanced by the local character of all the papers read. The attendance at both Excursions and Evening Meetings has been fully up to the average; the Sectional Reports will show that much good work has been done in a quiet way, and there can be no doubt that the past year has witnessed a distinct advance in the influence of the Club. With a lengthening roll of members too, and with prosperous finances how can we come together to-night without a word of congratulation on the position and success of the Club?

The Excursions have as usual been seven in number, and with the exception of the one in August they have all been held at the original dates; the only alteration was a very slight one: the Excursion had to be antedated one day, Saturday being an inconvenient day for the Hotel people at Macclesfield; there was however an alteration of another kind: the September Excursion to Tatton Park and Rostherne should have been under the able leadership of Mr Alex. Scrivener, but unfortunately owing to illness and consequent strain of work he had to delegate the duty to another member. In detailing the Excursions it is impossible not to allude to the magnificent weather of the past summer, which

beginning with the coming in of March lasted, but with few short interruptions, until the late autumn. The Excursion Season therefore could not fail to be a most enjoyable one, and yet rain was not unknown on at least two occasions. The Sunday of the long Excursion was marked by one or two heavy showers, and there were a few heat drops in an otherwise perfect day at Gawsworth in August, and rather more than a few drops in Tatton Park in September, which were followed later in the afternoon by a sharp shower at Rostherne; but with these exceptions the Club had a full share of the glorious weather of 1893.

The places and dates of the Excursions together with the names of the Leaders and the number of members present were as under:—

I.—Wenlock and Budwas Abbeys, and the Quarries in the Wenlock Limestone on Saturday, April 22nd. Leader: Mr Arthur T. Daniel, M.A. 45.

II.—Barrow Hill, the Weavers, and Alton, on Saturday, May 27th. Leader: Mr T. S. Wilkins. 75.

III.—The Manifold Valley, Thor's Cave and Grindon Church, on Tuesday, June 20th. Leader: W. S. Prough, Esq., J.P. 52.

IV.—Bath, Frome and Wells, on Wednesday, July 5th to Monday, July 10th. Leader: Dr. Hind, President. 30.

V.—Macclesfield, Dances' Moss, Gawsworth and Prestbury, on Friday, August 18th. Leader: Mr W. Wells Bladen. 25.

VI.—Knutsford, Tatton Park and Rostherne, on Wednesday, September 20th. Leader: Rev. Thos. W. Daltry. 45.

VII.—Delamere Forest, on Tuesday, August 10th. Leader: Mr F. Barke. 46.

These figures give a total attendance of 318 with an average at each Excursion of $45\frac{1}{2}$. This compares favourably with the attendance last year, which averaged only 42, but it is less than that of the preceding year by $5\frac{1}{2}$.

The pleasant memories of the long Excursion to the West of England will not quickly be effaced from the minds of those whose

ANNUAL ADDRESS.

By the PRESIDENT, WHEELTON HIND, M.D., F.R.C.S., F.G.S.

I have felt that the task which falls to my duty, as your President, of selecting a subject on which I am to give you an address is no light one, more especially as I conceive that, considering the varied tastes and minds of the members of this Club, an address of this sort should be as broadly interesting as possible, and that it is neither fair to the majority to inflict on them a sectional paper which would be to a large extent full of technical terms, and would probably only be appreciated by a small minority; nor conversely would it be quite fair to the minority to provide no pabulum to be digested by their mental organs. After a review of three or four subjects which came into my mind I thought, remembering that we are a scientific Society and that therefore each member has, by joining, signified his approval of the methods of Natural Science, that it would be well to address you upon the value of Scientific and Natural History pursuits as a factor in Education, and to try to indicate the far reaching effects on the intellect and conduct which result from such studies in which the desire for absolute Truth must be above all things.

And when I speak of the Educational value of Science I do not intend merely to allude to those elementary studies which, at last, are now, towards the end of the 19th century being almost universally considered as a necessary part of modern School studies, and rightly so, as I hope to abundantly prove before I have done; but I take a far wider and higher view of Education, a view more in accordance with the derivation of the word, and to which there is no end.

Yet how often do we hear of young people having finished their education, as if being replete with a certain marketable supply of the commodity of knowledge, condensed under pressure and therefore certain to escape as soon as the weight is removed from the valve,

was the summum bonum of learning, unhappy mortals if there is any truth in the statement—and unfortunately this is often so—because by faulty methods, the acquirement of knowledge has been made a labour rather than a pleasure, and carries with it the mental associations of dreary efforts ; so that there is no desire but a positive distaste for any real intellectual developement. Knowledge is useless unless it is infective and is able to reproduce as offspring of the marriage of itself with the intellect unending generations of new born thoughts, unless too, it conjures up the questions, why ? how ? and when ? and is positively dangerous even, without receptivity, or the due appreciation of each fact, not so much as an isolated event, but as a link in one long chain of sequences.

The real objects of scholastic or elementary education should be to cultivate observation and a desire to know, to train the memory and induce thought, so that the real education, which must be always to a large extent self-sought and which is co-terminous with mental life, may begin.

In these days of competitive examinations, which are however not an unmixed evil for they insure a certain standard of learning and introduce students to subjects which might otherwise have remained untouched, and also are of definite advantage as discipline, the real factors of juvenile education are to a large extent neglected and too much time is devoted to accomplishments, as if the main object of modern education was to make the pupil attractive, the more useful subjects being sacrificed for those which will produce the greater show, the necessary and essential studies being neglected for that smattering of arts and languages which is called Aesthetic culture and which to the majority is of no practical use, for this sort of stuff conduces neither to accuracy in thought nor does it serve as a guide to conduct. The child is the father of the man, and being to a large extent plastic, takes the form of the mould by which he is surrounded, so that it is of the utmost importance that the teaching of the young should be conducted on thoroughly scientific lines ; in short, education should have a three-fold object : “To impart a capacity for work, to create a sense of self-respect, and to supply resources for the employment of leisure hours.” The terrible apathy which is shown towards intellectual advantages and the running to the uttermost ends of the earth after fresh excitement, show at once the vicious character of early training,

SECTION A.—ZOOLOGY.

CHAIRMAN.—MR MASEFIELD.

REPORT 1893-94.

Such an almost unprecedented early spring and hot summer, as those of last year, cannot fail to have been productive of most interesting observations in things Zoological. Thanks to the workers, and work done in this Section, I have been supplied with notes on many of our local Mammals, Birds, Fish and Mollusca which have led to our further investigation and study of their life histories, and therefore to our greater knowledge of their usefulness in the different spheres they occupy in nature.

The Badger occurred in December last in Woods to the South of Cheadle, which shows that this animal still survives in woods *all around* that town. Dr. Macinloe sends me a note stating that he has seen the Rabbit in the act of feeding on a Fungus, *Boletus luteus*, the Brown-yellow *Boletus* commonly found in Fir woods and said to be edible. It is well known that Squirrels feed on fungi, it is to me a new fact that Rabbits indulge in these delicacies. An Otter was killed last Autumn near Consall, on a tributary of the Churnet, but is very rarely met with now on that river. A pure white Mole was caught at Whiston in September last. Through the kindness of Mr Collins of Trentham—an ever willing helper in our Sectional work—I received in June last a consignment of 61 small Bats, taken as they emerged from under the eaves of one of the Lodges in Trentham Park. These all turned out on careful examination to be the Pipistrelle (*V. pipistrellus*) and this is the first occasion on which I have met with so large a colony of this Bat. In September, Mr Collins obtained 10 specimens of the Great Bat out of a hollow Scotch Fir tree, and he also obtained three specimens of a small Bat from a hollow Birch tree, but unfortunately I had not an opportunity of examining these to ascertain the species, otherwise it might have proved that the Pipistrelle is also a tree inhabiting species. From Swythamley I have received records that the last Polecat was killed

there in 1853, and that in the same year a wild Red Deer was in the Woods, and as late as 1870 a Red Deer was killed there; also I am told of the occurrence of a White Rat at Swythamley in 1866. A most instructive series of articles appeared in the *Staffordshire Advertiser* in November last on "Agricultural Zoology" by well-known authorities, and to that on the Voles I would specially call attention, as the past hot summer has no doubt caused an abnormal increase in the numbers of the Field Vole (*Arvicola agrestis*), not only in this district, but in other parts of England. If the coming Summer should turn out to be a dry one I certainly fear lest we may be visited by a vole scourge such as that which occurred in Scotland in 1892, unless our Landowners and Agriculturists cease from the destruction of Owls, Hawks, Stoats, and Weasels, the natural enemies of the Field Vole.

In the Ornithology of our County, the event of the past year, and I think I may say one of the chief events which especially mark the progress and good work done by our Club, is the publication of "The Birds of Staffordshire" by Dr. Mc Aldowie, on which I am sure we most heartily congratulate him. This work is the outcome of a true Naturalist's observation, perseverance, labour, and research, and will now take its place as *the* authority to be consulted on all questions relating to our Staffordshire wild birds. This monograph has brought our bird notes to so recent a date that I will not here repeat any facts that have already been mentioned herein. The dates of arrival of our Summer Migrants, owing to the unusually warm spring of 1893, were very early. The following have been supplied to me by Rev. T. W. Daltry, and Messrs Blagg, Meynell and Bladen:—

		<i>Cheadle.</i>	<i>Farley.</i>	<i>Madeley.</i>	<i>Stone</i>
Cuckoo	...	10th April	18th April	7th April	5th April
Chiff Chaff	...	29th March	7th April	22nd March	23rd March (Barlaston)
Willow Wren	...	—	11th April	22nd March	—
Swallow	...	14th April	6th April	8th March	—
Redstart	...	11th April	7th April	—	—
House Martin	...	—	18th April	—	—
Corncrake	...	29th April	20th April	—	—
Sand Martin	...	—	—	8th March	5th April
Swift	...	4th May	—	—	—
Spotted Flycatcher	...	12th May	—	—	—

ORNITHOLOGICAL RECORDS
IN NORTH WEST STAFFORDSHIRE
WITH SPECIAL REFERENCE TO
THE ASTON DISTRICT.

By R. H. READ, M.R.C.S., L.R.C.P.

[Read January 23rd, 1894].

The object of this paper is to enumerate and remark upon those species of birds which occur in the district to which it refers.

In this sense the paper is supplementary to the List of the Birds of Staffordshire compiled by Dr. McAldowie and published last year; and, considering the high degree of completeness attained by Dr. McAldowie's List, it is hardly surprising that I should have no additions to make to the number of species recorded therein. There are 231 birds mentioned in the published list, and of these there are several whose appearance rests on slender authority; authority, at any rate, which Dr. McAldowie looks upon as insufficient. I make this remark in explanation of the fact that I shall have fewer birds to bring under your notice to-day. I should also like to say that, although by far the greater number of the species which I am about to enumerate may be looked upon as making up the chief actors in the every day bird life of North West Staffordshire, there are a few of merely occasional or very rare occurrence. Now although the former may be considered as the more important group, I imagine it would be a mistake to consider occasional visitors as of much less interest, for no occurrence, however rare, is ornithologically insignificant. The appearance of any rare bird in a given district will generally be found to have some connection with palpable abnormality of environment at the time of

appearance—if this is not the case the appearance may be taken as significant of either the past or future history of that district. I have therefore noticed one or two instances of rarities in these notes, even when such occurrences have happened outside the immediate district of which I speak.

This district may be roughly taken as comprising about 3000 acres with Aston near Maer as its centre ; it lies in the North West portion of the county and is therefore beside the great fly-line of migration to which the Southern part of Staffordshire owes so many of its interesting bird records. Such migrants as are found in the district are therefore mainly those which reach England, and pass by the Humber to Severn route and find N.W. Staffordshire included in their area of distribution.

The migrants we notice there are chiefly birds which come to stay with us, either for the winter or for the breeding season. I believe however that we are affected (to a much smaller extent, of course) by other migratory streams and shall have occasion to refer to this point later on.

I wish to mention in connection with the occurrence of those rarities, about whose appearance some may be sceptical, the ease with which some birds cross the ocean by means of ships and to ask your attention to the following from *The Field* of December 2nd, 1893 :—

“Land Birds at Sea.—On the outward passage of my last voyage leaving Rotterdam on October 18th, after a smooth run as far as the South Foreland we experienced fresh northerly winds all down channel, and being close to the land in many places numerous birds were blown off, some resting awhile, then making a fair wind of it for France, while others got back to their own country. Among others we had a visit from a Thrush, several Starlings, Larks, and a flock of Chaffinches, which at dusk I noticed going to roost in the folds of the main trysail, then furled. At 6 a.m. next day we were off the Scilly Isles, heading out for the Western ocean and I wondered if the birds would take this last opportunity to make the land. I tried to drive them off ; but without effect, for they stuck to the ship, three male and two female birds. During the

A SKETCH OF
OUR LOCAL FRESH WATER FISH
WITH A
VIEW TO THEIR FURTHER STUDY.

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

[*Read February 20th, 1894.*]

The subject of Ichthyology has been so far I fear almost entirely neglected by the members of our Club. Only occasional notes appear in our Transactions, such as that of an unusually large fish having been taken, or perhaps of a species having been found in a locality where it had not been observed before, or similar facts. As there is no time like the present, I have, at the request of our local Secretary, consented to start the ball rolling in this particular branch of Natural History, and I trust it may lead to a more careful study of our Local Fish, of their habits, life history, and of the distinctions between the various species. I do not propose in this paper to go scientifically or minutely into any description of the Class "Pisces," but rather to give a general sketch of the Streams, Meres and Pools of North Staffordshire and of their finny inhabitants. It has been truly said "That the *worth* of many a man is not known, nor thoroughly appreciated, until after his death." This truism may, I think, be well applied to those many species of the lower orders of the Animal Kingdom which are gradually but surely becoming extinct. We never value them fully till they are no longer with us. And as applied to the Fourth Class of Vertebrate Animals, "Pisces" or "Fish," with which we are dealing to-night (although we shall only touch upon a restricted branch of the subject), it cannot have escaped the notice of any of our observant Naturalists that our Streams are

gradually becoming denuded of many species of indigenous fish life. How often do we hear it said that such a Stream or Pool used to contain such and such fish which the speaker well remembers catching, but those good old days are gone, and there are none of those fish there now! What then are the causes of this loss? Primarily, I think we may without doubt attribute it to increase of population and its resultant, the greater pollution of our Rivers and Water-courses. Next we may, I think, attribute this loss to overfishing of many waters and the taking of fish during their breeding seasons, which has now fortunately been made illegal. Further, we have the criminal acts of those who wilfully destroy the whole of living animal life for a distance often of several miles along a River or Stream, poisoning the water by means of lime or other destructive matter, or even sometimes by the explosion of dynamite under water for the purpose of carrying off the fish. We must also attribute much of the mischief to the discharge into our streams, generally accidentally, I admit, of deleterious liquids from Works or Factories, which for the greater facilities of trade are generally built upon the banks of rivers, streams or canals, the overflow water from the latter finding its way eventually into the rivers themselves. As an instance in point, I can remember the time when the river Trent at Stone was a pure bright stream, and I have seen Trout, Pike, Perch, Chub, Roach, Dace, Minnows, Loaches, Miller's Thumbs, Eels and Lampreys, and even that favourite crustacean of the epicure, the Crayfish (*Astacus Fluviatilis*), which can only exist in pure streams, all these species taken in the Trent—then came the discharge of some oily deleterious liquid, covering the surface of the water with prismatic colours, from some Manufactory higher up the stream, carrying death to every fish and living creature along the river; and nothing was to be seen for days after but dead, dying and decaying fish, heartrending to behold. This occurred on several occasions within my recollection. To show the present state with respect to some, I fear I might say *many*, of our streams, let me quote the report of a local sanitary Inspector presented last month. He reported that he had made a house to house inspection of a certain village in North Staffordshire with reference to the Rivers' Pollution Act, and he had found that, with one or two exceptions, the sewage flows directly or indirectly into a watercourse. "In some instances," he proceeds to say, "tanks have been constructed, but these have overflows discharg-

NORTH STAFFORDSHIRE FRESH WATER FISH.

Order ACANTHOPTERYGII.

FAMILY PERCIDÆ.

1—*Perca Fluviatilis*. THE PERCH.

One of the commonest Fish in our rivers and ponds, but, owing to overstocking, in the latter often only of small size. Spawns in April and May and the number of ova in a single female fish are from 155,000 to 280,000. The eggs are deposited in strings amongst water reeds. One $\frac{3}{4}$ lb. in weight took a bait of 2oz. in a pond at Alton. [D.H.]

Plentiful in ponds and pits around Madeley. [T.W.D.]

Taken upwards of 1lb. in weight in Hales Hall pool, Cheadle, and I have seen a shoal of these fish so tame as to come to be fed with bread. [J.R.B.M.]

Many years ago a pool at Tixall was emptied and two Perch were taken out weighing together 9lbs. [F.M.]

A Perch was found dead at Radwood, near Madeley, choked by a fish of its own species ; the two weighing between 2 & 3lbs. [R.H.R.]

In Copmere, Perch have been taken up 3lbs. [G.A.]

Mr Edwin Brown says they have been caught up to 4lbs. in the Dane.

Col. Masfield writes :—"I have caught one in Knighton Reservoir 5lbs. in weight, and I have many up to 1lb. The easiest way of propagating Perch is to get "eyed" ova out of a pond and transfer "it to another pond."

To shew the voracity, and at the same time the apparently non-acute feeling, in some fish at all events, Mr Cholmondeley Pennell

relates the following incident :—"When fishing in Windermere, and "in removing the hook from the jaws of a Perch one eye was accidentally removed and remained adhering to the hook. I returned the maimed fish to the Lake and threw the line in again with the eye attached as a bait. The float disappeared almost instantly and on landing the fish it proved to be the very fish I had just thrown in and which had thus been caught with its own eye!"

Mr. John Ward informs me of a Perch 4½lbs. in weight taken in the Trent

2—*Acerina vulgaris*. RUFFE, DADDY RUFFE OR POPE.

This fish is found in the Trent, Dove, Churnet, and in the canals near Stone, and no doubt throughout our canals generally. In general appearance it somewhat resembles the Perch, but is without the brilliant colouring of the latter. It may also be distinguished from the Perch by the dorsal fins being united *in one*, while in the Perch there are two distinct dorsal fins. The Ruffe spawns in April, and does not exceed 6 inches in length. The ova are deposited amongst rushes and flags.

Col. Masfield says :—"Never seen one more than 3 or 4 oz. ; "on the increase in most of our rivers and ponds."

In abundance in Tittesworth Reservoir, Leek, and the canals around Leek. [F.D.W.]

Up to ½lb. in the Churnet. [J.W.]

FAMILY COTTIDÆ.

3—*Cottus Gobio*. BULLHEAD OR MILLER'S THUMB.

This is a small species not exceeding 4 or 5 inches in length, and to be found in all our stony streams, and may be distinguished by its large flat head, and the eyes looking directly upwards. The general colour is a dark brownish black.

This fish may be found in any stream where it occurs under loose stones, and if the stone is very gently and carefully removed a Bull-head will generally remain quite still lying flat on the ground, and

SLUGS AND SNAILS.

BY ARTHUR T. DANIEL, M.A.

[*Read November 21st, 1893.*]

"Slugs and Snails" is rather a large subject, but it is only with one small branch of the study that I am dealing to-night, and I shall confine myself entirely to Conchology. I make no pretension to higher science ; I have nothing to say about anatomy or life-history, and I have nothing new or original to offer.

The common ignorance, however, about these most beautiful, and most interesting, these grandest and noblest objects of creation as they are to the Conchologist, the common ignorance, I say, about these creatures is really astonishing and lamentable. People have asked me whether Snails often come out of their shells, and when I have told them that they cannot if they would, they will hardly believe me. Others think that Snails moult like birds or shed their skins like Snakes and in this condition are known as Slugs ; and I have no doubt that others still believe the old tradition—that when Snails were first created there were not enough shells made and some of the animals had to go without, hence the Slugs.

The ordinary observer, however, of common sense recognises a Slug and a Snail as two very different creatures, but at the same time sees great similarity between them, the chief point of difference being the shell. Now it is my object to show that in this respect there are animals intermediate between the two, that in this respect the various genera "run into one another" as we say in Biology, that a regular chain exists between the two, and that regarding solely and simply the question of shell, it is very hard to draw the line between Slug and Snail.

Let us begin firstly with one of our commonest Snails, *Helix Hortensis*. You will observe that the shell is a solid, heavy, opaque

structure, that the animal has the power of withdrawing himself completely within the shell—in fact more than that—in other words, that the animal is in a certain measure smaller than his shell. If you were to weigh the two, I think, in most species of *Helix* the shell would weigh quite as much if not more than the animal.

Next let us take the *Hyalinæ*, selecting as a type the common *Hyalina Cellaria*. Here you see the shell is vitreous, transparent, and altogether a much slighter structure than that of the *Helix*. Moreover, though the shell can still contain the whole of the animal, yet he cannot draw himself very far within. The proportion of soft body to shell is much greater than in the case of the *Helix*.

Now, passing on to the *Vitrinæ*, I am passing round specimens of the only British species, *Vitrina Pellucida*, the hardiest of our British Molluscs, sometimes called the Winter Snail. The shell of this little creature is of the slightest description, quite transparent and very beautiful, and the animal can never withdraw itself entirely into its shell. The bulk of the body is now what is commonly known as the foot. Interesting as this species is from our present point of view, there is another species of the same genus which occurs on the continent, which is still more instructive, the *Vitrina Diaphana*. I am handing round three specimens of the shells of this mollusk. The shell, of a still more flimsy description than the last, is situated about the middle of the back, covering perhaps about one sixth of the body when fully extended, and protecting the liver and other vital organs. The animal can hardly ever be said to withdraw itself into its shell which is simply a shield with the merest apology for a spire. When I first came across this, near Vienna, for some moments I did not perceive the shell, and thought I had found a strange Slug. The proportion in weight in this species of shell to soft body would probably be one to twenty, or even less. You will see we are now considerably on our way towards the Slug, yet this genus still belongs to the *Helicidæ*; we are still rather among the Snails than among the Slugs.

I now pass on to the most interesting links in the chain, the *Parmacellæ* and the *Testacellæ*. I take the *Testacella* first, though perhaps the *Parmacella* at first sight seems to be the next link. I am handing round living specimens of *Testacella Scutulum*. This strange creature lives underground and lives on earth worms, which it is active

SECTION F.—METEOROLOGY.

CHAIRMAN.—REV. G. T. RYVES.

THE WEATHER OF 1893.

The principal feature, and the only one which demands special notice in the weather of the past year, is the period of fine, dry, bright and warm weather which extended, with only some slight and partial interruptions, from the beginning of the second week in March to the end of the third week in June. The period in question is commonly referred to as the great drought of 1893; but in this district, at any rate, the deficiency of rainfall was not such as to constitute a drought, and the same may be said of by far the greater part of the United Kingdom. As Mr Symonds (of "British Rainfall") has pointed out, the really exceptional features of the season were almost entirely confined to the southern part of England, so that a line drawn across the country from Falmouth to Boston would roughly cut off the area over which anything that could properly be called a drought was experienced. Meteorologists distinguish between an absolute and a partial drought: An absolute drought being defined as a period of not less than fourteen consecutive days during which no measureable rain has fallen, and a partial drought as a period of not less than twenty-eight consecutive days during which the aggregate fall has not amounted to more than one-hundredth of an inch per day. If we apply this test to the period under review we find that there was a partial drought of just twenty-eight days from March 18th to April 15th, and an absolute drought of fourteen days—the minimum number of rainless days constituting such a drought—between the 1st and 16th of April, the latter being as it were included in the former. There was also an absolute drought of just fourteen days between the 4th and 19th of June. But these were the only instances of the kind; and I think it will be admitted that this is too slender a basis to justify the

application of the term drought to the whole period from March to June, especially when we bear in mind that the rainfall of one of the four months was actually somewhat in excess of the average, and that there was no interval of more than fourteen days without at least one refreshing shower.

On the other hand if we do not confine our attention to the element of rainfall alone, but take into account the important elements of atmospheric pressure, shade-temperature diurnal range of thermometer, relative humidity of the air and duration of bright sunshine; it is doubtful whether there is any instance on record of so prolonged a period of typically fine weather, at any rate so early in the year.

Before I proceed, as I now propose to do, to give details of the principal meteorological elements for the several months in their order, it may be well to state that these are based entirely on observations made by myself at Tean, and that there is reason to believe that some of the heavier falls of rain which did so much to mitigate the effects of the prolonged dry weather in that neighbourhood were very local, and that there are probably isolated spots in North Staffordshire where the deficiency of rainfall and its effects upon agriculture were much more serious.

Hard frost, accompanied by frequent falls of snow, prevailed during the first eight days of January. On the 9th a slight tendency to thaw showed itself, and, though from this date to the 17th inclusive, temperature was considerably below the average for the season, the cold was less severe, frost alternating with thaw and occasional showers of rain, and by the 20th the snow had entirely disappeared, except where it had drifted to an unusual depth. The remainder of the month was comparatively mild, with rain on every day but one. The highest temperature in shade, 51.8° , occurred on the 31st; the lowest, 4° in the screen and 1° below zero on the snow, on the night of the 4th. Rain or snow fell on 22 days, and the total amounted to 2.36 in.

February fully justified its title of "Fill-dyke," rain having fallen on 26 out of the 28 days, the total fall, 3.32 in., being considerably

GARNEK MEDAL AWARDS.

1893.—The Rev. THOS. W. DASTRY, M.A., F.L.S., F.E.S., for his
Contributions to the Entomology of North Staffordshire.

1894.—CHARLES LYNAM, Esq., F.R.I.B.A., for his papers and
memoirs on the Archaeology of Staffordshire.

JOURNAL OF PROCEEDINGS.

EXCURSIONS.

I.—WENLOCK AND BUILDWAS ABBEYS,

AND

THE QUARRIES IN THE WENLOCK LIMESTONE.

SATURDAY, April 22nd.

LEADER—MR. A. T. DANIEL.

The day was as bright and warm as midsummer, the gathering of members was large, and a keen interest was taken in the subjects investigated. Prior to the excursion the members of the photographic and archaeological sections had met and had arranged to work in concert on this occasion, so the workers of the camera were not the least noticeable amongst the company, and those interested in archaeology had not forgotten their undertaking to bestir themselves at this meeting. The members of the geological section were also attracted by the great limestone quarries which are now being worked near to the main road which connects Buildwas and Wenlock. The botanists found the early spring favourable to their pursuits. The first start of this year's work was both auspicious and profitable.

The party travelled by train the full distance to Wenlock by way of Stafford, Wellington, and Coalbrookdale. On the arrival at the station the leader at once mustered his followers and walked to the ancient parish church of the Holy Trinity in Wenlock, where the vicar was ready and willing to point out its most interesting features. He explained its present plan and its Norman origin, and referred to the existence of the lodging for a priest over the south porch, and showed the registers dating back to the early years of Queen Elizabeth. The church possesses features of each of the periods of mediæval architecture, and is full of charms to those who delight in unravelling the various changes which the centuries have developed in the building and in its accessories. From the church the vicar very kindly took the visitors to the Abbey of St. Milburg and showed its various features, and introduced them to the interior of the prior's house, now used as a residence by the

owner of the property. Here the company lingered amongst objects of interest, old and new, and in the course of time the courteous vicar said farewell. After this some members went to the Guildhall, and made an inspection of the picturesque main street and the half-timbered buildings which line its sides and makes up as quaint an assemblage of mediæval pictures such as are very rarely to be seen. From the time of arrival till the moment of departure many cameras were enthusiastically busy, and there is a prospect of the club seeing at some future date results such as no other excursion has hitherto afforded.

From Weobroke some members walked to the limestone quarries, and Dr. Hind made a few remarks on the geology of the district, and others made satisfactory "finds" of the peculiar fossils which this formation yields. The majority travelled to Buildwas by train, and went at once to the noble ruins which had attracted them, and here they were joined by the geologists. The leader engaged the attention of his party in the admiration of the vast remains of this relic of a grand monastic house. Its strength of construction not only served the daily uses of its occupants for about four hundred years, but since the dissolution has stood the attacks of time and pillage in a remarkable manner. It is, however, to be observed that some of its most interesting parts—such, for instance, the groined roof of the exquisitely beautiful Chapter House—threaten now to fall, and unless something is soon undertaken to arrest the destruction this portion of this great historic monument will become a thing of the obliterated past. Recently the groining to the roof of one of the chapels to the east of the south transept has fallen, and this part has to be guarded for the sake of safety. Can nothing be done to save the roof of the Chapter House? From the Abbey Church the visitors at last made their way to the Abbey Inn, and there partook of a somewhat nasty tea before finally making off to the station for the return journey, which brought the excursionists back to Stoke between seven and eight after a day of nearly twelve hours of work and enjoyment. After tea as many as seventeen new members were elected, and others were proposed for election. In the annual report for the year 1884 a detailed account is given of the first visit of the club to these same abbeys, and also a very careful description of them. Votes of thanks were passed to the vicar of Weobroke and to Mr Daniel, the leader, for their services during the day.

II.—BARROW HILL, THE WEAVERS, AND ALTON.

SATURDAY, May 27th.

LEADER.—MR T. S. WILKINS.

The second excursion of the season proved to be an interesting and most enjoyable one. The weather was fine and warm, and as the excursion was through some of the loveliest scenery in North Staffordshire, it was scarcely surprising that a larger number of members than usual turned up. The party, which numbered

EVENING MEETINGS.

I.—STOKE-ON-TRENT.

TUESDAY, November 21st.

Dr. Wheelton Hind, president, in the chair. There were between 70 and 80 members present, who occupied a preliminary hour pleasantly in inspecting the following among other objects of interest :—A very fine collection of photographs of stuffed and mounted birds ; another series of photographs of gannets on the Bass Rock ; and a third of Lundy Island and Farne Island. These were the property of Mr R. W. Chase, of Birmingham, by whom they were kindly lent through Dr. McAlldowie, of Stoke. The photographic section of the club showed a large collection of views, all taken during the past summer ; they were not only of high artistic excellence, but they testified to the enthusiasm which animates this section. The contributors were Messrs A. Meigh, R. Hardy, H. Holmes, F. Adams, T. Taylor, and J. Kirkby. Mr W. H. Goss lent collections of British and American (Illinois) flint weapons and implements, two cases of Gordon memorials, and other objects.—At 7-15 the President invited the company to listen to a paper by Mr F. Barke on the local occurrence of boulder drift.

The President having made a few remarks, Mr A. T. Daniel read a short paper on slugs and snails, for the purpose of showing the existence of connecting links between the two ; and from this he argued against the old theory of the separate creation of species. He spoke in almost glowing terms of the interesting character of these creatures, to many so loathsome, and was followed in a somewhat similar strain by the President and Mr Masefield.—Mr T. S. Wilkins advised those who, like himself, had only a small amount of leisure to spare for scientific subjects, to devote their attention to beautiful objects. He had under his microscope some foraminifera and also some butterfly's eggs, and if any present shared Mr Daniel's feeling the slugs were things to be esteemed and almost loved—(laughter)—he hoped they would turn to his microscope before leaving the room. He had no doubt as to the verdict of the ladies, at all events. Mr Daniel then described the finding of a colony of *Hydrobia Jenkinsi* near Dudley. Mr Masefield said this mollusc was very scarce in this country, having only been observed before in three estuaries in the South of England. This was the first time it had ever been seen so far inland. Votes of thanks were passed to Mr Barke and Mr Daniel, and refreshments were then served. A number of those present accepted Mr Wilkins's invitation, and were struck with the extreme beauty of the objects he had mentioned, and with the defining power of his splendid microscope. The butterfly's eggs were a good first, and the slugs "nowhere."

II.—BURSLEM.

TUESDAY, January 23rd.

The President (Dr. Hind) occupied the chair, and two valuable papers were read by Mr R. H. Read, and Dr. Macindoe. The title of Mr Read's paper was "Some ornithological records in North-West Staffordshire, with special references to the Aston district." The paper, which had been carefully compiled, contained a record of 107 different birds which Mr Read had seen in the district named. The President congratulated Mr Read upon the detailed observations which he had made, and Dr. Macindoe, in moving a vote of thanks, said the observations made by Mr Read were entirely within the scope of field work, which was the best class of work that could be brought before the society. There was no doubt that of late American species of birds had largely increased in this country, and that was to be accounted for by the increased amount of traffic between the two countries, the birds being brought over by the ships. It was a curious omission that the herring-gull had never been included in any lists prior to that last published, as it had no doubt passed over this country every year. Mr J. R. B. Masfield cordially seconded the vote of thanks, and while complimenting Mr Read upon his careful observations, regretted that he should have been guilty of shooting rare birds. There was no doubt that great mischief was being done through the shooting of rare and common wild birds, and the recent report of the Commission largely attributed the vole and rat plagues to the destruction of birds of prey. The Rev. T. W. Daltry agreed with the observations made by Mr Read. Mr Wells Bladen said he could not entirely agree with Mr Masfield with regard to the shooting of birds, for if they were never to be shot it would be impossible to preserve a record of them in the future. Mr Masfield argued that observations should be made with the aid of field glasses, but the President thought that closer observation was needed, and expressed the opinion that Mr Masfield was carrying his point a little too far. Neither did he agree with the inclusion in lists of birds which were known to be simply migrants crossing the county and having no biological purpose with it whatever. Mr Read, on the other hand, contended that there was a purpose in the passage of birds, and that it was of interest to include them in the list if only for the purpose of showing their line of passage. The motion was then carried. Dr. Macindoe next read a short paper on "Hymenomycetæ," giving a detailed description of the growth of edible and other fungi. The Rev. T. W. Daltry moved, and Dr. Taylor seconded a vote of thanks to Dr. Macindoe, which was carried. A similar compliment was then passed, on the motion of the President, to the managers of the Wedgwood Institute for the rooms which they had placed at the disposal of the members. Subsequently the members inspected Mr T. Hulme's valuable collection of Staffordshire ceramics and the new South Kensington loans. The club's exhibits were shown in another room, and included a number of extremely interesting *fac-simile* copies of an Egyptian papyrus, "The Book of the Dead," at the British Museum; a collection of casts from engraved stones presented by the British Museum authorities to the Wedgwood Institute; a collection of eggs and butterflies from Banda Oriental and Argentina,

LIST OF MEMBERS.

CORRECTED TO AUGUST 25TH, 1894.

TOTAL NUMBER, 406.

HONORARY MEMBERS.

Dunedin, Right Rev. the Bishop of, D.D., Otago, N.Z.
 Bonney, Rev. Canon Professor T.G., D. Sc., L.L.D., F.R.S., F.G.S.,
 23 Denning Road, Hampstead, N.W.
 Wragge, Clement L., F.R.G.S., F.R. Met. S., Torrens Observatory,
 Adelaide, South Australia.
 Yates, James, M.R.C.S., 171 Aston Lane, Perry Barr, Birmingham.

ORDINARY MEMBERS.

Acton, John, Ivy Bank, Stoke	Atkinson, W. N., H.M. Inspector of Mines, Newcastle
Adams, Frank, High Street, Stoke	Audley, J. A., B. Sc., A.R.C. Sc., F.I.C., F.C.S., 97 Lichfield St., Hanley
Adler, Magnus, 65 Lichfield St., Hanley	Austin, Miss J., Heathcote House, Longton
Alcock, John, M.R.C.S., Burslem	Aynsley, John, Fenton
Alcock, S. King, M.B., Portland House, Burslem	Bagguley, G. T., Newcastle
Allan, Mrs McArthur, Island House, Longton	Bagguley, John, High St., Newcastle
Allen, Thomas, 40 Lichfield St., Hanley	Bailey, J. C., Bradwell Lodge, Fortham
Allen, W. S. } Woodhead Hall, Allen, Mrs } Cheadle.	Baines, A., Lichfield Street, Hanley
Allen, Wm., M.P. }	Baker, J., 47 Soho Hill, Birmingham
Arlidge, J. T., M.A., M.D. Lond., The High Grove, Stoke, <i>Vice- President</i>	Baker, Miss Ellen, Endon Hall, Endon
Armstrong, A. A., Denstone College, Uttoxeter	Bakewell, A. E., Station Square, Longton
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Ash, F. W., The Villas, Stoke	Bamford, S. B., Hawthornden Manor, Uttoxeter
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Astbury, G. S., Eccleshall	

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 Barke, F., Penton Villa, Stoke, *Vice-President*

Barke, Mrs

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Challinor, Wm. E., 62 St. Edward St., Leek

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