

Ann. Repts. 17-24 were never in
the Museum Library.

§. 386.



*B. M. N. H.
General L*

WARWICKSHIRE

NATURAL HISTORY

AND

ARCHÆOLOGICAL SOCIETY,

ESTABLISHED MAY 24TH, 1836.

TWENTY-FIFTH ANNUAL REPORT

OF THE COUNCIL TO THE SUBSCRIBERS,

READ AT THE

ANNIVERSARY MEETING, APRIL 5TH, 1861.

THE Council, in presenting their Report to the Members, congratulate them on the continued prosperity of the Society.

Numerous and valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and

some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection a most valuable and instructive one, as indeed it now is, and one of the best out of London.

Some new Cabinets having been lately procured for the Geological Collection, now rapidly increasing, the cases are less crowded than they were, but many improvements might still be effected.

Though some of the desiderata have been filled up, there are several Formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon Hill, Hordwell, Barton, and Bracklesham. London Clay fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian, and Lower Silurian will be very acceptable.

The Rev. S. Cooke has presented some Tertiary and other fossils, which form valuable additions to the Museum.

The collection of Minerals is still in the same condition, and requires complete re-arrangement; and it would be a great advantage to the Society if some member acquainted with Mineralogy would either kindly undertake its re-adjustment or obtain a friend who would do so.

The Birds are in excellent order, and form a very instructive collection.

The Shells, which are a large and valuable series, require some attention, as many of them have become displaced.

As many members of the Natural History Society do not

belong to the Field Club, it may interest them to add an account of its progress during the past year.

By the kind permission of the Council of the Natural History and Archæological Society the annual Winter Meeting of the Club was held at the Museum, Warwick, on February 28th.

The Members and their friends, and several ladies, assembled there at 12 o'clock, shortly after which the Vice-President, in the absence of the President, took the chair.

The Rev. R. W. Johnson delivered an address, at the request of the President.

A well merited vote of thanks having been passed, Mr. Whittem called upon Mr. Brodie to read his paper "On the eruptive forces which prevailed during the Triassic, Carboniferous, and Silurian periods in a portion of Warwickshire, Worcestershire, and Staffordshire, and a short account of the nature and origin of Basalt."

This paper was illustrated by drawings and sections, and in the course of it the author gave a *viva voce* sketch of the fauna and flora of the Carboniferous and Silurian epochs.

A vote of thanks having been proposed and carried, Mr. Whittem gave an account of a most interesting discovery in certain superficial deposits, near Coventry, of an ancient hammer-head, from undisturbed beds of clay, supposed to belong to the glacial period.

Mr. Brodie pointed out the importance of this discovery, and gave a short statement of the occurrence of flint implements in the drift of the South of France associated with mammalian remains.

A very lively discussion followed, in which several

Members took part, and the Meeting separated: some devoting the time before dinner to examining the Museum, and others paying a visit to the Lower Keuper quarries at Coten End. The Members dined together at the Woolpack, at 5 o'clock.

The first Summer meeting of the season was held at Kidderminster on the 22nd of May, 1860, to meet the Worcestershire Naturalists' Field Club. At the station at Kidderminster the Members of the two Clubs assembled, and started under the able guidance of Mr. G. Roberts, the intelligent local Geologist of the district. Proceeding to Bewdley, by omnibus, the party examined, first, Bunter Sands, one layer of which shews a re-disposition of Permian Glacial Drift, a kind of Trappean Breccia, a point of great interest to the Geologists; not far off the upper coal measures are exposed, in a small section on the railway from Bewdley to Bridgenorth—a thin band of fern coal was here seen, with a layer two feet thick, fissile yellow clays overlaying it, and charged with numerous remains of plants, among which two or three new species of *Sphenopteris* have been found, some of the fronds shewing, though rarely, traces of fructification. *Sphenopteris bifida* and *affinis*. *Pecopteris oreopteroides*, *Serlii* and *Adantoides*, and some pretty forms of *Asterophyllites*, besides impressions of reeds, are the most prevalent plants. *Woodwardites Robertsii*, a new genus and species, occurs in a bed of more compact shales a little above, the layers of which are too friable to yield leaves of any size or perfection. Following the line of rail through these upper coal measures, the olive shales were next seen, with *Sphenopteris massilenta* and *muricata*, and *Neuropteris gigantea*, which rest conformably on the Old Red Sandstone of the Hill Wood. The point where the line cuts through the old

Red is at the foot of the Trimpley anticlinal; a small fragment of the *Pteraspis Lloydii* was detected here. Beyond this, northern drift gravel is mingled with Severn Channel (marine) gravel and sand, and forms a thick capping to the same series of coal measures (sandstone and shale) already described. The cutting, 64 feet in height, at the Victoria Bridge, over the Severn, exhibited a fine series of Oxideous clays and marls, covering up typical yellow-jointed sandstones of the upper coal measures. From this spot the party proceeded through Eymoor Wood, to ascend the Trimpley anticlinal, at the highest point of which, near the Church, the upper Tilestones are exposed in the roadside cuttings, though not known in any quarry, as heretofore, and contain *Pteraspis Lloydii*, *Lewisii*, *rostratus*, and *Banksii*. *Cephalaspis Lyellii*. *Ceraticaris ellipticus*, *Pterygotus problematicus* and *anglicus*, bone of *Onchus*, Ova of *Pterygotus* (called *Parkia dicipiens*) and remains of plants, *Lycopodites*, &c. The view from this ground was very fine, overlooking Wyre forest, with the Severn below, the Cleve hills rising up grandly in the distance, the Caradoc, and other more distant peaks being distinctly visible on the N. W. The view to the South was bounded by the Malvern range and the Abberley hills, and on the North and East, overlooking Staffordshire, by the Wren's Nest and Barr Beacon, the Rowley, Clent, and Lickey hills. At Trimpley Green the party were hospitably entertained by Mr. J. Chillingworth.

Proceeding, after luncheon, to Halls Barn, the typical (Herefordshire) Old Red Cornstones were exhibited in a quarry, leaving the Permian beds, including the Trappean glacial breccia on the right. Descending the east flank of the anticlinal, the Members reached the head of the far famed Habberley Valley, a

striking spot, and of much Geological interest, which evidently must have formed, at a later Geological epoch, a backwater of the Severn Strait; passing over the Bunter pebble beds, by omnibus, to Kidderminster, in time for dinner; immediately after which, the Members of the Warwickshire Field Club were obliged to return by rail to Birmingham.

The day was fine and warm, and the excursion a very interesting and instructive one.

The Worcestershire Club mustered in considerable numbers, and the party altogether amounted to about thirty.

It should be added that the district, especially the neighbourhood of Wyre Forest, is a famous hunting ground for the Botanist and Entomologist: the stag beetle being abundant.

The following rare plants were observed in the neighbourhood of Kidderminster and Bewdley:—*Teesdalia nudicaulis*, *Turritis glabra*, *Cerastium arvense*, *Erodium maritimum*, *Ornithopus perpusillus*, *Potentilla argentea*, *Vicia sativa* var. *angustifolia*, *Alchemilla vulgaris*, *Sedum dasyphyllum*, *Cotyledon Umbilicus*, *Sambucus nigra* var. *laciniata*, *Viburnum Opulus*, *Lactuca Scariola*, *Hieracium murorum*, *Carlina vulgaris*, *Lamium Galeobdolon*, *Myosotis collina*, *Orchis Morio*, *Allium ursinum*, *Aira præcox*, *Osmunda regalis*, *Botrychium Lunaria*.

The Hon. Sec. begs to record his thanks to Mr. Roberts, for his able account of the Geological feature of the district visited, and to which he is mainly indebted for the description above given.

The next meeting was fixed for Ludlow, at the end of June, but owing to the meeting of the British Association at Oxford at that time, and also at the request of Professor Phillips, who wished to attend it, it was postponed until July the 24th. From various unforeseen causes, in which continued wet weather may

have had a share, the meeting at this beautiful and interesting place was only attended by two Members; and the Hon. Sec. being himself unable to attend, he is indebted to his friend, the Rev. F. Crouch, for the following account of their proceedings.

The day's work began at the Forge Bridge, at Downton, on Downton Sandstone, passing into the Ludlow Bone bed, a few yards further on the same side of the bridge. Crossing the bridge, the party followed the Downton Sandstone to the tin mill, where the passage beds, between Silurian and Old Red Sandstone, were exposed, similar to those in the Railway cutting near Ludlow. Retracing their steps they came upon the Old Red Sandstone in the Gorge, and followed up the strata in the escarpment of Aymestry limestone at Downton, in the rock. On the way to Leintwardine they stopped to examine Lower Ludlow beds, where a good specimen of the Silurian Shrimp (*Ceratiocaris*) was found. At Leintwardine, so rich in fossils, especially Star fish, here first found in abundance in Silurian strata, the Geologists were not very successful, though a few turned up with a silver hammer.

Ascending Mocktree Hill, the Members returned to Ludlow to dinner.

The day was fortunately fine, and the excursion a most agreeable one, in the midst of beautiful scenery, and in a country fertile in Geological treasures.

On the 5th of September, the Club met at Blisworth, at 1 o'clock. There the party divided, the Archæologists going on to Northampton, to inspect the churches and antiquities of the city. The Geologists went to the quarries of Inferior Oolite, extensively worked for the ironstone, and then ascended the hill near the village, where there are several quarries of Great Oolite, which is largely used for chimney pieces and other economical

purposes. The sections were numerous and interesting, and many fossils were picked up.

After a pleasant walk, the Members met at the hotel, at 4.30, to dinner.

Daily observations have been made with the Barometer and Thermometers.

The Accounts have been audited, and the General Financial Statement from March 26th, 1860, to March 26th, 1861, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much more might be effected if adequate means were placed at the disposal of the Council.

Owing to the losses by death of several subscribers, during the past year, and the small number of additional members, the funds of the Society are in a much less satisfactory condition than could be desired.

Additions to the Museum and Library.

G E O L O G Y.

DONATIONS.

Five Specimens of *Cephalaspis asterolepis*, *n.s.*, from Upper Corn Stones, Old Red, Hightington, near Bewdley; and two Specimens of *Cephalaspis Lyellii*, *Ag.*, presented by G. E. Roberts, Esq., of Kidderminster.

Three Specimens of Estuarine Coal Shale, from Gibhouses, Wyre Forest. Presented by G. E. Roberts, Esq.

Stigmaria —, inner bark, shewing tuberculated surface, from the Upper Coal Measure, Shatterford, Worcestershire. Presented by G. E. Roberts, Esq.

Coral, from Wenlock Limestone, Dudley. Presented by Mr. Camouls.

Graptolithus —, from the Lower Silurian, North Wales. Presented by the Rev. P. B. Brodie.

Corals, &c., from Mountain Limestone, Clifton. Presented by the Rev. E. Jervoise.

Tooth of a Saurian, *n.s.* from the Lower Keuper, Coten End, Warwick. Presented by Miss Strachan.

Cardinia crassissima, *Stutch.*, from the Marlstone, Gloucestershire. Presented by the Rev. P. B. Brodie.

Avicula —, from the Lias, Chipping Camden, Gloucestershire. Presented by the Rev. P. B. Brodie.

Montlivaltia Guetardi, from the Lower Lias, Fenny Compton. Presented by the Rev. P. B. Brodie.

Leptolepis concentricus, *Eg.*, from the Upper Lias, Dumbleton, Gloucestershire. Presented by the Rev. P. B. Brodie.

Leda ovalis and *Arca* —, from the Upper Lias, Eydon, Northamptonshire. Presented by the Rev. P. B. Brodie.

Hyboclypus caudatus, *Wright*. Presented by the Rev. P. B. Brodie.

- Cidaris Bouchardi*, from the Inferior Oolite, Cheltenham. Presented by the Rev. P. B. Brodie.
- Holcotypus hemisphaericus*, *Desor.*, from the Inferior Oolite, Dorsetshire. Presented by the Rev. P. B. Brodie.
- Cone of *Thuytes expansus*; Fruits allied to *Hazel*; *Carpolithes conicus*, *Lindl*; *Pollicipes ooliticus*, *Buchman*; and *Elytron* of one of the *Buprestidae*, from Stonefield Slate, Gloucestershire. Presented by the Rev. P. B. Brodie.
- Two Echinoderms, from the Coralline Oolite, Malton, Yorkshire. Presented by the Rev. S. Cooke.
- Leaf of Fern, from the Base of the Great Oolite, Gristhorpe Bay. Presented by the Rev. S. Cooke.
- Millepore, from Millepore Bed, Base of Great Oolite. Gristhorpe Bay, Yorkshire. Presented by the Rev. S. Cooke.
- Spongia claveroides*, from the Great Oolite, Bath. Presented by the Rev. P. B. Brodie.
- Clypeus Mulleri*, and Coral, from the Great Oolite, Maidford, Northamptonshire. Presented by the Rev. P. B. Brodie.
- Collyrites ringens*, from the Inferior Oolite, Dorset. Presented by the Rev. P. B. Brodie.
- Acrosalenia pustulata*, *Forbes*, from the Great Oolite, Broughton, near Banbury. Presented by the Rev. P. B. Brodie.
- Echinobrissus Griesbachii* —, from the Great Oolite, Blisworth, Northamptonshire. Presented by the Rev. P. B. Brodie.
- Slab of Great Oolite, with *Nerinea* —, Blisworth, near Northampton. Presented by the Rev. A. Pownall.
- Echinobrissus scutatus*, from the Coral Rag, Oxford. Presented by the Rev. P. B. Brodie.
- Series of Fossils, Shells, consisting of *Cypris* and *Fucoid* Plants, from the Purbecks, Swanage, Dorset, and Kimmeridge Clay Shells. Presented by W. R. Brodie, Esq.
- Spondylus* —, or *Ostrea* —, from the Portland Oolite, Portland. Presented by the Rev. E. Roy.
- Pecten lamellosus*, *Sow.* and *Trigonia gibbosa*, *Sow.*, from Brill, Portland Oolite. Presented by the Rev. P. B. Brodie.
- Polypothecia pyriformis*, from the Upper Green Sand, Blackdown, Devon. Presented by the Rev. P. B. Brodie.
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Cyrena Dulwichiensis, *n.s.*; *Cyrena cordata*, *Morris*; *Cyrena cameiformis*, *Sow*; *Petharella Rickmani*, *n.g.*; *Paludina lenta*, *Branda*; *Arca*, (French species), from the Woolwich series. Presented by the Rev. P. B. Brodie.

A Series of Tertiary Fossils, from Bracklesham, Barton, and Hordwell. Presented by the Rev. S. Cooke.

Fine Slab of Shells, from Bracklesham. Presented by the Rev. S. Cooke.

MINERALOGY.

DONATIONS.

Fire Clay, from Shatterford, near Arley.

Water Stone, with Carbonate of Copper, from Bell Broughton. Presented by Mr. Roberts.

ZOOLOGY.

DONATIONS.

Bone of Saw Fish, from India. Presented by Captain Wyndham Baker, Madras Horse Artillery.

Jaws of Skate, and of Shark, and Tree Lobster. Presented by Mr. Stanley, 10, Upper Parade, Leamington.

Two Stag Beetles, from Wyre Forest. Presented by the Rev. P. B. Brodie.

LIBRARY.

DONATIONS.

Brodie, P. B. Paper on the Occurrence of Footsteps of the Cheirotherium in the Warwickshire Keuper. Presented by the Author.

Lithograph of *Pecopteris Scrliei*, from the collection of Henry Johnson, Esq., of Dudley.

Proceedings of the Literary and Philosophical Society of Liverpool. No. 14. Presented by that Society.

Transactions of the Edinburgh Botanical Society. Vol. 6, Part 3. Presented by that Society.

PURCHASES.

Annals and Magazine of Natural History. Ser. 3. No. 21 to 41.

Ansted, G. J. Geological Gossip.

Bree, C. R. A History of the Birds of Europe. Part 24 to 35.

Chenu. Manuel de Conchyliologie. Part 2.

Chronicles and Memorials of Great Britain and Ireland during the Middle Ages:—

Royal and Historical Letters during the Reign of King Henry IV., &c.

Peacock's Professor. 2 Vols.

The Annales Cambriæ.

Fragmenta Gildhallæ Londoniensis. Vol. 2, Parts 1 and 2.

Eulogium Historiarum. Vol. 2.

Cooper, C. H. and T. Athenæ Cantabrigienses. Vo. 2.

Couch, J. A History of the Fishes of the British Islands. No. 1 to 8.

Damon, R. Handbook of the Geology of Weymouth and the Island of Portland.

————— Supplement to the above.

Encyclopædia Britannica. Vol. 20 and 21, and Index.

Geologist. No. 30 to 41.

Morris, F. O. A Natural History of British Moths. No. 7 and 8.

Palæontographical Society's Publications:—

Davidson, T. The British Carboniferous Brachiopoda. Part 5, 3rd portion.

Edwards, F. E. The Eocene Mollusca. Part 3, No. 3.

Owen, R. The Fossil Reptilia. Sup. 3 and Sup. 2.

Wright, T. The British Fossil Echinodermata, from the Oolite Formations. Part 4.

Phillips, J. Life on the Earth: Its Origin and Succession.

Ray Society's Publications:—

Blackwall, J. Spiders of Great Britain and Ireland. Part 1.

Roberts, G. E. The Rocks of Worcestershire: Their Mineral Character and Fossil Contents.

Wood, J. G. Illustrated Natural History. No. 15 to 27.

GENERAL FINANCIAL STATEMENT,

FROM MARCH 26, 1860, TO MARCH 26, 1861.

Income.

	£.	s.	d.
Subscriptions	77	14	0
Fees, Non-Subscribers	7	15	10
Breakage, Glass	0	9	0

Balance, March 26th, 1860	85	18	10
	49	10	2 $\frac{1}{2}$
	£185	9	0 $\frac{1}{2}$

Expenditure.

	£.	s.	d.
Collector's Commission to March 26th, 1861	3	17	6
Insurance	2	16	0
Attendant	20	0	0
Firing	5	14	10
Advertising	0	12	6
Printing and Stationery	7	4	2
Fittings and Repairs	14	7	4
Books, Binding, &c.	13	13	9
Postage of Circulars, Reports, &c.	1	11	0
Carriage	0	10	0
Incidentals	1	18	3

Balance, March 26th, 1861	72	5	4
	63	3	8 $\frac{1}{2}$
	£135	9	0 $\frac{1}{2}$

Audited by us,

EDMUND ROY,
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1861-62.

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The Quarterly General Meetings of the Members of the Society are held at the Museum on the First Thursdays in the months of January, April, July, and October, at One o'clock. At these Meetings, communications on any Branch of Natural History and Archæology are received and read; and a Lecture delivered.—Each Member can introduce two visitors.

The Meetings of the Council are held Monthly, on the First Tuesday in the Month, at Half-past One o'clock.

The Museum is open daily from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Ten o'clock to Four between the First of November and the Last Day of February.

 The Annual Subscription for 1861 will become due on the 24th day of May; and the Council urgently request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greaves, Greenway, and Smith, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.



WARWICKSHIRE NATURAL HISTORY



AND

ARCHÆOLOGICAL SOCIETY,

ESTABLISHED MAY 24TH, 1836.

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TWENTY-SEVENTH ANNUAL REPORT  
OF THE COUNCIL TO THE SUBSCRIBERS,

READ AT THE

ANNIVERSARY MEETING, APRIL 10<sup>th</sup>, 1863.

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THE Council, in presenting their Report to the Members, congratulate them on the continued prosperity of the Society.

Numerous and valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection a most valuable and instructive one, and one of the best out of London. At

present, the collections of Natural History and Geology, form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.

Some new Cabinets have been lately procured for the Geological Collection, now rapidly increasing, the cases are less crowded than they were, but many improvements might still be effected.

Though some of the desiderata have been filled up, there are several Formations which are still very defective, amongst which may be enumerated the following :—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon Hill, Hordwell, Barton, and Bracklesham. London Clay fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all Local Museums to have as fine a suite as possible from the Strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

The collection of Minerals is still in the same condition, and requires complete re-arrangement; and it would be a great advantage to the Society if some member acquainted with Mineralogy would either kindly undertake its re-adjustment or obtain a friend who would do so.

The Birds are in excellent order, and form a very instructive collection.

The Shells, which are a large and valuable series, require some attention, as many of them have become displaced. A series of the land and freshwater Shells of Warwickshire would be an important addition.

As many members of the Natural History Society do not belong to the Field Club, it may interest them to add a short account of its progress during the past year.

The Winter Meeting of the Warwickshire Naturalists' Field Club was held at the Museum, Warwick, on Thursday, the 13th of February. This was a joint meeting of the Malvern Club with the Warwickshire, and was tolerably well attended, though not so numerous as the occasion merited. In the absence of the President, the Rev. P. B. Brodie, F.G.S., the Vice-President took the chair. He opened the business of the day by welcoming the members of the Malvern Club, and then reviewed briefly the proceedings of the Warwick Field Club during the past year. He then called upon the Rev. St. John Parry, President of Leamington College, to describe a portion of an antler of the red deer, which had been found in certain beds of clay, supposed to be London clay, near Gosport. It exhibited marks of a knife or hatchet; and a short discussion followed as to the true nature of the deposit in which it occurred; and the geologists present were unanimously of opinion that the clay would be found rather to belong to the drift than so old a formation as an eocene tertiary stratum.

The Vice-President next called upon the Rev. W. Symonds, the President of the Malvern Field Club, to deliver his address on Geological Facts and Theories. He commenced

by giving an astronomical view of the history of the earth. He combatted the idea of an original universal molten condition of our planet, alluding to the early and first traces of life in the lowest or Cambrian rocks; and gave a brief review of Darwin's theory of the origin of species by natural selection, to which he expressed himself decidedly opposed, and so passed on to other interesting geological facts and theories.*

R. Greaves, Esq., proposed a vote of thanks to Mr. Symonds, which was seconded by J. S. Whitem, Esq.

J. W. Kirshaw, Esq., then rose to request the Rev. P. B. Brodie to give a lecture on the succession of life on the ancient earth. It occupied an hour and a half, and it is impossible, in a brief sketch, to enter into all the interesting subjects of which it treated. It was an extempore discourse largely illustrated with numerous drawings, diagrams, and fossils, which fully illustrated the topics discussed.

The Lecturer first pointed out the influence of climate on land and depth in the ocean on the distribution of life. All the great types of life began simultaneously and independently. The life of the Palæozoic rocks was shown to be entirely marine, which was fullest in the Wenlock and Ludlow groups. Ferns and land plants first appear in the uppermost Ludlow zone. Ere the close of this epoch many forms of mollusks disappear, and were succeeded by other new and representative forms, to which ample allusion was made in the succeeding formations up to the newest Tertiary. The structure of the singular placoid and ganoid fish was pointed out, especially those of the Old Red Sandstone; the cycloid and ctenoid orders commenced with the chalk. The thirteen orders of reptiles, five of which are both recent and fossil, were largely dwelt upon, and traced upwards from their first appearance in the carboniferous series to their gradual extinction upwards. The structure and nature of the Salamander-like labyrinthodon was especially referred to, because the Warwick Museum

* The Hon. Sec. regrets that he cannot insert the Address of the Rev. W. Symonds, as the author has lost his M.M.S., but should it be found hereafter, he hopes it may be printed and circulated amongst the Members.

contains the finest collection of the remains of this extinct reptile in the kingdom, and a fine suite of footsteps was exhibited to the meeting. The majority of these ancient reptiles inhabited the sea, but some were terrestrial and of great size, although none of them equalled the gigantic mammalian whale in bulk. From a brief review of the marine life of the various geological periods, the Lecturer passed on to explain the fresh water and terrestrial life of the successive geological epochs. Many estuarine and river shells were found in the Coal, Wealden, Purbecks, Stonesfield slate, and fresh water Tertiaries. The fresh water races were comparatively few, and extend over large areas. They were created after the marine, and the fossil and living forms greatly resemble each other. The same may be said to some extent of the insects, crustacea, and reptiles in fresh water strata, and adhere much to generic and family type. Insects first appear in the Coal with a land shell (pupa) and a centipede, and occur more abundantly in the Lias and Oolites. The peculiarity of these was spoken of at some length. Land plants occur both in marine, but especially in estuarine and lacustrine deposits above Silurian rocks. Ferns abounded in the Coal and Oolites, of which many are peculiar and extinct. There were few fossil birds, the supposed footsteps of them in the new red sandstone of America, have lately been inferred to belong to reptiles; but the remains of a bird have been noticed in the green sand at Cambridge. (See Owen's *Palæon*, p. 291.) It is the lower half of the trifid metatarsal of an outer joint of a bird, about the size of a woodcock and at Solenhofen in Germany, in the Middle Oolite a considerable portion of the skeleton, with attached feathers, of a remarkable bird (*Archæopteryx Macrurus*) has been described by Professor Owen, and is now deposited in the British Museum. Entire skeletons have, however, been met with in the Tertiary deposits. Allusion was here made to the extinct dodo and gigantic dinornis, very much larger than the ostrich, of New Zealand. The first trace of a mammal was shewn to be in the Trias of America, the marsupial order first appearing. This was followed by the insectivora of Stonesfield, which partly belong to the insectivora and marsupiala, and one is a vegetable feeding pachyderm. These were succeeded by the insectivora and rodentia of the Purbecks, which were also partly marsupial. The continent of Australia, in its peculiar marsupial fauna, presents probably the nearest resemblance to the condition of the earth during the position of the Oolites. The inference as to climate from the above facts tends to the idea of a more uniform warmth throughout the ancient globe, the plants which formed the coal particularly indicating warmth and damp. The pachyderms and reptiles, the corals and crinoids, all point to the same conclusion. The Lecturer concluded by a brief summing up of the facts above noticed, shewing an advance and progress in the succession of genera and species in the main, and indicating a definite creative plan which binds the whole into one unbroken and harmonious system of life.

A vote of thanks having been proposed by C. Faulkner, Esq., and carried unanimously, the meeting was adjourned.

On Wednesday, May 21st, the Warwickshire Naturalists' and Archæologists' Field Club held their first Summer Meeting at Evesham. The members assembled proceeded by train to Fladbury, but the weather being rainy, the Archæologists returned to Evesham, where they spent the day in examining the Churches and a collection of coins and antiquities; no account of which has yet been forwarded to the Secretary. The Geologists, who formed but a small party, braved the weather and walked to a gravel pit, opened on the line at Fladbury. These gravels are called low-level drifts and are supposed to be of fresh water origin, as in places, especially at Bricklehampton, Bengworth, and Cropthorne, on the opposite side of the Avon, they contain such shells as *Cyclas cornea*, *Unio antiquior* and *Cyrena consobrina*, extinct in Europe, but still found living in the Nile, India, and America. Remains of elephant, hippopotamus, rhinoceros, hyæna, several species of deer and bos have been also collected from all these places. At Fladbury the drift consists of fine sand and coarse gravel, made up of rolled and water-worn pebbles of rocks of various ages, Lias fossils being most abundant, the materials of which were no doubt largely furnished by the adjacent Lias. The most interesting of these fossils is a species of *Isastrea* often of large size and in good preservation, which was first detected here by our able associate, Mr. Tomes. This coral has been found in situ at Fladbury brickyard and Bromsberrow by Messrs. Tomes, Chattock and Brodie. On leaving this pit the party proceeded to the Cracombe hills, where the lowest beds of the Lias are seen in conjunction with the red marl. The black shales of the Bone Bed (the Bone Bed itself being absent), the *Pecten valonensis* Bed and *Estheria* Bed are all

present; but the section is unfortunately much obscured by the grass and trees, and therefore few fossils were collected. The view from these hills is very pretty, overlooking the valley of the Avon, with the Malvern and Bredon hills in the distance, Broadway and other Cotswold promontories ranging further to the south and south east. The clay pits of lower Lias at Randall's brickyard, were next examined and a few characteristic fossils obtained, viz.— fine specimens of *Cardinia ovalis*, *Astarte lurida*, and other shells; but this pit, rich in fossils, is now closed. Low down in the sections some choice specimens of *Isastrea* have been found. Walking through Evesham another clay pit, on the other side of the town, was visited, and a few *Ammonites* collected, one of which is probably a variety of a *A. semicostatus*, obtained by Mr. Tomes. The Cracombe district is affected by a line of fault which was first noticed by the late lamented Hugh Strickland, and the neighbourhood is rendered classical by the valuable researches of this eminent Geologist. The upper Keuper on which, in places, the lowest beds of Lias rest, is interesting as containing a band of sandstone intercalated full of minute fish scales and bones.

The following list of plants has been kindly forwarded by F. Townsend, Esq. who collected them during the excursion :—*Ranunculus Drouetii*, F. Schultz, in a small pond near Fladbury Station; *Ranunculus arvensis*, *Clematis vitalba*, *Papaver argemone*, *Lepidium campestre*, *Helianthemum vulgare*, var with strongly revolute margins to the leaves; *Polygala calcarea*, F. Schultz (syn) *Pamarella*, Coss and Germ, atl. K. 7, *P. amara*. Don E. B. S. 2764; *Geranium pusillum*, *Lathyrus Aphaca*, *Rosa spinosissima*, *Bryonia dioica*, *Conium maculatum*, *Viburnum*

Lantana, *Galium Mollugo*, *Fedia olitoria*, *Inula Conyza*, *Chlora perfoliata*, *Lysimachia nemorum* *Juniperus communis*, *Listera*, *ovata*, *Carex muricata*, *hirta glauca* Scop. var *aggregata* Reich. *Festuca myurus*, *Bromus erectus*, Huds B. *macrostachys*, Gren and God. *Polygala calcarea*, F. Schultz, grows in abundance on the Lias hills above Fladbury.

Polygala vulgaris occurs in the above locality in company with *P. calcarea*, but both retain their individual habit and mode of growth, &c., by which the plants are easily distinguished, independently of other specific characters.

On Wednesday, June 25th, the Warwickshire Naturalists' and Archæologists' Field Club met at Cheltenham. At twelve o'clock the members assembled at the Queen's, and with several members of the Cheltenham Naturalists' Association proceeded to Leckhampton hill. The section at the large quarry was first examined, where the upper Lias is seen in junction with the basement beds of the Inferior Oolite, showing, upwards, a good section of the pisolite or peagrit and the shelly and bastard freestone. The members then walked on to the western escarpment where the Oolite marl lying between the upper and lower freestones is exposed with a considerable extension of pisolite in that direction. Mr. Brodie here pointed out the interest and importance of this fine section, which he explained in detail, and alluded to the extensive Geological range of varied formations which the grand view from this point commands. Commencing with the Great Oolite in the more distant Cotswolds and Stonesfield slate on the east, the eye traverses the vast Liassic plain below from the upper Lias, Marlstone and lower Lias to the New red sandstone at Wanlode Cliff, on the north west. The carboniferous series of the Forest of Dean was visible in the distant

west, with the whole of the upper Silurian system, including the Llandovery sandstone round May Hill anticlinal, Longhope and Malvern, the syenitic axis of which stands out in bold relief on the extreme north. On a clear day the Welsh Mountains are seen in the far west, which include the whole of the Palæozoic formations, the entire view being unsurpassed in England. Near the devil's chimney, on Leckhampton, luncheon was kindly provided by the Rev. W. Norwood. From this point the Club retraced their steps to the northern escarpment in order to examine the ragstone or *Trigonia* grit, which caps the hill and is the highest member of the Inferior Oolite. This stratum is succeeded by the Gryphite grit, characterised by the abundance *Gryphæa Buckmani*, neither of which bands appear in any other portion of the hill, Numerous characteristic fossils were found in the course of the day, including *Belemnites brevis*, *Pecten lens*, *Terebratula perovalis* and *impressa*, *Natica Leckhamptonensis*, *Astarte elegans*, *Terebratula fimbria*, *Serpula socialis*, *Patella rugosa* and *inornata*, *Acrosalenia Lycetti*, *Gryphæa Buckmani*, *Lima proboscidea*, *Myacites* and *Thecosmilia gregaria*.

On the following day, the party set off for Cleeve Hill, the Pisolite here is well exposed and forms a bold escarpment for some distance being particularly rich in Echinoderms and Bryozoa. Certain beds, such as the roadstone, extensively quarried for this purpose and loaded with organic remains, are seen only at this spot. The freestone and Oolite marl are also seen in situ, but, owing to a considerable fall of the Oolite masses, the section is at first sight much confused and can only be correctly made out by careful study. The following section, taken on the spot, will explain the relations of the different strata.

- 1.—Lower *Trigonia* grit.
- 2.—*Terebratula Phillipsii* zone.
- 3.—*Chemnitzia* zone.
- 4.—Roadstone bed.
- 5.—*Ostrea* zone.
- 6.—Freestone.
- 7.—Oolite Marl.
- 8.—Thick bastard freestone.
- 9.—Shelly freestone.
- 10.—Pea grit.
- 11.—Sands junction, passage beds.
- 12.—Lias.

Total height of Cleeve Cloud above the level of the sea 11,000 feet.

If Nos. 2, 3, 4 & 5 in the above section occur at Leckhampton they are not exposed.

Numerous characteristic fossil of the Pisolite and roadstone were obtained, among which may be mentioned—*Ostrea flabelluloides*, *Terebratula Phillipsii*, *Trichites*, *Rhynchonella oolitica*, *Pleurotomaria* (cast), *Belemnites brevis*, *Chemnitzia*, *Hinnites tuberculosus*, *Modiola explanata*, *Pholadomya fidicula* and a large new species, *Modiola*, *Gresslya*, *Pecten lens*, *Lima* and *Echinus germinaus*, but the most interesting specimen was a fine beak of a Cephalopod, discovered in the Pea grit by the Rev. Mr. Hort. This is the first one of the kind found near Cheltenham; the first and only one previously procured was detected by the late Hugh Strickland in the Inferior Oolite at Bredon. At the base of the escarpment, the basement beds of the Oolite appear similar to those at Leckhampton and Crickley immediately overlying the upper lias, and these probably form passage beds between the two formations, though assigned to the Lias by Dr. Wright, while Messrs Lycett and Brodie and other Cotswold Geologists incline to the former opinion. At this spot Mr. Brodie discovered a similar Bone Bed to the one he had previously

noticed at Leckhampton and Crickley, though much better exposed at the latter. In the course of the day some of the party walked to Gretton to examine the upper Lias and Marlstone. The upper Lias shale is here of considerable thickness, at least 200 feet, a portion of which only is exposed in the large quarry, overlying the Marlstone with an irregular band of limestone charged with the remains of fishes, especially *Leptolepis concentricus*, and a fine specimen of *Lepidotus* was found at this spot. In the black shale are many *Ammonites*, with the mouth entire, and *Aptychus* in situ, *Cidaris minuta* with attached spines, and a new species of *Rostellaria*. The Marlstone abounds with organic remains, among which the *Cardina crassissima*, a rare shell elsewhere is particularly abundant and well preserved. The hard nature of this rock makes it however exceedingly difficult to extract any specimens entire. The view of the Malverns and Abberley hills is very striking from this hill, and differs in many respects from the other fine views in this charming county. Nor must the prospect from Cleeve be passed over unnoticed ; with a clear sky and a glowing sunset it was particularly beautiful on the return of the geologists to Cheltenham.

On Friday some of the above breakfasted with the Rev. W. Norwood, and after inspecting his choice collection of fossils, especially rich in the Inferior Oolite of the Cotswolds, they proceeded to Crickley hill, where many hours were agreeably spent in examining the section and collecting fossils. The Pisolite here presents the finest escarpment, being at least 40 feet thick, and from it some of the choicest fossils have been procured, especially Urchins, including among others, *Cidaris Fowleri*, *C. Bouchardi*, *Hyboclypus agariciformis* *H. caudatus*, and *Pygaster semisulcatus*. Fine examples of *Terebratula simplex* and *plicata* may also be

occasionally procured. Overlying the Pea grit is a band of white marl resembling chalk made up of corals, evidently having formed a coral reef in the ancient Jurassic sea. Several good examples of *Montlivaltia*, *Latomeandra Flemingi*, *Thamnastrea Defranciana* and *Mettensis* were picked up. As this coral bed is overlaid by the freestone and contains some of the species noticed in the Oolite Marl besides shells, it is evidently a continuation of that stratum, though more loaded with corals, but not so thick as the marl at Leckhampton, the reduction in bulk being fully accounted for by the increased thickness of the Pisolite.* Mr. Brodie drew attention to the basement beds, here loaded with *Belemnites* and remnants of fishes, chiefly minute *Hybodonts*. Returning home by Leckhampton, a good opportunity was afforded of noting the remarkable fault of Shurdington hill on the left, which may be traced for several miles from east to west. At a point hereabouts, the freestones on one side of the line of fault have been thrown down to a level with the passage beds on the other, as much as 90 feet. Another fault also traverses the southern base of Crickley hill which has been noticed by Mr. Hull in his excellent monograph of the Cotswolds in the *Memoirs of the Geological Survey*.

The Rev. W. Norwood has kindly furnished the following list of Plants, collected by Mr. Notcott and the other Botanists of the party:—*Asperula cynanchica*, *Thymus Cameedsys*, *Ophrys apifera*, *Herminium monarchis*, *Orchis ustulata*, *Artragalus hypaglottis*, *Lithospermum officinale*, *Blyssmus compressus*, *Torilis nodosa*, *Hyoscyamus inger*, *Erodium cicutarium* (very rare in this district), *Vicia tetrasperma*.

*At Crickley above the Pea grit is a thick band, about three feet of marl almost entirely made up of corals and is succeeded by freestone more or less shelly. This differs from the Cleeve section in the absence of the thick bastard freestone and shelly freestone, but the pisolite is very thick and may well account for the absence of these freestones; and this marl is no doubt the correct representative of the Oolite marl there and at Leckhampton.

On the 13th of August the Club met at Bromsgrove, only a few members attended and owing to a mistake in the route there was not sufficient to occupy the time. After inspecting the very fine Church lately restored, and the Grammar School, the party walked to the quarries of Keuper sandstone about two miles off, on the road to Droitwich. The beds consist of red and grey sandstone with much false bedding, the only fossils being impressions of Plants in a very imperfect state of preservation, among which a few Calamites were best preserved, but no other fossils were observed, nor had the workmen ever noticed any bones or remains of fish. The spot where the curious fish was found some years since by the collector of the Survey, was visited, but the pit is now filled up. An animated discussion took place between some of the members on the cause of false bedding, which appears to be due to the motions of waves, currents and eddies at the bottom of sea or rivers, and the varied changes which take place in the direction of the tides and currents in the same place.

Daily observations have been made with the Barometer and Thermometers.

The Accounts have been audited, and the General Financial Statement from March 25th, 1862, to March 25th, 1863, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has

been laid, but much more might be effected if adequate means were placed at the disposal of the Council.

Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a much less satisfactory condition than could be desired. A reference to the list of Subscribers will show that only a few of the rich and influential people in the County belong to the Society, and if the Members would solicit Annual Subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society before the end of the present year.

The Council desire to express their deep regret at the loss they have sustained in the death of Mr. Perry, who had, from the formation of the Society, devoted much time and attention to the duties of the office of Curator, and for many years that of Honorary Secretary, and the Council take this opportunity of recording their sense of his valuable services.

It was unanimously resolved that Mr. Kirshaw be elected Honorary Secretary in the place of the late Mr. Perry.

The Council also regret to record the death of the Rev. W. T. Bree, an able Botanist, Member of Council, and Hon. Curator, from the formation of the Society.

Additions to the Museum and Library.

GEOLOGY.

PURCHASES.

A set of Palates, 20 species of Fish from the Mountain Limestone of Ireland, (through the Earl of Enniskillen), viz:—

Cochliodus acutus.

Cochliodus contortus.

Helodus didymus, *Labodus protolypus.*

Helodus gibberulus.

Helodus Sp , *Deltodus sublævis.*

Helodus obliquus, *Pæcilodus obliquus.*

Streblodus Colei, *Polyrhisodus radians.*

Streblodus oblongus.

Ctenspetalus serratus, *Petalorhynchus psittanicus.*

Psammodus porosus, *Pæcilodus Jonesii.*

Psammodus rugosus, *Harpacodus dentatus.*

Petalodus lævissimus, *Psephodus magnus.*

Pterygotus bilobus, Upper Ludlow, Lanarkshire, Scotland.

DONATIONS.

Fine Slabs of Footsteps in Permian Sandstone of Reptile (Labyrinthodon), Corven, Burwood, near Wolverhampton. From F. Catt, through the Rev. P. B. Brodie.

Natica Leekhamptonensis.

Patella inornata.

Latomeandra Flemingi.

Thamnastrea efranciana.

} Inferior Oolite,
Gloucestershire.

Presented by the Rev. P. B. Brodie.

Cardinia crassissima, 3 specimens, Lias Marlstone. Presented by the Rev. P. Brodie.

Pterichthys macrocephalus, new British species, Yellow Sandstone (Old Red Sandstone), Farlow, Shropshire. Presented by the Rev. P. B. Brodie.

Agnostus M'Coyii, Builth, Lower Silurian. Presented by the Rev. P. B. Brodie.

Trinucleus fimbriatus, ditto ditto. Presented by the Rev. P. B. Brodie.

Cyathopsis (clisiophyllum) fungites from Mountain Limestone, Clifton. Presented by the Rev. E. Roy.

Terebratula Edwardsii, Marlstone. Presented by the Rev. P. B. Brodie.

Ischadites, Woolhope Lime, Malvern. Presented by the Rev. P. B. Brodie.

Pentamerus linguifer, Wenlock Shale. Presented by Rev. P. B. Brodie.

Orthis rustica, ditto. Presented by Rev. P. B. Brodie.

Scales of fish, Yellow Sandstone (Old Red Sandstone), Farlow, Shropshire. Presented by the Rev. P. B. Brodie.

Fossils and Shells. Presented by D. Carmouls, Esq.

CAVERN REMAINS:—
Left Lower Jaw of *Hyæna*.

Lower Canine Tooth of ditto.

Upper Canine.

Upper (right.)

Lower right.

Incisor of *Equus*.

Rhinoceros—Ilium.

Right tibia

Left radius.

Right femur.

Ditto, —Upper molar tooth.

Equus, upper molar, right.

Upper ditto, left.

Bos, metacarpal.

Presented by James Parker, Esq., from Wookey Hole, Somerset.

Pygaster umbrella, Coral Rag, Oxford, ditto.

Clypeus Mulleri, Great Oolite, Northampton. ditto.

Hymenocaris caudatus, Llandeilo flags, North Wales. Presented by the Rev. P. B. Brodie.

MISCELLANIES.

DONATIONS.

Impressions of a Seal. Presented by Rev. F. S. Colville.

LIBRARY.

DONATIONS.

Catalogue of the South Kensington Museum, part 4 and 5. Presented by that Society.

Report of the Ludlow Natural History Society, 1859-60-61. Presented by that Society.

PURCHASES.

Annals and Magazine of Natural History. Series 3. No. 53 to 64.

Bree, R. C. History of the Birds of Europe, parts 44 to 56.

Camden Society's Publications :—

80 Proceedings in the County of Kent in connection with the Parliaments called in 1640.

Couch, J. A History of the Fishes of the British Island. No. 19 to 31.

Dixon and Watson. Land and Fresh-water Shells.

Geologist. No. 53 to 64.

Lyells. Antiquity of Man.

Morris, F. O. A Natural History of British Moths. No. 20 to 28.

Palæontographical Society's Publications :

Davidson, T. British Carboniferous Brachiopoda. part 5.

Owen, R. British Fossil Reptilia, from the Oolitic Formation. part 2.

Jones, R. The Fossil Etheriæ.

Bell, Professor. Fossil Malacostracous Crustaceæ of Great Britain. part 2.

Phipson, T. D. Phosphoresence.

Popular Science Review. part 1 to 8.

Wood, J. G. Illustrated Natural History. No. 39 to 48.

GENERAL FINANCIAL STATEMENT,

FROM MARCH 25TH, 1862, TO MARCH 25TH, 1863.

Income.

	£.	s.	d.
Subscriptions	77	19	0
Fees, Non-Subscribers	5	10	6
Breakage	0	4	0

Expenditure.

	£	s.	d.
Collector's Commission to March 31, 1863	3	18	0
Insurance	1	1	0
Attendant	20	0	0
Firing	3	12	7
Printing (including Report) and Stationery	7	16	3
Fittings and Repairs	1	6	9
Objects	2	0	0
Preserving Objects	0	10	0
Books, Binding, &c.	31	7	1
Postage of Circulars, Reports, &c.	1	7	6
Carriage	0	6	4
Incidentals	3	6	5

18

Balance, 1862.....	83	13	6
	73	18	11½

	£.	s.	d.
Sinking Fund	10	0	0
Balance, 1863	81	0	6½

£01	0	6½
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Balance, 1863.....	81	0	6½
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£157	12	5½
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Audited by me,

KELYNCE GREENWAY.

Officers of the Society.

1863-64.

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1863.

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1861—1862 EDWARD GREAVES, ESQ., M.P.
1862—1863 JOHN STAUNTON, ESQ.
1863—1864 JOHN STAUNTON, ESQ.

The Quarterly General Meetings of the Members of the Society are held at the Museum on the First Thursdays in the months of January, April, July, and October, at One o'clock. At these meetings, communications on any Branch of Natural History and Archæology are received and read; and a Lecture delivered.—Each Member can introduce two visitors.

The Meetings of the Council are held Monthly, on the First Tuesday in the Month, at Half-past One o'clock.

The Museum is open daily from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Ten o'clock to Four between the First of November and the Last Day of February.

The Annual Subscription for 1863 will become due on the 24th day of May; and the Council urgently request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.



WARWICKSHIRE
NATURAL HISTORY

AND

Archæological Society.



TWENTY-EIGHTH ANNUAL REPORT,

APRIL, 1864.

WARWICK :

PERRY, PRINTER, NEW STREET & OLD SQUARE.

WARWICKSHIRE
NATURAL HISTORY
AND
ARCHÆOLOGICAL SOCIETY,

ESTABLISHED MAY 24TH, 1836.

TWENTY-EIGHTH ANNUAL REPORT
OF THE COUNCIL TO THE SUBSCRIBERS,
READ AT THE
ANNIVERSARY MEETING, APRIL 11TH, 1864.

The Council, in presenting their Report to the Members, congratulate them on the continued prosperity of the Society.

Numerous and valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection a most valuable and instructive one, and one of the best out of London. At present the collections of Natural History and Geology

form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.

Owing to the increase of accomodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several Formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon Hill, Hordwell, Barton, and Bracklesham. London Clay fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the Strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

The collection of minerals is still in the same condition, and requires complete re-arrangement; and it would be a great advantage to the Society if some member acquainted with Mineralogy would either kindly undertake its re-adjustment or obtain a friend who would do so.

The Birds are in excellent order, and form a very instructive collection.

The Shells, which are a large and valuable series, require some attention, as many of them have become displaced. A series of the land and freshwater Shells of Warwickshire would be an important addition.

The Accounts have been audited, and the General Financial Statement from March 25th, 1863, to March 25th, 1864, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much more might be effected if adequate means were placed at the disposal of the Council.

Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a much less satisfactory condition than could be desired. A reference to the list of Subscribers will show that only a few of the rich and influential people in the County belong to the Society, and if the Members would solicit Annual Subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society before the end of the present year.

The Council have much pleasure in stating that the upper room has now been enlarged and otherwise improved, giving thereby increased accomodation for specimens, so much needed,

which will enable them to make many additions and important alterations which the crowded state of the rooms rendered essential. Many members and friends of the Society have kindly and liberally responded to the circular sent throughout the County. But, at the same time, the funds are inadequate and a larger sum is required, which the Council hope may still be obtained and that many will come forward to aid the Society to carry out the fresh arrangements for the contemplated improvements in the Museum.

The Warwickshire Naturalists' and Archaeologists' Field Club held their Winter Meeting at the Museum, Warwick, by the kind permission of the Warwickshire Natural History Society, on the 13th of February, 1863, at Twelve o'clock. In the absence of the President, the Rev. W. Johnson delivered the Annual Address.

The Rev. P. B. Brodie, as Vice-President, occupied the chair, and regretted the absence and resignation of their late President, and proposed a vote of thanks to Mr. Johnson for his kindness in preparing the Annual Address.

The Vice-President then called upon Mr. Parker to give his promised Lecture on the "Hyæna Den," at Wookey Hole, in Somersetshire, which was followed by a Paper by the Rev. R. Hudson, "On the recent progress of Science in regard to British Land and Freshwater Mollusca."

A short discussion ensued, in which Messrs. Brodie, Tomes, Kirshaw, Johnson, and Faulkner took part.

The business of the morning being concluded, the Vice-President adjourned the Meeting at three o'clock. Some of the Geologists of the party went to the Gravel Pits at

Emscote, to examine the low level drifts, joining the rest of the members at the Woolpack, at five o'clock, when fifteen sat down to dinner, the Vice-President occupying the chair.

About forty persons attended the morning Meeting, including members and their friends, and many ladies.

On May the 21st, 1863, the Club met at Nuneaton The Hon. Sec. being unable to attend, Messrs. Johnson and Parker were kind enough to furnish him with the following account of the day's proceedings:—

On arriving there the Club visited the remains of the Abbey. The ruins are few, consisting chiefly of the four piers, which originally supported the tower of the Nun's Church. The ornamentation of these piers, as far as they exist, shew that the church was not devoid of beauty, and as the foundations of these walls extended westward, beyond the probable length of a nave, it was conjectured that the refectory, or some important chamber of the Abbey, originally occupied this spot.

The grass-grown foundations also shewed a quadrangle which was probably surrounded by a Cloister. The foundations on the south side were even less perfect, but in all probability the kitchen and other domestic offices were in this direction.

The documentary evidence of the date of the building is somewhat imperfect, the monastery, it is true, was founded as early as King Stephen's time, but no portions bore any traces of that early date. Henry II. seems to have been the chief benefactor to the Nuns, and with the money accruing

from the grants which he made of lands, advowsons, &c., the expense of building the Monastery was defrayed. The funds of the Monastery being in a flourishing condition in the tenth year of Henry III., the Church was rebuilt, and in the twenty-first year of this reign (1237, A.D.), the King gave ten oaks from Kenilworth. As these were probably for the roof we may well reckon the date of this Church at 1235-36, with which date the ornamentation and carving exactly agree.

On leaving Nuneaton the party crossed the new branch-railway line in process of formation, and mounted the hill which consists of the lower strata of the carboniferous rocks,—the Millstone Grit. In following the line of road, several quarries presented themselves, and the party was fortunate in discovering, in more than one spot, the greenstone rock. On nearing Hartshill, especially, some large quarries presented a band some five or six feet in thickness, the effects of this trap upon the adjacent rock was in several places very apparent.

At Hartshill the party visited the ruins of a mediæval Manor House. As was the custom of the time, it was surrounded by a wall for protection, which remained tolerably perfect, with the “*scillets*” for the Archers.

The site seemed to have been taken advantage of, from a natural moat existing on two sides formed by two valleys.

The Chapel was perhaps the only part worthy of much attention, but this, built on the north wall, was in ruins. It was very plain, but the style of the mouldings may very well agree with the first year of Edward the third's reign, 1327; when we have documentary evidence that John de

Hadreshull (from which the name Hartshill is a corruption) obtained a special license from the Bishop of the Diocese for a Priest to celebrate Divine Service within his house at Hadreshull. The wall and the rest of Manor House was probably built by his Father William de Hadreshull, who as early as the twenty-first of Edward I. (1293) obtained free warren of all his demesne lands here.

As a characteristic Manor House of the close of the thirteenth and beginning of the fourteenth century it was worthy a visit.

On their return towards Nuneaton several clay pits were visited, but no fossils found, more time was spent in examining the ferruginous shales, which in several places appeared to present traces of either vegetable or animal remains, but too imperfect to be recognized.

The second Meeting of the season was held at the Craven Arms, Shropshire, where the party arrived at 11 a.m. on Monday, 22nd of June, 1863. The members were met by the Rev. J. La Touche, and W. Jones, Esq., and under the able guidance of the former, started for Dinchop, to a quarry of Aymestry-limestone. where only a few fossils were obtained, *Atrypa*, *Pterinea*, *Sowerbyi*, not a common shell, and the usual corals. The section was an instructive one, shewing the relation of this limestone to the Ludlow beds. Norton was next visited, a well known and interesting locality, where the Ludlow bone bed is largely developed, though the chief contents consist of spines and other portions of the Silurian Crustacean *Ceratiocaris*; at this spot, too, fine specimens of *Homolonotus Knightii* have been found.

Proceeding thence to Stoke Wood, crossing a ridge of Aymestry-limestone, the party stopped at a quarry of lower Ludlow, where some rare and interesting fossils have been procured, the rarest was the *Acidaspis coronatus*,? a tail of which was found by Mr. Brodie, with *Holopella obsoleta* and a pretty *Bryoza*.

The Botanists ascended View Edge to search for plants, and obtained the very rare local plant, "*Astrantia Major*," the only locality, with one exception, where it is known to occur in England. Some time was spent in examining Stokesay Castle, a curious old building, which afforded much interest to the Archæologists.

The next day the same party went by train to Church Stretton, and proceeded to the Longmynd to examine the oldest rocks of Shropshire, which consist of dark slates and grey schists, grits, and conglomerate. These Cambrian rocks were at one time considered to be unfossiliferous, but late researches have detected traces of *Trilobites* and worm tracks along the Ashes valley and in strata of the same age in Westmoreland. In Shropshire these bottom rocks are 26,000 feet thick, as determined by the Geological survey. The walk was continued along the south western spur of the Longmynd, where, near little Stretton, a bed of Llandoverly sandstone cropped out with *Petraia* and other usual fossils, in grits and conglomerates. A section on the Railway of Caradoc Sandstone, charged with the characteristic fossils was examined. Ascending the hill to Acton Scott, commanding a fine view of the adjacent hills, the well known quarry was searched for fossils but with little success.

Some portions of *Phacops conophthalmus*, *Homolonotus bisulcatus* (characteristic *Trilobites*), *Orthis Actoniæ*, *Strophomena grandis*, *tenuistriata* and *elegantula* and a species of *Fenestella* were met with. Descending to the Onney, the Geologists carefully searched the purple shales forming the lowest beds of the Wenlock group, in which *Cheirurus bimucronatus*, *Enerinurus punctatus*, *Orthis biloba*, and other fossils occur. The shales of the adjacent Caradoc sandstone yielded abundant fragments of *Trinucleus concentricus*, and Mr. Brodie obtained a beautifully perfect specimen in its young stage.

On Wednesday, the members went to Ludlow by rail. The Archæologists visited the Castle, which is beautifully situated on the banks of the Teme, where Milton wrote 'Comus' and Butler 'Hudibras.' Some time was then spent in inspecting the local Museum, lately established in the town, and which contains a fine series of Silurian fossils of the neighbourhood, well managed and arranged, among which the fine Star fish, *Eucrinites*, *Trilobites*, *Eurypterus*, and other rarities, from the upper and lower Ludlow formations, are especially deserving of notice. In this case, as at Warwick, the aim has been to illustrate the geology of the district, which has been successfully carried out.

The Party then drove to Downton Castle, walking through the beautiful grounds on the banks of the river Teme, the Ludlow rocks rising up on each side and crowned with rich woods. Passing a quarry of Aymestry limestone, where some good specimens of *Pentamerus Knightii* were procured; the walk was continued to Leintwardine, and at Trippleton a lower Ludlow quarry was examined, consisting of brown flaggy stone, in which, though rarely, perfect specimens of the *Ceratiocaris* have been discovered. Ascending Church hill some time was spent searching the same

bed famous for its numerous and well preserved Star fish, Encrinites, Limulus, and other interesting and rare fossils. Perhaps in no Silurian locality have so many new and illustrative forms of life of the period been detected, and it appears by Mr. Marston's careful section that certain layers are characterized by peculiar fossils, many of which, as the Asteridæ and Limulus, are not distributed indiscriminately throughout. After dinner at the village Inn, the party walked up Mocktree hill, where some extensive quarries afford fine sections of the Aymestry limestone, an argillaceous band of the Ludlow formation, usually separating the upper from the lower Ludlow, but owing to numerous faults, the section is not clearly defined, and Mr. Lightbody, of Ludlow, who accompanied the Field Club, seemed to doubt the regularity of the succession here, the strata being much confused and disturbed. The quarries at this spot have yielded some fine specimens of Phragmoceras and Lituites giganteus, but none were obtained on this occasion. The Club was much indebted to Mr. Lightbody for his effective guidance. On Thursday those who remained, visited again, for a more careful inspection, the banks of the Onney, searching the Wenlock shale and Caradoc sandstone, and obtained from the former some good tails of *Asaphus longicaudatus*, rarely found elsewhere, and seldom perfect, and some Trinuclei from the latter, and the rare *Sphærosporgia*. The walk was continued to Horderley, where the Caradoc sandstone presents some instructive sections, being in places much disturbed, some layers abounding in organic remains: many fossils were found in the lowest strata near the spur of the Longmynd in grey shales, which afford *Berychiæ*, Trinuclei, and a new *Proetus*, a fine specimen of which was found by Mr. Brodie. It appears to be a rich bed and well worth a careful search. The strata here was much contorted, being affected, probably, by the upthrow of the Cambrian rocks of the Longmynd.

Friday was the last day for the researches of the Club in this beautiful country, but not the least instructive. Messrs. Brodie, Wyles, and La Touche ascended Caer Caradoc. The main portion of this fine hill is composed of eruptive rocks, which have altered the Caradoc sandstone on its flank, and from which the latter dips away at a high angle. On the summit several masses of drift were observed of much interest, with Caradoc and Ludlow fossils. At the base in one point on the S.E., some grits cropped out with '*Berychia complicata*' and casts of shells, being the lowest number of this formation below the Hoar edge grits. The view from the top is remarkably fine, overlooking the Longmynd with the Stiper stones in the distance, and other hills in that direction northwards, the long ridge of Wenlock edge and the more distant Clee hills rise up as prominent points in the landscape, the bold character of the scenery gives it a true mountain aspect, not inferior to Wales, and other disturbed regions. Caer Caradoc and the adjacent Lawley present a very peculiar appearance from the valley, and also from more distant hills. Caer Caradoc is also interesting as having been the main stronghold of the ancient British chieftain Caractacus. Walking by Hope Bowdler to Soudley, some time was spent in the large quarries of Caradoc sandstone similar to the section at Horderley. In both places it forms a useful and ornamental building stone, traversed by numerous fossiliferous bands which contained a species of *Trinucleus*, distinct from *T. concentricus* and a new species of *Bellerophon*. Some years since two fine star fish were found here.

The Rev. G. Henslow has kindly furnished the following list of plants which was obtained during the excursion :—*Ranunculus philonotis*, *Ehrh.*, Acton Scott; *Papaver Argemone*, *Linn.*, Church Stretton; *Arabis hirsuta*, *Br.*, Dinchope; *Cardamine*

amara, *Linn*, Church Stretton ; *Lepidium Smithii*, *Hook*, Church Stretton ; *Silene inflata*, *Sm.*, Norton, &c. ; *Lychnis diurna*, *Sibth*, (var : with white, and striped red and white corollas) Acton Scott, &c. ; *Arenaria serpyllifolio*, *Linn*, Acton Scott ; *Stellaria glauca*, *With.*, Norton ; *Hypericum pulchrum*, *Linn*, Norton ; *Hypericum humifucum*, *Linn*, Norton ; *Malva moschata*, *Linn*, Onibury, &c. ; *Geranium lundum*, *Linn*, Church Stretton ; *Oxalis Acetosella*, *Linn*, Stokesay Wood ; *Genista tinctoria*, *Linn*, Dinchope ; *Trifolium pratense*, *Linn*, (var : with white corollas) *Linn*, Dinchope ; *Vicia tetrasperma*, *Moench*, Onibury ; *Alchemilla vulgaris*, *Linn*, Church Stretton ; *Astrantia major*, *Linn*, Stokesay Wood ; *Asperula odorata*, *Linn*, Stokesay Wood ; *Valerianella olitoria*, *Poll.*, Church Stretton ; *Senecio sylvaticus*, *Linn*, Acton Scott ; *Lithospermum officinale*, *Linn*, Church Stretton ; *Veronica officinalis*, *Linn*, Church Stretton ; *Pedicularis palustris*, *Linn*, Stokesay ; *Malamphyrum pratense*, *Linn*, Norton ; *Euphorbia amygdalordes*, *Linn*, Onibury ; *Paris quadrifolia*, *Linn*, Stokesay Wood ; *Aspidium Filix-mas*, *Sn.*, Minton ; *Asplenium Filix-femina*, *Bernh.*, Minton ; *Aplenium Adiantum-nigrum* *Linn*, Norton ; *Viola Lutea**, *Caer Caradoc* ; *Pinguicula vulgaris**, *Caer Caradoc* ; *Erophorum polystichum**, *Caer Caradoc*.

In addition to the enjoyment of beautiful scenery, the members who attended this excursion had an excellent opportunity of studying the whole of the Silurian system, from the lowest, Cambrian rocks to the Wenlock limestone, with abundant instructive sections and characteristic fossils. The previous visits of the Club to Wenlock and Dudley, Malvern and Bala will now enable them to understand the lithological and zoological characters of the entire group, as well as the physical geography of the tracts visited.

* These three plants were found by the Rev. P. B. Brodie.

On the 25th of August, the Club held their last meeting for the season, at Dumbleton, in Gloucestershire, having been invited to Mr. Holland's, at Dumbleton House. There they inspected a choice collection of fossils belonging to Miss Holland, among which the Fish, Sepia, Insect-remains, and Crustacea, from the upper Lias of the adjacent quarries were particularly worthy of notice, and among them were some rare and unique species. After partaking of luncheon, kindly provided by Mr. Holland, the party walked through the pretty grounds to Dumbleton hill, when the Geologists, including the ladies, set to work to break up the fish bed, from whence most of the best fossils have been procured.

The lower lias was nowhere exposed in the ascent, but the middle lias was well represented by the marlstone abounding in fossils, capped by the clays and marls with the included "fish bed" of the upper Lias, which forms the entire portion of the upper part of the hill, and must be quite 100 feet thick, and, though occupying a large area in Gloucestershire, is rarely exposed, and probably reaches its maximum thickness of 300 feet at Cleeve Hill, near Cheltenham. The same beds are seen at Alderton resting on marlstone, while at Frampton the latter, much water-worn, is only exposed. These quarries were all visited by the club, and on Alderton Hill, where the finest view is obtained, Mr. Brodie gave a brief exposition of the geology of the district, which included a wide strata-graphical range, from the great Oolite and Stonesfield slate of the distant Cotswolds, to the Silurians and Oleni schists of the Malverns. Unfortunately the weather was too showery to obtain many fossils from the quarries. The species in the marlstone consist chiefly of shells, among which were Ammonites, Nautili, Belemnites, Pholadomya, Modiola, Lima, Pecten, Ostrea, Gryphœa,

Alaria, Terebratula and Rhynchonella. The upper Lias contains many ammonites and small shells, both univalves and bivalves, but the hard limestone, locally termed the "fish bed," yields the most interesting suite of fossils, including the remains of insects (wings, elytra of beetles, &c.), and a perfect dragon-fly, discovered by Mr. Brodie, Sepia with the ink-bag, Belemnite with ink-bag and sepious portion, Crustacea and several species of fish, of which *Leptolepis concentricus* is the most common, and *Tetragonolepis discus* the most scarce. None of these are of large size, if we except a fine specimen of *Lepidotus*, found at Gretton, in Lord Ducie's collection and a species of *Sauropsis* in Miss Holland's cabinet.

The larger *Pachycormi*, so characteristic of the upper Lias at Ilminster, in Somersetshire, are scarcely represented here, but many species occur in the same stratum at Whitby. Among the plants the frond of a new species of small fern was the most interesting.

Additions to the Museum and Library.

GEOLOGY.

DONATIONS.

Footsteps in Permian Sandstone of Reptile (*Labyrinthodon?*),
Corven, Burwood, near Wolverhampton. From the Rev. F. Catt,
through the Rev. P. B. Brodie.

Head and tail of *Trinucleus concentricus*, Caradoc Sandstone, Onny,
Salop.

Lingula plumbia, Llandeilo flags, Shelve, Salop.

Asaphus longicaudatus, Wenlock shale, Onny River, Salop.

Presented by the Rev. P. B. Brodie.

Homolonotus (tail), Woolhope Limestone, Woolhope, Herefordshire.

Presented by the Rev. F. W. Weare.

Cast of Coral, Inferior Oolite, Bath.

Brontes flabillifer, Middle Devonian, Barton.

Ogygia Selwini, Llandeilo flags, Shelve, Salop.

Asaphus Affinis, ditto, Port Madoc, North Wales.

Angolina Sedgwickii, ditto, ditto. ditto.

Presented by the Rev. P. B. Brodie.

LIBRARY.

DONATIONS.

Transactions of the Tyneside Naturalists' Field Club. Vol. 6. Part 2.
1864. Presented by the Club.

Transactions of the London and Middlesex Archæological Society.
Vol 2. Part 5. 1863. Presented by that Society.

Proceedings of the Literary and Philosophical Society of Liverpool,
52nd Session. 1862-1863. Presented by that Society.

Transactions of the Botanical Society. Vol. 7. Part 3. Presented
by that Society.

South Kensington Museum Catalogue of Special Loan Exhibition.
Vol. 1862. Presented by that Society.

PURCHASES.

Annals and Magazine of Natural History. Series 3. No. 65 to 75.

Bree, R. C. History of the Birds of Europe. Parts 57 to 62.

Couch, J. A History of the Fishes of the British Island. No. 32 to 42.
Geologist, No. 65 to 76.

Morris, F. O. A Natural History of British Moths. No. 29 to 30.

Palæontographical Society's Publications:—

British Fossil Echinodermata from the Oolitic Formations. Vol. 2.

Part 1.—On the Asteroidea. Supplementary Monograph on
the Mollusca from the Stonesfield Slate, Great Oolite, Forest
Marble, and Cornbrash. 1863.

Popular Science Review. Part 9 to 12.

Ray Society's Publication:—

Blackwall's Spiders of Great Britain and Ireland. Part 2. 1864.

GENERAL FINANCIAL STATEMENT,

FROM MARCH 25TH, 1863, TO MARCH 25TH, 1864.

17

Income.

	£.	s.	d.	£.	s.	d.
Subscriptions	77	14	0			
Arrears paid this year	15	15	0			
	<hr/>			93	9	0
Fees, Non-Subscribers,				8	15	0

	97	4	0
Balance, 1863,	81	0	6½
	<hr/>		
	£178	4	6½

	£.	s.	d.
Sinking Fund	10	0	0

Expenditure.

	£.	s.	d.
Collector's Commission to March 31, 1864	4	13	6
Insurance	1	1	0
Attendant, five quarters	25	0	0
Firing	2	2	7
Printing (including Report) and Stationery	9	4	4
Fittings and Repairs	1	11	3
Preserving Objects	0	5	6
Books, Binding, &c.	11	1	1
Postage of Circulars, Reports, &c.	1	18	9
Carriage	1	2	10
Incidentals	3	14	9

	61	15	7
Balance, 1864,	116	8	11½
	<hr/>		
	£178	4	6½

DESIDERATA.

BRITISH ORNITHOLOGY.

Order 1. Accipitres, Linn.

Egyptian Vulture, .. ..	.. <i>Neophron Percnopterus</i> , (Linn.)
Griffon Vulture, .. ..	.. <i>Gyps fulvus</i> , (Gmel.)
Rough-legged Buzzard, .. ..	.. <i>Archibuteo Lagopus</i> , (Brün.)
Spotted Eagle, .. ..	.. <i>Aquila nœvia</i> , (Gmel.) Mey.
Jer-falcon, .. ..	.. <i>Falco Gyrfalco</i> , Linn.
Red-footed Falcon, .. ..	.. <i>Tinnunculus vespertinus</i> , (Linn.)
Swallow-tailed Kite, .. ..	.. <i>Nauclerus furcatus</i> , (Linn.) Vigors.
Goshawk, .. ..	.. <i>Astur palumbarius</i> , (Linn.) Bechst.
Montagu's Harrier .. ..	.. <i>Circus cinerascens</i> , (Mont.)
Hawk Owl, .. ..	.. <i>Surnia ulula</i> , (Linn.) Bonap.
Snowy Owl, [British specimen,]	.. <i>Nyctea nivea</i> , (Thunb.)
Little Owl, .. ..	.. <i>Athene noctua</i> , (Retz.)
Great-eared Owl, [female,]	.. <i>Bubo maximus</i> , Sibb.
Tengmalm's Owl, .. ..	.. <i>Nyctale Tengmalmi</i> , (Gmel.) Strickl.

Order 2. Passeres, Cuv.

Alpine Swift, .. ..	.. <i>Cypselus Melba</i> , (Linn.)
Roller, .. ..	.. <i>Coracias garrula</i> , Linn.
Bee-eater, [British specimen,]	.. <i>Merops Apiaster</i> , Linn.
Dartford Warbler, .. ..	.. <i>Sylvia undata</i> , (Bodd.)
Garden Warbler, [female,]	.. <i>Sylvia hortensis</i> , (Penn.)
Fire-crested Regulus, .. ..	.. <i>Regulus ignicapillus</i> , Brehm.
Plain-crowned Kinglet, .. ..	.. <i>Regulus proregulus</i> , (Pall.)
Black Redstart, [Brit. specimen]	.. <i>Ruticilla tithys</i> , (Scop.)
Blue-throated Warbler, .. ..	.. <i>Cyanecula suecica</i> , (Linn.)
Alpine Accentor, .. ..	.. <i>Accentor alpinus</i> , (Gmel.) Bechst.
Crested Tit, .. ..	.. <i>Parus cristatus</i> , Linn.
White Wagtail, .. ..	.. <i>Motacilla alba</i> , Linn. [<i>vera</i> .]
Grey-headed Wagtail, .. ..	.. <i>Motacilla flava</i> , Linn.
Rock Pipit, .. ..	.. <i>Anthus spinoletta</i> , (Linn.)
Richard's Pipit, .. ..	.. <i>Anthus Richardi</i> , (Vieill.)
White's Thrush, .. ..	.. <i>Turdus varius</i> , Horsf.
Rock Thrush, .. ..	.. <i>Turdus saxatilis</i> , Linn.
Golden Oriole, .. ..	.. <i>Oriolus Galbula</i> , Linn.
Gold-vented Thrush, .. ..	.. <i>Pycnonotus aurigaster</i> , (Vieill.)
Great Ash-coloured Shrike, [fem]	.. <i>Lanius Excubitor</i> , Linn.
Woodchat Shrike, .. ..	.. <i>Enneoctonus rufus</i> , (Briss.)
Nutcracker, .. ..	.. <i>Nucifraga caryocatactes</i> , (Linn.) Briss.
Rose-coloured Ouzel, [Brit. spec.]	.. <i>Pastor roseus</i> , (Linn.) Temm.

Red-winged Starling, .. ..	.. <i>Agelaius phoeniceus</i> , (Linn.) Vieill.
Mountain Linnet, .. ..	.. <i>Fringilla flavirostris</i> , Linn.
Cirl Bunting, .. ..	.. <i>Emberiza Cirlus</i> , Linn.
Ortolan Bunting, .. ..	.. <i>Emberiza hortulana</i> , Linn.
Lapland Bunting .. ..	.. <i>Plectrophanes lapponicus</i> , (Linn.) Selb.
Short-toed Lark, .. ..	.. <i>Alauda brachydactyla</i> , Temm.
Crested Lark, .. ..	.. <i>Alauda cristata</i> , Linn.
Shore Lark, .. ..	.. <i>Otocoris alpestris</i> , (Linn.)
Parrot Cross-bill, .. ..	.. <i>Loxia pityopsittacus</i> , Bechst.
White-winged Cross-bill, ..	.. <i>Loxia leucoptera</i> , Gmel.

Order 3. Scansores, Ill.

American Cuckoo, .. ..	.. <i>Coccyzus americanus</i> , (Linn.)
Great Spotted Cuckoo, ..	.. <i>Oxylophus glandarius</i> , (Linn.)

Order 4. Columbæ, Lath.

Rock Dove .. ..	.. <i>Columba Livia</i> , Briss.
Passenger Pigeon, .. ..	.. <i>Ectopistes migratorius</i> , (Linn.) Swains.

Order 5. Gallinæ, Linn.

Barbary Partridge, .. ..	.. <i>Caccabis petrosa</i> , (Lath.)
Andalusian Hemipode, ..	.. <i>Turnix gibraltarius</i> , (Gmel.) Gould.
Virginian Colin, .. ..	.. <i>Ortyx virginianus</i> , (Linn.) Gray.

Order 6. Struthiones, Lath.

Great Bustard, .. ..	.. <i>Otis tarda</i> , Linn.
Little Bustard .. ..	.. <i>Otis tetrax</i> , Linn.

Order 7. Grallæ, Linn.

Great Plover, .. ..	.. <i>Œdicnemus crepitans</i> , Temm.
Cream-coloured Courser, ..	.. <i>Cursorius gallicus</i> , (Gmel.)
Kentish Plover, .. ..	.. <i>Charadrius cantianus</i> , Lath.
Crane, .. ..	.. <i>Grus cinerea</i> , Bechst.
Great White Heron, .. ..	.. <i>Ardea alba</i> , Gmel.
Egret, [British specimen,]	.. <i>Ardea Garzetta</i> , Linn.
Squacco Heron, .. ..	.. <i>Ardea comata</i> , Pall.
Buff-backed Heron .. ..	.. <i>Ardea coromanda</i> , Bodd.
American Bittern, .. ..	.. <i>Botaurus lentiginosus</i> , Mont.
Spoon-bill, .. ..	.. <i>Platalea leucorodia</i> , Linn.
White Stork, .. ..	.. <i>Ciconia alba</i> , Briss.

Black Stork, .. .. .	..	<i>Ciconia nigra</i> , Bechst.
Spotted Redshank, .. ..	..	<i>Totanus stagnalis</i> , Bechst.
Wood Sandpiper, .. ..	..	<i>Totanus Glareola</i> , (Linn.) Temm.
Avocet, .. .. .	..	<i>Recurvirostra Avocetta</i> , Linn.
Black-winged Stilt, .. ..	..	<i>Himantopus candidus</i> , Bonn.
Buff-breasted Sandpiper, ..	..	<i>Tringa rufescens</i> , Vieill.
Broad-billed Sandpiper, ..	..	<i>Tringa platyrhyncha</i> , Temm.
Schinz's Sandpiper, .. ..	..	<i>Tringa Schinzii</i> , Brehm.
Pectoral Sandpiper, .. ..	..	<i>Tringa pectoralis</i> , Say.
Brown Snipe, .. .. .	..	<i>Macroramphus griseus</i> , (Gmel.) Leach.
Sabine's Snipe, .. .. .	..	<i>Gallinago Sabini</i> , (Vigors.)
Red-necked Phalarope, ..	..	<i>Phalaropus hyperboreus</i> , (Linn.) Cuvier.
Baillon's Crake, .. .. .	..	<i>Ortygometra pygmaea</i> , (Naum.)
Little Crake, .. .. .	..	<i>Ortygometra minuta</i> , (Pall.)

Order 8. Anseres, Linn.

Spur-winged Goose, .. ..	..	<i>Plectopterus gambensis</i> , (Linn.) Steph.
Common Wild Goose, .. ..	..	<i>Anser fesus</i> , Gesn.
White-fronted Goose, .. ..	..	<i>Anser erythropus</i> , (Linn.) Flem.
Pink-footed Goose, .. ..	..	<i>Anser brachyrhynchus</i> , Baill.
Bernicle Goose, .. .. .	..	<i>Bernicla leucopsis</i> , (Bechst.) Steph.
Red-breasted Goose, .. ..	..	<i>Bernicla ruficollis</i> , (Pall.) Steph.
Polish Swan, .. .. .	..	<i>Cygnus immutabilis</i> , Yarrel.
Whistling Swan, .. .. .	..	<i>Cygnus fesus</i> , Ray.
Bewick's Swan, .. .. .	..	<i>Cygnus minor</i> , Pall.
American Swan, .. .. .	..	<i>Cygnus americanus</i> , Sharpless.
Ruddy Shieldrake, .. ..	..	<i>Casarka rutila</i> , (Pall.)
American Wigeon, .. .. .	..	<i>Mareca americana</i> , (Gmel.) Steph.
Bimaculated Duck, .. ..	..	<i>Querquedula bimaculata</i> , (Penn.)
Gadwall, .. .. .	..	<i>Chaulelasmus strepera</i> , (Linn.)
Red-crested Whistling Duck, ..	..	<i>Branta rufina</i> , (Pall.) Boie.
Scaup Pochard, .. .. .	..	<i>Fuligula Marila</i> , (Linn.) Steph.
Ferruginous Duck, .. ..	..	<i>Nyroca leucophthalma</i> , (Bechst.) Flem.
Harlequin Garrot, .. ..	..	<i>Clangula histrionica</i> , (Linn.) Steph.
Long-tailed Hareld, .. ..	..	<i>Harelda glacialis</i> , (Linn.) Leach.
Steller's Western Duck, .. ..	..	<i>Eniconetta Stelleri</i> , (Pall.)
King Duck, .. .. .	..	<i>Somateria spectabilis</i> , (Linn.) Steph.
Surf Scoter, .. .. .	..	<i>Oidemia perspicillata</i> , (Linn.) Steph.
Red-breasted Merganser, ..	..	<i>Mergus Serrator</i> , Linn.
Hooded Merganser, .. ..	..	<i>Mergus cucullatus</i> , Linn.
Red-necked Grebe, .. ..	..	<i>Podicepsgriseus</i> , (Bodd.) Lath.
Scalvonian Grebe, .. ..	..	<i>Podiceps cornutus</i> , (Gmel.) Lath.
Great Auk, .. .. .	..	<i>Alca impennis</i> , Linn.
Manx Shearwater, .. ..	..	<i>Puffinus Anglorum</i> , Ray.
Cinereous Shearwater, .. ..	..	<i>Puffinus cinereus</i> , Gmel.
Wilson's Petrel, .. .. .	..	<i>Thalassidroma oceanica</i> , Kuhl.
Fork-tailed Petrel, .. ..	..	<i>Thalassidroma Leachii</i> , (Temm.)
Bulwer's Petrel, .. .. .	..	<i>Thalassidroma Bulweri</i> , (J. & S.) Gould.
Buffon's Skua, .. .. .	..	<i>Stercorarius cephus</i> , (Brünn.)

Common Skua, .. .. .	.. <i>Stercorarius catarrhactes</i> , Linn.
Glaucous Gull, .. .. .	.. <i>Larus glaucus</i> , Brün.
Iceland Gull, .. .. .	.. <i>Larus leucopterus</i> , Faber.
Little Gull, .. .. .	.. <i>Larus minutus</i> , Pall.
Sabine's Gull, .. .. .	.. <i>Xema Sabini</i> , Leach.
Ivory Gull, .. .. .	.. <i>Pagophila eburnea</i> , (Gmel.) Kaup.
Caspian Tern, .. .. .	.. <i>Sterna caspia</i> , Pall.
Gull-billed Tern, .. .. .	.. <i>Sterna anglica</i> , Mont.
Sandwich Tern, .. .. .	.. <i>Sterna cantiaca</i> , Gmel.
Roseate Tern, .. .. .	.. <i>Sterna paradisea</i> , Brün.
White-winged Black Tern,	.. <i>Hydrochelidon nigra</i> , (Linn.)
Black Noddy, <i>Anous stolidus</i> , (Linn.) Catesby.

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The Meetings of the Council are held Monthly, on the First Tuesday in the Month, at Half-past One o'clock.

The Museum is open daily from Eleven o'clock to Five between the First of March and the thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

The Annual Subscription for 1864 are due on the 24th day of May; and the Council urgently request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.



WARWICKSHIRE
NATURAL HISTORY
AND
Archæological Society.

TWENTY-NINTH ANNUAL REPORT,

APRIL, 1865.



WARWICK:

PERRY, PRINTER, NEW STREET & OLD SQUARE.

WARWICKSHIRE NATURAL HISTORY

AND

ARCHÆOLOGICAL SOCIETY,

ESTABLISHED MAY 24TH, 1836.

TWENTY-NINTH ANNUAL REPORT
OF THE COUNCIL TO THE SUBSCRIBERS,

READ AT THE

ANNIVERSARY MEETING, APRIL 21, 1865.

The Council, in presenting their report to the members, congratulate them on the continued prosperity of the Society.

Numerous and valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the

utmost importance to maintain and increase its efficiency. The Council record with pleasure a visit lately paid to the Museum by Professor Owen, who expressed a high opinion of its general arrangement and the importance and value of its contents.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several Formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Seonce, Headon hill, Hordwell, Barton, and Bracklesham. London Clay fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out. The Minerals have been, to some extent, re-arranged, through the kindness of Dr. Procter, of York, though *much* is still required to be done. Indeed, the specimens

are generally of an inferior kind, and the entire collection might be greatly improved by donations from any members interested in mineralogy.

The Birds are in excellent order, and form a very instructive collection, and several valuable specimens have been lately secured. At page 16 it will be seen what additional British Birds are needed.

The Shells, which are a large and valuable series, require some attention, as many of them have become displaced, and want, in many instances, re-naming. Sir David Barclay has kindly promised to put the whole in better order, and add desiderata from his own fine collection. A series of the land and freshwater Shells of Warwickshire would be an important addition.

The Accounts have been audited, and the General Financial Statement from March 25th, 1864, to March 25th, 1865, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much more might be effected if adequate means were placed at the disposal of the Council.

Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a much less

satisfactory condition than could be desired. A reference to the list of Subscribers will show that only a few of the rich and influential people in the County belong to the Society, and if the Members would solicit Annual Subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society before the end of the present year.

The Council have much pleasure in stating that the upper room has now been enlarged and otherwise improved, giving thereby increased accommodation for specimens, so much needed, and will enable them to make many additions and important alterations which the crowded state of the rooms rendered essential. Mr. Dickenson has been good enough to arrange the Archæological Collection now removed up stairs. The mammalia have been placed in proper order by Mr. Tomes, and several important additions have been made to them during the past year.

The Warwickshire Naturalists' and Archæologists' Field Club held their annual Winter Meeting (by the kind permission of the Council of the Warwickshire Natural History Society) in the Museum, Warwick, on Monday, February the 8th, 1864. P. Wykeham Martin, Esq., M.P., the President, took the chair, and read the usual annual Address.

The Rev. G. Henslow then proceeded to deliver a lecture on "Botanical Geography, with special reference to the distribution of the British Flora."

On Tuesday, May 24th, the Warwickshire Naturalists' and Archæologists' Field Club held their first meeting for

the summer at Broadway in Worcestershire. Arriving there soon after ten o'clock a.m. the members were met at the "Bell" by Mr. Beadles, a member of the Worcester-shire Field Club, who kindly accompanied them as their guide to all the most interesting spots in the immediate neighbourhood. Ascending the hill, a small cutting attracted the attention of the Geologists, and as it exhibited the sandy and highly fossiliferous beds immediately below the marlstone, rarely exposed, it was well worth a detailed examination. The Secretary observed that he had only seen these beds at Churchdown hill, in Gloucestershire, at Dursley, in the same County, and at Avon Dassett, in Warwickshire, in all of which places they are highly fossiliferous. At Broadway the fossils noted were *Pholadomya*, *Belemnites*, *Terebratula*, *Ammonites*, *Plicatula*, and *Avicula*. This was the only spot in the ascent where the Lias could be seen, nor was the Marlstone or upper Lias anywhere exposed before reaching the Oolite, though it must be of considerable thickness.

On the top of the hill a pause was made to look at the fine view overlooking a rich vale, from which the Liassic outliers of Stanley and Dumbleton hills stand forth, with the more distant hill of Bredon, the Malverns and May hill anticlinal. Several quarries of inferior Oolite were visited, consisting of the upper and lower Freestone, the latter affording the building stone, as at Birdlip and Cleeve, near Cheltenham, but no Pisolite or Oolite Marl as at the latter places. Scarcely any fossils were to be found in it except some *Terebratulæ*, *Rhynchonellæ*, and one specimen of *Hyboclypus agariciformis*, and a few minute Univalves.

The absence of organic remains renders it a more valuable stone for building, and it has the advantage of being readily worked when first quarried, but hardening on exposure to the air. It is of a more uniform yellow colour than the equivalent beds of the more southern Cotswolds.

Higher up, on the summit of the hill, these freestones are overlaid by the ragstones, in which fossils were far more abundant, among which the following may be noted, fragments of *Ammonites*, a *Nautilus*, *Belemnites brevis*, *Ostrea Marshii*, *Corbula*, *Astarte excavata*, *Gervillia Hartmanni*, *Serpulæ*, casts of *Trigonia costata*, and a large species of *Cucullæa* in fragments, but no *Gryphites* were observed.

Crossing the fields, towards Campden House, in the descent the clays and shales of the upper Lias were observed containing *Ammonites communis* and *Inoceramus dubius*, apparently highly fossiliferous, but no quantity of the clay could be got at. Large masses of Oolite had fallen down hereabouts and filled up hollows in the upper Lias, occurring at a much lower level owing to this slip or subsidence. A few blocks of the top beds of the lower or middle Lias, full of fossils similar to those in the Railway cutting at Campden, and Hewlett's hill, near Cheltenham, were seen below, but no section was exposed. A very pretty walk along the brow of the hill led the party to the back of the "Bell," where they dined.

As no botanists were present, and no archæological objects of interest presented themselves, the day was devoted to Geology and the enjoyment of the picturesque scenery of the neighbourhood.

On Monday, June 20th, the Club met at Cleobury Mortimer, Shropshire. Arriving at nine p.m. they were hospitably entertained at supper by Weaver Jones, Esq., the only local Geologist. On Tuesday, after breakfasting with the Rev. S. Lowndes, he kindly drove the party to Farlow, where, in company with the Rev. J. Williams, the Rector, they examined the famous quarry of yellow sandstone, the upper part of the old Red Sandstone, and the equivalent of the beds at Dura Den, in Scotland. Though not very successful, they discovered a tooth and scale of *Holoptychius*, and two imperfect portions of the body of the new British *Pterichthys*, the only locality in England where it has been met with. It is uncertain whether it occurs in a particular bed which after careful search could not be met with *in situ*, or whether it occurs indiscriminately throughout the more solid blocks of stone, which forms a tolerably good material for building. The strata at the pit are somewhat, though only slightly, disturbed, but ascending the hill, the junction beds with the Mountain limestone were exposed, dipping at a high angle conformable to the Old Red.

Proceeding thence to Oreton, some time was spent in examining the fine sections of Mountain limestone, which forms a continuous anticlinal ridge for some distance, with the Old Red on one side, and the Carboniferous on the other. The Mountain limestone is much faulted and disturbed, hence the dip is very irregular; in places the strata are nearly vertical, especially in an old quarry near Farlow Church, but in others are very little inclined, even in the same section. Corals and shells abound, but the species seem to be limited, and neither so numerous nor

well preserved as in other places, but this limestone is chiefly famous for its fine and abundant remains of Cestraciont fishes, consisting of palatal teeth and spines in fine preservation, which are fully illustrated in Mr. Jones' choice and extensive collection.

Returning to Farlow, the Club, including several ladies and members of the Severn Valley Field Club, sat down to an *al fresco* luncheon, kindly provided by Mr. Lowndes. Here the Rev. W. Purton gave a detailed geological description of the district, with which he is well acquainted, and Mr. Brodie pointed out the numerous lines of basaltic upthrow of the Cleve hills, the more distant Wrekin, the Clent hills, and the other older plutonic outbursts of the Malverns, and the country adjacent to the Longmynd. An upheaval of greenstone also occurs in a small ridge lying between Oreton and Wyre Forest.

After luncheon, the Warwickshire Club ascended the Titterstone Cleve, which commands one of the finest and most extensive views in the district, commanding the whole of the Silurians round Ludlow, Caer Caradoc, and the Longmynd, the intervening old Red Sandstone being well marked by the red colour of the soil. The slopes of the hill consist of the Millstone grit and coal, which is worked at several places, the shafts being sunk through the trap which has thrown up the coal measures bursting through them at a central point in the hill, and having overflowed on the top; forming altogether a most striking and instructive section,—perhaps one of the most remarkable of the kind in the country. The basalt is scattered about in all directions on the summit and slope of the hill, and has assumed an imperfect columnar column when cooling.

On Wednesday, the members walked to the Coal pits on Clee hill, where a few plants were collected, but rarely well preserved, owing to the brittle nature of the shales and under clays which contain them in abundance. The Coal itself appears to be of rather an inferior quality. The view from this side of the hill is very fine, looking over Wyre Forest, the Abberley, Malvern, and Clent hills, towards Wolverhampton and Dudley. The Old Red is again readily traced by the colour of the soil occupying the lower ground towards Cleobury, beyond which the Carboniferous series again comes in.

On Thursday, the Club, under Mr. Lowndes' guidance, walked along the new line of railway towards Bewdley to examine the sections of the coal measures there exposed, which presented many points of interest, especially at one spot, which led to an animated discussion between the Geologists. Here and there thin bands of coal were present, with shales, clays, ironstone, and thickly embedded sandstones. Very few fossils were procured, the most noticeable being *Calamites* and *Sigillaria*, and a fine impression of *Lepidodendron* with the attached bark converted into coal.

Arriving at Far Forest Rectory, some refreshment was kindly provided by the Rev. J. Lea, the Incumbent. From this spot a good view of Wyre Forest was obtained, being situated near the centre. Returning to Cleobury, a good section of Old Red Sandstone was examined about a mile from the Town. No fossils were observed, but the white, fine-grained sandstone affords an excellent and beautiful building stone.

Many interesting plants were collected by Mr. Henslow and Mr. Cooke, and the former has kindly furnished the annexed list.

Ranunculus hederaceus, near Coal mines; *Viola lutea*, Clee hills; *Hypericum pulchrum*, Clee hills; *Hypericum humifusum*, on Clee hills; *Erodium cicutarium*, Cleobury Mortimer; *Geranium columbinum*, Cleobury Mortimer; *Geranium phæum*, Farlow; *Geranium sylvaticum*, Meadow near Cleobury; *Ornithopus perpusillus*, near Bewdley Station; *Trifolium arvense*, near Bewdley Station; *Vicia sylvatica*, Cleobury; *Orobis tuberosus*, Cleobury; *Genista tinctoria*, Meadow by railway; *Knautia arvensis*, var: *prolific*, Meadow by railway; *Jasione montana*, Clee hills; *Melaupyrum pratense*, var: *album*, near Railway; *Veronica sylvatica*, near Railway; *Pyrola media*; *Marubrium vulgare*, by Bewdley Station; *Montia fontana*, near Coal Mines; *Callitriche platycarpa*, near Coal Mines; *Orchis pyramidalis*, near Oreton; *Habenaria bifolia*, near Oreton; *Habenaria chloranthra*, near Oreton; *Juncus squarrosus*, Clee hills; *Carex muricata*, above Oreton (on the common); *C. stallaris*, above Oreton; *Poa rigida*, Oreton Quarries; *Triodia decumbens*, Cleobury; *Aira præcox*, Clee hills; *Aira caryophylla*, Clee hills; *Nardus strictus*, Clee hills; *Polypodium vulgare*, Clee hills; *Polypodium dryopteris*, near Farlow; *Lastrea oreopteris*, Clee hills; *Lastrea Felix mas*, Clee hills; *Athyrium Felix femina*; Clee hills; *Asplenium Adiantum nigrum*, Clee hills; *Botrychium lunaria*, common above Oreton.

Messrs. Roberts and Morris give the following list of fossil fish remains from the Mountain limestone of Oreton, which consist chiefly of Palates and spines of great size.

Chomatodus cinctus.	Cochliodus contortus.	} Geological Journal, No. 70.
linearis.	magnus ?	
Ctenacanthus brevis.	striatus ?	
major.	n. s.	
tenuistriatus.	Deltodus n. s.	
n. s.		
Ctenopetalus serratus.	Helodus didymus.	
	lævissimus.	
Orodus cinctus.	mamillaris.	
ramosus.	subteres.	
Psammodus Goughii.		}
porosus.	Pristicladodus Goughii (tooth)	

Among the shells are Spiriferæ and Rhynchonellæ, which are the most abundant, but the species are few. Discina nitida, Productus, Enonphalus peutan gulatus, and rarely Conularia; of Trilobites portions only of Phillipsia mucronata; of Bryozoa are Fenestrella plebeia and Morrisii. Vincularia megastoma.

Of Crinoids the genera Poteriocrinus gracilis; Cyathocrinus macrocheirus and quinquangularis; chiefly stems and plates, the only portion of a head with attached stem occurring in Mr. Jones' cabinet. The above and other fossils from Oretton are well represented in his fine collection.

The stone is exceedingly hard, and the fossils very difficult to extract in consequence.

The Warwickshire Naturalists' Field Club held their third and last summer meeting at Dudley, on August 3rd, to meet the Dudley Field Club. After examining the ruins

of the Castle, they visited the Museum lately established, the old one having disappeared, and judging from the present fine collection of local fossils, it bids fair to establish a well-merited notoriety. The local collection of fossils from the Wren's nest, containing some choice and rare *Encrinites* and *Trilobites* are well worthy of attention. Taking the route by Windmill hill to the Wren's nest, the members were able to trace out the western portion of the Coal field, and the bosses of the Greenstone in that direction, the most noticeable of which is that at Barrow hill. Near Parkes Hall and the water-works certain shale beds, with numerous fossils, were examined, and a valve of the rare "*Chiton Grayii*" was discovered. The local Geologists were of opinion that these shales belong to the Lower Ludlow series, from the prevalence of certain forms which characterize that portion of the Silurians, though intermingled with others which also occur in the Wenlock limestone and upper Ludlow. Attention was also drawn to some interesting faults by which the limestone is cut off to the North West. Arriving at the southern end of the Silurian dome, the fine section of the well known Dudley limestone were carefully examined and numerous characteristic fossils especially Corals, were procured. Returning by the Old Park, a halt was made to examine the Ludlow beds, lately thrown out by some new sinkings now in progress, and a rich harvest of organic remains might have been reaped if time could have been spared to give them a careful examination.

Additions to the Museum and Library.

GEOLOGY.

DONATIONS.

	Eucrinurus punctatus.	Presented by the Rev. E. Spooner.	
Upper	Spooner.		
Silurian,	Cheirurus bimucronatus.	Ditto,	ditto.
(Wenlock	Cyphaspsis migalops.	Ditto,	ditto.
Limestone,)	Acidaspis coronatus (tail).	Presented by — Maughan,	
Dudley.	Esq.		
	Phacops Stokesii.	Ditto,	ditto:
	Proetus latifrons.	Ditto, Rev. E. Spooner.	
Avicula, n.s.	Oxford Clay, Staverton, Wilts.		
Lima rustica.	Lias, near Gloucester.		
Cyrtolites.	Lower Ludlow, Dudley.		
Terebratula digona.	Great Oolite, Northamptonshire.		
Gervillia lavis.	Lias, Cheltenham.		Presented
Echinus granulosus.	Green Sand, Wilts.		by the
Pectunculus umbonatus.	Ditto, Blackdown.		Rev. P. B.
Lingula minima.	Ludlow beds, Ludlow.		Brodie.
Phacops Weaveri.	May-hill sandstone, Tortworth, Gloucestershire.		
Cerithium Damonis.	Oxford clay, Claydon, Bucks.		
Ancyloceras Calloviensis.	Ditto, Kelloways, Wilts.		
Serpula parallela.	Mountain Limestone, Yorkshire.		
Sponges in Flint.	Wilts.		Presented
Pectens.	Lias shale, Vale of Gloucester.		by the
Pentamerus linguifer.	Malvern.		Rev. P. B.
			Brodie.
	Hemelytron of Hemiptera (Belostoma).		
INSECTS.	Elater vetustus.	Binton, Warwickshire.	
LOWER	Trogulus. (Insect Limestone.)	Gloucester-	
LIAS.	shire		

<i>Cônularia</i> . Colebrook Dale.	} Presented by the Rev. P. B. Brodie.
<i>Diplodus gibbosus</i> . Coal, Staffordshire.	
<i>Anthracomyna</i> . <i>Adamsii</i> , ditto.	
<i>Avicula carinata</i> . ditto.	
<i>Rostellaria calcarata</i> . Green sand, Blackdown.	
<i>Belemnotenthis</i> . Oxford clay, Wilts.	
<i>Anthracosia acuta</i> . Coal, Staffordshire.	
<i>Ammonites ibex</i> . L. Lias.	
Fucoids, Lower Llandovery, Aberystwith.	
<i>Montlivaltia Haimeii</i> . Lower Lias, Newark, Notts.	
<i>Cerithium</i> . Plastic clay, Woolwich.	
<i>Cyrena</i> . ditto, ditto.	
<i>Syphonia</i> (<i>Polypothecia</i>) head. Upper Green Sand. (Cup Sponge.) Warminster, Wilts.	
Black and Green Obsidian, and other volcanic products. Island of Ascension.	

Three Slabs of New Red Sandstone, with Footprints of Reptile.
(*Rhyncosaurus* or *Labyrinthodon*.) Lymm, Cheshire. Presented
by the Rev. S. Cooke.

Footsteps of *Labyrinthodon*. Lower? Keuper, Emscote.
Presented by Mr. J. H. Clark.

Woodocrinus macrodactylus and Coal plants, Yorkshire.
Presented by Edward Wood, Esq.

LIBRARY.

DONATIONS.

- Twenty-one Annual Reports of the Leeds Philosophical Society.
Presented by that Society.
- Addresses and Papers. Ditto, ditto.
- Transactions of Botanical Society, Edinburgh. Presented by that
Society.

PURCHASES.

Annals and Magazine of Natural History. No. 76 to 87.

Couch, J.—A History of the Fishes of the British Islands. No. 43 to 52.

Geological Magazine. No. 1 to 9.

Palæontographical Society's Publications:—

Cretaceous Echinodermata. Vol. 1, Part 1.

Trilobites of the Silurian, Devonian, &c., Formations. Part 1, Devonian.

Fossil Brachiopoda. Vol. 3, Part 6. No. 1. Devonian.

Eocene Mollusca. Part 4. No. 2. Bivalves.

Reptilia of the Cretaceous and Wealden Formations. Supp.

No. 2, Cretaceous. Supplement, No. 3, Wealden.

Popular Science Review. part 13 to 16.

Ray Society's Publications:—

Dr. Gunther's Reptiles of British India.

Camden Society's Publications:—

80 Proceedings in Kent, 1640.

81 Parliamentary Debates in 1610.

82 Foreign Protestants and Aliens in England, 1618—88.

83 Wills from Doctor's Commons.

84 Trevelyan Papers. Part 11.

85 Marmaduke Rawdon, of York.

86 Letters of Margaret of Anjou.

87 The Camden Miscellany. Vol. 5.

88 Letters of Sir Robert Cecil.

89 Promptorium parvolorum. Tome 3.

MISCELLANEOUS.

DONATIONS.

Three Snakes in Bottle. Presented by W. Smeaton, Esq.

Anglo Saxon Vase, with bones, from near Long Itchington. Presented by Mr. Buffery, Warwick.

Flint Flakes, &c., and Pamphlet descriptive of them, &c. Presented by Henry Christy, Esq., London.

Anglo-Saxon Boss of Shield, Shears, &c, from near Meon-hill.

Presented by J. W. Kirshaw, Esq.

Little Auk, Wedgnoek Park, Warwick. Presented by Mr. John Davis.

Five Mummy Crocodiles. Thebes. Leeds Philosophical Society.

Three Druicerii, four Roman brass, several Chinese coins, and others.

Presented by W. Scott, Esq, Priory, Warwick.

A Dagger, said to be found in the bed of the Thames. Presented by W. Scott, Esq., Priory, Warwick.

Felus catus Liun. North Britain, Ben Nevis.

Presented by R. F. Tomes, Esq.

Cervus elephas. From Scotland. Presented by E. Greaves, Esq.

GENERAL FINANCIAL STATEMENT,

FROM MARCH 25TH, 1864, TO MARCH 25TH, 1865.

IMPROVEMENT AND ENLARGEMENT OF THE MUSEUM ACCOUNT.

Income.

To amount of Donations received	£	s.	d.
Ditto Reserve Fund .. £10 0 0	204	14	0
Interest upon do... 1 5 0			
	11	5	0

To Balance carried down **A**

42 1 3

£258 0 3

Expenditure.

By Amount paid the Charity Trustees towards the Improvements of the Museum Building, &c.	£	s.	d.
Do. New Cases and Fittings, and for covering and preserving cases, &c., during the alteration	100	0	0
Painting and varnishing cases, &c.	94	11	0
New Blinds, Covering Tables, &c.	15	18	0
Setting up, removing, and cleaning specimens	17	13	0
Printing Circulars, Postage, &c.	22	16	6
Repairing Stoves, Incidentals, &c.	6	6	10
	10	14	11
	£258	0	3

[OVER.]

ANNUAL INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR.

INCOME.			EXPENDITURE.			
£	s.	d.	£	s.	d.	
Amount received for Subscriptions	£75	12 0	By Amount paid for Insurance for the Year..	1	1 0	
" " Arrears of do.	3	3 0	Ditto Attendant	20	0 0	
Admission Fees from non-Subscribers			Ditto Firing	3	8 11	
	78	15 0	Ditto Printing, including Reports and Stationery ..	9	17 3	
	6	11 9	Ditto Fittings and Repairs ..	0	16 0	
			Ditto Preserving Specimens ..	11	9 6	
			Ditto Books, Binding, &c. ..	6	6 10	
			Ditto Postage of Circulars, Reports, &c.	1	8 1	
			Ditto Carriage	0	17 9	
			Ditto Incidentals	5	10 10½	
			Ditto Collector's Commission..	3	18 9	
			By Balance carried down, B	64	14 11½	
				20	11 9½	
				£85	6 9	
				£.	s.	d.
To Balance of last year's account	116	8 11½	By Balance of Improvement and Enlargement of the Museum Account, A	42	1 3	
" Balance of Income and Expenditure Account B	20	11 9½	" Payment on Account of Rent to the time when the Corporation take to it .. .	20	0 0	
" Amount deposited for Library Account ..	0	10 0	" Balance at the Bankers	75	9 6	
				£137	10 9	

DESIDERATA.

BRITISH ORNITHOLOGY.

Order 1. Accipitres, Linn.

Egyptian Vulture,	<i>Neophron Percnopterus</i> , (Linn.)
Griffon Vulture,	<i>Gyps fulvus</i> , (Gmel.)
Rough-legged Buzzard,	<i>Archibuteo Lagopus</i> , (Brün.)
Spotted Eagle,	<i>Aquila nœvia</i> , (Gmel.) Mey.
Jer-falcon,	<i>Falco Gyrfalco</i> , Linn.
Red-footed Falcon,	<i>Tinnunculus vespertinus</i> , (Linn.)
Swallow-tailed Kite,	<i>Nauclerus furcatus</i> , (Linn.) Vigors.
Goshawk,	<i>Astur palumbarius</i> , (Linn.) Bechst.
Montagu's Harrier,	<i>Circus cinerascens</i> , (Mont.)
Hawk Owl,	<i>Surnia ulula</i> , (Linn.) Bonap.
Snowy Owl, [British specimen,]	<i>Nyctea nivea</i> , (Thunb.)
Little Owl,	<i>Athene noctua</i> , (Retz.)
Great-eared Owl, [female,]	<i>Bubo maximus</i> , Sibb.
Tengmalm's Owl	<i>Nyctale Tengmalmi</i> , (Gmel.) Strickl.

Order 2. Passeres, Cuv.

Alpine Swift,	<i>Cypselus Melba</i> , (Linn.)
Roller,	<i>Coracias garrula</i> , Linn.
Bee-eater, [British specimen,]	<i>Merops Apiaster</i> , Linn.
Dartford Warbler,	<i>Sylvia undata</i> , (Bodd.)
Garden Warbler, [female,]	<i>Sylvia hortensis</i> , (Penn.)
Fire-crested Regulus,	<i>Regulus ignicapillus</i> , Brehm.
Plain-crowned Kinglet,	<i>Regulus proregulus</i> , (Pall.)
Black Redstart, [Brit.specimen]	<i>Ruticilla tithys</i> , (Scop.)
Blue-throated Warbler,	<i>Cyanecula suecica</i> , (Linn.)
Alpine Accentor,	<i>Accentor alpinus</i> , (Gmel.) Bechst.
Crested Tit,	<i>Parus cristatus</i> , Linn.
White Wagtail,	<i>Motacilla alba</i> , Linn. [vera.]
Grey-headed Wagtail,	<i>Motacilla flava</i> , Linn.
Rock Pipit,	<i>Anthus spinoletta</i> , (Linn.)
Richard's Pipit,	<i>Anthus Richardi</i> , (Vieill.)
White's Thrush,	<i>Turdus varius</i> , Horsf.
Rock Thrush,	<i>Turdus saxatilis</i> , Linn.
Golden Oriole,	<i>Oriolus Galbula</i> , Linn.
Gold-vented Thrush,	<i>Pycnonotus aurigaster</i> , (Vieil.)
Great Ash-coloured Shrike, [fem]	<i>Lanius Excubitor</i> , Linn.
Woodchat Shrike,	<i>Enneoctonus rufus</i> , (Briss.)
Nutcracker,	<i>Nucifraga caryocatactes</i> , (Linn.) Briss.
Rose-coloured Ouzel, [Brit.spec.]	<i>Pastor roseus</i> , (Linn.) Temm.

Red-winged Starling,	.. ..	<i>Agelaius phœniceus</i> , (Linn) Vieil.
Mountain Linnet,	.. ..	<i>Fringilla flavirostris</i> , Linn.
Cirl Bunting,	.. ..	<i>Emberiza Cirlus</i> , Linn.
Ortolan Bunting,	.. ..	<i>Emberiza hortulana</i> , Linn.
Lapland Bunting,	.. ..	<i>Plectrophanes lapponicus</i> , (Linn.) Selb.
Short-toed Lark,	.. ..	<i>Alauda brachydactyla</i> , Temm.
Crested Lark,	.. ..	<i>Alauda cristata</i> , Linn.
Shore Lark,	.. ..	<i>Otocoris alpestris</i> , (Linn.)
Parrot Cross-bill,	.. ..	<i>Loxia pityopsittacus</i> , Bechst.
White-winged Cross-bill,	.. ..	<i>Loxia leucoptera</i> , Gmel.

Order 3. Scansores, Ill.

American Cuckoo,	.. ..	<i>Coccyzus americanus</i> , (Linn.)
Great spotted Cuckoo,	.. ..	<i>Oxylophus glandarius</i> , (Linn.)

Order 4. Columbæ, Lath.

Rock Dove,..	.. ..	<i>Columba Livia</i> , Briss.
Passenger Pigeon,	.. ..	<i>Ectopistes migratorius</i> ; (Linn.)Swains.

Order 5. Gallinæ, Linn.

Barbary Partridge,	.. ..	<i>Caccabis petrosa</i> , (Lath.)
Andalusian Hemipode,	.. ..	<i>Turnix gibraltarius</i> , (Gmel.) Gould.
Virginian Colin,	.. ..	<i>Ortyx virginianus</i> , (Linn.) Gray.

Order 6. Struthiones, Lath.

Great Bustard	.. ..	<i>Otys tarda</i> , Linn.
Little Bustard	.. ..	<i>Otys tetrax</i> , Linn.

Order 7. Grallœ, Linn.

Great Plover,	.. ..	<i>Edicnemus crepitans</i> , Temm.
Cream-coloured Courser,	.. ..	<i>Cursorius gallicus</i> , (Gmel.)
Kentish Plover,..	.. ..	<i>Charadrius cantianus</i> , Lath.
Crane,..	.. ..	<i>Grus cinerea</i> , Bechst.
Great White Heron,..	.. ..	<i>Ardea alba</i> , Gmel.
Egret, [British specimen,]	.. ..	<i>Ardea Garzetta</i> , Linn.
Squacco Heron,..	.. ..	<i>Ardea comata</i> , Pall.
Buff-backed Heron,	.. ..	<i>Ardea coromanda</i> , Bodd.
American Bittern,	.. ..	<i>Botaurus lentiginosus</i> , Mont.
Spoon-bill, ..	.. ..	<i>Platalea leucorodia</i> , Linn.
White Stork,	.. ..	<i>Ciconia alba</i> , Briss.

Black Stork, .. ..	..	<i>Ciconia nigra</i> , Bechst.
Spotted Redshank, .. ..	..	<i>Totanus stagnalis</i> , Bechst.
Wood Sandpiper, .. ..	..	<i>Totanus Glareola</i> , (Linn.) Temm.
Avocet, .. ..	..	<i>Recurvirostra Avocetta</i> , Linn.
Black-winged Stilt, .. ..	..	<i>Himantopus candidus</i> , Bonn.
Buff-breasted Sandpiper, ..	..	<i>Tringa rufescens</i> , Vieill.
Broad-billed Sandpiper ..	..	<i>Tringa platyrhyncha</i> , Temm.
Schinz's Sandpiper .. ..	..	<i>Tringa Schinzii</i> , Brehm.
Pectoral Sandpiper, .. ..	..	<i>Tringa pectoralis</i> , Say.
Brown Snipe, .. ..	..	<i>Macroramphus griseus</i> , (Gmel.) Leach.
Sabine's Snipe, .. ..	..	<i>Gallinago Sabini</i> , (Vigors.)
Red-necked Phalarope, ..	..	<i>Phalaropus hyperboreus</i> , (Linn.) Cuvier.
Baillon's Crane, .. ..	..	<i>Ortygometra pygmaea</i> , (Naum.)
Little Crane, .. ..	..	<i>Ortygometra minuta</i> , (Pall.)

Order 8. Anseres, Linn.

Spur-winged Goose, .. ..	..	<i>Plectropterus gambensis</i> , (Linn.) Steph.
Common Wild Goose, .. ..	..	<i>Anser feras</i> , Gesn.
White-fronted Goose, .. ..	..	<i>Anser erythropus</i> , (Linn.) Flem.
Pink-footed Goose, .. ..	..	<i>Anser brachyrhynchus</i> , Baill.
Bernicle Goose, .. ..	..	<i>Bernicla leucopsis</i> , (Bechst.) Steph.
Red-breasted Goose, .. ..	..	<i>Bernicla ruficollis</i> , (Pall.) Steph.
Polish Swan, .. ..	..	<i>Cygnus immutabilis</i> , Yarrel.
Whistling Swan, .. ..	..	<i>Cygnus feras</i> , Ray.
Bewick's Swan, .. ..	..	<i>Cygnus minor</i> , Pall.
American Swan, .. ..	..	<i>Cygnus americanus</i> , Sharpless.
Ruddy Shieldrake, .. ..	..	<i>Casarka rutila</i> , (Pall.)
American Wigeon, .. ..	..	<i>Marca americana</i> , (Gmel.) Steph.
Bimaculated Duck, .. ..	..	<i>Querquedula bimaculata</i> , (Penn.)
Gadwall, .. ..	..	<i>Chaulelasmus strepera</i> , (Linn.)
Red-crested Whistling Duck, ..	..	<i>Branta rufina</i> , (Pall.) Boie.
Scaup Pochard, .. ..	..	<i>Fuligula Marila</i> (Linn.) Steph.
Ferruginous Duck, .. ..	..	<i>Nyroca leucophthalma</i> , (Bechst.) Flem.
Harlequin Garrot, .. ..	..	<i>Clangula histrionica</i> , (Linn.) Steph.
Long-tailed Hareld, .. ..	..	<i>Harelda glacialis</i> , (Linn.) Leach.
Steller's Western Duck, .. ..	..	<i>Eniconetta Stelleri</i> , (Pall.)
King Duck, .. ..	..	<i>Somateria spectabilis</i> , (Linn.) Steph.
Surf Scoter, .. ..	..	<i>Oidemia perspicillata</i> , (Linn.) Steph.
Red-breasted Merganser, ..	..	<i>Mergus Serrator</i> , Linn.
Hooded Merganser, .. ..	..	<i>Mergus cucullatus</i> , Linn.
Red-necked Grebe, .. ..	..	<i>Podiceps grisegena</i> , (Bodd.) Lath.
Slavonian Grebe .. ..	..	<i>Podiceps cornutus</i> , (Gmel.) Lath.
Great Auk, .. ..	..	<i>Alca impennis</i> , Linn.
Manx Shearwater, .. ..	..	<i>Puffinus Anglorum</i> , Ray.
Cinereous Shearwater, .. ..	..	<i>Puffinus cinereus</i> , Gmel.
Wilson's Petrel, .. ..	..	<i>Thalassidroma oceanica</i> , Kuhl.
Fork-tailed Petrel, .. ..	..	<i>Thalassidroma Leachii</i> , (Temm.)
Bulwer's Petrel, .. ..	..	<i>Thalassidroma Bulweri</i> , (J.&S.) Gould.
Buffon's Skua, .. ..	..	<i>Stercorarius cephus</i> , (Brünn.)

Common Skua, .. .. .	..	<i>Stercorarius catarrhactes</i> , Linn.
Glaucous Gull, .. .. .	..	.. <i>Larus glaucus</i> , Brün.
Iceland Gull, .. .. .	..	.. <i>Larus leucopterus</i> , Faber.
Little Gull, .. .. .	..	.. <i>Larus minutus</i> , Pall.
Sabine's Gull, .. .. .	..	.. <i>Xema Sabini</i> , Leach.
Ivory Gull, .. .. .	..	.. <i>Pagophila eburnea</i> . (Gmel.) Kaup.
Caspian Tern, .. .. .	..	.. <i>Sterna caspia</i> , Pall.
Gull-billed Tern, .. .. .	..	.. <i>Sterna anglica</i> , Mont.
Sandwich Tern, .. .. .	..	.. <i>Strena cantiaea</i> , Gmel.
Roseate Tern, .. .. .	..	.. <i>Strena paradisea</i> , Brün.
White-winged Black Tern, <i>Hydrochelidon nigra</i> , (Linn.)
Black Noddy, <i>Anous stolidus</i> , (Linn.) Catesby.

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1856-66.

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The Museum is open daily from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

The Annual Subscriptions for 1865 are due on the 24th day of May; and the Council urgently request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.



WARWICKSHIRE
NATURAL HISTORY
AND
Archæological Society.

THIRTIETH ANNUAL REPORT,

APRIL, 1866.



WARWICK:

PERRY, PRINTER, NEW STREET & OLD SQUARE.

WARWICKSHIRE
NATURAL HISTORY
AND
ARCHÆOLOGICAL SOCIETY,
ESTABLISHED MAY 24TH, 1836.

THIRTIETH ANNUAL REPORT
OF THE COUNCIL TO THE SUBSCRIBERS,
READ AT THE
ANNIVERSARY MEETING, APRIL 6TH, 1866.

THE Council, in presenting their annual report to the members, congratulate them on the continued prosperity of the Society.

Numerous and valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.

The Council record with pleasure a visit paid to the Museum by Professor Owen, who expressed a high opinion of its general arrangement and the importance and value of its contents.

In September last, a large party of members of the British Association visited the Museum, and the Geological collection was briefly described to them by the Rev. P. B. Brodie.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon hill, Hordwell, Barton, and Bracklesham. London Clay fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

BRITISH MAMMALIA.

Although no addition has been made to the British Mammals since last year, we devote this paragraph to the collection, hoping that we may thereby meet with assistance in its completion. Unlike British Birds, which migrate, and which therefore in some species can only be obtained as stragglers, the Mammals are resident, and though some are rarer than others, *all* may be obtained with tolerable certainty, by those residing in such parts of the Country as they are known to inhabit. With the exception of the marine species, such as the Whales and Porpoises, there are none which might not take their place in our collection of British feræ. We have already some of the largest of the land animals, as the Red Deer and Roebuck, both presented by Edward Greaves, Esq. A mounted specimen of the Fallow Deer, and of the two kinds of Martin, *i.e.*, the yellow breasted, and the white breasted Martin, would go far towards the completion of the collection of the terrestrial Mammalia of Great Britain. We earnestly hope that some friends to this Institution will kindly furnish one or other of these desiderata. Of the smaller kinds, such as the Shrews and Bats, a few kinds are wanting, but these the Curators believe that they shall before long be able to supply.

ORNITHOLOGICAL COLLECTION.

In our report for 1865 we unaccountably omitted to advert to the re-arrangement of the collection of birds, which took place when the repairs of the Museum were brought to a close. The room containing the collection underwent a thorough cleaning, and the specimens were

taken out, examined, carefully cleaned, and returned to the cases. The windows of the rooms, the approaches to which were awkwardly blocked up with cases, were relieved of their obstructions, the specimens which were in these cases, being transported to their proper places in the series to which they respectively belonged.

But the most important change which has been made in this department, is the separation of the British from the Exotic species. In nearly all the extensive Natural History Museums in Europe the native species are now fostered as a distinct collection. Such has lately been the case in our National Museum, and whereas the observer had before this change to seek laboriously through thousands of birds, from every clime, for the isolated specimens which had formed the collection of some celebrated Naturalist,—as for instance that of Colonel Montague,—he may now see them all placed side by side in the gallery devoted to British Zoology. And with them he may also see ranged the gems from the collection of the late Mr. Yarrell. The advantage of such an arrangement is obvious.

When the Archæological Institute held its meeting at Warwick, the Bishop of Oxford, a good Ornithologist, and the possessor of a collection of the birds of the eastern Counties of England, paid a visit to our museum, and was much pleased to see the British Birds placed by themselves. He observed, with great truth, “you cannot vie with the larger Museums in a general collection, but you may *excel* them if you confine yourselves to a purely local collection.” Fully agreeing with

this opinion, the Hon. Curators, while enlarging the collection of British Birds, propose to do so, as much as possible, by means of specimens obtained in Warwickshire, or the contiguous Counties. They offer these remarks in the hope that the friends of the Institution, will assist them in carrying out their views, by the donation of some of the species forming the following list of desiderata:—

Order 1. Accipitres, Linn.

Egyptian Vulture,	<i>Neophron percnopterus</i> , (Linn.)
Griffon Vulture,	<i>Gyps fulvus</i> , (Gmel.)
Rough-legged Buzzard,	<i>Archibuteo lagopus</i> , (Brün.)
Spotted Eagle,	<i>Aquila nevia</i> , (Gmel.) Mey.
Jer-falcon,	<i>Falco gyrfalco</i> , Linn.
Red-footed Falcon,	<i>Tinnunculus vespertinus</i> , (Linn.)
Swallow-tailed Kite,	<i>Nauclerus furcatus</i> , (Linn.) Vigors.
Goshawk,	<i>Astur palumbarius</i> , (Linn.) Bechst.
Montagu's Harrier,	<i>Circus cinerascens</i> , (Mont.)
Hawk Owl,	<i>Surnia ulula</i> , (Linn.) Bonap
Snowy Owl, [British specimen,]	<i>Nyctea nivea</i> , (Thunb.)
Little Owl,	<i>Athene noctua</i> , (Retz.)
Great-eared Owl, [female,]	<i>Bubo maximus</i> , Sibb.
Tengmalm's Owl	<i>Nyctale tengmalmi</i> , (Gmel.) Strickl.

Order 2. Passeres, Cuv.

Alpine Swift,	<i>Cypselus melba</i> , (Linn.)
Roller,	<i>Coracias garrula</i> , Linn.
Bee-eater, [British specimen,]	<i>Merops apiaster</i> , Linn.
Dartford Warbler,	<i>Sylvia undata</i> , (Bodd.)
Garden Warbler, [female,]	<i>Sylvia hortensis</i> , (Penn.)
Fire-crested Regulus,	<i>Regulus ignicapillus</i> , Brehm.
Plain-crowned Kinglet,	<i>Regulus proregulus</i> , (Pall.)
Black Redstart, [Brit. specimen]	<i>Ruticilla tithys</i> , (Scop.)
Blue-throated Warbler,	<i>Cyanecula suecica</i> , (Linn.)
Alpine Accentor,	<i>Accentor alpinus</i> , (Gmel.) Bechst.
Crested Tit,	<i>Parus cristatus</i> , Linn.
White Wagtail	<i>Motacilla alba</i> , Linn. [vera.]
Grey-headed Wagtail,	<i>Motacilla flava</i> , Linn.
Rock Pipit,	<i>Anthus spinoletta</i> , (Linn.)
Richard's Pipit,	<i>Anthus richardi</i> , (Vieill.)
White's Thrush,	<i>Turdus varius</i> , Horsf.
Rock Thrush,	<i>Turdus saxatilis</i> , Linn.
Golden Oriole,	<i>Oriolus galbula</i> , Linn.
Gold-vented Thrush,	<i>Pycnonotus aurigaster</i> , (Vieill.)

Great Ash-coloured Shrike, [fem] *Lanius Excubitor*, Linn.
 Woodchat Shrike, *Enneoctonus refus*, (Briss.)
 Nutcracker, *Nucifraga caryocatactes*, (Linn.) Briss.
 Rose-coloured Ouzel, [Brit. spec.] *Pastor roseus*, (Linn.) Temm.
 Red-winged Starling, *Agelaius phæniceus*, (Linn.) Vieill.
 Mountain Linnet, *Fringilla flavirostris*, Linn.
 Cirl Bunting, *Emberiza Cirlus*, Linn.
 Ortolan Bunting, *Emberiza hortulana*, Linn.
 Lapland Bunting, *Plectrophanes lapponicus*, (Linn.) Selb.
 Short-toed Lark, *Alauda brachydactyla*, Temm.
 Crested Lark, *Alauda cristata*, Linn.
 Shore Lark, *Otocoris alpestris*, (Linn.)
 Parrot Cross-bill *Loxia pityopsittacus*, Bechst.
 White-winged Cross-bill, *Loxia leucoptera*, Gmel.

Order 3. Scansores, Ill.

American Cuckoo, *Coccyzus americanus*, (Linn.)
 Great spotted Cuckoo, *Oxylophus glandarius*, (Linn.)

Order 4. Columbæ, Lath.

Rock Dove, *Columba Livia*, Briss.
 Passenger Pigeon, *Ectopistes migratorius*, (Linn.) Swains.

Order 5. Gallinæ, Linn.

Barbary Partridge, *Caccabis petrosa*, (Lath.)
 Andalusian Hemipode, *Turnix gibraltarius*, (Gmel.) Gould.
 Virginian Colin, *Ortyx virginianus*, (Linn.) Gray.

Order 6. Struthiones, Lath.

Great Bustard, *Otis tarda*, Linn.
 Little Bustard, *Otis tetrax*, Linn.

Order 7. Grallæ, Linn.

Great Plover, *Edicnemus crepitans*, Temm.
 Cream-coloured Courser, *Cursorius gallicus*, (Gmel.)
 Kentish Plover, *Charadrius cantianus*, Lath.
 Crane, *Grus cinerea*, Bechst.
 Great White Heron, *Ardea alba*, Gmel.
 Egret, [British specimen,] *Ardea Garzetta*, Linn.
 Squacco Heron, *Ardea comata*, Pall.
 Buff-backed Heron, *Ardea coromanda*, Bodd.
 American Bittern, *Botaurus lentiginosus*, Mont.
 Spoon-bill, *Platalea leucorodia*, Linn.
 White Stork, *Ciconia alba*, Briss.

Black Stork, .. .. .	..	<i>Ciconia nigra</i> , Bechst.
Spotted Redshank, .. .. .	..	<i>Totanus stagnalis</i> , Bechst.
Wood Sandpiper, .. .. .	..	<i>Totanus Glareola</i> , (Linn.) Temm.
Avocet, .. .. .	..	<i>Recurvirostra Avocetta</i> , Linn.
Black-winged Stilt, .. .. .	..	<i>Himantopus candidus</i> , Bonn.
Buff-breasted Sandpiper, .. .. .	..	<i>Tringa refescens</i> , Vieill.
Broad-billed Sandpiper, .. .. .	..	<i>Tringa platyrhyncha</i> , Temm.
Schinz's Sandpiper, .. .. .	..	<i>Tringa Schinzii</i> , Brehm.
Pectoral Sandpiper, .. .. .	..	<i>Tringa pectoralis</i> , Say.
Brown Snipe, .. .. .	..	<i>Macroramphus griseus</i> , (Gmel.) Leach.
Sabine's Snipe, .. .. .	..	<i>Gallinago Sabini</i> , (Vigors.)
Red-necked Phalarope, .. .. .	..	<i>Phalaropus hyperboreus</i> , (Linn.) Cuvier.
Baillon's Crane, .. .. .	..	<i>Ortygometra pygmæa</i> , (Naum.)
Little Crane, .. .. .	..	<i>Ortygometra minuta</i> , (Pall.)

Order 8. Anseres, Linn.

Spur-winged Goose, .. .. .	..	<i>Plectropterus gambensis</i> , (Linn.) Steph.
Common Wild Goose, .. .. .	..	<i>Anser ferus</i> , Gesn.
White-fronted Goose, .. .. .	..	<i>Anser erythropus</i> , (Linn.) Flem.
Pink-footed Goose, .. .. .	..	<i>Anser brachyrhynchus</i> , Baill.
Bernicle Goose, .. .. .	..	<i>Bernicla leucopsis</i> , (Bechst.) Steph.
Red-breasted Goose, .. .. .	..	<i>Bernicla ruficollis</i> , (Pall.) Steph.
Polish Swan, .. .. .	..	<i>Cygnus immutabilis</i> , Yarrel.
Whistling Swan, .. .. .	..	<i>Cygnus ferus</i> , Ray.
Bewick's Swan, .. .. .	..	<i>Cygnus minor</i> , Pall.
American Swan, .. .. .	..	<i>Cygnus americanus</i> , Sharpless.
Ruddy Shieldrake, .. .. .	..	<i>Casarka rutila</i> , (Pall.)
American Wigeon, .. .. .	..	<i>Mareca americana</i> , (Gmel.) Steph.
Bimaculated Duck, .. .. .	..	<i>Querquedula bimaculata</i> , (Penn.)
Gadwall, .. .. .	..	<i>Chaulelasmus strepera</i> , (Linn.)
Red-crested Whistling Duck, .. .. .	..	<i>Branta rufina</i> , (Pall.) Boie.
Scaup Pochard, .. .. .	..	<i>Fuligula Marila</i> , (Linn.) Steph.
Ferruginous Duck, .. .. .	..	<i>Nyroca leucophthalma</i> , (Bechst.) Flem.
Harlequin Garrot, .. .. .	..	<i>Clangula histrionica</i> , (Linn.) Steph.
Long-tailed Hareld, .. .. .	..	<i>Harelda glacialis</i> , (Linn.) Leach.
Steller's Western Duck .. .. .	..	<i>Eniconetta Stelleri</i> , (Pall.)
King Duck, .. .. .	..	<i>Somateria spectabilis</i> , (Linn.) Steph.
Surf Scoter, .. .. .	..	<i>Oidemias perspicillata</i> , (Linn.) Steph.
Red-breasted Merganser, .. .. .	..	<i>Mergus Serrator</i> , Linn.
Hooded Merganser, .. .. .	..	<i>Mergus cucullatus</i> , Linn.
Red-necked Grebe, .. .. .	..	<i>Podiceps grisegena</i> , (Bodd.) Lath.
Slavonian Grebe, .. .. .	..	<i>Podiceps cornutus</i> , (Gmel.) Lath.
Great Auk, .. .. .	..	<i>Alca impennis</i> , Linn.
Manx Shearwater, .. .. .	..	<i>Puffinus Anglorum</i> , Ray.
Cinereous Shearwater, .. .. .	..	<i>Puffinus cinereus</i> , Gmel.
Wilson's Petrel, .. .. .	..	<i>Thalassidroma oceanica</i> , Kuhl.
Fork-tailed Petrel, .. .. .	..	<i>Thalassidroma Leachii</i> , (Temm.)
Bulwer's Petrel, .. .. .	..	<i>Thalassidroma Bulweri</i> , (J. & S.) Gould.

Buffon's Skua, .. .. .	.. <i>Stercorarius cephus</i> , (Brünn.)
Common Skua, .. .. .	.. <i>Stercorarius catarrhactes</i> , Linn.
Glaucous Gull, .. .. .	.. <i>Larus glaucus</i> , Brünn.
Iceland Gull, .. .. .	.. <i>Larus leucopterus</i> , Faber.
Little Gull, .. .. .	.. <i>Larus minutus</i> , Pall.
Sabine's Gull, .. .. .	.. <i>Xema Sabini</i> , Leach.
Ivory Gull, .. .. .	.. <i>Pagophila eburnea</i> , (Gmel.) Kaup.
Caspian Tern, .. .. .	.. <i>Sterna caspia</i> , Pall.
Gull-billed Tern, .. .. .	.. <i>Sterna anglica</i> , Mont.
Sandwich Tern, .. .. .	.. <i>Strena cantiaea</i> , Gmel.
Roseate Tern, .. .. .	.. <i>Strena paradisea</i> , Brünn.
White-winged Black Tern,	.. <i>Hydrochelidon nigra</i> , (Linn.)
Black Noddy, .. .. .	.. <i>Anous stolidus</i> , (Linn.) Catesby.

The Shells, which are a large and valuable series, require some attention, as many of them have become displaced, and want, in many instances, re-naming. Sir David Barclay has kindly promised to put the whole in better order, and add desiderata from his own fine collection. A series of the land and freshwater Shells of Warwickshire would be an important addition.

The Accounts have been audited, and the General Financial Statement from March 25th, 1865, to March 24th, 1866, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much more might be effected if adequate means were placed at the disposal of the Council.

Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a less satisfactory condition than could be desired. A reference to the list of subscribers will show that only a few of the rich and influential people in the County belong to the Society, and if the members would solicit annual subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society before the end of the present year.

The Council have much pleasure in stating that the upper room has now been enlarged and otherwise improved, giving thereby increased accommodation for specimens, so much needed, and will enable them to make many additions and important alterations which the crowded state of the rooms rendered essential.

After the business of the Meeting, Dr. O'Callaghan, D.C.L., F.S.A., exhibited and described several rare Autograph Letters and Illustrative Portraits of local interest.

The following paper on the Geology of Warwick, Leamington and its neighbourhood, was read by the Rev. P. B. Brodie, M.A., F.G.S.

The points of geological interest within a limited distance of the towns of Warwick and Leamington, say from 12 to 14 miles though not so varied and important as they are in many other places, are still deserving of attention. Within this area three formations are present in descending order: First, the drift Gravels; secondly, the Lias; thirdly, the New red Sandstone; fourthly, the Permian. The Gravels are widely spread over the country, and in this district belong to two distinct divisions, of different age, the high level and low level drifts. The former consists of large boulders and pebbles of various rocks of all ages, brought from many different quarters, partly on ice, which is clearly proved by many interesting facts lately brought forward by Professor Ramsay and other geologists who have studied the subject, a very large proportion being derived from the north, not only of England but of Europe. Most of the rocks are what is termed metamorphic, from which all traces of organic life have been removed, but occasionally fossiliferous rocks are met with.* This is called the northern or glacial drift, and represents a period of great cold, when a large portion of this island was submerged, and the land itself covered with snow and glaciers. Of more recent date are the finer Gravels occupying the valley of the Avon, and may be noticed at many spots in this district. These consist of small pebbles, often of local origin, and fine sand of considerable thickness, with loam in irregular patches. It is from these Gravels that remains of extinct and gigantic mammalia have been obtained; and when the Jephson gardens were being made, many fine bones of elephant, rhinoceros, hippopotamus, and other animals were discovered. In the Warwick Museum there is a fine jaw of rhinoceros (*tichorhinus*) from similar beds near Rugby. Entire elephants have sometimes been found, and in some spots they are exceedingly abundant. Fresh water shells of recent species are often associated with them. At present no flint implements have been noticed in the drift in this neighbourhood, but they should be carefully searched for, since it is desirable to note every spot where they occur associated with the extinct mammalia. At Mancetter flint implements are recorded by Dugdale. The Lias, of course, belongs to a formation of much older date than these post Pliocene deposits, but as it is the

* See a Paper, read by the Author, at the Meeting of the British Association, in Birmingham, in September last.

next in the order of succession in this neighbourhood it has next to be considered. The Lias is divided into upper, middle, and lower. The first of these only appears at a few places in the county, chiefly near Avon Dassett and Banbury; and is there of very limited extent and thickness compared with the same stratum in other parts of England. In Warwickshire it consists of beds of blue clay and shale, with the usual characteristic fossils. There is evidence to show that it formerly occupied a much larger area, and probably capped the Edgehills. The middle Lias holds a more important position, and forms the highest range of hills in this immediate neighbourhood, as the Edgehills, Avon Dassett, and towards Shipston. These are mainly composed of hard blue and grey calcareous stone termed marlstone, which, from its superior hardness and agreeable colour, makes an excellent stone for building and other purposes, and the more so, as it contains very few fossils, which is rather singular considering their profusion in this division of the Lias elsewhere. Below this are numerous beds of clay and limestone, more or less fossiliferous, which are, however, rarely exposed, but good sections may be seen on the G. W. Railway at Fenny Compton, and in the clay-pits adjacent. These divisions of the Lias are confined to the district which lies south and south-east of Warwick and Leamington. These beds are succeeded by a series of shales and limestones of considerable extent and thickness, and of much lithological and economic importance. Some fine sections may be seen in the railway cutting at Harbury, and in Messrs. Greaves and Kirshaw's extensive quarries at Harbury and Stockton. These strata are termed the *lima* beds, from the great abundance of a large bivalve shell, *lima gigantea*. These are succeeded by the 'insect and saurian' beds, so named from the abundance of insects and the two great sea lizards, so characteristic of the Lias *ichthyosaurus* and *plesiosaurus*; though these saurians do not distinguish this zone so well as the insects; but these are only represented by a very thin band at Harbury, though more largely developed at Wilmcote. There we have a lower series of limestones and shales of much finer texture, and marked by a somewhat different set of fossils. Fine sections of these beds are exposed at Wilmcote, Binton, and Grafton. Much of the stone might be profitably used for lithographic purposes, and is now extensively employed for paving and flooring, and in making Roman cement, at the works of Messrs. Greaves and Kirshaw, at Wilmcote. Underneath the insect beds a still more distinctive and peculiar series of strata come in, consisting of coarse, hard-grained limestones, grits, and sandstones, divided by clay, yielding some peculiar fossils, one stratum being made up of rude bones and teeth of fish and saurians, hence named the "bone bed," but this is but very poorly represented in this county, though traces of it may be noted at Binton, and in a singular liassic outlier at Knowle. These lowest beds of the Lias are also exposed in another remarkable outlier at Brown's Wood, near Wootton Wawen, but the sections are much obscured, the quarries being now entirely closed. One of the limestones overlying these strata referred to above, and which crops out in places below the 'lima and saurian or insect beds,' deserves especial notice from its remarkable mineralogical structure

and development in Warwickshire. It is a hard white limestone called on this account "white lias" the surface being much water worn and eroded, and containing a large quantity of iron. It immediately underlies the "lima beds" at Harbury, where it rises to the surface and occupies a considerable area in several parts of the county, especially near Rugby, at Long Itchington, Newbold, Whitnash, and is seen in many quarries south and east of Stratford. It may just be mentioned that owing to the recent researches in these lowest beds of the Lias, it is proposed to separate them altogether from that formation and to place them with the upper division of the New red Sandstone under the title of 'Rhætic beds.' This refers specially to the series below the 'insect beds,' and on the whole they contain a peculiar and distinctive suite of organic remains, most of which are more nearly related to the Trias, or New red Sandstone, than the Lias hence the separation. The white Lias is much more largely developed in Warwickshire and Somersetshire, and is very poorly represented in Gloucestershire; where, however, the lower division is much more extended. A few words must be added on the fossils of the Lias generally. These are on the whole largely distributed through the whole of the strata referred to, and none of them are entirely without some traces of life. They consist mainly of marine shells and a few corals, all of extinct species, and for the most part distinct from the superior and inferior formations. A great variety of fish have also been met with, often beautifully preserved and a few crustacea, some of which resemble the recent cray fish, but the most remarkable of all the relics of the ancient world of this period are the large enalio-saurians which, from their anatomical structure and habits, were the most formidable and predaceous monsters of the deep. There is, perhaps, no geological period more prolific in the remains of these animals than the Lias, and though other and similar reptiles occur in other formations, with the exception of the Wealden, we have some justification in calling this the age of reptiles. The Wealden is a much later deposit than the Lias, and the gigantic lizards which characterized it are terrestrial. Although a particular portion of the Lias is marked by the more frequent presence of saurians, they occur in greater or less abundance throughout the whole of it. It is chiefly from these lower beds, in which they are most prevalent that numerous and varied remains of insects have been discovered, especially in the quarries at Wilmcote, Binton, and Grafton, in this county. These and a few traces of land plants, such as ferns and drift wood, are the only evidence we have of the inhabitants of the earth at this epoch. Scanty enough, but of special interest, because it proves that the land had its inhabitants as well the sea, and though we have at present only a partial and imperfect record of the ancient world, we may conclude that insects and plants were not the only forms of life with which it was clothed, and some day a much more extensive fauna and flora may be found. The insects though unusually fragmentary are sometimes found entire, especially the coleoptera, but generally they consist of detached wings, beautifully preserved, amongst which the libellulidæ predominate. We may assume that they were carried with the plants by a large river into the sea, and deposited in the mud of the Lias at no great distance

from the shore. The total thickness of the Lias in Gloucestershire, where it is largely developed, is 1,000 feet, but probably it does not attain this in Warwickshire, as the upper Lias is much reduced in bulk and the other portions are feebly represented. We now come to the next succeeding formation, the New red Sandstone which underlies the lias, and is usually conformable to it. It is divided into upper and lower Keuper, composed of alternations of red and green marls, with included beds of soft and hard sandstones of variable thickness, but occupying a large area in this county, of this the marls fill the largest space, the upper Keuper sandstone running irregularly in patches, having been much denuded. It was formerly quarried at Shrewley Common, four miles N.W. of Warwick, and sections are still exposed there on the Grand Junction Canal, and at Rowington and Preston Bagot. The lowest bed of sandstone is a strong, compact rock, well adapted for building purposes, and it is much to be regretted that it is not still so employed. The upper Keuper occupies the whole of the high table land from Hatton to Birmingham, on the north-west. The lower keuper, like the upper division, consists of beds of soft and hard sandstone, rather different in lithological structure, but some parts form a good building stone. The town of Warwick is built upon it, and sections may be seen at Coten End, Guy's Cliff, Myton, and Cubbington. It is a thick bedded sandstone, often traversed by lines of false bedding. Part of Leamington stands upon it, and is exposed in an old quarry at the North-Western Station. A considerable mass of red marl separates the upper from the lower sandstones, which may be observed beneath the bottom rock at the canal, Shrewley. The denudations at Rowington are well marked by lines of denudation and undulations which vary the otherwise monotonous scenery of the neighbourhood; and towards Claverdon and Bearley the country is picturesque, and commands some extensive views over the plains of red marl and lower lias to the more distant Cotswolds. No doubt the sandstone was much more extended, filling up many of the little valleys from which it has been entirely removed with much of the underlying red marls. As a general rule this formation is barren of organic remains, those which have been met with occurring in the sandstone and green marls, none having been found here in the red marls, the superabundance of red proxide of iron being generally supposed to inimical to the existence of animal life. No marine shells (with one doubtful exception) are known to occur in it; and only two entire fish, both of which were discovered at Rowington, but abundant remains of sharks have been found in a soft white friable sandstone in the upper Keuper at Shrewley, and other parts of England where the same formation is met with. These consist of dorsal spines, small grinding palatal teeth of two distinct genera, cutting teeth, and shagreen or skin of some cestraciont. One of the fish was obtained from the bottom bed at Shrewley, and though of small size, is remarkable for the strong defensive armour with which it is covered, like the enamelled plates of the *Pterichthys*, &c., of the Old red Sandstone, forming a protection against the predatory sharks contemporary with it. The green marls contain abundantly, as well as the sandstones, a small bivalved crustacean '*estheria minuta*.' But the most remarkable fossils which

distinguish both the upper and lower Keuper, are the labyrinthodont reptiles, of singular uncouth form and anatomical structure, most nearly allied to the recent aquatic salamander. In the upper Keuper, the only evidence afforded of their existence are the impressions of their footsteps as they crawled over the mud of the Triassic sea. These are plentiful at Shrewley; and a much larger footprint was discovered near Preston Bagot. These belong to three genera, *Labryinthodon*, *Cheirotherium*, and *Rhynchosaurus*. But in the lower division, many remains of these singular reptiles have been met with, belonging to several genera, chiefly from Coten-end, Leamington, and Cubbington. These consist of various jaws with teeth, single teeth, vertebræ and other bones, especially cranial bones, but no entire skeleton has yet been procured in the new red sandstone in this country. These remains indicate animals of no very gigantic proportions, though the large footprints do; and in Germany an entire cranium was found, which must have belonged to a salamandroid reptile of enormous dimensions. If the footsteps which were lately obtained from a quarry at Emscote belong to the lower Keuper, this is the first instance I believe of their occurrence in that division; though, considering the frequent traces of their skeletons, none of which, or very rarely, have been met with in the upper, it is rather singular that they should not have been found before. In some of the sandstones and pure marly beds in the upper Keuper, fragmentary and very imperfect remains of plants occur both in Warwickshire and Worcestershire, the only evidence we have of the existence of land during this epoch. In Germany, however, there is a large flora, and much better preserved. It is supposed that the sea in which the New red Sandstone was deposited, formed a vast inland lake, like the Caspian of the present day; still, the absence of shells and the scarcity of fish, and indeed of fossils generally, is not so easily accounted for. This formation is of great economic importance, from the quantities of salt and gypsum which are obtained from it. In England it attains a thickness of 2,500 feet, though not reaching that amount probably in Warwickshire. The red Sandstones of Coventry and Kenilworth have been assigned to the Permian, a formation which succeeds the Triassic, and contains a much richer store of the animal life of the period, and very distinct from those which mark the previous one. In Warwickshire it consists of thick bedded red Sandstones, which are well seen in the extensive quarries at Kenilworth, Meriden, and near Coventry, and are much used for building. It occupies a considerable area in this part of the county, but less than the Triassic system. In lowering the road at Allesley some years ago, many broken trunks of large trees were found in the sandstone, evidently the remnant of an ancient forest, which must have flourished there when the rock formed the dry land, and was afterwards suddenly submerged. The gravel pits in the neighbourhood are full of fragments of this wood, and it is from this source that the pieces of wood belonging to the coniferæ are derived, which abound in the gravel at Warwick, and also in the glacial drift described at the beginning of this paper. At Exhall some bivalve shells were found, and a large calamite, but the pit is unfortunately closed. At Coventry, a large

jaw of labyrinthodon was obtained; and a fine cranium of another, —the largest known in England, at Kenilworth. Some singular plants of large size, which are new, are found in the same sandstone at Meriden. There is a curious conglomerate in the Kenilworth quarries which contains marine shells, and deserves a careful examination.

In concluding my remarks on the Geology of the District within a limited distance of Warwick and Leamington, I would draw attention to the fine collection of Triassic fossils, the finest in the kingdom, in the Warwick Museum, which also contains the jaw and head of the labyrinthodon, above referred to, from the Permian. The suite of Lias fossils is also very extensive, and includes some fine saurians, especially a large and entire plesiosaurus, and fish from the quarries at Wilmcote.

Mr. R. F. Tomes then read a Paper descriptive of Milcote, and other ancient Burying Places, around Stratford-on-Avon.

Milcote, of which I am about to speak, is situated in this county, two miles west of Stratford-on-Avon, and near the confluence of the Avon and Stour. The ancient burying-place, the explorations in which have afforded so much speculation amongst those interested in Archæological researches, is within a few yards of the latter river, on its south bank, and a few yards only from the house of my relation, Mr. J. C. Adkins, whose name has already appeared in connection with this remarkable sepulchre. In some of the printed communications which have appeared from the pens of those who have visited the spot, it has been stated that Mr. Adkins estimates the number of skeletons interred there, to be fully 3,000. This estimate has been made in the following manner:—Holes having been sunk at various times for posts, or for planting purposes, the area occupied by the skeletons was ascertained, and afterwards when the soil was removed from that portion which is represented in the photograph,* the skeletons lying there were counted, and by this means a tolerably correct idea was formed of the number lying within the whole area. Mr. Bakewell, writing in the *Athenæum*, after seeing some of the skeletons taken out, suggested that they may have been buried in trenches, and that they are not lying continuously over the whole area. As far however as is at present known, they are thickly and as evenly packed over fully an acre of land as they are represented to be in the photograph now on the table. Previously to the exposure there represented, the men who were engaged in obtaining gravel, merely uncovered just so many skeletons at a time as was necessary for their work, but in this manner a much greater space was gone over before the discovery became public than afterwards, and the skeletons were equally thickly placed. All evidence goes to show that they were principally the bodies of adult men. I have now seen more than sixty taken out, and of these three

* Photograph in the Museum.

were obviously aged, and two only gave indications of youth, whilst in one the wisdom teeth were only just appearing, though all the other teeth were considerably worn with use. For the most part the sets of teeth are as perfect as they commonly are in people at the middle time of life, say from 30 to 50. I mention this particularly because a contrary opinion has been expressed by Mr. Chapman, of Oxford, who having seen rather more than a dozen skeletons taken out, found that full one-third were either those of aged or immature persons, one being a child not exceeding seven years old, and having few or none of the permanent teeth. However, Mr. Chapman has now seen ample grounds for coming to my opinion, viz., what I have before stated, that they are almost entirely the skeletons of men in the prime of life. I am not aware that a female skeleton has yet been certainly identified. Without a single exception they are placed east and west, some of them with the hands crossed over the abdomen, and in others lying by their sides, the heads in some being raised, whilst in others they are lying easily on one side. Every evidence tends to show that they were all buried at one time, and immediately after death. In some places they lie one upon another, but in others they form but one layer not more than one foot to a foot and a half from the surface.

Scarcely a mile from Milcote, on the other side of the Avon, and immediately opposite the union of the Avon and Stour, rises a hill called Bardon Hill, and westward of the hill is a farm house called, in the days of Dugdale, and to present time, "Dodwell." I read in the *Gentleman's Magazine* for 1794, vol. iv. p. 505, the following notice:—"In the old enclosure belonging to Dodwell, in 1777. in digging for limestone, six human skeletons were discovered, but neither weapon nor any other appendage." As a geologist, I know Dodwell pretty well, and have no doubt but that the quarry alluded to was on a spur of the hill mentioned above, towards the *west*, and only a little distance from the Stratford and Evesham road. I am the more confirmed in this supposition by the discovery, only five or six years ago, of several human skeletons on the *south* foot of the same hill, and immediately by the side of the same road. These skeletons, as I learn from good authority, were carefully laid east and west, and about a foot and a half from the surface. Nothing was found with them.

Following the Avon for a few miles in its downward course, we reach the village of Binton, described by Dugdale as situated on the brow of a hill. It rather occupies a hollow running into the hill, and partially detaching a part of it, which forms a kind of promotory. At the foot of this promotory, in lowering a garden in 1860 or 1861, several human skeletons were found, some of which I saw taken out. They were all lying east and west, as correctly east and west as the church is placed, which being only on the other side of the village street, was fully in sight when the bones were removed. All of these were about a foot and a half from the surface, and, with one exception, were in a flat position on their backs. One only of those I saw was doubled up, as if put into a hole which was too short, so that the whole of his back

was bent, the chin brought forward on the bosom, and the knees raised. There could be no reasonable doubt that this individual had been buried immediately after death. There was one thing in connection with this skeleton which requires especial notice, viz., that the skull was fractured, and one side of the lower jaw completely smashed in, in such a manner that the mouth was full of detached teeth and splinters of bone. From the somewhat curved or twisted form of these splinters, I was led to conclude that they had been broken up when the bone was tough, before it had lost its animal matter—in a word at the time of death, and that the injury was the cause of death. There is no reason however to suppose that this skeleton was interred at a different time to the others, with which it was associated.

At the other extremity of the village several other skeletons were dug out about ten years ago by some quarrymen. Of these I know nothing, save that, like all the others, they were placed east and west, a little more than a foot from the surface, and were unaccompanied by weapons, coins, or pottery.

I wish now to call your attention to a notice in the *Gentleman's Magazine*, in the same volume to which I have before alluded, and forming part of the same communication. Speaking of Welcombe the writer says, "On the highest eminence which has traditionally the name of Castle Hill, on the 12th of Feb., 1792, as some labourers were digging in order to plant some fir trees, about 14 inches from the surface of the ground they discovered many human skeletons, one skeleton was quite perfect, in the skull of which was a piece of iron weapon, about four inches long and somewhat less than an inch wide, very much corroded with rust." The writer then goes on to say that the bones are in a very decomposed state, crumbling to dust on exposure to the air. "A few days after," he adds, "a person of Stratford went out of curiosity to the spot and found an ancient weapon, if I may so call it; the whole length was ten inches and a half; the top part resembles a sharp spike, six inches long, and a little more than half an inch square, from the base of which issued two collateral branches curved downwards, the ends rudely wrought in the form of a dragons' head, below which was a socket in which was probably fixed a wooden staff or handle." "A dragon was, we are told, the device on Prince Uther's Standard."

With regard to the period and the occasion of these burying places I can offer no satisfactory explanation. Those of Milcote, Bardon Hill, Dodwell, and Binton seem to resemble each other so much that we may readily suppose they are of the same period, perhaps of absolutely the same date—the result of a battle which raged hottest at Milcote, where the skeletons are most numerous. It is to battle that we must look for the solution. The idea of a pestilence, which was suggested by Mr. Chapman as an explanation of these remarkable deposits of bone, is now laid on one side by that gentleman himself, and in a recent conversation we had on the subject, we were well agreed on this point. The fractured cranium at Binton, as well as several at Milcote, which bear the marks of spear or pike, speak but

too plainly the occasion of their being there. Again, any one seeing the Milcote skeletons lying side by side, every one having the same position as his fellow, and that position such a one as could be hastily accomplished—the head either supported behind or falling easily on one side—would at a glance conclude that all had been interred immediately after death, and at one time. Dugdale, speaking of Milcote, says that it was wrested by violence from the Saxons in the time of Canute the Dane.* There are, however, some cogent reasons for suspecting that these skeletons are those of a people more recent than the Saxons or Danes, one being that the skulls are like those of a mixed race, such as the English of the present day. Indeed, they are not distinguishable from collections of recent skulls in our museums and schools of medicine. The Welcombe deposit may perhaps differ from the others which I have mentioned, at any rate, in respect of the presence of weapons, it is essentially different.

Mr. John Fetherston, Jun., then called the attention of the members to the specimen of Roman Pottery, on the table, which had been found in the Parish of Weston-upon-Avon (in which Milcote is situate), by Mr. R. F. Tomes, associated with a Coin of the Emperor Domitian. A few fragments were of Samian Ware, the remainder unglazed and of a red and grey colour.

The Winter Meeting of the Warwickshire Naturalists' Field Club was held in the Museum, Warwick, (by kind permission of the Council of the Natural History Society) on Tuesday, February 14th, 1865. Mr. Parker delivered a lecture on the "bone caves of Liège," and the Rev. P. B. Brodie read a paper "on three Lias Outliers in North Shropshire, South Cheshire, Staffordshire, and Cumberland, and their correlation with the main range."

The Summer Meetings were held at Fenny Compton, on May the 25th; at Stratford-upon-Avon and Wilmcote, on August the 9th; and the Meeting of the Archæological section of the Club was held at Banbury, on the 19th of September.

* Reg. de Wigorn, in bibl. Cotton, p. 1366.

The party assembled at Banbury Station at twelve o'clock, where they were met by the Archæological Secretary, who escorted them to Horley Church. It is dedicated to St. Elheldreda, and presents many interesting features, being chiefly remarkable for a fine series of frescoes, the most curious being those of St. Bridget, accompanied by household utensils; and St. Christopher, represented crossing a river, bearing Christ upon his shoulders, whilst out of his mouth issues a scroll, inscribed,

“What art thou, that art so young?
Bare I never so heavy a thing.”

Around him swim numerous fishes, whilst upon the bank sits a person, in the costume of the period, trolling for pike. In the chancel lie many sepulchral crosses and some Norman grave stones. From Horley the party proceeded to Hanwell Church, under the guidance of the Rev. Vincent Pearse, the Incumbent. It contains some fine effigies of the Cope family, and an early fresco of our Lord. The next place visited was Wroxton Church and Abbey, the latter the seat of Col. North, M.P., who kindly threw open his house and grounds for the inspection of the Club. The splendid specimens of carving, the stained armorial glass, and the very interesting Historical and Family Portraits, which grace the walls, detained the members so long that they were prevented from strolling in the grounds as they would have wished, and they proceeded from thence to Broughton Castle, the ancient Baronial seat of the Fiennes family. The Rev. the Lord Say and Sele, with his wonted courtesy, gave a most kind welcome to the members, and requested his Agent to be present to conduct them over the Castle. As a full account of the place is given in Beesley's History of Banbury, together with many memorials of the Fiennes family, especially during the period of the civil wars, it is unnecessary to enter upon it here. The Chapel, however, is of especial interest, as it contains the original stone altar, supported upon brackets. An engraving of it will be found in Mr. Parker's "Domestic Architecture."

Time prevented those present from lingering as long as they would have desired, and after viewing Broughton Church, with its fine monuments and heraldic curiosities, they returned at 4.30. p.m. to dinner at Banbury. After dinner, the health of her Majesty having been drank, the Secretary proposed those of the Rev. the Lord Say and Sele, Col. North, M.P., and the Clergy who had so kindly conduced to the enjoyment of the Field Club, by opening their churches for their inspection, and by pointing out to them their peculiarities. A vote of thanks was unanimously carried, and the Secretary wrote to every person who had assisted them, to acknowledge their courtesy.*

The attendance of Archæological members, in spite of the most beautiful weather, was very limited, there were present, however, the Archæological Secretary and Miss Fetherston, Miss Edith Fetherston, Miss Katherine Fetherston, J. W. Kirshaw, Esq., R. F. Tomes, Esq., Rev. J. Gorle (Whatcote), Mr. R. Hudson and Mrs. Hudson, Rev. P. W. Johnson (Packwood), Mr. Redfern, J. Perry, Esq. (Bitham House), Rev. Canon Knight (Durham), Rev. Compton (Wroxton), Rev. G. H. Pinwell (Horley), Rev. V. Pearse (Hanwell), Dr. Hitchman, Mr. Fortescue, &c.

The Rev. George H. Pinwell, Incumbent of Horley, and the Rev. Vincent Pearse were proposed as members.

The Meetings were pretty well attended on the whole. A full report will be found in the Proceedings of the Field Club.

* The Report, by John Fetherston, Esq., of the Meeting of the Field Club, at Banbury, is inserted in full here, as it was sent too late for insertion in the Field Club Proceedings.

Additions to the Museum and Library.

GEOLOGY.

DONATIONS.

- | | |
|---|--|
| Posodonia Brounii. Upper Lias, Anderton. | } Presented
by the
Rev. P. B.
Brodie. |
| Mytilus hippocampus. Middle Lias, Hewlett's Hill,
near Cheltenham. | |
| Lingula Credneri. Marl Slate, Permian durliana. | |
| Sortis redu. New red Sandstone, Buddleigh,
Sutterton, Devon. | |
- Remains of Cestraciont Fishes, Palatal teeth, Defensive Spines, &c.
From Oreton, (Mountain limestone), Salop.
Presented by Weaver Jones, Esq., Cleobury Mortimer.
- Cast of the Head of the Fossil Labyrinthodon, in the Museum at
Struttgard. Presented by J. W. Kirshaw, Esq.
- Two cases of Bones of the Plesiosaurus Rugosus, and Ichthyosaurus
Platyodon. From the Lima beds of the Lower Lias, at Honington,
near Shipston-on-Stour. Presented by J. W. Kirshaw, Esq.
- A Cast of the "Pterodaetylus Longirostris," (figured in Dr. Buckland's
Bridgewater Treatise.) (The original specimen, from Solenhofen,
is in the College Museum, at Bonn.) Presented by J. W. Kirshaw,
Esq.

LIBRARY.

DONATIONS.

- Proceedings of the Warwickshire Naturalist's Field Club. Presented
by the Club.
- Catalogue of the Library of the Philosophical and Literary Society,
Leeds, and Report, 1864—1865. Presented by that Society.

PURCHASES.

- Annals and Magazine of Natural History. No. 88 to 99.
- Geological Magazine. No. 10 to 21.
- Palæontographical Society's Publications:—
- Trilobites of the Silurian, Devonian, and other Formations.
 - Part II. Silurian and Devonian.
 - Fossil Brachiopoda. Vol. III, Part VI, No. II. Devonian.
 - Belemnitidæ. Part I. Introduction.
 - Reptilia of the Liassic Formations. Part I.

Popular Science Review. Part 17 to 20.

Ray Society's Publications:—

A Monograph of the British Spongiadæ. Bowerbank.

The British Hemiptera Heteroptera. Douglass and Scott.

Miscellaneous Botanical Works of Robert Brown. Vol. I.

Camden Society:—

90 Relations between England and Germany, 1618—19.

91 Register of Worcester Priory.

MISCELLANEOUS.

DONATIONS.

Two lots of Broken Pottery, found in the Stone Pits (White Lias), near Long Itchington. Presented by J. W. Kirshaw, Esq.

Two Coins,—Penny of Harold II, (struck at London), and a Penny of Edward IV, (struck at Durham,) by Bishop Lawrence Brook (?) or Brooker (?). Found during alteration of Long Itchington Church. Presented by J. W. Kirshaw, Esq.

Foot of a Mummy, from Thebes. Presented by Mr. W. A. Whittell, Warwick.

Eleven Antique Vases, &c., supposed to have come from Alexandria. Presented by Mr. J. Wimbridge.

Ferns from Australia, (including leaves of the Mardoo Plant.) Presented by Mr. Edward Reading.

Pieces of Roman Pottery, from Weston on Avon, and Bones from Milcote. Presented by R. F. Tomes, Esq.

The following Books are missing from the Library, and are supposed to have been taken by some Member, when the Members of the British Association visited the Museum, August, 1865, and not entered in Library Book.

“Wheler's Stratford on Avon.”

“Life of the Earl of Leicester.”

Derham, S. “Hydrologia Philosophia,—an account of the Ilmington Waters, in Warwickshire. 8vo. Oxford, 1685.

The Curators will be glad to have them returned.

General Financial Statement, from March 25th, 1865, to March 24th, 1866.

Income.

To Balance brought from last year	£	s.	d.
Amount received during the year	75	9	6
for Subscriptions £88 5 0			
Arrears of Subscriptions.. ..	1	1	0
Fees for admission to the Museum	69	6	0
	4	15	3

Expenditure.

By Amount paid for Insurance.. ..	£	s.	d.
Attendant's Salary	0	16	6
Coals and Firing	20	0	0
Printing, including Re- ports and Stationery	2	14	9
Fittings and Repairs	9	2	8
Preserving and Repairing	1	17	2
Specimens	1	9	6
Books, Binding, &c., and Subscriptions to Societies, Williams & Norgate, 17 1 0			
Sundries.. ..	11	15	7
Postage, Circulars, &c. ..	28	16	7
Carriage	1	13	8
Incidental Expenses, Cleaning, &c.	0	4	11
Collector's Commission	5	0	11
	3	9	3
By Balance	£75	5	11
	74	4	10
	£149	10	9

Balance in Bank	74	4	10
Of which 10s. is deposited on Library Account	0	10	0
	£73	14	10

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The Meetings of the Council are held on the First Tuesday in the Months of July, October, and January, and the Annual Meetings on the Friday in Easter week.

The MUSEUM is open daily to the Members and their Friends from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

Non-Subscribers are admitted on payment of an admission fee of sixpence each.

The Museum is free to the Inhabitants of Warwick on Mondays and Tuesdays.

The Annual Subscriptions for 1866 are due on the 24th day of May; and the Council urgently request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.



WARWICKSHIRE
NATURAL HISTORY

AND

Archæological Society.

THIRTY-FIRST ANNUAL REPORT,

APRIL, 1867.



WARWICK:

PERRY, PRINTER, NEW STREET & OLD SQUARE.

WARWICKSHIRE
NATURAL HISTORY
AND
ARCHÆOLOGICAL SOCIETY,

ESTABLISHED MAY 24TH, 1836.

THIRTY-FIRST ANNUAL REPORT
OF THE COUNCIL TO THE SUBSCRIBERS,
READ AT THE
ANNIVERSARY MEETING, APRIL 27th, 1867.

THE Council, in presenting their annual report to the members, congratulate them on the continued prosperity of the Society.

Numerous and valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.

A fine example of the "Megaceros"—"Fossil deer of Ireland," from Lough Gur, near Limerick, has been presented to the Society, by Richard Greaves, Esq., and is now placed in the Geological room of the Museum.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon hill, Hordwell, Barton, and Bracklesham. London Clay fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

BRITISH MAMMALIA.

Although no addition has been made to the British Mammals since last year, we devote this paragraph to the collection, hoping that we may thereby meet with assistance in its completion. Unlike British Birds, which

migrate, and which therefore in some species can only be obtained as stragglers, the Mammals are resident, and though some are rarer than others, *all* may be obtained with tolerable certainty, by those residing in such parts of the Country as they are known to inhabit. With the exception of the marine species, such as the Whales and Porpoises, there are none which might not take their place in our collection of British feræ. We have already some of the largest of the land animals, as the Red Deer and Roebuck, both presented by Edward Greaves, Esq. A mounted specimen of the Fallow Deer, and of the two kinds of Martin, *i.e.*, the yellow breasted, and the white breasted Martin, would go far towards the completion of the collection of the terrestrial Mammalia of Great Britain. We earnestly hope that some friends to this Institution will kindly furnish one or other of these desiderata. Of the smaller kinds, such as the Shrews and Bats, a few kinds are wanting, but these the Curators believe that they shall before long be able to supply.

ORNITHOLOGICAL COLLECTION.

In our report for 1865 we unaccountably omitted to advert to the re-arrangement of the collection of birds, which took place when the repairs of the Museum were brought to a close. The room containing the collection underwent a thorough cleaning, and the specimens were taken out, examined, carefully cleaned, and returned to the cases. The windows of the rooms, the approaches to which were awkwardly blocked up with cases, were relieved of their obstructions, the specimens which were in these cases, being transported to their proper places in the series to which they respectively belonged.

But the most important change which has been made in this department, is the separation of the British from the Exotic species. In nearly all the extensive Natural History Museums in Europe the native species are now fostered as a distinct collection. Such has lately been the case in our National Museum, and whereas the observer had before this change to seek laboriously through thousands of birds, from every clime, for the isolated specimens which had formed the collection of some celebrated Naturalist,—as for instance that of Colonel Montague,—he may now see them all placed side by side in the gallery devoted to British Zoology. And with them he may also see ranged the gems from the collection of the late Mr. Yarrell. The advantage of such an arrangement is obvious.

When the Archæological Institute held its meeting at Warwick, the Bishop of Oxford, a good Ornithologist, and the possessor of a collection of the birds of the eastern Counties of England, paid a visit to our museum, and was much pleased to see the British Birds placed by themselves. He observed, with great truth, “you cannot vie with the larger Museums in a general collection, but you may *excel* them if you confine yourselves to a purely local collection.” Fully agreeing with this opinion, the Hon. Curators, while enlarging the collection of British Birds, propose to do so, as much as possible, by means of specimens obtained in Warwickshire, or the contiguous Counties. They offer these remarks in the hope that the friends of the Institution, will assist them in carrying out their views, by the donation of some of the species forming the following list of desiderata :—

Order 1. Accipitress, Linn.

Egyptian Vulture, .. ..	.. <i>Neophron percnopterus</i> , (Linn.)
Griffon Vulture, .. ..	.. <i>Gyps fulvus</i> , (Gmel.)
Rough-legged Buzzard .. ..	.. <i>Archibuteo lagopus</i> , (Brün.)
Spotted Eagle, .. ..	.. <i>Aquila nœvia</i> , (Gmel.) Mey.
Jer-falcon, .. ..	.. <i>Falco gyrfalco</i> , Linn.
Red-footed Falcon .. ..	.. <i>Tinnunculus vespertinus</i> , (Linn.)
Swallow-tailed Kite .. ..	.. <i>Nauclerus furcatus</i> , (Linn.) Vigors.
Goshawk, .. ..	.. <i>Astur palumbarius</i> , (Linn.) Bechst.
Montagu's Harrier, .. ..	.. <i>Circus cinerascens</i> , (Mont.)
Hawk Owl .. ..	.. <i>Surnia ulula</i> , (Linn.) Bonap.
Snowy Owl, [British specimen,]	.. <i>Nyctea nivea</i> , (Thunb.)
Little Owl .. ..	.. <i>Athene noctua</i> , (Retz.)
Great-eared Owl, [female,]	.. <i>Bubo maximus</i> , Sibb.
Tengmalm's Owl .. ..	.. <i>Nyctale tengmalmi</i> , (Gmel.) Strickl.

Order 2. Passeres, Cuv.

Alpine Swift, .. ..	.. <i>Cypselus melba</i> , Linn.
Roller, .. ..	.. <i>Coracias garrula</i> , Linn.
Bee-eater, [British specimen,]	.. <i>Merops apiaster</i> , (Linn.)
Dartford Warbler, .. ..	.. <i>Sylvia undata</i> , (Bodd.)
Garden Warbler, [female,]	.. <i>Sylvia hortensis</i> , (Penn.)
Fire-crested Regulus, .. ..	.. <i>Regulus ignicapillus</i> , Brehm.
Plain-crowned Kinglet, .. ..	.. <i>Regulus proregulus</i> , (Pall.)
Black Redstart, [Brit. specimen]	.. <i>Ruticilla tithys</i> , (Scop.)
Blue-throated Warbler, .. ..	.. <i>Cyanecula suecica</i> , Linn.
Alpine Accentor, .. ..	.. <i>Accentor alpinus</i> , Gmel. Bechst.
Crested Tit, .. ..	.. <i>Parus cristatus</i> , Linn.
White Wagtail .. ..	.. <i>Motacilla alba</i> , Linn. [vera.]
Grey-headed Wagtail, .. ..	.. <i>Motacilla flava</i> , Linn.
Rock Pipit, .. ..	.. <i>Anthus spinoletta</i> , (Linn.)
Richard's Pipit, .. ..	.. <i>Anthus richardi</i> , (Vieill.)
White's Thrush, .. ..	.. <i>Turdus varius</i> , Horsf.
Rock Thrush, .. ..	.. <i>Turdus saxatilis</i> , Linn.
Golden Oriole, .. ..	.. <i>Oriolus galbula</i> , Linn.
Gold-vented Thrush, .. ..	.. <i>Pycnonotus aurigaster</i> , (Vieill.)
Great Ash-coloured Shrike[fem]	.. <i>Lanius excubitor</i> , Linn.
Woodchat Shrike, .. ..	.. <i>Enneoctonus refus</i> , (Briss.)
Nutcracker, .. ..	.. <i>Nucifraga caryocatactes</i> , (Linn.) Briss.
Rose-coloured Ouzel[Brit.spec.]	.. <i>Pastor roseus</i> , (Linn.) Temm.
Red-winged Starling, .. ..	.. <i>Agelaius phœniceus</i> , (Linn.) Vieill.
Mountain Linnet, .. ..	.. <i>Fringilla flavirostris</i> , Linn.
Girl Bunting, .. ..	.. <i>Emberiza cirrus</i> , Linn.
Ortolan Bunting, .. ..	.. <i>Emberiza hortulana</i> , Linn.
Lapland Bunting, .. ..	.. <i>Plectrophanes lapponicus</i> , (Linn.) Selb.
Short-toed Lark, .. ..	.. <i>Alda brachydactyla</i> , Temm.
Crested Lark, .. ..	.. <i>Alda cristata</i> , Linn.
Shore Lark, .. ..	.. <i>Otocoris alpestris</i> , (Linn.)
Parrot Cross-bill, .. ..	.. <i>Loxia pityopsittacus</i> , Bechst.
White-winged Cross-bill, .. ..	.. <i>Loxia leucoptera</i> , Gmel.

Order 3. Scansores, Ill.

- American Cuckoo, *Coccyzus americanus*, (Linn.)
 Great spotted Cuckoo, *Oxylophus glandarius*, (Linn.)

Order 4. Columbæ, Lath.

- Rock Dove, *Columba Livia*, Briss.
 Passenger Pigeon, *Ectopistes migratorius*, (Linn.) Swains.

Order 5. Gallinæ, Linn.

- Barbary Partridge, *Caccabis petrosa*, (Lath.)
 Andalusian Hemipode, *Turnix gibraltarius*, (Gmel.) Gould.
 Virginian Colin, *Ortyx virginianus*, (Linn.) Gray.

Order 6. Struthiones, Lath.

- Great Bustard, *Otis tarda*, Linn.
 Little Bustard, *Otis tetrax*, Linn.

Order 7. Grallæ, Linn.

- Great Plover, *Ædicnemus crepitans*, Temm.
 Cream-coloured Courser, .. *Cursorius gallicus*, (Gmel.)
 Kentish Plover, *Charadrius cantianus*, Lath.
 Crane, *Grus cinerea*, Bechst.
 Great White Heron, *Ardea alba*, Gmel.
 Egret, [British specimen,] .. *Ardea Garzetta*, Linn.
 Squacco Heron, *Ardea comata*, Pall.
 Buff-backed Heron, *Ardea coromanda*, Bodd.
 American Bittern, *Botaurus lentiginosus*, Mont.
 Spoon-bill, *Platalea leucorodia*, Linn.
 White Stork, *Ciconia alba*, Briss.
 Black Stork, *Ciconia nigra*, Bechst.
 Spotted Redshank, *Totanus stagnalis*, Bechst.
 Wood Sandpiper, *Totanus Glareola*, (Linn.) Temm.
 Avocet, *Recurvirostra Avocetta*, Linn.
 Black-winged Stilt, *Himantopus candidus*, Bonn.
 Buff-breasted Sandpiper, .. *Tringa refescens*, Vieill.
 Broad-billed Sandpiper, .. *Tringa platyrhyncha*, Temm.
 Schintz's Sandpiper, *Tringa Schinzii*, Brehm.
 Pectoral Sandpiper *Tringa pectoralis*, Say.
 Brown Snipe, *Macroramphus griseus*, (Gmel.) Leach.
 Sabine's Snipe, *Gallinago Sabini*, (Vigors.)
 Red-necked Phalarope *Phalaropus hyperboreus*, (Linn.) Cuvier.
 Baillon's Crake, *Ortygometra pygmaea*, (Naum.)
 Little Crake, *Ortygometra minuta*, (Pall.)

Order 8. Anseres, Linn.

Spur-winged Goose...	..	..	<i>Plectropterus gambensis</i> , (Linn.) Steph.
Common Wild Goose,	..	..	<i>Anser ferus</i> , Gesn.
White-fronted Goose,	..	..	<i>Anser erythropus</i> , (Linn.) Flem.
Pink-footed Goose,	..	..	<i>Anser brachyrhynchus</i> , Baill.
Bernicle Goose,..	..	..	<i>Bernicla leucopsis</i> , (Bechst.) Steph.
Red-breasted Goose,..	..	..	<i>Bernicla ruficollis</i> , (Pall.) Steph.
Polish Swan,	..	..	<i>Cygnus immutabilis</i> , Yarrell.
Whistling Swan,	..	..	<i>Cygnus ferus</i> , Ray.
Bewick's Swan, ..	..	..	<i>Cygnus minor</i> , Pall.
American Swan,	..	..	<i>Cygnus americanus</i> , Sharpless.
Ruddy Shieldrake,	..	..	<i>Casarka rutila</i> , (Pall.)
American Wigeon,	..	..	<i>Mareca americana</i> , (Gmel.) Steph.
Bimaculated Duck,	..	..	<i>Querquedula bimaculata</i> , (Penn.)
Gadwall,	..	..	<i>Chaulelasmus strepera</i> , (Linn.)
Red-crested Whistling Duck,	..	..	<i>Branta rufina</i> , (Pall.) Boie.
Scaup Pochard,..	..	..	<i>Fuligula Marila</i> , (Linn.) Steph.
Ferruginous Duck,	..	..	<i>Nyroca leucophthalma</i> , (Bechst.) Flem.
Harlequin Garrot,	..	..	<i>Clangula histrionica</i> , (Linn.) Steph.
Long-tailed Hareld,	..	..	<i>Harelda glacialis</i> , (Linn.) Leach.
Steller's Western Duck	..	..	<i>Eniconetta Stelleri</i> , (Pall.)
King Duck,	..	..	<i>Somateria spectabilis</i> , (Linn.) Steph.
Surf Scoter,	..	..	<i>Oidemia perspicillata</i> , (Linn.) Steph.
Red-breasted Merganser,..	..	..	<i>Mergus Serrator</i> , Linn.
Hooded Merganser, ..	..	..	<i>Mergus cucullatus</i> , Linn.
Red-necked Grebe,	..	..	<i>Podiceps grisegena</i> , (Bodd.) Lath.
Sclavonian Grebe,	..	..	<i>Podiceps cornutus</i> , (Gmel.) Lath.
Great Auk,..	..	..	<i>Alca impennis</i> , Linn.
Manx Shearwater,	..	..	<i>Puffinus Anglorum</i> , Ray.
Cinereous Shearwater,	..	..	<i>Puffinus cinereus</i> , Gmel.
Wilson's Petrel,..	..	..	<i>Thalassidroma oceanica</i> , Kuhl.
Fork-tailed Petrel,	..	..	<i>Thalassidroma Leachii</i> , (Temm.)
Bulwer's Petrel,..	..	..	<i>Thalassidroma Bulweri</i> , (J. & S.) Gould.
Buffon's Skua,	..	..	<i>Stercorarius cephus</i> , (Brünn.)
Common Skua, ..	..	..	<i>Stercorarius catarrhactes</i> , Linn.
Glaucous Gull,	..	..	<i>Larus glaucus</i> , Brünn.
Iceland Gull,	..	..	<i>Larus leucopterus</i> , Faber.
Little Gull,..	..	..	<i>Larus minutus</i> , Pall.
Sabine's Gull,	..	..	<i>Xema Sabini</i> , Leach.
Ivory Gull,..	..	..	<i>Pagophila eburnea</i> , (Gmel.) Kaup.
Caspian Tern,	..	..	<i>Sterna caspia</i> , Pall.
Gull-billed Tern,	..	..	<i>Sterna anglica</i> , Mont.
Sandwich Tern,..	..	..	<i>Sterna cantiaica</i> , Gmel.
Roseate Tern,	..	..	<i>Sterna paradisaea</i> , Brünn.
White-winged Black Tern,	..	..	<i>Hydrochelidon nigra</i> , (Linn.)
Black Noddy,	..	..	<i>Anöus stolidus</i> , (Linn.) Catesby.

The Accounts for the Year have been audited, and the General Financial Statement to March 31st, 1867, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much might be effected if adequate means were placed at the disposal of the Council.

Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a less satisfactory condition than could be desired. A reference to the list of subscribers will show that only a few of the rich and influential residents in the County belong to the Society. If the members would solicit annual subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society.

The Council have much pleasure in stating that the upper room has now been enlarged and otherwise improved, giving thereby increased accommodation for specimens, so much needed, and will enable them to make many additional and important alterations which the crowded state of the rooms rendered essential.

After the business was finished at the Annual Meeting, the following papers were read:—

By Dr. O'Callaghan, LL.D., D.C.L., F.S.A., on the
 “Recent discovery of Human Remains in the Priory
 Grounds, Warwick.

My attention was called to a paragraph in the *Times* newspaper, of the 25th of August last, announcing that a discovery of human bones had been lately made by some labourers when at work in a garden near the Priory at Warwick. I lost no time in visiting the locality where this discovery was said to have been made. The Priory and grounds adjoining have lately been purchased by Mr. Thos. Lloyd, of the well-known banking house of that name in Birmingham. The house is a good specimen of an English mansion of the time of Queen Elizabeth, but it has few traces left of its monastic or ecclesiastical character. It is now undergoing the process of restoration, or rather of re-edification, and in good taste. In laying out the grounds before the south front of the house, for an ornamental garden, it was found necessary to break up the old grass lawn into flower beds. In digging into the soil, to form these beds, the workmen came upon the remains of several human bodies, which lay at a depth of about two feet from the surface. However, as it was supposed that this place had been the old burial ground of the Priory, the remains were carefully replaced, and covered over with the soil. On coming over from Leamington to make inquiry for myself about this curious discovery, I found the gardener, who had the direction of the work, a very intelligent man, anxious to give me every assistance. Mrs. Lloyd, in the absence of her husband, kindly placed this man, with several labourers, at my disposal. We proceeded at once to break up that part of the ground in which the skeletons were left undisturbed. In a short time we came upon the osseous remains of several human bodies, but in a very decomposed and crumbling condition. They did not appear to me to have been originally disposed in any regular order, for, although their direction in general was east and west, there were

remarkable exceptions, even in the small portion of ground which we broke up: In one case a skeleton lay at right angles with the others, and in another curious instance the body appeared to have been doubled up upon itself. The only skulls which we were enabled to remove in tolerable condition, and from which any ethnological indications could be deduced, were of strikingly opposite conformation. One nearly perfect, but wanting the lower jaw, is of enormous capacity, and decidedly Brachycephalic. The other, not quite so perfect, is an admirable specimen of the Dolichocephalic cranium, of extreme scaphoidal form. I think it would be very difficult to find two more characteristic specimens of these opposite types. But the peculiarity of these interments, with which I was forcibly struck, was that the bodies had all been deposited in fine washed sand, evidently brought from a distance. There were no superincumbent stones, nor stones of any kind to form a grave: not a trace of wooden coffin, or of anything of wood or metal. The bodies were apparently placed in shallow trenches, in which the originally thin soil, on the rock, had been supplemented with this river sand. The soil, of course, would subsequently deepen from the accumulation of ages. Or the whole burial surface may have been the base of a large tumulus. This mode of burial was certainly unlike any Christian sepulture; and which, indeed, could not have been required in a locality so near to the old churchyard, which has been made use of, for that purpose, during historic times. The site of this curious burial place is an elevated plateau, which overlooks the surrounding country, and which no doubt had been secured as a commanding military position, in ancient British, Roman, or Saxon times. Tacitus tells us that Publius Ostorius, Lieutenant to the Roman Emperor Claudius, raised several forts on the banks of the river Avon, and Severn. Indeed, it is not probable that such a strong military position would have been overlooked during the roman occupation of this island; therefore in all likelihood this place had been at one time a fortified camp, enclosed by earth-works, which have been long since removed by cultivation. Stukely says that on removing an ancient tumulus at the Roman station of High Cross (Venones), on the borders of Warwickshire, many human skeletons were found lying flat on the ground under the base of the mound. But the most striking resemblance to this burial ground was discovered a few years ago not far from the same station at Clayster,

or Claybrook. I have been informed by Mr. J. T. Burgess, editor of the *Leamington Courier*, who has been for some years industriously engaged in exploring the local antiquities of this neighbourhood, that in a railway cutting at that place, the workmen passed through an ancient burial ground in which the remains of the bodies were found like those at Warwick, laid in graves filled with fine sand. There is no doubt that Clayster had been a Roman station, not only from its name and history, but likewise from the number of Roman relics found there. I should have said before, that similar relics of Roman occupation had been found in a railway cutting not far from this Priory garden. Several of these relics are deposited in the Warwick Museum. There is abundant evidence that sand had been used in this manner in Roman sepulture in many places in England, and that it was brought from considerable distances for that purpose. Mr. George Moore, of Bath, one of the most distinguished of our provincial geologists, tells Mr. Burgess, in a letter lately received from him, that he has found fine sand in Roman stone coffins, near Bath, and that from its composition, he has no doubt that it must have been brought from the Mendip Hills. My belief, therefore, is that this was a pre-Christian burial ground, most probably Roman. I have been strengthened in this opinion, since my attention was directed to an old Sandstone quarry close by, in which the rock had been cut vertically about thirty feet deep. In the exposed face of this escarpment several curious excavations may be seen. In some of these I found still remaining pieces of burnt bones mixed with ashes and charcoal; supporting the idea that the remains of human bodies had been deposited in these recesses after cremation. Could this place have been the ancient Roman "Presidium" said to have been at Warwick? It is undoubtedly the highest and the most commanding position in the town, or neighbourhood, and the most eligible for a military camp. My sole object in making this communication to the society is simply to have a public and local record made of this interesting antiquarian discovery.

. Since this paper of Dr. O'Callaghan's was read, a further exploration of the excavations in the quarry have been made, under the superintendence of Mr. Lloyd and the Author, and a large quantity of burnt bones, mixed with charred wood and ashes, were found. But the most interesting discoveries made on this occasion, were the fragments of large earthen vases, which no doubt have been sepulchral.

Mr. M. H. Bloxam, of Rugby, then read an interesting paper on "Warwickshire in August, 1642, before the raising of the Royal Standard at Nottingham."

It may not be difficult to trace the causes which gradually led to the great civil war of the seventeenth century, but the actual commencement of the war, that is, the first contest between the King's forces and those of the Parliament, in which blood was shed, is left in some obscurity. In the spring of 1642 the King was in Yorkshire. On the 23rd of April, attended by a guard only and some of the gentry of that county, he was denied admission into Hull, then fortified, and containing a magazine of arms and ammunition, and held by a garrison for the Parliament. The King and the Parliament now prepared for the inevitable contest; there was no standing army, but on each side money was raised by voluntary contributions of money and plate, with which soldiers were levied and paid. The troops on the side of the Parliament consisted chiefly of the trained bands of London and the musters from different counties, mostly from the towns. The King had on his side a majority of the country gentry, who armed their tenants and mounted them as far as circumstances would allow. The old feudal system was to a certain extent still existing. It was hardly till the end of July that either side was able to take the field. In the month of August actual warfare had commenced. On the 12th of that month the King issued a proclamation, and shortly after, being informed the Parliamentary forces were on the route from London and the south to garrison Coventry, he determined, if possible, to prevent the hostile occupation of that City. Warwickshire lying in the centre of the kingdom seemed destined to be the trysting ground in which the first blow was to be struck, for it is difficult to find earlier incidents involving bloodshed than those which took place in this county. There is in the British Museum a collection known as "the King's Pamphlets," having been collected or purchased by George the Third. This collection contains an innumerable number of publications, news letters, &c., estimated at not less than 30,000, all relating to this period, many of them printed in a small quarto form, and written by parties who were present at the occurrences, and at the time they happened. From one of these scarce publications it appears that one

of the earliest military movements, attended with bloodshed, took place from Rugby, early in the month of August, 1642, by a troop of horse under the command of Captain John Smith, a native of Skilts, in this county. This Captain Smith, at the battle of Edgehill, greatly distinguished himself, by rescuing the Royal standard as it was being carried off the field by a party of the Parliamentary soldiers; for this he was knighted. In 1644 he died at Oxford, and was buried with military honours in the Cathedral. His life was published in a small quarto volume, printed at Oxford in 1644, entitled "*Britannicæ Virtutis Imago*; or the effigies of true fortitude, expressed to the life in the famous actions of that incomparable knight, Major General Smith, who is here represented." From that work the following is an extract:—"By this time the cockatrice of this rebellion was grown to some maturity; and amongst all who sought to lop the growing monster, our noble Captain Smith gave one of the *first* blows, the particulars whereof as they are related authentically by the Herald (who extorted the relation from his own mouth) I will here insert. In the beginning of August, 1642, he marched with the Lord John Steward's troop into Warwickshire, there to meet the noble Earl of Northampton, who was there in arms for his Majesty. Captain Bortue's troop marched with him, and at Rugby, on the edge of the aforesaid county, he quartered the 8th of that month, where he understood, that at Kilsby in Northamptonshire, about two miles distant, the inhabitants had put themselves in arms against his Majesty's proclamation. He therefore conceiving it fit to disarm them, did that night set a strong guard in Rugby, of about thirty horse, to the end he might draw out of the town at any hour with the least noise or notice. Before break of day he marched out, the morning being very wet, and before it was light coming to Kilsby town-side drew up his horse in a body. As soon as it was clear day he entered the town, where presently he found the people gathering together, some with muskets or other guns, others with pitch-forks, and clubs; he asked 'What they meant,' and told them he had no purpose to do them harm, entreating them to deliver up their arms for his Majesty's service. The unruly people no whit hearkened to his courteous desires, but furiously assaulted his troops (which could not be drawn up in a body, in regard of the straitness of the passage), they wounded two or three

of his men and some horses, yet made he shift to disarm some of them. And then advances to the constable's house, where he finds more company, but commanding his men not to discharge a pistol upon pain of death, hoping yet by fair means to qualify them. Immediately divers shots are made from the windows at him. Whereupon he commanded his men to give fire, and so presently despatched three or four of them, which the others perceiving ran away, all except an old man, that with his pitch-fork ran at Captain Smith, and twice struck the tines against his breast, who by reason of his arms under a light coat, received no hurt; yet could not this old man by any intreaty be perswaded to forbear, till a pistol quieted him. Here he took forty muskets, and the same day marched towards the valiant Earl of Northampton, whom he met with Brooke's ordnance about three miles from Warwick, and attended him thither." There is no entry in the parish register of Kilsby about this time, there being a void, as in most registers, but I have conversed with old people in Kilsby, and the number of persons slain in this encounter, is, by tradition, said to have been fourteen. In the letters of Nehemiah Wharton, a subaltern officer in the Earl of Essex's army in the early part of the Civil Wars, and who was quartered at Rugby on the 19th of September, 1642, he informs us, "This town (Rugby) also was lately disarmed by the Cavaliers on the Sabbath day, the inhabitants being at church." An exploit, though it be not mentioned in his life, I attribute to Captain John Smith. In the latter part of August, 1642, the King came out of Leicestershire into Warwickshire, with a body of horse computed at about 1,500. I fancy he crossed the Avon near Rugby, and, taking Kings Newnham on his way, the seat of Lord Dunsmore, afterwards created Earl of Chichester, he proceeded by way of Wolston, on to Coventry. The King in his way over Dunsmore Heath is said, by tradition, to have halted and dined under an oak tree near the Foss road in the parish of Wolston. I well remember the tree, thus traditionally noticed; it was rapidly falling into decay, although preserved as long as possible; and some thirty years ago a wintry storm felled it to the ground. In the year 1825, I walked over to Wolston, in company with a late and revered friend, Mr. Edward Pretty, sometime drawing master to Rugby School, and as a draftsman inferior to few. He then took a sketch of this tree which I still retain.

The tree stood on high ground, and at no great distance, near the river, stood an ancient mansion, still existing, formerly belonging to the Wigston family, and where, in the reign of Elizabeth, some of the Martin Marprelate tracts were surreptitiously printed. From hence the King proceeded on his march to Coventry. In a letter, entitled "News from the City of Norwich," dated August the 26th, it is stated—"In this great and general distraction of several counties, there is most certain note given by credible information that there are great store of troops on Dunsmore Heath, who do violently take away arms by night, and thereby strike a great terror into the inhabitants, it being also for certain reported that the King intends to be there on the 24th of this month." In the middle of Warwickshire at this time stood the fair and famous city of Coventry, the favourite occasional abode of kings, more especially of Henry the Sixth. I take the description of this city as it was given by one, only eight years before the time I am treating of, viz., 1634:—"This city as it is sweetly situated on a hill, so it is beautify'd with many fayre streets and buildings, and for defence thereof it is compassed with a strong wall nigh three miles about, with a whole jury of gates, and many offensive and defensive towers, grayc'd and much beautify'd with a fair, lofty, 6-square crosse, though not altogether soe richly guilded as that onparrall'd one in Cheapside, yet with as curious and neat work, and carvings cut in stone, as that of lead. A fayre large Hall there is, over against their fayre Church, with a stately ascending entrance, the upper end adorned with rich hangings and all about with fayre pictures, one more especially of a noble Lady, whose memory they have cause not to forget, for that she purchas'd and redeem'd their long infring'd liberties, and freedoms, and obtain'd remission of heavy tributes imposed upon them, by undertaking a hard and unseemly taske." The walls of this famous defensive city, commenced in the latter half of the 14th century, were not finished till the 15th. The murage tax was a grievous charge on the inhabitants, and toll was taken, as in the present day at many cities and towns on the Continent, on all eatables and drinkables which entered the city. Thence arose the legend, borrowed from an earlier legend told of a different place, but I must forbear to treat of the old legends of Warwickshire lest, to use an aphorism found in the proverbs of Florio, "I get a flap with a fox tail." Coventry was the mediæval walled city, like those, though

of a greater extent, we meet with on the banks of the Rhine, or in this country, like Conway, though without its castle, or like the inner town of Caernarvon, but without its castle. Purely mediæval, the system of Vauban was never here brought in to strengthen the original enceint or wall, as at Oxford, at Gloucester, and at Bristol. Coventry was at this time no garisoned city. In a news letter from Coventry, dated August the 20th, 1642, we have the following information :—"The King is this day come to Stanley to Sir Thomas Lee and hath beleagued Coventry. The citizens went all out and preferred to render it to his Majesty, so he would be pleased only to come attended with his ordinary guard, but the Cavaliers would not suffer the people to speak of it, unless they all might come in with his Majesty. The King's army consists not of above 1,500, and most of them is horse, which the county would not yield unto, so they hung out the bloody flag and stood upon their guard. The King's army have beaten down the gate, but there are 2,000 able fighting men within the walls, which are resolved to stand it out to the last man, not doubting before that time to be relieved by the Parliament." In a news letter, entitled "Exceeding Joyful News from Coventry," printed October the 19th, 1642, we learn under the date of August the 20th, 1642, the following news :—"Upon Monday last there was information given to the House of Commons, by letters from Warwickshire, that his Majesty came to Coventry upon Saturday last, with a great number of cavaliers; his whole army consisted of about 6,000 horse, which the citizens of Coventry perceiving, they shut up the gates of the city, and stood upon their guard; whereupon his Majesty retired to a knight's house about three miles from Coventry, and the cavaliers made the poor countrymen's houses their inns, and then and there they made their own welcomes, taking what they pleased. His Majesty hath also caused warrants to be sent to the Sheriff and others, officers of the county, to aid and assist him at his coming thither, but very few obliged him therein. He hath likewise caused the county to be summoned to appear before him on Monday next, when it is thought he intends to set up his standard, and that he is resolved to march with his forces against Warwick Castle, before which the Earl of Northampton lies with some forces, but hath little hope of gaining the same." The knight's house thus alluded to, and to which the

King retired on his repulse before Coventry, had been an ancient Cistercian Abbey, one of the three great Cistercian abbeys founded in Warwickshire in the middle of the twelfth century. On the suppression it had been converted into a mansion house. It had suffered little, save in the demolition of the greater portion of the church, the south aisle of the nave and south transept alone having been preserved. These, with the other conventual buildings, were ranged round an inner court. At a little distance to the northwest of the Abbey, a usual position in monastic arrangement, stood the gatehouse, a picturesque and venerable structure of the fourteenth century, flanked with offices which in former times had probably been occupied as the *Hospitium*, where guests were received and hospitality dispensed, and where the poor were also relieved. Passing through this gateway the entrance to the Abbey would be on the west side, under the dormitory, or common sleeping apartment of the monks. This would afford accommodation to no few of the guard who attended the King. On the south side of the court stood a spacious apartment, the ancient refectory or dining hall, built by one of the abbots who died in the middle of the thirteenth century, and of whom it is quaintly recorded by his biographer, a subsequent abbot, that though he was in truth a worldly wiseman, *qui quidem sagax erat in secularibus*, this was reported to be the only good work he did during his abbacy. *Sub quo tum constructum est novum refectorium. Sed cum multis esset odiosus. Dicebatur quod illud solum fecit bonum, videlicet quod refectorium edificavit.* So it is stated in the valuable and most interesting Liege-Book of the fourteenth century, still preserved in this ancient pile. The north side of the court was bounded by the south isle of the church. The east side by the south transept of the church, the chapter house, and the abbot's lodgings, or apartments placed over a vaulted substructure. It was to these apartments, then probably the chief in the mansion, that the King was in all likelihood conducted for the night, mortified with his repulse before Coventry, felt the more for its not having been regularly garrisoned. This repulse was not forgotten, and twenty years later was avenged in the demolition, by royal mandate, of the once goodly walls of Coventry, so as to render it no longer tenable as a defensive city. But to return to this interesting mansion.

On the north and east the ancient arrangement still exists, with alterations effected in the 16th or early part of the 17th century, the ancient refectory and dormitory forming the south and west sides, were probably demolished in the last century, when the principle portion of the present mansion was erected on their sites. Although Charles is the first monarch who is recorded to have been here, it is more than probable that some earlier monarchs paid a transient visit here—John, Henry the Third, his son Edward, and Edward the Second, whilst with the Court staying at the Castle or Priory of Kenilworth, only two miles distant from hence. That during the night the King was here the guards were watchful, and patrols sent out to different parts, both to prevent surprise and to obtain intelligence, more especially from the quarter where the Parliamentary troops were expected to march would appear evident from what follows. In “Certain special and remarkable passages, from both Houses of Parliament, since Monday, the 22nd of August, till Friday, the 26th, 1642,” the following statement occurs:—“The Houses (of Parliament) also received letters informing them of the true state of things at Coventry. That his Majesty continued his siege and battered against the town from Saturday till Monday last. That the cavaliers, with their pieces of ordnance, having battered down one of the gates, the townsmen, to prevent their entrance, stopped up the passage with harrows, carts, and pieces of timber, and with great courage forced the cavaliers (notwithstanding their ordnance) upon every attempt towards the gate soon to retreat, and that with some loss. That the Lord Brooke, the Lord Grey, son to the Earl of Stamford, with their troops of horse, Master Hollis and Master Hampden's regiments of foot, and the other forces formerly related of, according as was appointed, came to Southam, within ten miles of Coventry, on Monday night last, and intended to billet themselves there; but that upon intelligence of a false alarm that the enemy were within a mile or two, they marched into the fields, where they lay all night without meat or drink, and the next morning espied the enemy, who had removed their siege before Coventry upon information of their coming, and placed themselves in a battle some two miles from Southam for a pitched battle; whereupon the Lord Brooke and company drew up their forces to the top of the hill, put their men in a posture, placed their ordnance, and let fly at them, there being a very hot skirmish on both sides for about an hour long, his Majesty

continuing with his forces in the field all the whole of the first and second onset, but then perceiving his forces were likely to have the foil, left them, and with some lords in company went to Nottingham, where he remains for the present. The Lord Grey behaved himself most valiantly in this encounter, and deserves much honour for his undaunted courage; he with the other forces plied the cavaliers with very thick and hot charges, their young soldiers being so full of courage and eagerness to the battle, that the cavaliers having lost great numbers of their men (without any loss of the other side) that for haste they left their ordnance behind them, which the Lord Brooke, the Lord Grey, and other forces seized upon, and also took their chief agent, Captain Legge, prisoner. The King's forces are now got to Leicester, bemoaning their sad success, which doth much dishearten them from any further attempt. The Lord Brooke and other forces are now marched toward Warwick Castle, to serve that place, and intend to have a bout with the Earl of Northampton if he can be met withall." There are two other accounts of this skirmish, which took place on the 23rd of August, two days before the King set up his standard at Nottingham. On the 24th the Lord Brooke and Colonel Hampden, with all their force of horse and foot and their train of artillery, entered Coventry. One of the accounts of this skirmish states that some nine of the King's troops were taken prisoners and forty of them slain. In a letter from Nehemiah Wharton, an officer in the Parliamentary forces present at this engagement, dated Coventry, August 26, the number of slain of the King's forces is stated to be fifty. In another account the number is estimated at sixty. Of Lord Brooke's forces some twelve are said to have been wounded by the firing of some powder, and one shot another in the back; but these accounts are all from one party, that of the Parliamentarians. The account Lord Clarendon gives of this conflict is very different, and can hardly be considered as correct, though he admits the retirement of the King's forces—for after mentioning the King's repulse before Coventry, he goes on to say:—"The King could not remedy the affront, but went that night to Stoneley, the house then of Sir Thomas Lee, where he was well received; and the next day his body of horse, having a clear view upon an open campania, for five or six miles together, of the [enemy's] small body of foot, which consisted not of above twelve hundred men,

with one troop of horse, which marched with them over that plain retired before them, without giving them one charge; which was imputed to the lashty [ill conduct] of Wilmot [Commissary General], who commanded, and had a colder courage than many who were under him, and who were of opinion that they might easily have defeated that body of foot, which would have been a very seasonable victory; would have put Coventry unquestionably into the King's hands, and sent him with a good omen to the setting up of his standard. Whereas that unhappy retreat, which looked like a defeat, and the rebellious behaviour of Coventry, made his Majesty's return to Nottingham very melancholy; and he returned thither the very day the standard was appointed to be set up." The precise spot where this skirmish took place—(I can meet with no tradition of it in the neighbourhood)—is unknown. I presume it to have taken place in the valley of the Itchen, between Honingham and Long Itchington, perhaps near Snowford bridge. It is a point we may reasonably hope to have cleared up hereafter by the discovery of a broken pike, halbert, or spur, a bullet or two, or cannon ball, and the words of the poet are not inapplicable:—

*"Scilicet et tempus veniet, cum finibus illis
Agricola, incurvo terram molitus aratro,
Exesa iaveniet scabra rubigine pila"*

*"Then after length of time, the labouring swains,
Who turns the turfs of these unhappy plains,
Shall rusty piles from the plough'd furrows take."*

The route taken by the King on his way to Nottingham was, I have reason to think, through Birdingbury and Draycott, to a spot on the road between Coventry and Dunchurch, where stands a house known as the Blue Boar. There is a green lane near this house up which the King—I heard the tradition more than forty years ago—is said to have come. He is also traditionally said to have called and taken refreshment at Causton Hall, which would be in his way to Rugby, through which he passed on his road to Leicester. I heard this tradition some years ago from an old man, then 93 years of age, who when a boy had lived at Causton Hall. This skirmish at Long Itchington, considered of such importance by Lord Clarendon, was the last scene in the first act of the great tragedy of these troublous times, the result of which no one could venture to predict. I may perhaps have another opportunity of showing the division of parties in this county at this time, and the events which subsequently occurred—events of deep and enduring interest in the constitutional history of our country.

The Rev. P. B. Brodie, M.A., F.G.S., then gave a short *viva voce* account of the Drift in a part of Warwickshire, with special reference to the evidence of glacial action which it affords. A section of the Cliff at Buddleigh Salterton, Devonshire, was described in detail, and the various lower Silurian fossils which it contains.

Mr. Tomes gave a few interesting details respecting the "Megaceros"—"Fossil deer of Ireland," which is now placed in the Geological room.

Votes of thanks having been passed to those gentlemen who had read papers, and the President of the Society (Mr. J. Cove Jones), the meeting separated.

By the kind permission of the Warwickshire Natural History Society, THE WARWICKSHIRE NATURALISTS' AND ARCHÆOLOGISTS' FIELD CLUB held their Annual Winter Meeting in the Museum, on February 6th, 1867. The President delivered his address chiefly devoted to Archæology, in which he especially dwelt upon the recent discoveries of Flint Implements in the post Tertiary period, and the Lake Dwellings. The Rev. P. B. Brodie read the following paper, on "the drift in part of Warwickshire, and on the evidence of glacial action which it affords." The low level drift and its fossils was first described, and a detailed account given of the older glacial drift at Hatton, Rowington, Edstone, and Temple Balsall, and strong evidence adduced in favour of its glacial origin. One of the chief points of interest was the occurrence of certain quartzose pebbles of lower Silurian age, containing fossils of the quartzites of May, Gahard, &c., in Normandy, which are also found in the New Red Sandstone, at Buddleigh Salterton in Devonshire, and both were supposed to have had a similar origin.

J. S. Whittem, Esq., then read a paper on the supposed glacial drift in the neighbourhood of Coventry, in which the prevalent character of the quartzose pebbles were pointed out and the fossils which occur in the other drifted materials in the district.

A. Startin, Esq., next read a paper on some special deposits of drift at Exhall, near Coventry, and on the drift generally in that neighbourhood. It was shown that the drift consisted of a variety of rocks, some of which contained fossils, both of local and distant formations, many of which were referred to the glacial epoch. The Rev. P. B. Brodie read a second paper on the fossiliferous beds of the New Red Sandstone (the upper and lower Keuper) in Warwickshire. The general character, range, and extent of this formation was described, and a further extension shown at Edstone, not previously recorded, a detailed account was given of the various fossils, with a list of all those hitherto discovered in Warwickshire and elsewhere, and the footsteps which so abundantly characterize the deposit, were largely dwelt upon, and referred to, at least, three genera of Labyrinthodont animals. The first summer meeting was held at Nuneaton, on the 16th of May; the second at Bredon Hill, in Warwickshire, on the 10th of August; and the third meeting, the Archæological day, at Alcester, on September 7th, 1866. A full account of these is given in the proceedings of the Club for 1866.

Additions to the Museum and Library.

GEOLOGY.

DONATIONS.

A collection of Minerals and recent Corals. Presented by J. Elkington, Esq.

Roman Samian Pottery. } Presented by R. F. Tomes, Esq.
Skeletons from Milcote. }

Photographs of the gravel pit and burying ground at Milcote. Presented by R. F. Tomes, Esq.

Paludina n. s. Wealden, Kent. Presented by Rev. P. B. Brodie.

Large mass of Fossil wood, considerable part of a tree, Lower Lias, Insect bed, Grafton. Presented by the Rev. P. B. Brodie.

Ogygia Corndensis, Llandeilo flags, Llandrindrod, Wales. Presented by the Rev. P. B. Brodie.

Skeleton of the "Cervus Megaceros," Irish Elk, from Lough Gur, near Limerick. Presented by R. Greaves, Esq.

Two boxes of Insects. } Presented by Dr. Goodechild.
Fine Scull of Porpoise. }
Fossil wood and two Fossil Bones. }

Trochus Guadryanus, Lower Lias, Campden, Gloucestershire.

Pecten Pradonau (Spanish species, new to Britain), Lower Lias, Lima Beds, Harbury.

Avicula Sinemuriensis, Lower Lias, Frethern, Gloucestershire.

Turbo elegans, Lower Lias, (Cardina Bed,) Down Hatherley, near Gloucester. Presented by the Rev. P. B. Brodie.

Waldheimia perforata, Lower Lias, (Hippopodium bed,) Fenny Compton.

Calymene duplicata, Builth, Wales, Llandeilo Flags.

Perma quadrata Mytilus, sp. (?), Portland Oolite, Brill.

Cidaris Smithii, Coral Rag, Shotover, Oxon. Presented by J. Parker, Esq.

Pygaster umbrella. Presented by J. Parker, Esq.

Permian conglomerate, Exhall. Presented by A. Startin, Esq.

Cycloptychius carbonarius, Coal Measures, Staffordshire. Presented by the Rev. P. B. Brodie.

Cornbrash Fossils, Northamptonshire. Presented by A. Startin, Esq.

Adiantites Hibernicus, Carboniferous or Devonian (?), Kiltorean, Ireland. Presented by the Rev. P. B. Brodie.

BOTANY.

DONATIONS.

Ferns from Australia, including leaves of the Mardoo plant, so valuable in saving life in the bush. Presented by Mr. E. Reading.

LIBRARY.

DONATIONS.

Account of the Irish Elk. Presented by the Rev. P. B. Brodie.

On the Structure of the *Palæchinus*; by W. H. Baily, Esq., F.G.S. and L.S.

Description of a new *Plesiosaurus*, from Whitby, in the Dublin Museum; by Dr. Carte and W. H. Baily, Esq.

Comparison of the Rocks of South-West of Ireland, North Devon, and Rhenish Prussia; by S. B. Jukes, Esq.

Journal of the Geological Society of Dublin, vol. 10, part 2, in which there is a paper on the "Indentations on Bones of the *Megaceros*"; by S. B. Jukes, Esq.

Presented by W. H. Baily, Esq., F.G.S. and L.S., Dublin.

Transactions of the Botanical Society, vol. 8, part 3.

Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club. Presented by the Field Club.

"*Fragmenta Sepulchralia*;" an unpublished Work by W. H. Bloxam, Esq.

PURCHASES.

Annals and Magazine of Natural History. No. 100 to 112.

Camden Society. No. 92, 93.

Geological Magazine. No. 22 to 34.

Popular Science Review. part 21 to 24.

Palæontographical Society's Publications :—

Vol. 18.—Oolitic Echinodermata. vol. II, part II. Liassic Ophiuroidea.

Trilobites. part III. Cambrian and Silurian.

Belemnitidæ. part II. Liassic Belemnites.

Pleistocene Mammalia. part I. Introduction; *Felis Spelæa*.

Vol. 19.—Crag Foraminifera. part I, No. I.

Supplement to the Fossil Corals. part I. Tertiary.

Fossil Merostomata. part I. Pterygotus.

Fossil Brachiopoda. part VII, No. I. Silurian.

Vol. 20.—Supplement to the Fossil Corals. part IV, No. 1. Liassic.

Trilobites. part IV. Silurian.

Fossil Brachiopoda. part VII. No. II. Silurian.

Belemnitidæ. part III. Liassic Belemnites.

Ray Society Publications :—

Nitzsch's Pterylography. Edited by Phillip Lutley Selater,
M.A., PH.D., F.R.S.

MISCELLANEOUS.

DONATIONS.

Eleven Antique Vases, &c., said to be from Alexandria. Presented by
J. Wimbridge, Esq.

Cloth from the South Pacific Islands. Presented by Mr. R. G.
Reading.

Cloak of a New Zealand Chief. Presented by K. Greenway, Esq.

Sea Weeds, from Port Philip, Australia. Presented by Mr. W.
Reading.

LIBRARY.

Any Member wishing to take a Book from the Library, is particularly requested to see that an entry is made in the book kept for that purpose, which is on the Library table. The date must also be entered when the book is returned.

Before Members are allowed to take books out of the Library, a deposit of 10s. is required.

Some of the Books cannot be taken away from the Library.

The following Books are missing from the Library, and are supposed to have been taken by some Member, when the Members of the British Association visited the Museum, August, 1865, and not entered in Library Book.

“Wheler's Stratford on Avon.”

“Life of the Earl of Leicester.”

Derham, S. “Hydrologia Philosophia,—an account of the
Ilmington Waters, in Warwickshire. 8vo. Oxford, 1685.

The Curators will be glad to have them returned.

GENERAL FINANCIAL STATEMENT, from 31st March, 1866, to 31st March, 1867.

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Income.		Expenditure.	
1866.	£. s. d.	1867.	£. s. d.
31st Mar.—To Balance of last account	74 4 10	31st Mar.—Insurance	0 16 6
1867.		Attendant's Salary	20 0 0
31st Mar.—Amount received during the		Coal and Firing	3 14 10
year for Subscriptions, 69 5 0		Printing (including Reports) and	
Arrears 2 2 0		Stationery	11 8 8
Received for admission to Museum..	71 7 0	Fittings and Repairs	1 0 6
	8 8 9	Preserving and repairing Objects ..	1 10 0
		Books, Binding, &c.	5 4 0
		Subscriptions to Societies	3 2 0
		Postage, Circulars, &c.	1 17 6
		Carriage of Parcels	0 10 4
		Incidental Expenses, Cleaning, &c. ..	7 3 8
		Poor's Rate	0 15 0
		Collector's Commission	3 11 6
			£60 14 6
		By Balance	93 6 1
			£154 0 7

To Balance	£93 6 1
Of which 10s. is deposited on	
Library Account	0 10 0
	£92 16 1

£154 0 7

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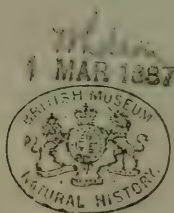
The Meetings of the Council are held on the First Tuesday in the Months of July, October, and January, and the Annual Meetings on the Friday in Easter week.

The MUSEUM is open daily to the Members and their Friends from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

Non-Subscribers are admitted on payment of an admission fee of sixpence each.

The Museum is free to the Inhabitants of Warwick on Mondays and Tuesdays.

The Annual Subscriptions for 1867 are due on the 24th day of May; and the Council request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street. Leamington.



PERRY, PRINTER, WARWICK.

WARWICKSHIRE
NATURAL HISTORY
AND
ARCHÆOLOGICAL SOCIETY,
ESTABLISHED MAY 24TH, 1836.

THIRTY-SECOND ANNUAL REPORT
OF THE COUNCIL TO THE SUBSCRIBERS,
READ AT THE
ANNIVERSARY MEETING, APRIL 17TH, 1868.

THE Council, in presenting their annual report to the members, congratulate them on the continued prosperity of the Society.

Numerous and valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.

A fine example of the "Megaceros"—"Fossil deer of Ireland," from Lough Gur, near Limerick, has been presented to the Society, by Richard Greaves, Esq., and is now placed in the Geological room of the Museum.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon hill, Hordwell, Barton, and Bracklesham. London Clay fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

BRITISH MAMMALIA.

Although no addition has been made to the British Mammals since last year, we devote this paragraph to the collection, hoping that we may thereby meet with assistance in its completion. Unlike British Birds, which

migrate, and which therefore in some species can only be obtained as stragglers, the Mammals are resident, and though some are rarer than others, *all* may be obtained with tolerable certainty, by those residing in such parts of the Country as they are known to inhabit. With the exception of the marine species, such as the Whales and Porpoises, there are none which might not take their place in our collection of British feræ. We have already some of the largest of the land animals, as the Red Deer and Roebuck, both presented by Edward Greaves, Esq. A mounted specimen of the Fallow Deer, and of the two kinds of Martin, *i.e.*, the yellow breasted, and the white breasted Martin, would go far towards the completion of the collection of the terrestrial Mammalia of Great Britain. We earnestly hope that some friends to this Institution will kindly furnish one or other of these desiderata. Of the smaller kinds, such as the Shrews and Bats, a few kinds are wanting, but these the Curators believe that they shall before long be able to supply.

ORNITHOLOGICAL COLLECTION.

When the repairs of the Museum were brought to a close, the room containing the collection underwent a thorough cleaning, and the specimens were taken out, examined, carefully cleaned, and returned to the cases. The windows of the rooms, the approaches to which were awkwardly blocked up with cases, were relieved of their obstructions, the specimens which were in these cases, being transported to their proper places in the series to which they respectively belonged.

But the most important change which has been made in this department, is the separation of the British from the

Exotic species. In nearly all the extensive Natural History Museums in Europe, the native species are now fostered as a distinct collection. Such has lately been the case in our National Museum, and whereas the observer had before this change to seek laboriously through thousands of birds, from every clime, for the isolated specimens which had formed the collection of some celebrated Naturalist,—as for instance that of Colonel Montague,—he may now see them all placed side by side in the gallery devoted to British Zoology. And with them he may also see ranged the gems from the collection of the late Mr. Yarrell. The advantage of such an arrangement is obvious.

It has been observed, with great truth, “that you cannot vie with the larger Museums in a general collection, but you may *excel* them if you confine yourselves to a purely local collection.” Fully agreeing with this opinion, the Hon. Curators, while enlarging the collection of British Birds, purpose to do so, as much as possible, by means of specimens obtained in Warwickshire, or the contiguous Counties. They offer these remarks in the hope that the friends of the Institution will assist them in carrying out their views, by the donation of some of the species forming the following list of desiderata :—

Order 1. Accipitress, Linn.

Egyptian Vulture, .. ..	.. <i>Neophron Percnopterus</i> , (Linn.)
Griffon Vulture, .. ..	.. <i>Gyps fulvus</i> , (Gmel.)
Rough-legged Buzzard, ..	.. <i>Archibuteo Lagopus</i> , (Brün.)
Spotted Eagle, .. ..	.. <i>Aquila nevia</i> , (Gmel.) Mey.
Jer-falcon, .. ..	.. <i>Falco Gyrfalco</i> , Linn.
Red-footed Falcon, .. ..	.. <i>Tinnunculus vespertinus</i> . (Linn.)
Swallow-tailed Kite, ..	.. <i>Nauclerus furcatus</i> , (Linn.) Vigors.
Goshawk, .. ..	.. <i>Astur palumbarius</i> , (Linn.) Bechst.
Montagu's Harrier, .. ..	.. <i>Circus cinerascens</i> , (Mont.)

Hawk Owl,	<i>Surnia ulula</i> , (Linn.) Bonap.
Snowy Owl, [British specimen,]	<i>Nyctea nivea</i> , (Thunb.)
Little Owl,	<i>Athene noctua</i> , (Retz.)
Great-eared Owl, [female,]	<i>Bubo maximus</i> , Sibb.
Tengmalm's Owl,	<i>Nyctale Tengmalmi</i> , (Gmel.) Strickl.

Order 2. Passeres, Cuv.

Alpine Swift,	<i>Cypselus Melba</i> , Linn.
Roller,	<i>Coracias garrula</i> , Linn.
Bee-eater, [British specimen]	<i>Merops Apiaster</i> , (Linn.)
Dartford Warbler,	<i>Sylvia undata</i> , (Bodd.)
Garden Warbler, [female,]	<i>Sylvia hortensis</i> , (Penn.)
Fire-crested Regulus,	<i>Regulus ignicapillus</i> , Brehm.
Plain-crowned Kinglet,	<i>Regulus proregulus</i> , (Pall.)
Black Redstart, [Brit. specimen]	<i>Ruticilla tithys</i> , (Scop.)
Blue-throated Warbler,	<i>Cyanecula suecica</i> , Linn.
Alpine Accentor,	<i>Accentor alpinus</i> , Gmel. Bechst.
Crested Tit,	<i>Parus cristatus</i> , Linn.
White Wagtail,	<i>Motacilla alba</i> , Linn. [vera.]
Grey-headed Wagtail,	<i>Motacilla flava</i> , Linn.
Rock Pipit,	<i>Anthus spinoletta</i> , (Linn.)
Richard's Pipit,	<i>Anthus Richardi</i> , (Vieill.)
White's Thrush,	<i>Turdus varius</i> , Horsf.
Rock Thrush,	<i>Turdus saxatilis</i> , Linn.
Golden Oriole,	<i>Oriolus Galbula</i> , Linn.
Gold-vented Thrush,	<i>Pycnonotus aurigaster</i> , (Vieill.)
Great Ash-coloured Shrike [fem]	<i>Lanius Excubitor</i> , Linn.
Woodchat Shrike,	<i>Enneoctonus refus</i> , (Briss.)
Nutcracker,	<i>Nucifraga caryocatactes</i> , (Linn.) Briss.
Rose-coloured Ouzel [Brit. spec]	<i>Pastor roseus</i> , (Linn.) Temm.
Red-winged Starling,	<i>Agelaius phoeniceus</i> , (Linn.) Vieill.
Mountain Linnet,	<i>Fringilla flavirostris</i> , Linn.
Cirl Bunting,	<i>Emberiza Cirlus</i> , Linn.
Ortolan Bunting,	<i>Emberiza hortulana</i> , Linn.
Lapland Bunting,	<i>Plectrophanes lapponicus</i> , (Linn.) Selb.
Short-toed Lark,	<i>Alauda brachydactyla</i> , Temm.
Crested Lark,	<i>Alauda cristata</i> , Linn.
Shore Lark,	<i>Otocoris alpestris</i> , (Linn.)
Parrot Cross-Bill,	<i>Loxia pityopsittacus</i> , Bechst.
White-winged Cross-bill,	<i>Loxia leucoptera</i> , Gmel.

Order 3. Scansores, Ill.

American Cuckoo,	<i>Coccyzus americanus</i> (Linn.)
Great spotted Cuckoo,	<i>Oxylophus glandarius</i> , (Linn.)

Order 4. Columbæ, Lath.

Rock Dove,	<i>Columba Livia</i> , Briss.
Passenger Pigeon,	<i>Ectopistes migratorius</i> , (Linn.) Swains.

Order 5. Gallinæ, Linn.

- Barbary Partridge, *Caccabis petrosa*, (Lath.)
 Andalusian Hemipode, *Turnix gibraltarius*, (Gmel.) Gould.
 Virginian Colin, *Ortyx virginianus*, (Linn.) Gray.

Order 6. Struthiones, Lath.

- Great Buzzard,.. .. *Otis trada*, Linn.
 Little Buzzard,.. .. *Otis tetrax*, Linn.

Order 7. Grallæ, Linn.

- Great Plover, *Ædicnemus crepitans*, Temm.
 Cream-coloured Courser,.. .. *Cursorius gallicus*, (Gmel.)
 Kentish Plover, *Charadrius cantianus*, Lath.
 Crane,.. .. *Grus cinerea*, Bechst.
 Great White Heron,.. .. *Ardea alba*, Gmel.
 Egret, [British specimen,] .. *Ardea Garzetta*, Linn.
 Squacco Heron,.. .. *Ardea comata*, Pall.
 Buff-backed Heron,.. .. *Ardea coromanda*, Bodd.
 American Bittern, *Botaurus lentiginosus*, Mont.
 Spoon-bill,.. .. *Platalea leucorodia*, Linn.
 White Stork, *Ciconia alba*, Briss.
 Black Stork, *Ciconia nigra*, Bechst.
 Spotted Redshank, *Totanus stagnalis*, Bechst.
 Wood Sandpiper, *Totanus Glareola*, (Linn.) Temm.
 Avocet, *Recurvirostra Avocetta*, Linn.
 Black-winged Stilt, *Himantopus candidus*, Bonn.
 Buff-breasted Sandpiper,.. .. *Tringa refescens*, Vieill.
 Broad-billed Sandpiper, *Tringa platyrhyncha*, Temm.
 Schintz's Sandpiper, *Tringa Schinzii*, Brehm.
 Pectoral Sandpiper,.. .. *Tringa pectoralis*, Say.
 Brown Snipe, *Macroramphus griseus*, (Gmel.) Leach.
 Sabine's Snipe,.. .. *Gallinago Sabini*, (Vigors)
 Red-necked Phalarope, *Phalaropus hyperboreus*, (Linn.) Cuvier.
 Ballion's Crake, *Ortygometra pygmæa*, (Naum.)
 Little Crake, *Ortygometra minuta*, (Pall.)

Order 8. Anseres, Linn.

- Spur-winged Goose,.. .. *Plectropterus gambensis*, (Linn.) Steph.
 Common Wild Goose, *Anser ferus*, Gesn.
 White-fronted Goose, *Anser erythropus*, (Linn.) Flem.
 Pink-footed Goose, *Anser brachyrhynchus*, Baill.
 Bernicle Goose,.. .. *Bernicla leucopsis*, (Bechst.) Steph.
 Red-breasted Goose, *Bernicla ruficollis*, (Pall.) Steph.
 Polish Swan, *Cygnus immutabilis*, Yarrell.
 Whistling Swan, *Cygnus ferus*, Ray.
 Bewick's Swan,.. .. *Cygnus minor*, Pall.
 American Swan, *Cygnus americanus*, Sharpless.
 Ruddy Sheldrake, *Casarka rutila*, (Pall.)
 American Wigeon, *Mareca americana*, (Gmel.) Steph.
 Bimaculated Duck, *Querquedula bimaculata*, (Penn.)

Gadwall, .. .. .	..<i>Chaulelasmus strepera</i> , (Linn.)
Red-crested Whistling Duck, ..	..<i>Branta rufina</i> , (Pall.) Boie.
Seaup Pochard, .. .. .	..<i>Fuligula Marila</i> , (Linn.) Steph.
Ferruginous Duck, .. .. .	..<i>Nyroca leucophthalma</i> , (Bechst.) Flem.
Harlequin Garrot, .. .. .	..<i>Clangula histrionica</i> , (Linn.) Steph.
Long-tailed Hareld, .. .. .	..<i>Harelda glacialis</i> , (Linn.) Leach.
Steller's Western Duck, .. ..	..<i>Eniconetta Stelleri</i> , (Pall.)
King Duck, .. .. .	..<i>Somateria spectabilis</i> , (Linn.) Steph.
Surf Scoter, .. .. .	..<i>Oidemia perspicillata</i> , (Linn.) Steph.
Red-breasted Merganser, .. ..	..<i>Mergus Serrator</i> , Linn.
Hooded Merganser, .. .. .	..<i>Mergus cucullatus</i> , Linn.
Red-necked Grebe, .. .. .	..<i>Podiceps grisegena</i> , (Bodd.) Lath.
Sclavonian Grebe, .. .. .	..<i>Podiceps Cornutus</i> , (Gmel.) Lath.
Great Auk, .. .. .	..<i>Alca impennis</i> , Linn.
Manx Shearwater, .. .. .	..<i>Puffinus Anglorum</i> , Ray.
Cinereous Shearwater, .. .. .	..<i>Puffinus cinereus</i> , Gmel.
Wilson's Petrel, .. .. .	..<i>Thalassidroma oceanica</i> , Kuhl.
Fork-tailed Petrel, .. .. .	..<i>Thalassidroma Leachii</i> , (Temm.)
Bulwer's Petrel, .. .. .	..<i>Thalassidroma Bulweri</i> , (J. & S.) Gould.
Buffon's Squa, .. .. .	..<i>Stercorarius cephus</i> , (Brün.)
Common Squa, .. .. .	..<i>Stercorarius catarrhactes</i> , Linn.
Glaucous Gull, .. .. .	..<i>Larus glaucus</i> , Brün.
Iceland Gull, .. .. .	..<i>Larus leucopterus</i> , Faber.
Little Gull, .. .. .	..<i>Larus minutus</i> , Pall.
Sabine's Gull, .. .. .	..<i>Xema Sabini</i> , Leach.
Ivory Gull, .. .. .	..<i>Pagophila eburnea</i> , (Gmel.) Kaup.
Caspian Tern, .. .. .	..<i>Sterna caspia</i> , Pall.
Gulled Billed Tern, .. .. .	..<i>Sterna anglica</i> , Mont.
Sandwith Tern, .. .. .	..<i>Sterna cantica</i> , Gmel.
Roseate Tern, .. .. .	..<i>Sterna paradisea</i> , Brün.
White-winged Black Tern, .. ..	..<i>Hydrocheidon nigra</i> , (Linn.)
Black Noddy, .. .. .	..<i>Anous stolidus</i> , (Linn.) Catesby.

The Accounts for the Year have been audited, and the General Financial Statement to March 31st, 1868, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much might be effected if adequate means were placed at the disposal of the Council.

A Catalogue of the Books in the Library has been made, to the 31st of December, 1867, and a copy will be sent to each Member.

The Council will be glad to receive presents of any works of Local interest, for the Library.

J. O. HALLIWELL, Esq., F.R.S., has presented to the Library, copies of two of his valuable and interesting works —“The Calender of the Local Record of Stratford-upon-Avon”; and “The History of New Place, Stratford-upon-Avon.”

Any Member wishing to take a Book from the Library, is particularly requested to see that an entry is made in the book kept for that purpose, which is on the Library table. The date must also be entered when the book is returned.

Before Members are allowed to take Books out of the Library, a deposit of ten shillings is required. Some of the Books cannot be taken away from the Library.

Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a less satisfactory condition than could be desired. A reference to the list of subscribers will show that only a few of the rich and influential residents in the County belong to the Society. If the Members would solicit annual subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society.

The Council have much pleasure in stating that the upper room has now been enlarged and otherwise improved, giving thereby increased accommodation for

specimens, so much needed, and will enable them to make many additions and important alterations which the crowded state of the rooms rendered essential.

After the business of the Annual Meeting was finished, Dr. O'CALLAGHAN, D.C.L., F.S.A. (who occupied the chair), on being called upon, gave an interesting verbal account of the recent discovery of two human skeletons in the Park of Warwick Castle. It appears that this curious find was made by some labouring men, while employed in making a tiled drain, in that part of the park beyond the brook. The fact was kindly communicated to Dr. O'Callaghan by the Earl of Warwick, by whose permission the remains were subsequently exhumed for the Doctor's inspection. He informed the meeting that in company with Mr. Durnford Greenway, he carefully examined the parts of the skeletons which could be put together after their first disturbance, and subsequent interment. He was quite satisfied that the skeletons were both of male adults. This he ascertained from the bones of the pelvis, and the full growth of the wisdom teeth. He also inferred that they were of extreme antiquity, and probably pre-historic, from the fact of their being buried in a doubled-up position, from the smallness of the bones, the shape of what remained of the cranium, and from the unworn projections of the grinding teeth. The latter fact, according to Petigrew, being the most certain indication of a savage people. The spot where these remains were found is about 160 yards from the bridge, over the brook, and about 15 yards from the walk, and on the side river of it. Dr. O'Callaghan in the next place recalled the attention of the members to his account of the discovery of a Roman cemetery in the grounds adjoining the

Priory House at Warwick ; and which he had the honor of reading to them at the previous annual meeting. The Doctor reminded his audience that his friend Mr. Bloxam on that occasion, refused to believe that this could have been a Roman burial place, as there was no historical evidence of local Roman occupation. However, in a few weeks after, Mr. Bloxam made a careful examination of the relics lately found in association with these ancient graves, and was perfectly satisfied as to their Roman character. This conviction he communicated to Dr. O'Callaghan in a private letter, and the Doctor thought he ought to mention the circumstance to the meeting, as so much importance was justly attached to Mr. Bloxam's opinion on any subject of antiquarian investigation.

The Rev. P. B. BRODIE, M.A., F.G.S., gave a short *visu voce* account, (of which the following is an abstract,) of the recent discoveries of Mr. Moore, in the Lower Lias, in Somersetshire and South Wales, and of the occurrence of a new Reptile in the Lower Keuper at Warwick.

He said—Having very lately, in this room, read a paper on the Lias, before the Warwickshire Naturalists' Field Club, though the subject is by no means exhausted, I do not propose to occupy much time now in describing the history of this deposit, but the more recent discoveries of my friend, Mr. C. Moore, of Bath, in the lower Lias in Somersetshire and South Wales present so many striking and unlooked for facts that they are of special interest to all Geologists, especially those who have studied the Lias more in detail. The beds of the lower Lias in the districts above referred to present some peculiarities of lithological structure not found elsewhere, especially where they come in contact with the Mountain limestone, to which in many

cases certain strata bear a remarkable affinity, and it is in this more altered and abnormal condition of the Lias that an almost new and very interesting not only marine but terrestrial and freshwater fauna has been obtained, the former of which is closely allied to certain deposits of similar age, and resting immediately on older rocks in France. Most of the more remarkable fossils have been detected in fissures in the carboniferous limestone of the Mendips and elsewhere, in one case at a depth of 260 feet, and the material filling up these cracks has been by its geological contents proved to be of Liassic age, a result hitherto unsuspected. In this he has discovered teeth of *Mammalia* (*Microlestes*), bones of a large land reptile (*Scelidosauras*), three genera of land shells belonging to new species, a seed vessel of chara (a freshwater plant), and two freshwater shells (*Valvata* and *Planorbis*), for the first time in the Lias. This is the earliest evidence afforded of any terrestrial pulmoniferous mollusks between the Tertiary formation and the coal, in which my friend Dr. Dawson, Principal of the College at Montreal, detected a small Pupa, and another new land shell (*Zonites*) in the carboniferous series of Nova Scotia. In addition to these there are a large assemblage of marine shells, chiefly small univalves, some few of which belong to new species, and others had been only previously noticed in contemporaneous deposits on the continent, chiefly in France. Of corals, too, a very large number are recorded, a comparatively small suite having been previously known in the Lias. In this important paper the author questions the value of zones of zoological life, in which I entirely concur, and observes that "however convenient it may be to refer certain forms to marked horizons, such as those known

as "Ammonite zones," yet that with increasing knowledge of the range of specific forms such limits are purely arbitrary and may mislead," a point for which I contended in my paper on the Lias, read at the Winter Meeting of the Warwickshire Naturalists' and Archæologists' Field Club, in February last. Mr. Day in an able paper on the Lias at Lyme, read at the British Association in Birmingham, 1866, maintains the same views and brings forward the strongest arguments to corroborate them. The portion of this paper which more distinctly relates to the physical and economical Geology of the district under review is equally important, but it will be unnecessary to say more here than to state that the author conclusively shews that the barrier of the Mendip chain of hills has to a great extent modified the physical features of the whole line of country from Frome, through a great part of South Wales, and shut out the secondary deposits from the coal basin, within which unconformability very generally prevails; the mountain limestone having been for a long period within the influence of the Liassic seas, and that from the latter have been derived most of the lead, iron, and calamine with which the mineral veins are charged. We might, perhaps, expect to find land and freshwater shells associated with insects in that portion of the lower Lias in which the *annulosa* most abound, but hitherto they have not been met with, though probably in some favoured spot, not yet searched, they will one day be discovered. Freshwater mollusks abound in some deposits, such as the Wealden, Purbecks, and Tertiaries, but terrestrial air-breathing shells are usually rare, being most numerous in the Bembridge (Eocene) limestone, in the Isle of Wight, and certain foreign Tertiary deposits about the same age.

Where the conditions are equally favourable, as in the instances above mentioned, for the preservation of a terrestrial or freshwater fauna, many such remains will no doubt be detected. Thus wherever we have a preponderance of insects and land plants, we may not unreasonably expect to meet with land shells in greater or less abundance.

I wish, in conclusion, to mention to this meeting the discovery of a new reptile in the New Red Sandstone (the lower Keuper), at Coten End, Warwick. Our Museum possesses two portions of jaws, and they are so rare that only six British specimens are known: two in my possession, two in the Warwick Museum, and the other two belonging to my friend, Mr. G. Lloyd, and were procured, like the rest, many years ago by my old friend Dr. Lloyd, and both of us were under the impression that they were either distinct from the more common Labyrinthodont remains, or at any rate would form a new species. After a careful study, Professor Huxley has come to the conclusion that they are quite distinct, and he has given them the name of *Hyperodapedon*, and just at the present time they are of special interest and value, since their occurrence in the New Red Sandstone of this county, helps to determine the age of certain disputed sandstones at Elgin in Scotland, which contain remains of the same reptile, and which had been supposed to belong to the Old Red Sandstone, but must now be placed higher up in the Trias. They also fix the Geological horizon of certain Indian and African rocks, which yield the *Hyperodapedon* still more frequently. The British fossils consist of portions of jaws with teeth, which are remarkable for possessing a double row of teeth, in parallel rows, close together, and the other anatomical peculiarities will be pointed out by

Professor Huxley in his forthcoming Paper, at the Geological Society. The importance of this new fossil is greatly enhanced by the fact that there might be a possibility of finding coal under the now New Red Sandstone of the Scotch district round Elgin. Some of you are aware, no doubt, that the New Red Sandstone in America contains numerous well-preserved and remarkable footsteps, which have been long supposed to have been made by birds of various kinds as they waded over the mud of that ancient Triassic sea, and were consequently the oldest traces of this class known. It is true that some Palæontologists have assigned some of them to reptiles, and quite recently Professor Huxley has come to the conclusion that they belong rather to those singular flying reptiles the Pterodactyle, and that a curious mark (the hollow groove which runs along some of the slabs between the footprints), and which had long puzzled Naturalists, was made by the tail as the creature crawled or walked on its hind legs on the surface of the sand on the sea shore. But it does not, of course, follow that all of these impressions were made by these or other reptiles, and some, therefore, may still have belonged to birds. According to Owen and Huxley, no similar footprints have been hitherto recognized in the New Red Sandstone of this country, although in places impressions which have been assigned to various genera of Salamander-like reptiles abound, but Professor Huxley thinks they may not have belonged to Labyrinthodont animals at all.

The Winter Meeting of THE WARWICKSHIRE NATURALISTS' AND ARCHEOLOGISTS' FIELD CLUB was held in the Museum, Warwick, (by the kind permission of the Council of the Warwickshire Natural History Society), on Feb. 28th, 1867.

In the absence of the President, the Rev. P. B. Brodie, Vice-President, occupied the chair. The Chairman, after a few introductory remarks, read the President's address, which was entirely devoted to Archæology, relating chiefly to the Swiss Lake Dwellings. A paper on "Modern Science and the Bible," was then read by the Rev. P. B. Brodie, M.A., F.G.S., (Vice-President.)

The Vice-President having made a few brief remarks, next called upon Mr. Parker, who gave a *viva voce* account of the water supply of ancient Rome, which was illustrated by drawings and photographs.

W. H. CORFIELD, Esq., (Fellow of Pembroke College, Oxford), F.G.S., then read a paper on "the volcanic hills forming the chain of the Puys, near Clermont, Auvergne, central France."

This was followed by a short paper on a question of Natural History, by the Rev. W. Johnson.

The first summer meeting of the season was held at Rugby, on May the 22nd, which was very well attended. The school museum was first visited, which contains a well-arranged and creditable local collection of fossils and other things of great service in the Natural History lectures, which now (and very properly) form part of the curriculum of the school.

The party then went to Mr. Bloxam's, the well-known Antiquary, where a small, but interesting and valuable collection of antiquities was exhibited. The various Lias quarries in the neighbourhood were next visited, in the following order, the 'lima beds' at New Bilton, thence to Holbrook, where the club were hospitably entertained at luncheon by Mr. Caldecott.

Passing the once famous Lawford quarries, long since closed, a short examination was given to some comparatively recent fluviatile drift on the banks of the river, in which many bones of deer, bison, water-rat, &c., have been found, with anodous and other river shells and a few flint implements, of which the Rugby school museum has a large and interesting collection.

After leaving Holbrook, a careful search was made in the white lias at Newnham, where a few of the usual characteristic fossils were obtained, the last quarry visited at Newbold exhibited a good section of the "lima beds," similar to that at New Bilton. A new species of *Discina* (*D. Holdenii*), attached to an ammonite (in groups) and monotis were discovered by Mr. Clemenshaw, at this pit. A clay pit near the town, higher in the series, yielded numerous specimens of *Ammonites Sauzianus*, and other fossils.

On June 24th, 1867, the club held their summer field meeting, extending as usual over several days, at Welshpool and North Shropshire. Arriving at Welshpool, at three o'clock, a small party under the guidance of the Rector, visited Powis Castle, from which a fine view is obtained of the Briedden and other hills, and afterwards spent the rest of the afternoon in the celebrated Trilobite dingle, where sections of the Bala (or Caradoc) beds are exposed and abound in remains of *Trinucleus*, a very fine entire specimen of which was obtained, and a few *Ampyx*.

On Tuesday morning, an early start was made to Chirbury, driving through a beautiful country to the picturesque Marrington Dingle, thence to Cornden hill, from the summit of which a splendid view is obtained on all sides, overlooking the whole range of the Longmynd on the south

east, the mining district of Shelve on the south, and the most distant Welsh mountains, including Cader Idris, on the north west. After a careful search, no fossils were found either in Marrington Dingle or the Cornden, until the more fossiliferous Llandeilo flags were reached at Rorrington and Mincop, but many interesting sections of lower Silurian strata were exposed, in conjunction with volcanic rocks, so common in this district. At Rorrington and Mincop, *Ogygia Selwini*, *Lingula*, and other characteristic fossils were found. After a long walk of sixteen miles, the party reached Worthen, their head quarters, about 7.30.

On Wednesday they were joined by the Revd. J. La Touche, and walked to Shelve, *via* Brownlow, by Shelve Church to Ritton Castle and the Stiper stones. A few fossils were obtained in the black lower Llandeilo shales at Ritton, including an entire '*Illænus perovalis*.' The stiper stones consist of sandstone of lowest Silurian age, much altered by heat by adjacent igneous action, and contain rare but occasional traces of animal life of the earliest period. The igneous or 'trap rocks' of the Corn-den hill throw off lower Silurian strata of the Llandeilo formation, which throughout the whole of this district are more or less effected by and brought into contact with igneous rocks. Shelve is also celebrated as a mining district, many lead veins occurring in the Llandeilo formation. The whole of this country is of special interest, because it represents, on a smaller scale, the grander development of the same rocks throughout a large portion of Wales.

The homeward journey was made by the Gravel's Mine, across the pretty Hope Valley to Worthen. On Thursday,

the members visited Mincop again, through Bitton Dingle, to Meadowtown, where the upper Llandeilo flags are charged with innumerable '*Ogygia Buchii*' in their young stage. On Friday, two of the party left for a tour in Wales. The Revs. P. B. Brodie and J. La Touche visited the lower Llandeilo flags at Mytton dingle, a picturesque mountain gorge on a small scale, where a few fossils were found, amongst them a nearly perfect '*Calymene parvifrons*' a local and somewhat rare lower Silurian Trilobite. This terminated a most agreeable and instructive excursion.

The third and last meeting of the season was held at Banbury, on the 9th of September, being the Archæological day. The party first visited Warrington Church, built in the fourteenth century. The door at the west end is a good decorated work, with a window over it of same style. The upper windows are of later date, and belong to the perpendicular style. The roof is of original plain timber work. Some encaustic tiles, and an iron door-handle of much interest, are preserved. There was no time to visit the ancient Manor-house. Thence the members proceeded to Edge hill, where Mr. Fetherston, the Archæological Secretary, gave a description of the battle. Proceeding along the ridge of Edge hill, the members visited Compton Winyates, the well-known seat of the Marquess of Northampton.

The family of Compton have been certainly resident in Warwickshire, since the reign of King John, or perhaps earlier than that period. Perhaps no family recorded in English history were more conspicuous for their valour and for the part they took in political affairs, than the Comptons, in the sixteenth or seventeenth centuries. Sir William Compton, who built the greater part, was highly

in favour with Henry VIII, and by him was made Chancellor of Ireland, and enriched by many emoluments. Indeed, Henry VIII is said to have paid him a visit at Compton. The house forms a quadrangle, and is built of brick, with stone facings and garnishments. Perhaps the best example of a moulded brick-work chimney is to be found when entering upon the leads near the ancient Roman Catholic Chapel, in the roof. In the Chapel is to be found a very rare, and we might say unique specimen of a wooden altar, still marked with five crosses. It is not of oak, but of elm. In the hall is preserved an ancient leather drinking-bottle, and in the drawing-room a chimney piece, the centre panel is of excellent carved Elizabethan work, brought from Canonbury, in the parish of Islington, formerly the seat of Sir John Spencer. The house was besieged by the Parliamentarians in the civil wars, and there is a tradition that eight officers were killed in one room, at the extremity of the eastern end of the quadrangle. Spencer, Earl of Northampton, whose horse stumbled at the skirmish of Hopton Heath, in some rabbit burrows, was butchered upon the spot by the Parliamentarians. The Church of Compton Winyates contains little of interest. The only mutilated remains of the monuments of the Compton family, consist of a helmet, scabbard, gauntlets, swords, spurs, &c., still hanging upon the north wall of the Church. Brailes Church was next visited. It is chiefly remarkable for the ornamental parapet of stone which surrounds it, and also for the mutilated remains of the monuments of the later end of the fourteenth century, on the south side of the Churchyard. The interior contains nothing of antiquarian interest, if we except the curious chest still preserved in

the vestry, and which we believe has been engraved. The interior is only remarkable for its disfigurement by the exceedingly high pews, and for its high pulpit, placed without the chancel arch, immediately in front of the altar. After leaving Brailes, the party proceeded to Swacliffe, and proceeded to the Church, which is dedicated to St. Peter and St. Paul. The fine structure is partly of the fourteenth century, and other portions of an earlier date, and is restored with great taste. In the Church some monuments of the sixteenth century, to the Wykeham family, of the same extraction as the celebrated William of Wykeham, Bishop of Winchester.

Additions to the Museum and Library.

GEOLOGY.

DONATIONS.

An Ammonite, probably Cretaceous. *Presented by Mrs. Turner, Lansdowne-place, Leamington.*

Clausila Dalmatina, Dalmatia.

Lapicide (Helix) Scabriuscula, Dalmatia.

Ogygia Buchii (Young), Llandeilo flags, Salop.

Trinucleus Concentricus (head), Caradoc Sandstone, Welshpool.

Ogygia Selwini, Llandeilo flags, Salop.

Lingula attenuata, Llandeilo flags, Salop.

Calymene parvifrons, Llandeilo flags, Salop.

Monotis papyria, Lima Bed, Lower Lias, Rugby,

Thatis minor, Lower Greensand, Atherfield, Isle of Wight.

Rostellariæ glabra, Atherford, Isle of Wight.

Parastræa stricta, ditto, ditto.

Two other Corals, ditto, ditto.

Potamides carbonarius, } Wealden, Brixton

Cypris tuberculosa. } Isle of Wight.

Unio Valdensis, Wealdon Brook, Isle of Wight.

Potamosnmya gregarin, Headon, Isle of Wight.

Univales, Hempstead, Isle of Wight.

Melania carinata, Isle of Wight.

Cyprides, Isle of Wight.

Two specimens of White Lias, from Loxley, with Markings upon them (?). *Presented by J. Cove Jones, Esq.*

Slab of 'Guinea bed,' with Hemipedina Tomesii, from Lower Lias, Binton. *Presented by R. F. Tomes, Esq.*

Waldheimia quadrata.

Ditto Davisoni, (n.s.)

Plicatula Carteroniana, Lower Green Sand, Upware, Cambridgeshire.

Footprints of Labyrinthodon, the Upper Keuper, Shrewley.

*Presented
by the Rev.
P. B. Brodie.*

*Presented
by the Rev.
P. B. Brodie.*

Tropidaster pectinatus, Middle Lias, Chipping Campden, Gloucestershire. *Presented by the Rev. P. B. Brodie.*

A very fine Coral, from Wenlock Limestone, Upper Silurian, Woolhope, Herefordshire.

Presented by the Rev. F. Merewether, Rector of Woolhope, through the Rev. P. B. Brodie.

One of the Pentatomidæ, Insect beds, Brown's Wood, Moreton Bagot, Lower Lias.

Septastrea Fromenteli, Lima Beds, Harbury.

Montlivaltia Victorinæ (Duncan), Middle Lias, Cherrington, Worcestershire.

Parts of a Side Spine (*Ichthyodorulite*), Upper Keuper, Shrewley.

Presented by the Rev. P. B. Brodie.

Fossils and Minerals from Nova Scotia. *Presented by the Rev. J. Torre.*

Fossils and Minerals (various). *Presented by Miss Pask, of Leamington, through Dr. O'Callaghan.*

LIBRARY.

DONATIONS.

The Life of Dr. Warneford, Founder of the Leamington Hospital, Oxford, 1855.

The Night March of King Charles the First from Oxford, 3rd June, 1645. By the Rev. V. Thomas, B.D.

Presented by the Rev. Edmund Roy.

The Calender of the Stratford Records.—The History of New Place, Stratford-upon-Avon. *Presented by J. O. Halliwell, Esq., F.R.S.*

Account of Coins found at Holwell, Leicestershire, communicated to the Numismatic Society, London.

Presented by the Author, the Rev. Asheton Pownall, M.A., F.G.S.

Report of Zetland Anthropological Expedition. By Ralph Tate, F.G.S. F.A.S.Z.

Presented by the Rev. P. B. Brodie.

Antiquitates rutupina, Autore Joanne Botteby S.T.P. Oxon, 1745.

Presented by J. C. Jones, Esq.

Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club. *Presented by the Field Club.*

Report of the Rugby School Natural History Society, 1867. *Presented by F. E. Kitchener, Esq.*

Catalogue of the Shakesperian Museum, Stratford-upon-Avon. *Presented by J. O. Halliwell, Esq., F.R.S.*

MISCELLANEOUS.

DONATIONS.

Skulls and Roman Pottery, from the Grounds immediately joining the Priory House. *Presented by T. Lloyd, Esq.*

Hat and Dress from South America. *Presented by Mrs. Turner, of Leamington.*

Recent Shells, 7 univalve and 1 bivalve. *Presented by C. H. Bracebridge, Esq.*

Series of Land (chiefly), some freshwater and marine Shells from the West Indies. *Presented by the Rev. P. B. Brodie.*

LIBRARY.

PURCHASES.

Annals and Magazine of Natural History. Vol. 20, third series. Vol 1, fourth series.

Camden Society Publications:—

No. 94. Dingley's History from Marble. Part 1.

No. 25. Levins' Manipulus Mabulorum.

Geological Magazine. No. 35 to 46.

Palæontographical Society's Publications:—

Vol. 21.—Plants of the Carboniferous strata. Part 1.

Supplement to the Fossil Corals. Part IV, No. 2. Liassic.

Cretaceous Echinodermata. Vol. I. Part 2.

Fishes of the Old Red Sandstone. Part 1.

Pleisocene Mammalia. Part II.

Popular Science Review. Part 25 to 28.

Ray Society's Publications:—

A Monograph on the Structure and Development of the Shoulder Girdle and Sternum in the Vertibrata. By W. Kitchener Parker, F.R.S., F.Z.S.

A Monograph of the British Spongiada Bowerbank. Vol. II.

Miscellaneous Botanical Works of Robert Brown. Vol. II.

GENERAL FINANCIAL STATEMENT, from 31st MARCH, 1867, to 31st MARCH, 1868.

Income.		Expenditure.	
1867.	£. s. d.	31st March, 1868.	£. s. d.
31st Mar.—To Balance of last account	93 6 1	Insurance	0 16 6
1868.		Attendant's Salary	20 0 0
31st Mar.—Amount received during the		Coal and Firing	3 0 2
year for Subscriptions, .. 76 13 0		Printing (including Reports) and Stationery ..	12 7 5
Arrears 8 8 0		Fittings and Repairs	5 5 5
	85 1 0	Preserving and repairing Objects	7 8 9
Received for admission to Museum ..	8 9 3	Books, Binding, &c.,	7 3 5
Received for deposit for Library	0 10 0	Subscriptions to Societies	3 2 0
		Postage, Circulars, &c.,	1 19 1
		Carriage of Parcels	2 6 6
		Incidental Expenses, Cleaning, &c., ..	5 17 0
		Poor's Rate	1 8 0
		Collector's Commission	4 4 0
		Paid for antiscaling and setting up the	
		Megaceros Hibernicus, in London, ..	16 10 0
		Expense of fixing it in Museum	3 12 11
		Paid for Roman Coffin, and Carriage ..	3 14 0
		Making a List of Books in the Library, arrang-	
		ing Catalogue, and printing 250 copies ..	15 0 0
To Balance,	£74 11 2		£112 15 2
Of which £1. is deposited on			74 11 2
Library Account	1 0 0		
(Mr. Garner, 10s.; Mr. Kitchen, 10s.)			£187 6 4

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The Meetings of the Council are held on the First Tuesday in the Months of July, October, and January, and the Annual Meetings on the Friday in Easter week.

The MUSEUM is open daily to the Members and their Friends from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

Non-Subscribers are admitted on payment of an admission fee of sixpence each.

The Museum is free to the Inhabitants of Warwick on Mondays and Tuesdays.

The Annual Subscriptions for 1868 are due on the 24th day of May; and the Council request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.













WARWICKSHIRE  
NATURAL HISTORY  
AND  
ARCHÆOLOGICAL SOCIETY,  
ESTABLISHED MAY 24TH, 1836.

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THIRTY-THIRD ANNUAL REPORT  
OF THE COUNCIL TO THE SUBSCRIBERS,  
READ AT THE  
ANNIVERSARY MEETING, APRIL 23rd, 1869.

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IN presenting the annual report, the Council congratulate the Members on the continued prosperity of the Society.

Some valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.

The fine example of the "Megacerous"—"Fossil deer of Ireland," from Lough Gur, near Limerick, which was presented to the Society by Richard Greaves, Esq., is now placed in the Geological room of the Museum.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon hill, Hordwell, Barton, and Bracklesham. London Clay Fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

#### ARCHÆOLOGY.

The Roman Coffin, found in the excavation for the railway near Alcester, which was purchased for the Society, has been set up at the entrance-door of the Museum.

#### BRITISH MAMMALIA.

Although no addition has been made to the British Mammals since last year, we devote this paragraph to the collection, hoping that we may thereby meet with assistance in its completion. Unlike British Birds, which migrate, and which therefore in some species can only be obtained as stragglers, the Mammals are resident, and though some,

are rarer than others, *all* may be obtained with tolerable certainty, by those residing in such parts of the country as they are known to inhabit. With the exception of the marine species, such as the Whales and Porpoises, there are none which might not take their place in our collection of British feræ. We have already some of the largest of the land animals, as the Red Deer and Roebuck, both presented by Edward Greaves, Esq. A mounted specimen of the Fallow Deer, and of the two kinds of Martin, *i.e.* the yellow breasted and the white breasted Martin, would go far towards the completion of the terrestrial Mammalia of Great Britain. We earnestly hope that some friends to this Institution will kindly furnish one or other of these desiderata. Of the smaller kinds, such as the Shrews and Bats, a few kinds are wanting, but these the Curators believe they shall before long be able to supply.

#### ENTOMOLOGY.

The Rev. W. BREE and Mr. J. S. BALLY have kindly consented to commence a Collection of British Insects. A Cabinet of thirty drawers has been purchased. The present cabinet is calculated to contain the Aculeate Hymenoptera, the whole order of Coleoptera, and the early tribes of Lepidoptera; when the arrangement of these groups is completed it is hoped that the funds of the Society will be sufficient to purchase a second cabinet, to contain the remaining orders of British Insects, and the Council have already received the following donations:—

A small collection of Lepidoptera from the Rev. S. C. Hamerton, as well as from the Rev. W. Bree.

Several hundred Aculeate Hymenoptera and Coleoptera from Mr. F. Smith.

A few rare Coleoptera from Mr. Waterhouse.

Several hundred Hymenoptera and Coleoptera from Mr. J. S. Bally.



They have also received promises of Insects from Mr. Newman, editor of the *Zoologist*, Mr. Janson, and several other leading London Entomologists.

The majority of scientific Entomologists residing in or near London, have confined their researches principally to the Metropolitan district or to the Southern counties of England; consequently the Midland counties present an almost unworked field, which must contain very many interesting novelties.

Warwickshire from its high state of cultivation has but few waste spots, on which Insects usually abound, but its varied soil and numerous woods will doubtless yield great results to the efforts of a zealous collector. Those of our members living in the country are earnestly solicited to preserve and forward to our Curators any specimens that may fall in their way. Lepidoptera may be captured in pill-boxes and killed by means of a few drops of Chloroform. Coleoptera and other orders should be put into a bottle in which has been previously placed a small quantity of bruised laurel leaves, the prussic acid contained in the leaves not only very quickly killing the Insects but also preserving them fresh, and in a state for setting for a considerable length of time,

#### ORNITHOLOGICAL COLLECTION.

When the repairs of the Museum were brought to a close, the room containing the collection underwent a thorough cleaning, and the specimens were taken out, examined, carefully cleaned, and returned to the cases. The windows of the rooms, the approaches to which were awkwardly blocked up with cases, were relieved of their obstructions, the specimens which were in these cases being transported to their proper places in the series to which they respectively belonged. But the most important change which has been made in this department, is the separation of the British

from the Exotic species. In nearly all the extensive Natural History Museums in Europe the native species are now fostered as a distinct collection. Such has lately been the case in our National Museum, and whereas the observer had before this change to seek laboriously through thousands of birds, from every clime, for the isolated specimens which had formed the collection of some celebrated Naturalist,—as for instance that of Colonel Montague,—he may now see them all placed side by side in the gallery devoted to British Zoology. And with them he may also see ranged the gems from the collection of the late Mr. Yarrell. The advantage of such an arrangement is obvious.

It has been observed, with great truth, “that you cannot vie with the larger Museums in a general collection, but you may *excel* them if you confine yourselves to a purely local collection.” Fully agreeing with this opinion, the Hon. Curators, while enlarging the collection of British Birds, purpose to do so, as much as possible, by means of specimens obtained in Warwickshire, or the contiguous Counties. They offer these remarks in the hope that the friends of the Institution will assist them in carrying out their views, by donation of some of the species forming the following list of desiderata :—

#### Order 1. Accipitress, Linn.

|                                |                                                |
|--------------------------------|------------------------------------------------|
| Egyptian Vulture, .. ..        | .. <i>Neophron Percnopterus</i> , (Linn.)      |
| Griffon Vulture, .. ..         | .. <i>Gyps fulvus</i> , (Gmel.)                |
| Rough-legged Buzzard, .. ..    | .. <i>Archibuteo Lagopus</i> , (Brün.)         |
| Spotted Eagle, .. ..           | .. <i>Aquila naxia</i> , (Gmel.) Mey           |
| Jer-falcon, .. ..              | .. <i>Falco Gyrfalco</i> , Linn.               |
| Red-footed Falcon, .. ..       | .. <i>Tinnunculus vespertinus</i> , (Linn.)    |
| Swallow-tailed Kite, .. ..     | .. <i>Nauclerus furcatus</i> , (Linn.) Vigors. |
| Goshawk, .. ..                 | .. <i>Astur palumbarius</i> , (Linn.) Bechst.  |
| Montagu's Harrier, .. ..       | .. <i>Circus cinerascens</i> , (Mont.)         |
| Hawk Owl, .. ..                | .. <i>Surnia ulula</i> , (Linn.) Bonap.        |
| Snowy Owl, [British specimen,] | .. <i>Nyctea nivea</i> , (Thunb.)              |
| Little Owl, .. ..              | .. <i>Athene noctua</i> , (Retz.)              |
| Great-eared Owl, [female,]     | .. <i>Bubo maximus</i> , Sibb.                 |
| Tengmalm's Owl, .. ..          | .. <i>Nyctale Tengmalmi</i> , (Gmel.) Strickl. |

## Order 2. Passeres, Ouv.

|                                  |                                                 |
|----------------------------------|-------------------------------------------------|
| Alpine Swift, .. .. .            | <i>Cypselus Melba</i> , Linn.                   |
| Roller, .. .. .                  | <i>Coracias garrula</i> , Linn.                 |
| Bee-eater, [British specimen]    | <i>Merops Apiaster</i> , (Linn.)                |
| Dartford Warbler, .. .. .        | <i>Sylvia undata</i> , (Bodd.)                  |
| Garden Warbler, [female,]        | <i>Sylvia hortensis</i> , (Penn.)               |
| Fire-crested Regulus, .. .. .    | <i>Regulus ignicapillus</i> , Brehm.            |
| Plain-crowned Kinglet, .. .. .   | <i>Regulus proregulus</i> , (Pall.)             |
| Black Redstart, [Brit. specimen] | <i>Ruticilla tithys</i> , (Scop.)               |
| Blue-throated Warbler, .. .. .   | <i>Cyanecula suecica</i> , Linn.                |
| Alpine Accentor, .. .. .         | <i>Accentor alpinus</i> , Gmel. Bechst.         |
| Crested Tit, .. .. .             | <i>Parus cristatus</i> , Linn.                  |
| White Wagtail, .. .. .           | <i>Motacilla alba</i> , Linn. [vera.]           |
| Grey-headed Wagtail, .. .. .     | <i>Motacilla flava</i> , Linn.                  |
| Rock Pipit, .. .. .              | <i>Anthus spinoletta</i> , (Linn.)              |
| Richard's Pipit, .. .. .         | <i>Anthus Richardi</i> , (Vieill.)              |
| White's Thrush, .. .. .          | <i>Turdus varius</i> , Horsf.                   |
| Rock Thrush, .. .. .             | <i>Turdus saxatilis</i> , Linn.                 |
| Golden Oriole, .. .. .           | <i>Oriolus Galbula</i> , Linn.                  |
| Gold-vented Thrush, .. .. .      | <i>Pycnonotus aurigaster</i> , (Vieill.)        |
| Great Ash-coloured Shrike[fem]   | <i>Lanius Excubitor</i> , Linn.                 |
| Woodchat Shrike, .. .. .         | <i>Enneoctonus refus</i> , (Briss.)             |
| Nutcracker, .. .. .              | <i>Nucifraga caryocatactes</i> , (Linn.) Briss. |
| Rose-coloured Ouzel [Brit.spec]  | <i>Pastor roseus</i> , (Linn.) Temm.            |
| Red-winged Starling, .. .. .     | <i>Agelaius phoeniceus</i> , (Linn.) Vieill.    |
| Mountain Linnet, .. .. .         | <i>Fringilla flavirostris</i> , Linn.           |
| Girl Bunting, .. .. .            | <i>Emberiza Cirlus</i> , Linn.                  |
| Ortolan Bunting .. .. .          | <i>Emberiza hortulana</i> , Linn.               |
| Lapland Bunting .. .. .          | <i>Plectrophanes lapponicus</i> , (Linn.) Selb. |
| Short-toed Lark, .. .. .         | <i>Alauda brachydactyla</i> , Temm.             |
| Crested Lark, .. .. .            | <i>Alauda cristata</i> , Linn.                  |
| Shore Lark, .. .. .              | <i>Otocoris alpestris</i> , (Linn.)             |
| Parrot Cross-bill, .. .. .       | <i>Loxia pityopsittacus</i> , Bechst.           |
| White-winged Cross-bill, ..      | <i>Loxia leucoptera</i> , Gmel.                 |

## Order 3. Scansores, Ill.

|                               |                                       |
|-------------------------------|---------------------------------------|
| American Cuckoo, .. .. .      | <i>Coccyzus americanus</i> , (Linn.)  |
| Great spotted Cuckoo, .. .. . | <i>Oryzophus glandarius</i> , (Linn.) |

## Order 4. Columbæ, Lath.

|                           |                                                 |
|---------------------------|-------------------------------------------------|
| Rock Dove, .. .. .        | <i>Columba Livia</i> , Briss.                   |
| Passenger Pigeon, .. .. . | <i>Ectopistes migratorius</i> , (Linn.) Swains. |

## Order 5. Gallinæ, Linn.

|                              |                                             |
|------------------------------|---------------------------------------------|
| Barbary Partridge, .. .. .   | <i>Caccabis petrosa</i> , (Lath.)           |
| Andalusian Hemipode, .. .. . | <i>Turnix gibraltarius</i> , (Gmel.) Gould. |
| Virginian Colin, .. .. .     | <i>Ortyx virginianus</i> , (Linn.) Gray.    |

## Order 6. Struthiones, Lath.

|                         |                            |
|-------------------------|----------------------------|
| Great Buzzard, .. .. .  | <i>Otis trada</i> , Linn.  |
| Little Buzzard, .. .. . | <i>Otis tetrax</i> , Linn. |

## Order 7. Grallæ, Linn.

|                                    |                                                 |
|------------------------------------|-------------------------------------------------|
| Great Plover, .. .. .              | <i>Ædicnemus crepitans</i> , Temm.              |
| Cream-coloured Courser, .. .. .    | <i>Cursorius gallicus</i> , (Gmel.)             |
| Kentish Plover, .. .. .            | <i>Charadrius Cantianus</i> , Lath.             |
| Crane, .. .. .                     | <i>Grus cinerea</i> , Bechst.                   |
| Great White Heron, .. .. .         | <i>Ardea alba</i> , Gmel.                       |
| Egret, [British specimen,] .. .. . | <i>Ardea Garzetta</i> , Linn.                   |
| Squacco Heron, .. .. .             | <i>Ardea Comata</i> , Pall.                     |
| Buff-backed Heron, .. .. .         | <i>Ardea Coromanda</i> , Bodd.                  |
| American Bittern, .. .. .          | <i>Botaurus lentiginosus</i> , Mont.            |
| Spoon-bill, .. .. .                | <i>Platalea leucorodia</i> , Linn.              |
| White Stork, .. .. .               | <i>Ciconia alba</i> , Briss.                    |
| Black Stork, .. .. .               | <i>Ciconia nigra</i> , Bechst.                  |
| Spotted Redshank, .. .. .          | <i>Totanus stagnalis</i> , Bechst.              |
| Wood Sandpiper, .. .. .            | <i>Totanus Glareola</i> , (Linn.) Temm.         |
| Avocet, .. .. .                    | <i>Recurvirostra Avocetta</i> , Linn.           |
| Black-winged Stilt, .. .. .        | <i>Himantopus Candidus</i> , Bonn.              |
| Buff-breasted Sandpiper, .. .. .   | <i>Tringa refescens</i> , Vieill.               |
| Broad-billed Sandpiper, .. .. .    | <i>Tringa platyrhyncha</i> , Temm.              |
| Schintz's Sandpiper, .. .. .       | <i>Tringa Schinzii</i> , Brehm.                 |
| Pectoral Sandpiper, .. .. .        | <i>Tringa pectoralis</i> , Say.                 |
| Brown Snipe, .. .. .               | <i>Macroramphus griseus</i> , (Gmel.) Leach.    |
| Sabine's Snipe, .. .. .            | <i>Gallinago Sabini</i> , Vigors.               |
| Red-necked Phalarope, .. .. .      | <i>Phalaropus hyperboreus</i> , (Linn.) Cuvier. |
| Ballion's Crake, .. .. .           | <i>Ortygometra pygmæa</i> , Naum.               |
| Little Crake, .. .. .              | <i>Ortygometra minuta</i> , Pall.               |

## Order 8. Anseres, Linn.

|                                     |                                                 |
|-------------------------------------|-------------------------------------------------|
| Spur-winged Goose, .. .. .          | <i>Plectropterus gambensis</i> , (Linn.) Steph. |
| Common Wild Goose, .. .. .          | <i>Anser fesus</i> , Gesn.                      |
| White-fronted Goose, .. .. .        | <i>Anser erythropus</i> , (Linn.) Flem.         |
| Pink footed Goose, .. .. .          | <i>Anser brachyrhynchus</i> , Baill.            |
| Bernicle Goose, .. .. .             | <i>Bernicla leucopsis</i> , (Bechst.) Steph.    |
| Red-breasted Goose, .. .. .         | <i>Bernicla ruficollis</i> (Pall.) Steph.       |
| Polish Swan, .. .. .                | <i>Cygnus immutabilis</i> , Yarrell.            |
| Whistling Swan, .. .. .             | <i>Cygnus fesus</i> , Ray.                      |
| Bewick's Swan, .. .. .              | <i>Cygnus minor</i> , Pall.                     |
| American Swan, .. .. .              | <i>Cygnus americanus</i> , Sharpeless.          |
| Ruddy Sheldrake, .. .. .            | <i>Casarka rutila</i> , Pall.                   |
| American Wigeon, .. .. .            | <i>Mareca americana</i> , (Gmel.) Steph.        |
| Bimaculated Duck, .. .. .           | <i>Querquedula bimaculata</i> , Penn.           |
| Gadwall, .. .. .                    | <i>Chaulelasmus strepera</i> , Linn.            |
| Red-crested Whistling Duck, .. .. . | <i>Branta rufina</i> , (Pall.) Boie.            |
| Scaup Pochard, .. .. .              | <i>Fuligula Marila</i> , (Linn.) Steph.         |
| Ferruginous Duck .. .. .            | <i>Nyroca leucophthalma</i> , (Bechst.) Flem.   |
| Harlequin Garrot, .. .. .           | <i>Clangula histrionica</i> , (Linn.) Steph.    |
| Long-tailed Hareld, .. .. .         | <i>Harelda glacialis</i> , (Linn.) Leach.       |
| Steller's Western Duck .. .. .      | <i>Eniconetta Stelleri</i> , Pall.              |
| King Duck, .. .. .                  | <i>Somateria spectabilis</i> , (Linn.) Steph.   |
| Surf Scoter, .. .. .                | <i>Oidemia perspicillata</i> , (Linn.) Steph.   |
| Red-breasted Merganser, .. .. .     | <i>Mergus Serrator</i> , Linn.                  |
| Hooded Merganser, .. .. .           | <i>Mergus cucullatus</i> , Linn.                |
| Red-necked Grebe, .. .. .           | <i>Prodiceps grisegena</i> , (Bodd.) Lath.      |

|                                |                                                  |
|--------------------------------|--------------------------------------------------|
| Schvonian Grebe, .. ..         | .. <i>Podiceps Cornutus</i> , (Gmel.) Lath.      |
| Great Auk, .. ..               | .. <i>Alca impennis</i> , Linn.                  |
| Manx Shearwater, .. ..         | .. <i>Puffinus Anglorum</i> , Ray.               |
| Cinereous Shearwater, .. ..    | .. <i>Puffinus cinereus</i> , Gmel.              |
| Wilson's Petrel, .. ..         | .. <i>Thalassidroma oceanica</i> , Kuhl.         |
| Fork-tailed Petrel, .. ..      | .. <i>Thalassidroma Leachii</i> , Temm.          |
| Bulwer's Petrel, .. ..         | .. <i>Thalassidroma Bulveri</i> , (J.&S.) Gould. |
| Buffon's Squa, .. ..           | .. <i>Stercorarius cephus</i> , Brün.            |
| Common Squa, .. ..             | .. <i>Stercorarius catarrhactes</i> , Linn.      |
| Glaucous Gull, .. ..           | .. <i>Larus glaucus</i> , Brün.                  |
| Iceland Gull, .. ..            | .. <i>Larus leucopterus</i> , Faber.             |
| Little Gull, .. ..             | .. <i>Larus minutus</i> , Pall.                  |
| Sabine's Gull, .. ..           | .. <i>Xema Sabini</i> , Leach.                   |
| Ivory Gull, .. ..              | .. <i>Pagophila eburnea</i> , (Gmel.) Kaup.      |
| Caspian Tern, .. ..            | .. <i>Sterna caspia</i> , Pall.                  |
| Gulled Lilled Tern, .. ..      | .. <i>Sterna anglica</i> , Mont.                 |
| Sandwith Tern, .. ..           | .. <i>Sterna cantica</i> , Gmel.                 |
| Roseate Tern, .. ..            | .. <i>Sterna paradisea</i> , Brün.               |
| White-winged Black Tern, .. .. | .. <i>Hydrocheidon nigra</i> , Linn.             |
| Black Noddy, .. ..             | .. <i>Anous stolidus</i> , (Linn.) Catesby.      |

## BOTANY.

The Herbarium, collected by the late Mr. Perry, being for sale, the Council deemed it desirable that it should be purchased for the Museum, particularly as it contained many rare specimens of the District, which are not now to be met with. As the annual income of the Society is only sufficient to meet current expenses, it can only be purchased by subscription, and it is expected this will be done in the current year.

## LIBRARY.

An opportunity occurred to purchase a very good copy of the second Edition of *Dugdale's Antiquities of Warwickshire*, by Dr. Thomas, of which the Council availed themselves, considering that it was very desirable to have it in the Library for reference.

A Catalogue of Books in the Library has been made, to the 31st December, 1867, and a copy was sent to each Member.

The Council will be glad to receive presents of any works of Local interest, for the Library.

Any Member wishing to take a Book from the Library,

is particularly requested to see that an entry is made in the book kept for that purpose, which is on the Library table. The date must also be entered when the book is returned.

Before Members are allowed to take Books out of the Library, a deposit of ten shillings is required. Some of the Books cannot be taken away from the Library.

The Accounts for the year have been audited, and the General Financial Statement, to March 31st, 1869, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much might be effected if adequate means were placed at the disposal of the Council. Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a less satisfactory condition than could be desired. A reference to the list of subscribers will show that only a few of the rich and influential residents in the County belong to the Society. If the members would solicit annual subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society.

At the Annual Meeting, after the business of the Society was finished, and the Officers for the ensuing year appointed, MR. MATTHEW HOLBECHE BLOXAM, read the following Paper, on "Warwickshire in the Civil Wars of the Seventeenth Century, (second notice.)



On the 25th of August, 1642, two days after the skirmish at LongItchington, the particulars of which were detailed in my former notice, the King set up his standard at Nottingham. On the 28th of that month Prince Rupert, with a body of horse from Leicester, made an attack on Caldecott Hall, a stone mansion, strongly built, and not far from Nuneaton. We have on a monument in Caldecott church, a detailed account of the occurrence. The inscription runs thus:—"Here lieth the body of George Abbott, late of Caldecott, in Warwickshire, Esquire, whose eminent parts, virtues, and graces, drawn forth to life in his exemplary walking with God, his tenderness to all the members of Christ, who frequently fled to his charity in their wants, and counsel in cases of conscience. His exact observation of the Sabbath, which he vindicated by his pen, and on which, August 28th, 1642, God honoured him in the memorable and unparalleled defence of this adjoining house, with eight men (besides his mother and her maids) against the furious and fierce assault of Prince Rupert and Maurice, with 18 troops of horse and dragoons. His perspicuous paraphrases of the books of Job and Psalms, his judicious tracts of public affairs then emergent, his known integrity in public employments, rendered him one in a thousand for singular piety, wisdom, learning, charity, courage, and fidelity to his country, which he served in two Parliaments, the former and the present, whereof he died a member February 2nd 1648, in the 44th year of his age. This monument was erected to his memory by his dear mother and executrix, Johan Purefoy, the wife of Colonel William Purefoy, his beloved father-in-law, the 28th day of August, Anno Domini, 1649." Colonel Purefoy was one of the chief of the Parliamentary party in this county. No one would draw the inference from this inscription, that Caldecott hall was taken, which was however the fact. In Vicar's *Magnalia Dei Anglicani*, or England's Parliamentary Chronicle, a somewhat scarce work, which has been commented upon as "a curious medley of facts and furious party venom," a more detailed account of this attack is given, which is as follows:—"About the middle of September, 1642, the Parliament was informed of the great outrages and insolences of the Cavaliers arraymen, in Warwickshire, Worcestershire, Gloucestershire, and Cheshire. But one passage among the rest, being very remarkable and worthy of particular remembrance, may not be here omitted, which fell out in Warwickshire, and was this. The Cavaliers having notice, and thereupon informing Prince Rupert of a worthy gentle-

man's house and habitation, by name Mr. William Purfrey, of Caldecot, in Warwickshire, a worthy member of the House of Commons, and a gentleman of a fair estate, who lived in a very strong and a well built house of stone, upon which intelligence given to this Prince of Plunderers, he with about five hundred of his forces, upon a Sunday morning, a little before prayer-time (a fit day and time of day for such profane thieves and robbers to act their wicked designs of thefts and rapines), came to Caldecot aforesaid, and beset this gentleman's house, with an intent plunder and pillage it, himselfe being absent from home, and there being within onely the mistresse of the house, one or two daughters, one *Mr. George Abbott* (her son-in-law, a very resolute and stout young gentleman), three serving-men, and three maid servants. The Prince being come to the house, sends unto them to open the gates, and to deliver up the house unto him; the gentleman and all within with him being very courageous and cheerful, and having good store of muskets, powder, and shot, in the house, refused so to doe, but stood upon their guard, resolving, by God's assistance, to fight it out rather than to yield themselves to the perfidious cruelty of him and his accursed cavaliers, and thereupon the young gentleman tooke forth a dozen muskets and taught the women how to charge the muskets whiles he and the other men discharged them. Prince Rupert, thus affronted, gives command to his cavaliers to set upon the house, and to break open the outmost gates to come into the yard or court; but as his captains and souldiers entered in, the said Mr. Abbott and his men shot so quick and thick at them, and shewed themselves (by God's assistance) such notable marksmen, that at the very first onset they slew one Captain Mayford, and Captain Shute, and after that one Captain Steward, and ere they had done, about 15 more of their souldiers, whereof some were other officers in armes—the men within still shooting at them without intermission, and the women, who had aptly learn't their art, did their work and acted their parts most nimbly and cheerefully; and when their bullets began to fail, they fell to melting all their household pewter, and having bullet moulds in the house, speedely made more, and notably supplied that want faster than they could be spent, and thus the businesse was so plyed, and with such dexterity by them in all their appointed ways, God wonderfully enabling them, that Prince Rupert was very sorely put to it, and having seene so many of his men slaine, and seeing he could not so easily enter the



house as he and his company expected, he fired the barnes, stables, and outhouses, which caused a mighty smoke, and began to smother them much in the house, and to hinder their fight from acting as they did before, and now also their store of powder was wellnigh all spent; hereupon, therefore, Mistris Purfrey herselfe, the mistris of the house, opened her doores, and issuing forth, fell upon her knees, and craved quarter for herselfe and her family onely; whereupon it pleased the Lord to molifie the Princes heart towards her, who asked her what she would desire of him? She answered, her own life and the lyves of those that ware within with her, certifying him who and what number they were, and that onely her son-in-law, Mr. Abbott, and his three servants were ail the men or male kinde in the house, which did what was done; which when Prince Rupert heard, and understood for certain of the paucity of their number, and considered their brave valour and resolution, he admired and wondered at it, raised the gentlewoman from her knees, saluted her kindly (the greatest act of humanity, if not the onely, that ever I yet could heare he expressed to any honest English), and granted her request fully and freely, notwithstanding the slaughter of so many of his men, and some commanders as aforesaid, went into the house to see Mr. Abbott and the rest who had so bravely behaved themselves, whom when he saw, and that 'twas so indeed, he was much taken with their most notable valour, saved their lives, and house from plundering, saying to Mr. Abbott that he was worthie to be a chief commander in an armie, and proferred him such a place in his army if he would go with him, but he modestly refused it. However, here the said Prince fairly performed his promise, and would not suffer a pennyworth of his goods in the house to be taken from them, and so departed." Such is the account given by Vicar's of that "Prince of plunderers," as he describes him, Prince Rupert. There were, as we shall see, other plunderers in the Parliamentary forces. The "*Iter Carolinum*," a diary by one of the Royal attendants as brief as the more ancient *Iters* of King John and Edward the Second, exhibits the movements of the King and his forces during the early part of the civil wars. It appears from this that the head quarters and rendezvous of the Royal forces were first at Nottingham, to which place the King went on the 16th of August, 1642. On the 18th of that month he went from thence to Leicester, and on the 19th to Stoneley Abbey, Sir Thomas Lee's, where, if we may credit the diarist, he stayed three nights. He returned to Notting-

ham on the 23rd, after the skirmish at Long Itchington. Then took place the formal raising of the Royal Standard. Having collected there what forces he could, he commenced his march westward, on the 13th of September he went to Derby, there he stayed three nights; on the 16th to Uttoxter, on the 17th to Stafford, there he stayed two nights; on the 19th he went to Wellington, and on the 20th to Shrewsbury, here he remained with his forces, increased by the gentry who espoused his cause, for three weeks, during which period he went to Chester, where he appears to have stayed four days. A more complete account of the movements of the Parliamentary forces is given in some letters, preserved in the State paper office, written by one Nicholas Wharton, who appears to have been a sergeant in some foot regiment, to his then late master, Mr. George Willingham, a merchant at the Golden Anchor, in St. Swithin's Lane. The date of the first of these letters is the 16th of August, 1642, of the last, October the 7th, 1642. What became of the writer after the inditing of that letter is unknown. These letters are somewhat lengthy. I shall therefore give little more than excerpts relating to occurrences in this county. In a letter dated Coventry; August 26th, 1642, he says:—  
 “Monday morning (August 19) we marched into Warwickshire with about three thousand foote and four hundred horse, until we came to Southam. This is a very malignant towne, both minister and people. We pillaged the minister, and took from him a drum and severall armes. This night our soildiers, wearied out, quartered themselves about the town for foode and lodginge, but before we could eate or drinke an alarm cryed ‘Arme, arme, for the enemy is com-menge,’ and in halfe an hower all our soildiers, though dispersed, were cannybals in armes, ready to encounter the enemy. Our horse were quartered about the country, but the enemy came not. We barrecaded the towne, and at every passage placed our ordinance, and watched it all night, our soildiers contented to lye upon hard stones. In the morninge early our enemise, consistinge of about eight hundred horse, and three hundred foote, with ordinance, led by the Earle of Northampton, the Lord of Carnarvan, and the Lord Compton, and Captain Legge, and other, intended to set upon us before wee could gather our companies together, but being ready all night, early in the morning wee went to meet them with a few troopes of horse and six field peeeces, and being on fier to get at them we marched thorow the corne and got the hill of them, whereupon they played upon

us with their ordinances, but they came short. Our gunner took their own bullet, and sent it to them againe, and killed a horse and a man. After wee gave them eight shot more, whereupon all their foote companie fled, and offered their armes in the towns adjacent for twelve pence a peece. Their troopes whelinge about, took up their dead bodies and fled: the number of men slaine, as themselves reported, was fifty besides horse. Severall dead corps wee found in corne fields, and amongst them a trumpeter, whose trumpet our horsemen sounded into Coventry. We took severall prisoners, and amongst them Captain Legge and Captain Clark. From thence wee marched valiently after them toward Coventry, and at Dunsmore Heath they threatened to give us battaile, but we got the hill of them, ordered our men, but they all fled, and we immediately marched into Coventry, where the countrey met us in armes and welcomed us, and gave us good quarter both for horse and foote." In a letter dated Coventry, August the 30th, 1642, he says:—"My last was unto you from Coventry, August the 26th, which place is still our quarter; a City environed with a wall co-equal, if not exceedinge, that of London for breadth and height; the compass of it is neare three miles, all of free stone. It hath four stronge gates, stronge battlements, stored with towers, bulwarks, and other necessaries. This city hath magnificent churches and stately street; within it ther are also several and pleasant sweete springes of water, built of free stone, very large, sufficient to supply many thousand men. The City gates are guarded day and night with four hundred armed men, and no man entereth in or out but upon open examination. It is also very sweetly situate. Thursday, August 26th, our soildiers pillaged a malignant fellowes house in this City, and the Lord Brooke immediately proclaimed that whosoever should for the future offend in that kind should have martiall law. Fryday several of our soildiers, both horse and foote, sallyed out of the City unto the Lord Dunsmore's parke"—(this was at King's Newnham, nine miles from Coventry, eastward)—"and brought from thence great store of venison, which is as good as ever I tasted, and ever since they make it their dayly practise, so that venison is almost as common with us as beef with you. This day our horsemen sallyed out, as their daily custom is, and brought in with them two cavaleeres and with them an old base Priest the parson of Sowe, near us, and led him rediculously about the city unto the chief Commanders. Sunday morne the Lord of Essex, his Chaplain Mr. Kemme,

the cooper's sonne, preached unto us, and this was the first sermon we heard since we came from Alisbury; but before he had ended his first prayer Newes was brought into the Church unto our commanders that Nuneaton, some six miles from us, was fired by the enemy, and forthwith our Generall and several captaines issued forth, but I and many others stayed until sermon was ended, after which we were commanded to march forth with all speed, namely my captain with Captain Beacon and Captain Francis of our regiment, and of other regiments, in all to the number of one thousand foote, and one troope of horse, but before we came at them they all ran away, not having done much harm, whereupon we returned to Coventry again." This news seems to advert to the attack by Prince Rupert on Caldecott Hall, which mansion was but a short distance from Nuneaton, on the 28th of August. Nicholas Wharton's next letter is dated Northampton, September the 3rd, 1642. In this letter he says: "Wensday (that was the 31st of August) wee kept the fast and heard two sermons, but before the third was ended we had an alarm to march presently. By ten of the clock we got our regiments together and kept our rendezvous in the City until midnight, and about two in the morning marched out of this City towards Northampton. This City hath four steeples, three churches, two parishes, and not long since but one priest; but now the world is well amended with them. This day our souldiers brought with them three asses which they had taken out of the Lord Dunsmore's Park, which they loaded with their knapsacks and dignified them with the name of the Lord Dunsmore. This day being Thursday (September the first) we marched over Dunsmore Heath, near twelve miles without any sustenance, until we came to Barby, in Northamptonshire, where the country, according to their ability, relieved as many of us as they could. Our soldiers pillaged the parson of this town, and brought him away prisoner with his surplice and other relics." He then described his further march and the pillage of "malignants," as the Royalists were termed. In a letter from Worcester, dated September 26th, he says: "This even we had tidings that Killingworth Castle in Warwickshire, six miles from Coventry, was taken with store of ammunition and money, and some prisoners, their number uncertain; the rest fled, and the country pursued them, and wanted but the assistance of Coventry to have destroyed them all." This incident is alluded to by Anthony Wood in the life

of Sir William Dugdale, as follows, a somewhat different version from that given by Wharton:—"During the King's stay at Stonely, the city of Coventrie continuing thus rebellious, Warwick Castle also being manned by L<sup>d</sup> Brooke, as hath been observed his Mat<sup>ie</sup> upon his return to Nottingham placed two companies of foot and one of Dragoons in his castle of Kenilworth (the strongest fort in all the Midland parts) lying in the midway betwixt Coventry and Warwick. But w<sup>th</sup>in a few days after having intelligence that the power of the rebels in that countie did dailie increase, and fearing that those souldiers thus put into Kenilworth Castle might be distressed by a siege, he sent two troopes of Horse and one of Dragoons to fetch off those men with their armes and ammunition. And because he knew the said Mr. Dugdale to be well acquainted with the roades and wayes in that county, appointed him to accompany Sir Richard Willys who commanded that party, as his guide, purporting to bring them off as privately as might be. To which end they marching from Mount Sorrell in Leicestershire on Sunday morning, they came about ten of the clock at night to Kenilworth, and though they made such haste in getting carriages for their ammunition, as that they marcht out of that castle by seven of the clock the next morning: Nevertheless by intelligence given to the rebels in Coventrie, such numbers of those with Horse and Foot pursued them, as that they were constrain'd to make a stop in Cudworth Field (two miles northward of Coleshill) to encounter them, when they chardged these rebels (though five to one in number) so stoutly that they put them to the rout and tooke some of them prisoners, whom they brought that night to Tamworth, and the next morning to Tutbury Castle; the sayd Mr. Dugdale hasting immediately to Nottingham to acquaint the King therew<sup>th</sup>." Northampton was the rendezvous of the Parliamentary army under the Earl of Essex, and Wharton goes on to say in the same letter, written by him from Worcester—"Wednesday, Sept. 14th, our forces, both foote and horse, marched into the field, and the Lord General viewed us both front, rear, and flank. This evening, contrary to expectations, our regiment marched five miles north-east unto Stratton (Spratton), where we, and as many as could, billited in the town; the rest quartered thro the country." As the King had set out from Nottingham on his march to Shrewsbury, the Earl of Essex determined to march on a



parallel line from Northampton to Worcester. Some account of this is recorded by Wharton. "Munday morning (19th September), our regiment began to march towards Warwickshire, and passed through Wes Haddon Creeke and Hill Morton, where we had a supply of drink, which upon a march is very rare and extraordinary welcome, and at the end of ten miles we came to Rugby, in Warwickshire, where we had good quarter. At this town Mr. Norton (Nalton) formerly preached. This town also was lately disarmed by the Cavaliers on the Sabbath day, the inhabitants being at church. Tuesday morning (20th September), our regiment marched two miles unto Dunsmore Heath, where the Lord General and his regiment met us, as also the Lord of Stanford, Colonel Cholmley, and Colonel Hampden, with many troops of horse and eighteen field pieces, where we kept our rendezvous until even." [It is not difficult to fix on the spot where this rendezvous was held; it was, I think, where the road from Rugby to Dunchurch joins the turnpike road from Northampton to Dunchurch, near to Bilton Grange, and, as the mile post shows, just two miles from Rugby.] The writer then continues: "When we had tidings that all the malignants in Worcestershire, with the Cavaliers, were got into Worcester, and fortified themselves, whereupon we marched six miles unto Baggington, within two miles of Coventry. This night the rest of our regiments quartered about the country. Wednesday morning we marched towards Warwick, leaving Killingworth Castle upon the right, and after we had marched six miles our forces met again and quartered before Warwick until forty pieces of ordnance, with other carriages, had passed by, in which time I viewed the antiquities on this side Warwick at Sir Guy's cave, his chapel, and his picture in it (meaning no doubt that gigantic sculptured representation of the 14th century of an armed warrior or knight which still, though in a mutilated condition, is there to be seen), his stables all hewn out of the main rock, as also his garden, and two springing wells whereat he drank as is reported. From hence our regiment marched through Warwick in such haste that I could not view the town, but had only a sight of the Castle, which is very strong, built upon a mighty rock, whereof there are store in this country. This night we marched two miles further, unto Burford (Barford), where our quarter was as constantly since his excellency's coming. It is very poor, for many of our

soldiers can get neither beds, bread, nor water." On Thursday they marched ten miles, to Assincantlo (Aston Cantlow), "where," says he, "we could get no quarter, neither bread nor drink, by reason of the Lord Compton's late being there." On Saturday, the 24th of September, they marched into Worcester. I must now proceed with the "*Iter Carolinum*." The King having, whilst at Shrewsbury and Chester, increased his forces considerably, though many of them were ill-armed, commenced his march towards London. Leaving Shrewsbury on the 12th of October, 1642, he proceeded to Bridgenorth; from whence, on the 15th of that month, he went to Wolverhampton; thence, on the 17th, to Breichem (Birmingham), to the mansion of Sir Thomas Holt, Aston Hall; on the 18th he went to Packington, the house of Sir Robert Fisher; on the 19th to Killingworth (Kenilworth.) Whether the castle was then garrisoned by the forces of the Parliament or abandoned by them, whether for the night he took up his abode in the castle or elsewhere, the writer of this *Iter* does not inform us. Lord Clarendon, however, states that it was "a house of the kings and a very noble seat;" so I conceive it must have been the castle—no longer the Sebastapol of the Midland Counties, as in the reign of Henry III., but a more palatial and less defensive residence. He was now with his army between the two hostile garrisons of Coventry and Warwick Castle. On the 21st of October he proceeded with his army to Southam, probably crossing the Avon at Chesford Bridge. At Southam he issued a Proclamation, which I have before me. On the 22nd of Oct. he proceeded to Edgcott, Prince Rupert taking up his quarters the same night at Wormleighton, at a fine mansion belonging to the Spencer family, now in ruins. There is an anecdote related by Dr. Thomas, in the continuation of the Antiquities of Warwickshire, by Sir Wm. Dugdale, which I shall do well here to mention. He speaks of Mr. Richard Shuckburgh, of an ancient family in Warwickshire, the possessor of the Shuckburgh estates in this county in the time of the Civil Wars, as in no way inferior to his ancestors, and then goes on to say, "As Charles I. marched to Edgcot, near Banbury, on the 22nd October, 1642, he saw him hunting in the field, not far from Shuckburgh, with a very good pack of hounds, upon which, it is reported, that he fetched a deep sigh and asked who that gentleman was that hunted so merrily that morning, when he was going to fight for his crown



and liberty; and being told that it was this Richard Shuckburgh, he was ordered to be called to him, and was by him very graciously received, upon which he went immediately home, armed all his tenants, and the next day attended him on the field, where he was knighted, and was present at the Battle of Edgehill. After the taking of Banbury Castle, and his Majesty's retreat from those parts, he went to his own seat and fortified himself on the top of Shuckburgh Hill, where, being attacked by some of the Parliamentary forces, he defended himself till he fell with most of his tenants about him, but being taken up and life perceived in him, he was carried away prisoner to Kenilworth Castle, where he lay a considerable time, and was forced to purchase his liberty at a dear rate." There is in the Church of Upper Shuckburgh, a monumental bust of this Warwickshire worthy and staunch Royalist, representing him, not unlike the portraits of Charles I., with a moustache and piked beard, according to the fashion which prevailed. Next to the monumental bust of the greatest of the Warwickshire worthies, whose birthday is this day held in commemoration, this bust of Sir Richard Shuckburgh, in the Church of Upper Shuckburgh, is of all the monumental busts in the Warwickshire Churches, and they are not few, the most interesting. On the eve of the memorable 23rd of Oct., 1642, the main body of the King's army lay encamped on the southern side of the Cherwell, between Edgcot and Cropredy. Prince Rupert, who commanded the rear, had his quarters at Wormleighton. The King had left Shrewsbury on the 12th of October. The Earl of Essex, who commanded the Parliamentary army, marched on the 14th of October from Worcester, with his forces, to meet those of the King. On the eve of the 23rd of Oct. the Earl of Essex, with the main body of his forces, reached Kineton, in the vale at the foot of the Edgehills. Prince Rupert had stationed picquets on the Burton Dassett Hills, and by these the fires of the Parliament's picquets were seen in the vale near Kineton. Prince Rupert immediately sent to inform the King, whose army was thereupon ordered to rendezvous on Edgehill. This was about three on the morning of Sunday, the 23rd of October. The main body of the King's army crossed the Cherwell at Cropredy Bridge, taking the road through Mollington and Warmington to Edgehill. Some of Prince Rupert's horse from Warmington reached Edgehill before eight o'clock in the

morning, and their appearance on the brow gave the first intelligence to Essex of the proximity of the King's army. The latter was nominally commanded by the Earl of Lindsey; his counsel was that of a prudent commander, but Prince Rupert refused to receive orders except from the King. The army descended the hill; Prince Rupert commanding the cavalry of the right wing. There are several accounts of this battle, written within a day or two after it took place; one of these is the official account sent to the Parliament, and by it ordered to be printed and published, which it was on the 28th of Oct., five days after the battle. This account thus published I have before me. I am not going to enter into all the details of this battle, of which both sides claimed the victory. At the onset the cavalry of the King's right wing, commanded by Prince Rupert, routed the left wing of the Parliamentary army and pursued them to Kineton, where the baggage was left, which they began to plunder, thereby losing much valuable time, for the King's centre was defeated by the Parliamentary centre, the Earl of Lindsey mortally wounded, the King's Standard bearer killed, and the Royal Standard taken (though this was afterwards recovered by Captain Smith), and much confusion seems to have prevailed in both armies. The battle did not commence till three o'clock in the afternoon, and in a few hours darkness put an end to the contest, without any decided success by either army. Both armies kept the field during the night, and the next morning faced each other, but without renewing the fight. The number of slain was variously computed from 1,000 to 5,000; it was probably below the former number. The immediate result, however, was in favour of the Royal cause, for Essex, contrary to the advice of Hampden, Hollis, and Brook, withdrew his forces to Warwick, whilst the King marched to Banbury, then an important garrison of the Parliamentarians, which surrendered to him without a blow. In this battle, William Earl of Denbigh was on the side of the King, whilst his son (the Lord Fielding, afterwards Basil Earl of Denbigh) commanded forces in the right wing of the Earl of Essex's army. In the official account, to which I have alluded, sent up by the Parliamentarians to the House of Commons, their army is stated to have consisted of 11 regiments of Foot, 42 troops of Horse, and about 700 Dragoons—in all, about 10,000 men. In this account they say, "The Earl of Linsey, his

son (the Lord Willoughby), and some other persons of note, are prisoners. Sir Edmund Varney, who carried the King's Standard, was slain by a gentleman of the Lord General's troop of Horse, and the Standard taken, which was afterwards by the Lord Generall himself delivered unto his Secretary (Mr. Chambers) with an intention to send it back the next day unto His Majesty; but the Secretary, after he had carried it long in his hand, suffered it to be taken away by some of our troopers, and as yet we cannot learn where it is. By this time it grew so late and dark, and to say the truth, our ammunition at this present time was all spent, that we contented ourselves to make good the field, and gave them liberty to retire up the hill in the night." It is to be observed that the 23rd October old style, would answer to the 4th of November, and that between four and five in the afternoon, darkness would prevail. I do not think this battle could have lasted much more than two hours. As to numbers, as far as I have been able to collect, the forces of both armies were about equal. In a short view of the late troubles in England, by Sir William Dugdale, the following account is given, in which the truth of the Parliamentary account is contested:—"So that on Sunday, the xxiiij<sup>th</sup> of October, being in view of the King's forces, they put their army in order near Kineton, in Warwickshire, and bid his Majesty battel, by a signal thereof given with their great ordinance, wherewith they made five shot at his army, before any fire was given on the other part. But then began a sharp encounter which continued near three hours, wherein God so preserved his Majesty, that instead of being utterly destroyed by these violent rebels, who reckoned all their own; their invincible army (as they esteem'd it) was so bruis'd and shattered, that, instead of further pursuing the King, it retreated eight miles backwards, where the soldiers secured themselves many days by the advantage of the river Avon, under the protection of the town and castle of Warwick. To the end thereof that their (the rebels) party might not be disheartened, they always took care not only to suppress any bad tidings, but to puff up the people with strange imaginations of victories and conquests, by producing forged letters, counterfeit messengers, and the like, as was manifest by their committment (25 Oct.) of sundry persons to prison, which came from Kineton Battel, and reported the very truth of the King's success there, viz., Captain Wilson, Lieutenant Witney, and Mr.

Banks, who were all sent to the Gatchouse to receive punishment. As also (29 Oct.) one Mr. John Wentworth, of Lincolns Inn, and (1 Nov.) Sir William Fielding Knight, giving (25 Oct.) twenty pounds to one man by order of the House, who came and reported that most that were killed in the battel were of the King's side; and that the Earl of Essex commanded him to tell his friends that he with his own hands carried away the King's standard. But to undeceive the world as to the number on both sides slain (which were then confidently given out to be five thousand,) most certain it is, that, upon strict enquiry from the adjacent inhabitants who buried the bodies and took particular notice of the distinct number put into each grave, it appears that there were not one thousand complete there interred. As the remaining part of the Parliament army after this battel finding not themselves in a condition to encounter the King again without new recruits, and therefore made a fair retreat no less than eight miles backwards (as hath been observed), so did some of them before the fight standing doubtful of the success, forbear to adventure themselves therein; amongst which the after famous Oliver Cromwell was one (if some of the most eminent persons of his own party who were in the fight bely him not), who being Captain of a troop of horse in the General's Regiment, came not into the field, but got up into a steeple within view of the battel, and there discerning by a prospective glass the two wings of their horse to be utterly routed, made such haste to be gone that, instead of descending the stairs by which he came up, he swing'd down by a bell rope, and ran away with his troop." I need hardly say that this story of Oliver Cromwell may be considered as altogether apocryphal. The church steeple is said to be that of Burton Dassett church. The re-taking of the Royal Standard by Captain John Smith, a native of Skilts, in this county, and of one of whose former exploits I gave an account in my last paper, is particularised at length in that scarce work, on the life of this worthy, I adverted to before. From this I give an excerpt. At Keinton Captain Smith's troop at that time being in the Lord Grandison's Regiment, was drawn up in the left wing of the King's army. After several charges there were no more left than himself and one Chickly, a groom of the Duke of Richmond, the rest of his troop following the pillage of the routed rebels. "As these two," so says the historian, "were passing on toward o'm"



army, this mirror of chivalry espied six men (three cuirassiers and three arquebusiers) on horseback, guarding a seventh on foot, who was carrying off the field a colour rolled up, which he conceived to be one of the ordinary colours of his Majesty's Life Guards, and therefore, seeing them so strong, intended to avoid them; whilst he was thus considering, a boy on horseback calls to him, saying, 'Captain Smith, Captain Smith, they are carrying away the Standard!' He would not suddenly believe the boy, till by great asseverations he had assured him it was the Standard; who forthwith said, 'They shall have me with it if they carry it away,' and desiring Chickley if he saw him much engaged, in with his rapier at the footman that carried the banner (who was then secretary to Essex, the rebels' general), saying, 'Traitor! deliver up the Standard,' and wounded him in the breast. Whilst he was bent forward to follow his thrust, one of those cuirassiers with a pole-axe wounded him in the neck through the collar of his doublet, and the rest gave fire at him with their pistols, but without any further hurt than blowing of some powder into his face. No sooner was he recovered upright but he made a thrust at the cuirassier that wounded him, and run him through the belly, whereupon he presently fell, at which sight all the rest ran away. Then he caused a foot soldier that was near at hand to reach him up the banner, which he brought away, with the horse of that cuirassier. Immediately comes up a great body of his Majesty's horse, which were rallied together, with whom he staid, delivering the Standard to Master Robert Hatton, a gentleman of Sir Robert Willyes's troop, to carry forthwith to his Majesty. The next morning, King Charles sent for him to the top of Edgehill, where his Majesty knighted him for his singular valor." He subsequently, with a small party of horse, brought off three brass pieces of cannon that stood about the left wing of the rebels' army in the battle. This worthy knight banneret, on the 29th of March, 1644, was mortally wounded in an engagement at Bramdean, near Aylesford, in Hampshire, and died the following day at Andover, and on the first of April his body was interred with military honours in the south-east corner of the chapel on the south side of the choir in Oxford Cathedral. There is one singular occurrence connected with this battle, which ought to be noticed. On the extreme north-western point of the Burton Dassett hills, which project into the vale of Kineton, was and still

is an ancient Beacon Tower, a structure of the 15th century, and now perhaps unique of its kind. It is of stone, circular in its form, 62 feet in girth at the base, and 15 feet in height to the top of the parapet, rising from within which is a conical roof formed entirely of stone. Now the Parliament had given orders for firing the nearest beacon whenever the Earl of Essex might overtake the King. The smoke by day and the light by night was to be the signal which the country people on the heights up to London were by proclamation directed to repeat. On Sunday night, after the battle had ceased, a party of the Parliamentary troops ascended the Beacon hill at Burton Dassett and fired the beacon, and a tradition is preserved that some shepherds on a part of the high ridge over Ivinghoe, on the borders of Buckinghamshire and Hertfordshire, forty miles in a direct line from Edgehill, saw a twinkling light to the north-westward, and upon communication with their minister, one of the Presbyterian party and in the phrase of the times denominated "a godly and well affected person," fired the beacon there also, which was seen at Harrow-on-the-Hill, and thence the intelligence was at once carried to London. Another anecdote or two respecting the battle will bring my paper to a conclusion. The battle commenced on a Sunday afternoon, when the villagers of Tysoe and Oxhill were in church. At one of these villages the clerk, on hearing the report of the first cannon, exclaimed, with an expletive which I need not repeat, "They're at it!" and rushed out of the church, followed by the congregation. At the other village a tailor ran off towards the field of battle to see, as he said, the fun. He was evidently unacquainted with or had forgotten that sage maxim, turned into Hudibrastic verse by one Butler, a Justices' clerk—

" They who in quarrels interpose,  
Will oftentimes get a bloody nose."

and so it was in this case, the poor tailor returned home mortally wounded, having received a sword cut from one of the Parliamentary troopers in a vital part of his body. An officer in the Royal army was seen ascending the hill on a white horse, which rendered him a conspicuous object at a distance. A gunner in the Parliamentary army aimed his field-piece at him, fired it, and the ball struck the officer in the thigh and mortally wounded him, and he was buried in the churchyard at Radway. Twenty-

eight years after this event a monument was erected to his memory, of which the following account is given by Dr. Thomas, in his edition of "The Antiquities of Warwickshire. &c.," published in 1730:—"On the ground in the churchyard there lies the statue of a man booted and spurred, and in his armour, leaning his head on his right hand, over which, upon four pillars, there was set a large marble tombstone, which is now removed into the Chancell, and hath this inscription upon it:—'Here lyeth expecting ye second comeing of our Blessed Lord and Saviour, Henry Kingsmill, Esq., second son to Sir Henry Kingsmill, of Sidmonton, in the County of Southampton, Knt., who serving as a Captain of Foot under his Mat<sup>e</sup> Charles the First of blessed memory, was at the Battell of Edge Hill, in ye year of our Lord 1642, as he was manfully fighting in behalfe of his King and country, unhappily slain by a Cannon bullet. In Memory of whom, his mother, the Lady Bridget Kingsmill, did in the forty-sixth yeare of her widowhood, in the year of our Lord 1670, erect this monument.'" I have fought a good fight, I have finished my course, henceforth is laid up for me a crown of righteousness.'" No portion of this monument is now existing in the Churchyard at Radway, but in the Church is, or was a few years ago, preserved the interesting reclining but mutilated effigy, for the helmet, legs, feet, and left hand are gone, exhibiting the Royalist as attired in trunk hose, a buff coat, a scarf crossing from the right shoulder to the left thigh, and a loose falling cravat about the neck. The latter shews the change in fashion between 1642 and 1670, and the sculptor has taken his notion of military costume from that existing at the time this monument was erected rather than that of the time when the cannon bullet proved fatal. I need hardly add that this effigy, though mutilated, and of a comparatively late period, is, in my opinion, one of the most interesting in this county. As such, I have had it drawn and engraved by a competent artist. I have endeavoured to take a chronological view of affairs, and there is still enough matter, subsequent to this battle, relative to the civil wars in this county to form a subsequent paper. The so-called battle of Birmingham, the attacks on Compton House and Aston Hall, the fortification and arming of the Castles of Warwick and Tamworth and the principal mansion houses in this county, the movement of troops, the names of those of



the nobility and gentry of this county who, on the one side or the other, took a conspicuous part in these troublous times, of those who as Royalists had to compound for their estates, and of the flight of Charles the Second in disguise through this county after the fight at Worcester in 1651. Then of the restoration, the reaction, the demolition of the walls of Coventry, and the St. Bartholomew's Act of 1662, which latter, though stigmatised by some as harsh and savouring of intolerance, has been by others considered as an act of retributive justice on that party which had plundered, insulted, ejected from their livings many of the clergy of the Church of England, and had proscribed the Book of Common Prayer.

The Annual Winter Meeting of the WARWICKSHIRE NATURALIST'S AND ARCHÆOLOGIST'S FIELD CLUB was held at the Museum, Warwick, on the 20th of February, 1868.

The President read the report of the year 1867, and regretted his inability to prepare a special paper for the Club, but gave a short *viva voce* Archæological address, in which he especially alluded to the exploration of Palestine, now in progress.

The Rev. P. B. BRODIE, M.A., F.G.S., (Vice-President and Hon. Sec.) then read an interesting paper, entitled "a sketch of the Lias generally in England, and of the "Insect and Saurian beds," especially in the lower division in the counties of Warwick, Worcester, and Gloucester, with a particular account of the fossils which characterize them.

Mr. W. G. FRETTON read a paper on "Buried Coventry."

Dr. CORFIELD afterwards gave a short *viva voce* account of the Extinct Volcanoes of the Eifel.

An animated discussion took place on some of the above papers, in which Messrs. Bloxam, Brodie, Parker, and Wyles took part.

A paper was also read by the PRESIDENT (for the Rev. W. Johnson), on "The advantages of literary and scientific inquiries, local museums, and local observations, and on the aids which might be found for them."

Mr. Parker referred to the loss which science had sustained in the death of Dr. Daubeny, Professor of Botany at Oxford; and made some remarks on the river Moselle.

Mr. BRODIE alluded to the discovery of a new reptile, the *Hyperodapedon*,\* in the lower Keuper at Coten End, Warwick, two portions of jaws, with teeth, being in the Warwick Museum, and two (one of which shows a considerable portion of the cranium) in Mr. Brodie's collection. The others belong to Dr. Lloyd. They are of special interest, because they determine the age of the long-disputed Elgin sandstone in Scotland, which, having been supposed to belong to the Old Red Sandstone, must now be placed higher up in the New Red. These were determined by Professor Huxley, who has also obtained a fine series of remains of the same animal from Africa, India, and Scotland, and have been described by him in the last number of the Journal of the Geological Society.

The Club held their first summer meeting on Tuesday, May 26th, 1868, at Coventry. The object of the visit was to inspect the many and interesting mediæval remains for which this city is so famous. The ancient Manor House of Cheylesmore, where Edward the Black Prince occasionally resided; the great Park hollow, scene of the martyrdoms under the Marian and previous persecutions; the city wall; St. Mary's hall; and the spot where the Cathedral once stood were successively visited.

Mr. W. ODELL gave an account of the discovery of the remains of the west end, and the result of the excavations made at different times in the neighbourhood.

An interesting address on the History and Antiquities of the City was afterwards delivered by Mr. Parker, in which the most notable features were the account of the founding of the Priory by Lady Godiva, and a critical examination of the legendary story of her ride through the city, which he

\* They belong to one species, '*Hyperodapedon Gordoni*,' Huxley.

showed, from good authority, to be fabulous; the erection of St. Michael's, and the walls of the city.

The summer meeting was held at Oxford, on June 24th, 1868.

The Club was greatly indebted to Mr. Parker and Professor Phillips for their kind hospitality and the service they rendered in guiding them to the most interesting localities, and explaining the various sections *en route*. This made their visit to Oxford particularly agreeable and instructive, and one long to be remembered in the annals of the Club.

The last meeting was held at Harbury, on August 28th, 1868. The members carefully examined the fine and instructive Lias section on the line of railway, the details of which were pointed out by the Rev. P. B. Brodie, and as a full account has already been given by him in a former number of the proceedings, no further details need be added here. It affords an instructive ascending section from the red marl (N. R. S.) to the Lima beds, the white lias intervening, which the members traced up and obtained several of the characteristic fossils, the local *Pecten Pradoanus* being the most remarkable, a shell hitherto only noticed in the Lias in Spain.

# Additions to the Museum and Library.

## GEOLOGY.

### DONATIONS.

- Ilænus perovalis*, Lower Llandeilo flags, Rilton, Castle, Shropshire.  
 Piece of Red Chalk, Hunstanton.  
*Sarcinula Phillipsii*, Mountain Limestone, Corwen, Wales.  
*Cyathophyllum paracida*, ditto, ditto.  
 Group of *Ogygia Buchii*, Llandeilo flags, Llandeilo.  
 Conglomerate of Gravel, (Mother Stones), from Henley-in-Arden.  
*Presented by G. R. Dartnell, Esq.*  
 Spines of *Cidaris*, "Guinea" Bed, from Stretton-on-Dunsmore.  
*Presented by R. F. Tomes, Esq.*  
*Ammonites Rotiformis*, from Stockton. *Presented by J. W. Kirshaw, Esq.*

*Presented by  
 the Rev.  
 P. B. Brodie.*

## LIBRARY.

### DONATIONS.

- Copy of Speed's Map of Warwickshire, 1610. *Presented by J. W. Kirshaw, Esq.*  
 Catalogue of the Collection of Works of Art and Vertu, formed by the late Mr. Charles Redfern, of Warwick. *Presented by the Executors of the late Mr. Redfern.*

## MISCELLANEOUS.

### DONATIONS.

- Male and Female "*Sarcoramphus Conder*." *Presented by Dr. O'Callaghan LL.D.*  
 Skull of the "*Bor Longipues*," and the "*Lusserofa*," from the Drift, near Alcester. *Presented by R. F. Tomes, Esq.*  
 Green Lizard, from South of Europe. *Presented by Dr. O' Callaghan, LL.D.*

Two Parakeets from Australia: *Eos Swainsoni*, *Eos. Peunanti*.

*Presented by a Lady, from Mr. Aspa, through the hands of Dr. O'Callaghan, LL.D.*

Casts (1) Babylonian Cylinder, c. 2050 B.C:

(2) Phœnectian Inscription (original in British Museum).

*Presented by C. D. Greenway, Esq.*

Roman Sepulchral Urn, found at Snitterfield. *Presented by Mr. Callaway.*

Stag Horn, from Drift at Chadbury. *Presented by J. W. Kirshaw, Esq.*

Eight Horses' Teeth, found in digging the foundation of a new House at Welcombe, near Stratford-on-Avon. *Presented by Mr. Callaway.*

## LIBRARY.

### PURCHASES.

Annals and Magazine of Natural History. Vol. 2 and 3. 4th series.

Camden Society's Publications:—

No. 96. Sir Kenelm Digby's Voyage, 1628.

No. 97. Dingley's History from Marble. Part II.

No. 98. Relations between England and Germany, 1619—20.

Manningham's Diary.

Dugdale's Antiquities of Warwickshire, in 2 vols., 1730. Revised by William Thomas, D.D.,

Lyell's Principles of Geology. Vol. 1 and 2.

Murchison's Siluria, fourth edition.

Geological Magazine, 47 to 58.

Palæontographical Society's Publications:—

Vol. 22.—Supplement to the Fossil Corals. Part II, No. 1. Cretaceous.

Fossil Merostomata. Part II. Pterygotus.

Fossil Brachiopoda. Part VII, No. 3. Silurian.

Belemnites. Part IV. Liassic and Oolitic Belemnites.

Reptilia of the Kimmeridge Clay. No. III.

Pleistocene Mammalia. Part III.

Popular Science Review. Part 29 to 32.

Ray Society's Publications:—

The Miscellaneous Botanical Works of Robert Brown, Esq.  
D.C.L., F.R.S., &c. Vol. III. Atlas of Plates.

Vegetable Teratology. Mr. T. Masters.

# GENERAL FINANCIAL STATEMENT,

FROM 31st MARCH, 1868, TO 31st MARCH, 1869.

## Income.

|                                                                 |    |    |      |
|-----------------------------------------------------------------|----|----|------|
| 1868.                                                           | £. | s. | d.   |
| 31st Mar.—To Balance of last account                            | .. | 74 | 11 2 |
| 1869.                                                           |    |    |      |
| 31st Mar.—Amount received during the year for Subscriptions, .. | 71 | 8  | 0    |
| Arrears .. .. .                                                 | 1  | 1  | 0    |
|                                                                 |    | 72 | 9 0  |
| Received for admission to Museum..                              |    | 7  | 13 6 |

|                                                    |     |    |   |
|----------------------------------------------------|-----|----|---|
| To Balance.....                                    | £49 | 18 | 3 |
| Of which £1. is deposited on Library Account ..... | 1   | 0  | 0 |
| (Mr. Garner, 10s.; Mr. Kitchener, 10s.)            |     |    |   |
|                                                    | £48 | 18 | 3 |

## Expenditure.

|                                                 |    |    |           |
|-------------------------------------------------|----|----|-----------|
| 31st March, 1869.                               | £. | s. | d.        |
| Insurance .. .. .                               | .. | .. | 0 16 6    |
| Attendant's Salary .. .. .                      | .. | .. | .. 20 0 0 |
| Coal and Firing .. .. .                         | .. | .. | .. 2 16 5 |
| Printings (including Reports) and Stationery .. | 11 | 2  | 2 2       |
| Fittings and Repairs .. .. .                    | .. | .. | 7 19 11   |
| Preserving and repairing Objects .. .. .        | .. | .. | 9 15 2    |
| Books, Binding, &c., .. .. .                    | .. | .. | 6 13 0    |
| Dugdale's Antiquities of Warwickshire, 2 vols.  | 28 | 0  | 0         |
| Subscriptions to Societies .. .. .              | .. | .. | 3 2 0     |
| Postage, Circulars, &c., .. .. .                | .. | .. | 2 10 7    |
| Carriage of Parcels .. .. .                     | .. | .. | 0 7 9     |
| Incidental Expenses, Cleaning, &c... ..         | .. | .. | 6 7 5     |
| Poor's Rate .. .. .                             | .. | .. | 1 12 0    |
| Collector's Commission .. .. .                  | .. | .. | 3 12 6    |
|                                                 |    |    | £104 15 5 |
|                                                 |    |    | 49 18 3   |
|                                                 |    |    | £154 13 8 |

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The MUSEUM is open daily to the Members and their Friends from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

Non-Subscribers are admitted on payment of an admission fee of sixpence each.

The Museum is free to the Inhabitants of Warwick on Mondays and Tuesdays.

The Annual Subscriptions for 1869 are due on the 24th day of May; and the Council request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.







*duplicate*

*S. 386.*

WARWICKSHIRE  
NATURAL HISTORY

AND

Archæological Society.

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THIRTY-FOURTH ANNUAL REPORT.

April, 1870.



WARWICK:

PERRY, PRINTER, NEW STREET & OLD SQUARE.





WARWICKSHIRE  
NATURAL HISTORY  
AND  
ARCHÆOLOGICAL SOCIETY,

ESTABLISHED MAY 24<sup>TH</sup>, 1836.

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THIRTY-FOURTH ANNUAL REPORT  
OF THE COUNCIL TO THE SUBSCRIBERS,  
READ AT THE  
ANNIVERSARY MEETING, APRIL 22<sup>ND</sup>, 1870.

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In presenting the annual report, the Council congratulate the Members on the continued prosperity of the Society.

Some valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.

The fine example of the "Megacerous"—"Fossil deer of Ireland," from Lough Gur, near Limerick, which was presented to the Society by the late Richard Greaves, Esq., is now placed in the Geological room of the Museum.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon hill, Hordwell, Barton, and Bracklesham. London Clay Fossils from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

#### ARCHÆOLOGY.

The Roman Coffin, found in the excavation for the railway near Alcester, which was purchased for the Society, has been set up at the entrance-door of the Museum.

#### BRITISH MAMMALIA.

Although no addition has been made to the British Mammals since last year, we devote this paragraph to the



collection, hoping that we may thereby meet with assistance in its completion. Unlike British Birds, which migrate, and which therefore in some species can only be obtained as stragglers, the Mammals are resident, and though some, are rarer than others, *all* may be obtained with tolerable certainty, by those residing in such parts of the country as they are known to inhabit. With the exception of the marine species, such as the Whales and Porpoises, there are none which might not take their place in our collection of British feræ. We have already some of the largest of the land animals, as the Red Deer and Roebuck, both presented by Edward Greaves, Esq. A mounted specimen of the Fallow Deer, and of the two kinds of Martin, *i.e.* the yellow breasted and the white breasted Martin, would go far towards the completion of the terrestrial Mammalia of Great Britain. We earnestly hope that some friends to this Institution will kindly furnish one or other of these desiderata. Of the smaller kinds, such as the Shrews and Bats, a few kinds are wanting, but these the Curators believe they shall before long be able to supply.

### ENTOMOLOGY.

The Entomological collection is in the course of arrangement in the New Cabinet, the Aculeate Hymenoptera, occupying nine drawers, are already arranged, and it is proposed shortly to commence on the Coleoptera.

The majority of scientific Entomologists residing in or near London, have confined their researches principally to the Metropolitan district or to the Southern counties of England; consequently the Midland counties present an almost unworked field, which must contain very many interesting novelties.

Warwickshire from its high state of cultivation has but few waste spots, on which Insects usually abound, but its

varied soil and numerous woods will doubtless yield great results to the efforts of a zealous collector. Those of our members living in the country are earnestly solicited to preserve and forward to our Curators any specimens that may fall in their way. Lepidoptera may be captured in pill-boxes and killed by means of a few drops of Chloroform. Coleoptera and other orders should be put into a bottle in which has been previously placed a small quantity of bruised laurel leaves, the prussic acid contained in the leaves not only very quickly killing the Insects but also preserving them fresh, and in a state for setting for a considerable length of time.

#### ORNITHOLOGICAL COLLECTION.

When the repairs of the Museum were brought to a close, the room containing the collection underwent a thorough cleaning, and the specimens were taken out, examined, carefully cleaned, and returned to the cases. The windows of the rooms, the approaches to which were awkwardly blocked up with cases, were relieved of their obstructions, the specimens which were in these cases being transported to their proper places in the series to which they respectively belonged. But the most important change which has been made in this department, is the separation of the British from the Exotic species. In nearly all the extensive Natural History Museums in Europe the native species are now fostered as a distinct collection. Such has lately been the case in our National Museum, and whereas the observer had before this change to seek laboriously through thousands of birds, from every clime, for the isolated specimens which had formed the collection of some celebrated Naturalist,—as for instance that of Colonel Montague,—he may now see them all placed side by side in the gallery devoted to British Zoology. And with them

he may also see ranged the gems from the collection of the late Mr. Yarrell. The advantage of such an arrangement is obvious.

It has been observed, with great truth, "that you cannot vie with the larger Museums in a general collection, but you may *excel* them if you confine yourselves to a purely local collection." Fully agreeing with this opinion, the Hon. Curators, while enlarging the collection of British Birds, purpose to do so, as much as possible, by means of specimens obtained in Warwickshire, or the contiguous Counties. They offer these remarks in the hope that the friends of the Institution will assist them in carrying out their views, by donation of some of the species forming the following list of desiderata :—

#### Order 1. Accipitræss, Linn.

|                              |                                           |
|------------------------------|-------------------------------------------|
| Egyptian Vulture .. ..       | <i>Neophron percnopterus</i> (Linn.)      |
| Griffon Vulture .. ..        | <i>Gyps fulvus</i> (Gmel.)                |
| Rough-legged Buzzard .. ..   | <i>Archibuteo lagopus</i> (Brün.)         |
| Spotted Eagle .. ..          | <i>Aquila navia</i> (Gmel.) Mey           |
| Jer-falcon .. ..             | <i>Falco gyrfalco</i> , Linn.             |
| Red-footed Falcon .. ..      | <i>Tinnunculus vespertinus</i> (Linn.)    |
| Swallow-tailed Kite .. ..    | <i>Nauclerus fercatus</i> (Linn.) Vigors, |
| Goshawk .. ..                | <i>Astur palumbarius</i> (Linn.) Bechst.  |
| Montagu's Harrier .. ..      | <i>Circus cinerascens</i> (Mont.)         |
| Hawk Owl .. ..               | <i>Surnia ulula</i> (Linn.) Bonap.        |
| Snowy Owl [British specimen] | <i>Nyctea nivea</i> (Thunb.)              |
| Little Owl .. ..             | <i>Athene noctua</i> (Retz.)              |
| Great-eared Owl [female] ..  | <i>Bubo maximus</i> , Sibb.               |
| Tengmalm's Owl .. ..         | <i>Nyctale tengmalmi</i> (Gmel.) Strickl. |

#### Order 2. Passeres, Cuv.

|                                 |                                         |
|---------------------------------|-----------------------------------------|
| Alpine Swift .. ..              | <i>Cypselus melba</i> , Linn.           |
| Roller .. ..                    | <i>Coracias garrula</i> , Linn.         |
| Bee-eater [British specimen] .. | <i>Merops apiaster</i> (Linn.)          |
| Dartford Warbler .. ..          | <i>Sylvia undata</i> (Bodd.)            |
| Garden Warbler [female] ..      | <i>Sylvia hortensis</i> (Penn.)         |
| Fire-crested Regulus .. ..      | <i>Regulus ignicapillus</i> , Brehm.    |
| Plain-crowned Kinglet .. ..     | <i>Regulus proregulus</i> (Pall.)       |
| Black Redstart [Brit. specimen] | <i>Ruticilla tithys</i> (Scop.)         |
| Blue-throated Warbler .. ..     | <i>Cyanecula suecica</i> , Linn.        |
| Alpine Accentor .. ..           | <i>Accentor alpinus</i> , Gmel. Bechst. |
| Crested Tit .. ..               | <i>Parus cristatus</i> , Linn.          |
| White Wagtail .. ..             | <i>Motacilla alba</i> , Linn. [vera.]   |
| Grey-headed Wagtail .. ..       | <i>Motacilla flava</i> , Linn.          |

|                                  |                                               |
|----------------------------------|-----------------------------------------------|
| Rock Pipit .. .. .               | <i>Anthus spinoletta</i> (Linn.)              |
| Richard's Pipit.. .. .           | <i>Anthus Richardi</i> (Vieill.)              |
| White's Thrush .. .. .           | <i>Turdus varius</i> , Horsf.                 |
| Rock Thrush .. .. .              | <i>Turdus saxatilis</i> , Linn.               |
| Golden Oriole .. .. .            | <i>Oriolus Galbula</i> , Linn.                |
| Golden-vented Thrush .. .. .     | <i>Pycnonotus aurigaster</i> (Vieill.)        |
| Gt. Ash-coloured Shrike [fem.]   | <i>Lanius Exicubitor</i> , Linn.              |
| Woodchat Shrike .. .. .          | <i>Enneoctonus refus</i> (Briss.)             |
| Nutcracker .. .. .               | <i>Nucifraga caryocatactes</i> (Linn.) Briss. |
| Rose-colored Ouzel [Brit. spec.] | <i>Pastor roseus</i> (Linn.) Temm.            |
| Red-winged Starling .. .. .      | <i>Agelaius phoeniceus</i> (Linn.) Vieill.    |
| Mountain Linnet .. .. .          | <i>Fringilla flavirostris</i> , Linn.         |
| Girl Bunting .. .. .             | <i>Emberiza Cirlus</i> , Linn.                |
| Ortolan Bunting .. .. .          | <i>Emberiza hortulana</i> , Linn.             |
| Lapland Bunting .. .. .          | <i>Plectrophanes lapponicus</i> (Linn.) Selb. |
| Short-toed Lark .. .. .          | <i>Alauda brachydactyla</i> , Temm.           |
| Crested Lark .. .. .             | <i>Alauda cristata</i> , Linn.                |
| Shore Lark .. .. .               | <i>Octocoris alpestris</i> (Linn.)            |
| Parrot Cross-bill .. .. .        | <i>Loxia pityopsittacus</i> , Bechst.         |
| White-winged Cross-bill.. .. .   | <i>Loxia leucoptera</i> , Gmel.               |

### Order 3. Scansores, Ill.

|                              |                                     |
|------------------------------|-------------------------------------|
| American Cuckoo .. .. .      | <i>Coccyzus americanus</i> (Linn.)  |
| Great spotted Cuckoo .. .. . | <i>Oxylophus glandarius</i> (Linn.) |

### Order 4. Columbæ, Lath.

|                          |                                               |
|--------------------------|-----------------------------------------------|
| Rock Dove .. .. .        | <i>Columba Livia</i> , Briss.                 |
| Passenger Pigeon .. .. . | <i>Ectopistes migratorius</i> (Linn.) Swains. |

### Order 5. Gallinæ, Linn.

|                             |                                           |
|-----------------------------|-------------------------------------------|
| Barbary Partridge .. .. .   | <i>Caccabis petrosa</i> (Lath.)           |
| Andalusian Hemipode .. .. . | <i>Turnix gibraltarius</i> (Gmel.) Gould. |
| Virginian Colin .. .. .     | <i>Ortyx virginianus</i> (Linn.) Gray.    |

### Order 6. Struthiones, Lath.

|                       |                            |
|-----------------------|----------------------------|
| Great Buzzard.. .. .  | <i>Otis trada</i> , Linn.  |
| Little Buzzard.. .. . | <i>Otis tetrax</i> , Linn. |

### Order 7. Grallæ, Linn.

|                                  |                                      |
|----------------------------------|--------------------------------------|
| Great Plover .. .. .             | <i>Ædicnemus crepitans</i> , Temm.   |
| Cream-coloured Courser.. .. .    | <i>Cursorius gallicus</i> (Gmel.)    |
| Kentish Plover.. .. .            | <i>Charadrius Cantianus</i> , Lath.  |
| Crane .. .. .                    | <i>Grus cinerea</i> , Bechst.        |
| Great White Heron .. .. .        | <i>Ardea alba</i> , Gmel.            |
| Egret [British specimen] .. .. . | <i>Ardea Gazetta</i> , Linn.         |
| Squacco Heron .. .. .            | <i>Ardea Comata</i> , Pall.          |
| Buffed-backed Heron .. .. .      | <i>Ardea Coromanda</i> , Bodd.       |
| American Bittern .. .. .         | <i>Bataurus lentiginosus</i> , Mont. |
| Spoon-bill.. .. .                | <i>Platalea leucorodia</i> , Linn.   |
| White Stork .. .. .              | <i>Ciconia alba</i> , Briss.         |
| Black Stork .. .. .              | <i>Ciconia nigra</i> , Bechst.       |

|                              |                                               |
|------------------------------|-----------------------------------------------|
| Spotted Redshank .. ..       | <i>Totanus stagnalis</i> , Bechst.            |
| Wood Sandpiper .. ..         | <i>Totanus Glareola</i> (Linn.) Temm.         |
| Avocet .. ..                 | <i>Recurvirostra Avocetta</i> , Linn.         |
| Black-winged Stilt .. ..     | <i>Himantopus Candidus</i> , Bonn.            |
| Buff-breasted Sandpiper.. .. | <i>Tringa refescens</i> , Vieill.             |
| Broad-billed Sandpiper .. .. | <i>Tringa platyrhyncha</i> , Temm.            |
| Schintz's Sandpiper .. ..    | <i>Tringa Schinzii</i> , Brehm.               |
| Pectoral Sandpiper.. ..      | <i>Tringa pectoralis</i> , Say.               |
| Brown Snipe .. ..            | <i>Macroramphus griseus</i> (Gmel.) Leach.    |
| Sabine's Snipe .. ..         | <i>Gallinago Sabini</i> , Vigors.             |
| Red-necked Phalarope .. ..   | <i>Phalaropus hyperboreus</i> (Linn.) Cuvier. |
| Ballion's Crake .. ..        | <i>Ortygometra pygmæ</i> , Naum.              |
| Little Crake .. ..           | <i>Ortygometra minuta</i> , Pall.             |

### Order 8. Anseres, Linn.

|                               |                                               |
|-------------------------------|-----------------------------------------------|
| Spur-winged Goose.. ..        | <i>Plectopterus gambensis</i> (Linn.) Steph.  |
| Common Wild Goose .. ..       | <i>Anser ferus</i> , Gesn.                    |
| White-fronted Goose .. ..     | <i>Anser erythropus</i> (Linn.) Flem.         |
| Pink-footed Goose .. ..       | <i>Anser Brachyrhynchus</i> , Bail.           |
| Bernicle Goose .. ..          | <i>Bernicla leucopsis</i> (Bechst.)           |
| Red-breasted Goose.. ..       | <i>Bernicla ruficollis</i> (Pall.) Steph.     |
| Polish Swan .. ..             | <i>Cygnus immutabilis</i> , Yarrell.          |
| Whistling Swan .. ..          | <i>Cygnus ferus</i> , Ray.                    |
| Bewick's Swan.. ..            | <i>Cygnus minor</i> , Pall.                   |
| American Swan .. ..           | <i>Cygnus americanus</i> , Sharpeless.        |
| Ruddy Shieldrake .. ..        | <i>Casarka rutila</i> , Pall.                 |
| American Wigeon .. ..         | <i>Mareca americana</i> (Gmel.) Steph.        |
| Bimaculated Duck .. ..        | <i>Querquedula bimaculata</i> , Penn.         |
| Gadwall .. ..                 | <i>Chaulelasmus strepera</i> , Linn.          |
| Red-crested Whistling Duck..  | <i>Branta rufina</i> (Pall.) Boie.            |
| Scaup Pochard .. ..           | <i>Fuligula Marila</i> (Linn.) Steph.         |
| Ferruginous Duck .. ..        | <i>Nyroca leucophthalma</i> (Bechst.) Flem.   |
| Harlequin Garrot ... ..       | <i>Olangula histrionica</i> (Linn.) Steph.    |
| Long-tailed Hareld... ..      | <i>Harelda glacialis</i> (Linn.) Leach.       |
| Steller's Western Duck ... .. | <i>Eniconetta Stelleri</i> , Pall.            |
| King Duck ... ..              | <i>Somateria spectabilis</i> (Linn.) Steph.   |
| Surf Scoter ... ..            | <i>Oidemia perspicillata</i> (Linn.) Steph.   |
| Red-breasted Merganser .. ..  | <i>Mergus Serrator</i> , Linn.                |
| Hooded Merganser... ..        | <i>Mergus cucullatus</i> , Linn.              |
| Red-necked Grebe ... ..       | <i>Prodicops griseogen</i> (Bodd.) Lath.      |
| Sclavonian Grebe ... ..       | <i>Prodicops Cornutus</i> (Gmel.) Lath.       |
| Great Auk... ..               | <i>Alca impennis</i> , Linn.                  |
| Manx Shearwater ... ..        | <i>Puffinus Anglorum</i> , Ray.               |
| Cinereous Shearwater ... ..   | <i>Puffinus cinereus</i> , Gmel.              |
| Wilson's Petrel ... ..        | <i>Thalassidroma oceanica</i> , Kuhl.         |
| Forked-tailed Petrel ... ..   | <i>Thalassidroma Leachii</i> , Temm.          |
| Bulwer's Petrel ... ..        | <i>Thalassidroma Bulweri</i> (J. & S.) Gould. |
| Buffon's Squa ... ..          | <i>Stercorarius cephus</i> , Brün.            |
| Common Squa... ..             | <i>Stercorarius catarrhactes</i> , Linn.      |
| Glaucous Gull... ..           | <i>Laurus glaucus</i> , Brün.                 |
| Iceland Gull ... ..           | <i>Laurus leucopterus</i> , Faber.            |
| Little Gull ... ..            | <i>Laurus minutus</i> , Pall.                 |
| Sabine's Gull ... ..          | <i>Xema Sabini</i> , Leach.                   |
| Ivory Gull... ..              | <i>Pagophila eburnea</i> (Gmel.) Kaup.        |



|                         |     |     |     |                                        |
|-------------------------|-----|-----|-----|----------------------------------------|
| Caspian Tern ... ..     | ... | ... | ... | <i>Sterna caspia</i> , Pall.           |
| Gull Lilled Tern ... .. | ... | ... | ... | <i>Sterna anglica</i> , Mont.          |
| Sandwith Tern ... ..    | ... | ... | ... | <i>Sterna cantica</i> , Gml.           |
| Roseate Tern ... ..     | ... | ... | ... | <i>Sterna paradisea</i> , Brün.        |
| White-winged Black Tern | ... | ... | ... | <i>Hydrocheidon nigra</i> , Linn.      |
| Black Noddy ... ..      | ... | ... | ... | <i>Anous stolidus</i> (Linn.) Catesby. |

## BOTANY.

The Council report, with much pleasure, that sufficient money has been raised to purchase the *valuable Herbarium* collected by the late Mr. Perry, and the thanks of the Society are due to those friends who have presented it to the Museum. Through the exertions of the Rev. C. F. Thorneville, lately resident for a short time in Warwick, the Collection has been carefully examined, a report drawn up on the condition of the specimens, and a list made out of the desiderata. The Council have now under consideration the best mode of arranging the Herbarium, and of rendering its contents available for the use of such Botanical students as may wish to consult it.

## LIBRARY.

An opportunity occurred to purchase a very good copy of the second Edition of *Dugdale's Antiquities of Warwickshire*, by Dr. Thomas, of which the Council availed themselves, considering that it was very desirable to have it in the Library for reference.

A Catalogue of Books in the Library has been made, to the 31st December, 1867, and a copy was sent to each Member.

The Council will be glad to receive presents of any works of Local interest, for the Library.

Any member wishing to take a Book from the Library, is particularly requested to see that an entry is made in the book kept for that purpose, which is on the Library table. The date must also be entered when the book is returned.

Before Members are allowed to take Books out of the Library, a deposit of ten shillings is required. Some of the Books cannot be taken away from the Library.

The Accounts for the year have been audited, and the General Financial Statement, to March 31st, 1870, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much might be effected if adequate means were placed at the disposal of the Council. Owing to the losses, by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a less satisfactory condition than could be desired. A reference to the list of subscribers will show that only a few of the rich and influential residents in the County belong to the Society. If the members would solicit annual subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society.



At the Annual Meeting, after the business of the Society was finished, and the Officers for the ensuing year appointed, the following Paper "On the Geology of Warwickshire" was read by the Rev. P. B. BRODIE, M.A., F.G.S.:—

The Geology of the county of Warwick, though in many respects less interesting than that of other counties, still presents many points which are well deserving attention. In order to make it understood by general readers, it will be desirable to consider the strata which occur in regular (descending) order from the highest to the lowest. A very considerable portion of this area is covered by drift,\* often local but wide spread, which belongs to the low level and glacial drifts. The former are to be found along the valley of the Avon, and consist of the usual finer sands and gravels with mammalian remains. At Warwick and Leamington this gravel contains many liassic fossils and pieces of Permian wood, and when the Jephson gardens were being made at the latter town, several fine remains of elephant, rhinoceros, and other mammalia were obtained, associated with some land and freshwater shells. Similar mammalian remains were found at Lawford, near Rugby, especially a fine jaw of 'rhinoceros tichorhinus,' now in the Warwick Museum. There are many other places in the county where drift of

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NOTE.—This Paper is, as near as possible, the substance of a lecture delivered at the Annual Meeting of the Warwickshire Natural History and Archæological Society, on April 22nd, 1870. The Author gave the audience the choice of an extempore address or the reading of the Paper, and the majority being in favour of the former, that course was accordingly adopted. The lecture was illustrated by maps, sections, and diagrams.

\* At the Ford in the Parish of Rowington, there is a bed of fine red and lighter coloured sand, averaging about thirteen feet thick, capped by a thin irregular layer of pebbles, occupying a small area above the brook. It contains no fossils of any kind, and may, perhaps be the equivalent of the deposit (d) referred to by Mr. Lloyd (Proceedings of the Geological Society, No. 102, January, 1870, p. 207), as occurring at Rugby, Leamington, and Warwick, but here there is no trace of the Boulder Clay, though I believe the latter is present near the Asylum at Hatton.

this age occurs with similar fossils.\* Of older date than the above, belonging probably to the glacial period, when extreme cold prevailed over Europe generally, is a very extensive deposit of drift, occupying a wide area over the county, and notably N. and N.W. as far as Birmingham, and west of Warwick. Rounded pebbles and boulders of various sizes and diverse mineral composition, are scattered in more or less abundance over the whole of this tract. There are boulders of sandstone, quartz pebbles, chalk and flints, oolites, some lias, carboniferous limestone, pebbles of lower Silurian age, containing some remarkable fossils identical with those which occur in similar pebbles in the New Red Sandstone at Buddleigh Salterton in Devonshire.† Their presence in the Warwickshire drift may be accounted for in this way: Probably, up to the glacial epoch the upper New Red Marls existed in many places *in situ* and were for the most part denuded by the various oscillations and great changes of level which then took place; and the lower Silurian pebbles contained in it,

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\* I am informed by Mr. Rainbow that in a gravel pit in the parish of Tachbrook many bones, some of them of large size, and an elephant's tooth have been occasionally found, though none of them have been preserved. The larger bones no doubt belonged to some of the now extinct (in this country) mammalia of the period, the tooth was in so friable a condition that it fell to pieces on exposure to the air. It is well to note all the places in this district where such fossils occur in the drift, because hitherto only a few have been recorded. Some specimens which he kindly sent to me were too imperfect to be determined, except a single plate of an elephant's tooth.

† It should be noted here, that most of the fossils in the Buddleigh pebbles have been determined by Mr. Davidson to belong to the Devonian, and very few to be of older date; but the few which I have discovered in the Warwickshire drift are of lower Silurian species, identical with the Devonshire ones. A lingula, which is of a peculiar form, which I lately found at Rowington in a quartzose pebble, he considered to be quite new and distinct from any he had seen from Buddleigh. In the west of England the source of the lower Silurian pebbles seems to have been nearer, some, as Mr. Etheridge points out, being derived from north Devon; but it is possible that during the deposition of the Trias in Warwickshire, the same Silurian rocks may have had a partial extension in this direction, otherwise it is difficult to account for their origin and presence in the New Red Sandstone of this district. The fossils are very scarce, but quartzite and sandstone siliceous pebbles are abundant and widely distributed. Any how, it is not easy to account for the occurrence of what appear to be really older Silurian fossils in the drift here identical with the few species of that age recognised at Buddleigh Salterton.

were again rolled and scattered about over a more or less limited area, and intermingled with the other materials brought from a distance by the agency of ice. These pebbles of course must have been deposited in the New Red Sandstone, in the first instance at a much more ancient period, during the formation of the upper red marls, now almost entirely swept away, coeval with the equivalent Triassic bed in Devonshire; and the inference would seem to be that this great lower Silurian formation, which is now so largely developed in Normandy, and which has left only a remnant in Cornwall, formerly occupied a much larger area in the south-west, and may also have had extensive ramifications towards the north-east. This is only another of the numerous examples of the almost total destruction of a once extensive formation, one of the broken links in the chain of geological evidence, which we often look for in vain, but which when found is of much interest and importance. In this drift are many old metamorphic rocks, probably derived from the north, and is therefore usually called northern drift, but although the fragments of the fossiliferous rocks are few, most of them seem to have travelled from all points of the compass, for it is reasonable to suppose that icebergs were often borne in different directions by adverse currents. The boulders are of all shapes, angular and rounded, the edges being often scratched and striated, as if they had undergone attrition by ice. It is rather remarkable that this glacial drift, in the more central portions of the county, contains comparatively few traces of the local Keuper Sandstone; for, as a general rule, most drifts of whatever age, contain a large admixture of the formation which prevails in the neighbourhood, as at Shipston, for example, on the southern borders of Warwickshire, where the Lias is predominant in the drift, and near Coventry

where Carboniferous rocks largely prevail. The history of the drifts generally, of whatever age, here and elsewhere is one of considerable difficulty, and a great deal more has yet to be done by geologists before they will be satisfactorily explained or clearly understood. Proceeding downwards in the geological scale, we have in this county none of the great systems, Tertiary, Cretaceous, or Oolitic, until we come to the Lias, which although placed by some geologists in the lowest Oolitic or Jurassic group should rather, perhaps, hold a position as a separate system by itself. Whether any of the three systems above-mentioned, or a portion of them, ever occurred here overlying the Lias and Trias can of course never be decided, though I think there is evidence of a more northerly extension of the chalk, and perhaps some of the Oolites may once have covered these older groups. The Lias\* occupies a large area in the south, east, and west, and consists for the most part of the middle and lower divisions, the upper Lias being chiefly represented by a thin bed of clay, with some characteristic fossils on the hill above Fenny Compton and a few other places, and there is evidence to show that it formerly capped† the range of the Edge Hills adjacent, occupying its proper position above the marlstone, or middle Lias, of which they are mainly composed. From this point a good descending section may be obtained from the marlstone, through the underlying clays and marly-

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\* The highest portion of the Lias is seen on the south and south-eastern division of the county, the middle Lias forming the hills projecting in spurs to the north-west, and the lower division extending in the same direction, at a lower level, up to the southern edge of the Trias. The more central and northern parts are occupied by the New Red Sandstone (marls and sandstone, the former predominating), and this forms by far the larger portion of it, a smaller area on the north-east being filled up by the Permian and Carboniferous rocks.

† Many years ago I detected some fragments of the "fish bed," well known in the lower portion of the upper Lias in Gloucestershire, at Edge Hill; so that it may be fairly inferred that the upper Lias, to a greater or less extent, once capped the marlstone there, and has since been denuded, leaving only the harder included limestone (fish bed), portions of which are scattered about in the fields below the hill.

bands, to the lima beds, or zone of *Ammonites Bucklandi* to the white Lias more immediately resting upon the Red Marls (New Red Sandstone), within the course of a few miles from Fenny Compton to Harbury. The marlstone is largely quarried on the Avon Dasset hills, and forms a good building stone, being a hard marly stone, more or less indurated, of a green or yellow brown colour, sometimes ferruginous. The marlstone forms a range of hills, of moderate height, on the eastern border of the county, of which Edge Hill is the highest and is a prominent feature, striking thence southwards towards Oxfordshire. The plain below, to the west, is occupied by the lower Lias. For the most part this formation spreads over the portions of the county on the north-east, east, south-east, south, and south-west of Warwick. East of that town the white Lias is the prevailing sub-division. The insect beds occur mostly to the south, south-west, and west. In this county the marlstone contains very few fossils, and those chiefly brachiopodous shells belonging to the genus *terebratula*, which has a very wide geological range, and still lives in the Australian seas. The stone, therefore, is more easily worked and is better adapted for economical purposes. In most cases elsewhere the marlstone is very fossiliferous, and abounds in marine shells, which are usually well preserved. The sandy beds immediately below are rarely exposed, but crop out in a lane near Bitham House, where as usual they contain many fossils. The inferior clays and marls are not visible except in some brick pits near Fenny Compton, and along the line of railway. They are very full of fossils, and at one horizon abound in a species of small coral (*montlivaltia*), gryphites, *læda*, hippopodium, belemnites, pectens, ammonites, many small anivalves, and numerous other marine shells. The middle Lias and sub-



jacent zones can best be studied in this neighborhood; the lower Lias (the lima beds) at Messrs. Greaves and Bull's quarries at Stockton and Harbury, and a remarkably fine section is exposed in the railway cutting near Harbury Station. This portion of the series is also largely quarried at Rugby, and in other places south and south-east of Stratford. Taking the Harbury section as the type which fairly represents the rest, we have the following succession, viz., six beds of white rubbly limestone, divided by clay; two feet of black shales, limestone with *rhynchonella variabilis*; one foot of dark shale; two feet of blue limestone, full of fucoids; ten beds of limestone, divided by shale; three feet of shale; three feet of thickest bed of hard blue shale; two feet of irregular masses of limestone, embedded in shale four feet; five beds of limestone, divided by shale, resting probably on shales which are concealed by *debris*. The fossils are not very numerous, but the following marine shells occur:—*Gryphæa incurva*, *Ammonites augulatus*, *Nautilus*, *Perna*, *Lima gigantea*, and *L. Hermannii*, *Pecten*, *Pradoanus* (a Spanish Liassic species new to Britain), *Pectens*, *Cardium*, *Amphiedesma*, *Rhynchonella variabilis*, which occurs in a band towards the top, and a zone of fucoids. One coral *Septastræa Fromenteli* and one fish only have been detected, and very few remains of Saurians, chiefly bones and teeth of *Plesiosaurus rugosus* and *Ichthyosaurus*. *Ammonites Bucklandi*, and *Couybeari* which characterize this zone in Gloucestershire, Somerset (Bath and Bristol), and elsewhere, do not occur here, at least they have not yet been recognised. They have, however, been discovered at Rugby with other shells, which do not occur at Harbury, and one or two species of Saurians. The thickness of the Lias in Gloucestershire is probably not much less than 1,000 feet, but in Warwickshire, where the upper Lias is

so feebly represented, the entire thickness, which has not yet been accurately ascertained, is much less. The *Lima gigantea* is a very characteristic and wide-spread species, and marks this division of the lower Lias everywhere throughout its course through the British Isles. The important series of strata which succeed these are not seen at Harbury, but are well exposed, and largely quarried at Messrs. Greaves and Bull's quarries at Wilmcote, and at other places west of Stratford, as at Binton, Grafton, and Bidford, and at the remarkable outlier of Brown's Wood, near Henley-in-Arden, and at another (Copt Heath) near Knowle,\* neither of which are now worked, these two last are of special interest, because they shew the lowest beds of Lias in connection with and passing into the Rhætics resting immediately upon the New Red Marl, or highest part of the New Red Sandstone rarely seen in conjunction in this county. The general character of these lower Lias beds will be best understood by the following section at Wilmcote, which, down to No. 30, fairly represent the rest :—

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\* At Brown's and Stooper's Wood, near Wootton-Wawen, the Rhætic series contain many characteristic fossils in certain calcareous bands, *e. g.*, *Pecten valonensis*, *Cardium Rhæticum*, *Pleurophorus elongatus*, *Avicula contorta*, and others, and if worked would no doubt yield many more species. At Copt Heath there is a stratum of yellow, micaceous sandstone, full of *Pullastra arenicola*, which, though as usual in the form of casts, are sharp and well defined. I also lately detected pieces of stone which, though without any traces of bones or teeth, evidently belong to the true 'bone bed.' Traces of the 'bone bed' are stated by Mr. Lucy to occur in the Gravel Pit at Snitterfield, which proves its former existence *in situ* in this county, as it was probably brought from no great distance by the same agency which conveyed the other Liassic fossils recognised in the drift there.



## IN DESCENDING ORDER. FT. IN.

|                                        |      |
|----------------------------------------|------|
| 1.—Yellow clay .. ..                   | 2 0  |
| 2.—Light coloured limestone            | 0 9  |
| 3.—Dark laminated shales ..            | 1 8  |
| 4.—Light coloured limestone            | 0 8  |
| 5.—Dark finely laminated shales .. ..  | 1 6  |
| 6.—Grey limestone .. ..                | 0 4  |
| 7.—Dark shale, like No. 5 ..           | 1 0  |
| 8.—Grey limestone .. ..                | 0 4  |
| 9.—Dark shale .. ..                    | 1 0  |
| 10.—Grey limestone .. ..               | 0 4  |
| 11.—Dark shale .. ..                   | 1 0  |
| 12.—Grey limestone .. ..               | 0 5  |
| 13.—Dark laminated clay ..             | 0 8  |
| 14.—Grey limestone .. ..               | 0 2  |
| 15.—Clay, like No. 18 .. ..            | 0 9  |
| 16.—Grey limestone .. ..               | 0 5  |
| 17.—Clay, like No. 13 .. ..            | 0 7  |
| 18.—Grey limestone .. ..               | 0 3  |
| 19.—Clay, like No. 13 .. ..            | 4 2  |
| 20.—Fragmentary shelly bed             | 0 3  |
| 21.—Dark, tenacious clay ..            | 0 7  |
| 22.—Dark blue limestone and clay .. .. | 0 9  |
| 23.—Clay, like No. 13 .. ..            | 1 0  |
| 24.—Dark grey limestone ..             | 0 4½ |
| 25. } Hard crystalline lime-           |      |
| 26. } stone .. ..                      | 0 8  |
| 27. }                                  |      |
| 28. } Dark, slaty shale                |      |
| to } Hard, shelly limestone            | 3 1  |
| 30. } and green clay                   |      |

Lower

Lias.

## BOTTOM OF THE LIAS.

|                                           |      |               |
|-------------------------------------------|------|---------------|
| 31.—Green Marl .. ..                      | 0 3  | Estheria bed. |
| 32.—Black shale .. ..                     | 12 6 |               |
| 33.—Laminated micaceous shale .. ..       | 1 0  |               |
| 34.—Shale .. ..                           |      |               |
| 35.—Ditto .. ..                           | 2 0  |               |
| 36.—Dark shale .. ..                      | 2 6  |               |
| 37.—Dark shale .. ..                      |      |               |
| 38.—Laminated clay with septaria .. ..    | 1 3  |               |
| 39.—Clay with shells and black clay .. .. | 5 8  |               |
| 40. }                                     |      |               |
| 41.—Pyritic Stone, shelly ..              | 1 8  |               |
| 42. }                                     |      |               |
| 43. } Clays .. ..                         | 0 8  |               |

Rhætic

Beds.

Total.. 48 10 dip. 2½ to N.E.

No. 30 terminates the Lias, the strata below, from 31 to 43, belong to the group termed Rhætic, which is now separated from the former, of which more will be said presently. The latter were ascertained to occupy their true position by means of a shaft sunk for that purpose. The higher ground round Wilmcote and Binton is capped by the Lima beds, so that if an entire section was exposed we should have a tolerably complete representation of the more calceoreous portions of the lower Lias down to the Red Marl. The district is more-or less affected by small and often local faults, so that certain beds in one contiguous quarry are absent in another. The limestones are of much economical value, being largely employed for flooring, paving, grave-stones, and walls, and making hydraulic cement, to which purpose the Lima series at Harbury are also used by the same proprietors. They make good paving-stones, many of the slabs raised being of large size, but they do not weather well when used for grave-stones. Some of them might be profitably used (like some of the Purbeck limestones) for lithographic purposes; with this view I sent up some specimens to the Exhibition in 1851. With the exception of remains of insects, and fragments of plants, the fossils are entirely marine, the species of *Ammonites*, *A. planorbis*, and *A. Johnsoni*, being abundant and characteristic, and a few other shells occur both in the shales and limestones. Crustacea belonging to the genera *Astacus* and *Eryon*, the latter of great size, are not unfrequently met with in the insect beds. The most common fish are the small *Pholidophorus Stricklandi* and *Tetragonolepis*, a very fine and entire specimen of which is now in the Warwick Museum. The large Enaliosauroids are well represented by some fine specimens of *Ichthyosaurus* and *Plesiosaurus*, the *P. megace-*

phalus in the Warwick Museum being nearly entire, measuring 14ft. 4in. in length. The remains of plants, though small and fragmentary, are of considerable interest, because together with the insects, they afford the only evidence of the inhabitants of the land. Ferns and coniferæ are the predominating forms, but not very numerous. Large branching masses of drift-wood are sometimes met with. With respect to the insects, which are of special interest, twenty-four families and genera had been determined when my work on "Fossil Insects" was published more than twenty years ago, since which time many important additions have been made. The Coleoptera and Neuroptera are most numerous. Small beetles are not unfrequently found entire, single elytra are however most prevalent. Among these may be noted the families Buprestidæ, Elateridæ, Carabidæ, and many others.

There are remains of Orthoptera, Homoptera, Libellulidæ, and some Diptera. Many of the Neuroptera were evidently of gigantic proportions, but most of the Insecta were of small size and, like the associated plants, indicate a temperate climate, and are more nearly allied to forms which now inhabit North America. There are few extinct or unknown genera among them so different to the marine fauna associated with them. As the coleoptera were herbivorous, omnivorous, and predaceous, the land must have contained plants suitable to their food, and insectivorous animals to devour them in their turn. Although the Saurians and Mollusks indicate a warm climate, there is no proof of any ultra tropical heat, and it may therefore be presumed that they inhabited the higher regions of a tropical country, such as the Himalayas, and were carried by streams into the ocean at greater or less distances from land. With the scanty record which the

Lias affords of terrestrial life, the Insecta are of considerable importance and interest. Although with the associated plants, they are only subordinate to the marine fauna in number and variety of species, they are the only evidence we have at present of the denizens of the land, and are of great value to the Palæontologist. Their remains are confined to the limestones and notably to the lowest, where they are most abundant. These Insect beds are succeeded by certain hard, fine grained limestones which from their ordinary white colour have been termed 'white Lias,' and they occupy a considerable area east, south, and south-east, of Warwick, being occasionally quarried at Whitnash, Harbury, Stockton, Itchington, Newbold near Rugby, Loxley, and other places. Their true position is undoubtedly below the Insect limestones, though these latter seem to be wanting at Harbury, Newbold and other places above mentioned. Some geologists consider them to belong to the 'Rhætic series,' others to be passage beds between the Lias and the latter, while others still class them with the Lias. As they contain some fossils which are purely Liassic, and others which are entirely Rhætic, it seems most probable that they are intermediate between the two, and should future investigations lead to the preponderance of Liassic forms over Rhætic, they would have to be definitely classed with the former, or with the latter if the reverse. They are often close-grained and hard limestones, and make a useful building material and a good lime. Their colour is mostly white, with a yellow tinge, and occasionally pink and grey. They contain near Rugby a great abundance of iron, and present a singularly eroded and uneven surface. I am unable to state the exact thickness of the white Lias, but it is not very great. It is a purely local deposit confined for the most part to this county and Somersetshire. As yet, no Saurians or

Ammonites are known in it, and the shells which are exclusively marine, are not numerous nor well preserved, being usually in the form of casts.\* There are a considerable number of small corals, too imperfect to be specifically determined, which belong to the genus *Montlivaltia*. Until quite lately the Lias terminated with the Red Marls of the New Red Sandstone, but now all the strata intervening between the white Lias, and the latter will come within the 'Rhætic series' of the Trias. In Warwickshire they are rarely exposed, and then much reduced in bulk. They may be seen to a limited extent below the white Lias in the railway cutting at Harbury, where a band of yellowish sandstone contains the small bivalved crustæcean *Estheria minuta*; and also, at the small outlier of Brown's wood, and at Stoooper's wood, near Wootton Wawen, where this sandstone occurs with inferior shelly limestones and sandy bands, containing the usual Rhætic fossils, *e. g.*, *Cardium Rhæticum*, *Avicula contorta*, *Pleurophorus elongatus*, *Pecten Valonensis*, and *Pullastra arenicola*. Below these are black shales, which in Gloucestershire and Somersetshire, contain a pyritious stone full of rolled bones and teeth of Saurians and fishes, termed from this fact the bone bed. My lamented friend, Hugh Strickland, discovered this bed near Binton, and I have observed the black shales and yellow sandstone, their furthest northern limit in this county, though without the bone bed, containing the *Pullastra arenicola*, a shell which marks the zone overlying the Upper Red Marl at Knowle. The largest outlier about a mile-and-a-half long by half-a-mile broad, may be observed at Copt Heath, near this village, where shales containing *Ammonites planorbis*, and associated limestones belonging to the lower Lias were formerly

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\* *Ostrea intusstriata* and one or two species of *Avicula* (*Monotis*) occur in the white Lias, though not confined to it.

worked. The insect beds probably occur here in their true position, though from the absence of any section I have not been able to identify them *in situ*. This is an isolated patch of Lias, about 15 miles from the main mass lying in a hollow of the Red Marl, but it may be reasonably inferred that it was formerly connected with it, in which case the Lias must have had a wider extension to the north-west. At Wilmcote the Rhætics were only detected by means of a shaft as we have already shewn. They were formerly quarried south of Wootton Wawen, where a good series of Rhætic fossils might be obtained if the quarries were now worked. The extent and entire thickness of the Rhætics, which cannot be accurately ascertained in this district, is much less in this county than in Gloucestershire, Somersetshire, and South Wales, where they attain a much greater importance and development. By far the larger portion of the county is occupied by the New Red Sandstone,\* the upper Red Marls being traceable mostly north-west of Warwick towards Birmingham—the underlying upper Keuper Sandstone† between Knowle and Hatton and occupying a considerable though irregular area to the west, and the underlying Red Marls and the lower Keuper Sandstone, the former

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\* I think that the clearest and simplest division of the New Red Sandstone or Trias would be as follows:—

(1) Upper New Red Marls, which immediately succeed the Rhætic beds seen on the canal bank at Copt Heath, on the high road between Preston and Henley, where the upper sandstones have been cut through and are capped by the upper Red Marls on the rising ground to the south; a similar section is also exposed near Greenhill Green, south of Brown's Wood, where the superior Red Marls are of considerable thickness, and at Wainlode and Westbury Cliffs in Gloucestershire.

(2) Upper Keuper Sandstones—Shrewley, Rowington, Knowle, Lapworth, Claverdon, Tanworth, Wolverton, Preston, Henley, &c.

(3) Lower Red Marls, which directly underlie the Upper Keuper Sandstone, well exposed at Rowington, and between that village and Warwick.

(4) Lower Keuper Sandstones or Waterstones, which succeed the Lower Red Marls—Warwick, Cubbington, and towards Coventry, &c.

† I discovered an extensive mass of upper Keuper Sandstone near Edstone, which is not recorded in the Geological Survey Map of the district.



between Hatton and Warwick, and the latter at Coteh End near this town, and at Cubbington on the north-east and Leamington on the east. The upper Red Marls are of considerable thickness (600 feet), and occupy some of the high table land between Knowle and Birmingham. The upper Keuper (not exceeding 25 feet) which succeeds is a variable, more or less, hard grey sandstone, divided by green and light-coloured marls, well represented by the following section on the side of the canal at Shrewley, four miles north-west of Warwick.\*—

- |                                                                                                                                                                                                                                                                                                                                                                        |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 1.—Green Marl.. . . .                                                                                                                                                                                                                                                                                                                                                  | 0ft. 3 or 4in. |
| 2.—Beds of grey and light-coloured fine-grained Sandstone, divided by marl, with <i>Estheria</i> ( <i>Posidonia</i> ) <i>minuta</i> and ripple or current marks. In the middle occurs a coarse gritty sandstone, with white specks, made up of small pieces of quartz, and mica, which contains bones, teeth, and spines of <i>Lophodus</i> , a species of shark.. . . |                |
|                                                                                                                                                                                                                                                                                                                                                                        | 1ft. 9in.      |
| 3.—Green Marl.. . . .                                                                                                                                                                                                                                                                                                                                                  | 0ft. 2½in.     |
| 4.—More fine-grained Sandstone, more or less ripple-marked, with footsteps of <i>Labyrinthodon</i> .. . .                                                                                                                                                                                                                                                              |                |
|                                                                                                                                                                                                                                                                                                                                                                        | 2ft. 3in.      |
| 5.—Green Marl, like No. 3 .. . . .                                                                                                                                                                                                                                                                                                                                     | 0ft. 2in.      |
| 6.—Hard, workable sandstone (bottom bed), the only good building stone of the locality, with imperfect casts of <i>Estheria</i> .. . . .                                                                                                                                                                                                                               |                |
|                                                                                                                                                                                                                                                                                                                                                                        | 3ft. 6in.      |
| 7.—Thin beds of sandstone, divided by green marls, with remains of plants ( <i>Voltzia</i> , <i>Calamites</i> , coniferous fruits, and fucoids). This is best seen at Rowington .. . .                                                                                                                                                                                 |                |
|                                                                                                                                                                                                                                                                                                                                                                        | 10ft. 0in.     |
| 8.—Red Marl. Beds horizontal. .. . . .                                                                                                                                                                                                                                                                                                                                 | 8 to 10ft. 0in |

The upper Keuper sandstone is by no means uniformly spread over the area occupied by the Trias, but owing to very extensive denudation occurs at irregular intervals, a wider mass being seen at Preston Bagot and east of Henley-in-Arden. Patches of it also occur south of Knowle, west of Withall, and south-east of Brown's

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\* In Murchison and Strickland's sections they give 30 to 40 feet of upper Red Marl, Sandstone (upper Keuper) 20 feet, and lower Red Marl exposed 10 feet, but this section was taken more than thirty years ago, and I suspect was made from some old quarries now closed, which were formerly worked on Shrewley Common, and therefore differs somewhat from the one given above, which does not show any upper Red Marl *in situ* above the sandstones, but the Sandstones and associated Marls are about the same relative thickness. In some places, as in the railway cutting near Henley, thin beds of Gypsum occur in the Red Marls.



Wood. The low hills in the neighbourhood of Rowington are capped by it, the lower ground being composed of the lower Red Marl. No doubt at one time it was more widely diffused, from Chessett Wood on the north, to Cherry Pool south of Preston; and from west to east north of Tanworth to the east of Rowington. There the denudations are well marked by lines of dessication and undulations which vary the otherwise monotonous scenery of the neighbourhood, and towards Claverdon and Bearley the country is picturesque, and commands some fine views over the plains of Red Marls and lower Lias to the more distant oolitic range of the Cotswolds. As a general rule this formation is barren of any organic remains, those which have been met with being found in the sandstone and green marls, none having been noticed in the red marls, the superabundance of red peroxide of iron being generally supposed to be inimical to the existence of animal life. No marine shells (with two doubtful exceptions) occur in it, and only two entire fish, one of which was discovered at Shrewley and the other at Rowington, but abundant remains of sharks (bed No. 2 of section) which consist of dorsal spines, small grinding palatal teeth of two distinct genera, and shagreen or skin of some Cestracient. No doubt there were other fish\* in the Triassic sea on which these sharks preyed, which may some day be discovered. But the most remarkable fossils which distinguish both the

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\* A fourth and entire fish must be added to the list of New Red Sandstone fishes, a very remarkable one having been discovered some years ago in the lower Keuper Sandstone at Bromsgrove, in Worcestershire, and now deposited in Jermyn Street Museum of Practical Geology. In many ways it presents some unusual characters, and the family to which it belongs is very doubtful. The tail is *homocercal*, differing so far from all other fish yet found below the Lias. Sir P. Egerton has named it '*Dipteronotus cyphus*,' and it is described by him and figured in the *Journal of the Geological Society*, Vol. 10, p. 369. I have lately been informed, on good authority, that another larger and apparently distinct fish was obtained from the same locality many years ago, and I hope to be able to learn more about it, and perhaps to get it described and figured if it is still preserved.

upper and lower Keuper are the Labyrinthodont reptiles, of singular uncouth form and structure, most nearly allied to the recent aquatic salamanders. In the upper Keuper the only evidence afforded of their existence are the impressions of their footsteps, as they crawled over the mud of the Triassic sea, and probably belong to the genera *Labyrinthodon*, *Rhynchosaurus*, and *Cheirotherium*. These footprints indicate *Batrachians* of small size, with the exception of the larger ones of the last-named animal, very imperfect remains of plants are found both in the upper and lower Keuper, the only evidence we have of the existence of land at this period in England; unless, as Professor Huxley now thinks, some of these Labyrinthodonts were Dinosaurians, and, if so, terrestrial. It is supposed that the sea in which the New Red Sandstone was deposited formed a vast inland lake, like the Caspian or Dead Sea, still, the absence of shells and the scarcity of fish, and, indeed, of fossils generally, is not so easily accounted for. My friend, Professor Hull, and other leading geologists incline to the opinion that the New Red Sandstone was for the most part deposited in an inland sea like the Dead Sea, and the great Salt Lake of America, which would account for the prevalence and abundance of salt, and the absence of marine shells and other organisms. But though this may hold good as far as regards the Red Marls, and account for the absence of any fossils in them, yet it must be remembered that the upper and lower Keuper Sandstone, the former of which is intercalated in the Marls, contain fish and reptiles, some of the latter terrestrial as well as amphibious, besides plants, so that a change in the condition must have taken place during the deposition of these sandstones, and in them we may look for and, if more frequently quarried, should probably find a much larger evidence of the animals and plants

(as we have in Germany) of the Triassic epoch. This formation is of great economic importance from the quantities of salt and gypsum which are obtained from it. In England it attains a thickness of 4,500 feet, though not reaching that amount probably in Warwickshire.\* The lower Keuper is of limited extent, and, like the upper, consists of beds of soft and hard, more or less micaceous sandstone, rather different in lithological structure, and it is thus by its inferior position readily distinguished from the upper sandstone, and some parts form a good building stone. The town of Warwick is built upon it, and sections may be seen at Coten End, Guy's Cliff, Myton, and Cubbington, north of Leamington, and towards Leek Wootton. Part of Leamington stands upon it, and it is exposed in an old quarry at the North-Western Railway Station. It may also be traced northwards from that town to near Nuneaton, bounded on the east by the Red Marl and on the west by the Permian. It then follows the latter formation northwards from Berkeswell to Maxstoke along a line of fault, and reappears north of Birmingham and near Sutton Coldfield. At Marston Jabet the lower Keuper sandstone may be seen resting unconformably on the inclined shales of the coal measures. On the east side of Warwick it is terminated by a north and south fault. The lower Keuper is chiefly remarkable for the interesting and valuable fossils which have been obtained from it, though at rare intervals, during the last thirty years, a fine and unique collection, the most perfect in the kingdom, being in the Warwick Museum. They consist of remains, various bones, jaws and teeth of species of *Labyrinthodon*, a

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\* About 800 feet is the estimate given for the Trias in Warwickshire, and 3,000 or upwards in Shropshire and Cheshire, where it reaches its maximum vertical thickness according to my friend, Professor Hull.

tooth of Cladeiodon, jaws and bones of Hyperodapædon, lately described by Professor Huxley, and the former-named long since by Professor Owen. In his Paper on this genus in the *Journal of the Geological Society* (No. 98) Professor Huxley states that the nearest living representative of the Hyperodapædon is the amphibious reptile *Sphenodon* of New Zealand; and although in England the New Red Sandstone has a comparatively limited fauna, and that chiefly Reptilian, this formation in other countries has yielded remains of all the five classes of vertebrate animals, viz., Mammalia, Aves, Reptilia, Amphibia, and Pisces, besides an abundant and interesting flora. Further researches in the British Isles may therefore bring to light a larger and more varied series of animal and vegetable life, both marine lacustrine and terrestrial.

Professor Huxley has also decided that there are two kinds of Dinosaurian teeth in the lower Keuper in this district, one allied to *Megalosaurus* and the other to *Thecodontosaurus*, a reptile found in the Permian conglomerate near Bristol. Some vertebræ sent to him by my friend, Mr. Kirshaw, and which belong to our Museum, are also supposed by the Professor to be of Dinosaurian character (*Journal of the Geological Society*, No. 101, Feb., 1870. He also thinks that the vertebræ of *Labyrinthodon pachygnathus* are Dinosaurian, and those ascribed to *Labyrinthodon leptognathus* belonged to some other reptile. The ilium of the latter he believes to be intermediate between a Teleosaurian and that of a Lizard. I have omitted any notice of the Bunter Sandstone which underlies the lower Keuper, because in this county it is very thin, though a patch is recorded by Mr. Howell east of Polesworth and north of Birmingham, the last just beyond the limits of the county. Nowhere in England are any fossils

as yet known in it, though many occur on the Continent. The Permian rocks occupy a considerable tract to the north from Ashow to Baddesley Endsor, and repose on the coal measures. Their thickness has been estimated at nearly 2,000 feet. They are composed for the most part of alternating beds of white, purple, and red sandstone and marls; these sandstones sometimes form hard conglomerates, irregularly spread; but another one, more continuous, occurs about the middle and is mainly composed of carboniferous limestone pebbles. Fossils are very rare in this formation in Warwickshire, but two remarkable ones were found in it at Kenilworth and Coventry, viz., the skull and teeth of *Dasyceps Bucklandi*, and large jaw with teeth, both belonging to the Labyrinthodonts, and may be seen in the Museum at Warwick. Fragments of *Lepidodendron* and *Calamites*, and the casts of a *Strophalosia* were obtained from a now closed quarry at Exhall, between Coventry and Bedworth. The Warwick Museum also contains impressions of several species of large plants which have been referred to the genera *Caulerpites* and *Breea* from Meriden, and silicified coniferous trees have been met with near Allesley, from which the fragments of wood found in the drift at Warwick, Rowington, and elsewhere, were probably derived. An excellent section of the sandstones is exposed in the large quarry at Kenilworth and Meriden, where they are extensively used for building.

The succeeding carboniferous rocks, which include the Warwickshire coal field, form on this account the most important and valuable formation in the county. The area, however, occupied by them is comparatively small, being a somewhat narrow tract bounded by the Permian on the west and the New Red Sandstone on the east, which extends northwards, not far from Coventry, to



Shuttington, widening between Baddesley Endor and that place. The coal measures are affected by numerous faults, and by intrusive igneous rocks of greenstone,\* which latter appear chiefly between Atherstone and Bedworth. At Hartshill the latter have long been quarried for the roads. Near Nuneaton a large mass of greenstone may be seen, succeeded by highly inclined quartz rock (millstone grit) and true coal measures, having four bands of intrusive greenstone intercalated amongst them. The coal series are made up of alternating beds of shale, hardened clays, sandstone, ironstone, and coal, with a band of limestone in the upper part. Their total thickness is given as 3,000 feet, the best workable seams occurring about the middle. The coal generally is not of the very best quality; and as the coalfield is comparatively small and much has been already worked out, it will probably be exhausted before very many years have elapsed. Like the other coalfields, the fossils consist for the most part of the fragmentary remains of plants which helped to form the coal itself, among which *Lepidodendron*, *Sigillaria*, and the roots called *Stigmaria*, *Calamites*, and numerous fronds of ferns chiefly *Pecopteris*, *Neuropteris*, *Odontopteris*, and other genera, are the most characteristic. They are generally broken and imperfect, for it is very rare to find the fronds of the numerous ferns in any case attached to the stem, and the other plants are usually in a similar state. They are chiefly present in the shales and ironstones. At many of the pits numerous small estuarine shells, such as *Mytilus*, *Myalina*, and *Anthracosia* occur, and more rarely a small *Limuloid* Crustacean, and bones, scales, and teeth of fish, many

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\* The plutonic rocks which prevail in this coal field differ considerably, according to Mr. Allport, from those which affect the carboniferous district of South Staffordshire; and I agree with him that they all probably belong to the carboniferous period which was generally one of great igneous activity.

of them sauroid and therefore predaceous. The most remarkable palæontological feature is the abundance of vegetable growth, a great part of which is now converted into coal. The gigantic *Sigillaria*, *Lepidodendron*, *Calamites*, and tree ferns indicate a moist and tropical climate, which in most cases grew near the spot, and in others were drifted into the estuaries and lakes of the period, and, as in the former case, associated with esturian shells. The fossils in the Warwickshire carboniferous series have not been diligently searched for, if they were, we should probably obtain here, as elsewhere, a larger and more abundant flora and fauna, which recent researches have brought to light in connection with the life of this epoch in other places, and have yielded some very remarkable and interesting results.

The millstone grit, so termed from its use for millstones, is a hard, altered, siliceous quartz rock, traversed more or less by intrusive greenstone, and is the lowest part of the carboniferous formation in this county. It is prominently exposed in a high ridge between Nuneaton and Atherstone, only for a few miles in extent. No fossils are known in it here, and where found are chiefly coal plants and a few shells, in the form of casts.

In conclusion it is desirable briefly to give a sketch, partly a recapitulation, of the history of the five Geological periods described in this Paper. The most recent of these are the drifts of fine gravel, sand, and boulders, which are irregularly spread over many parts of the county. In the earliest of these we have evidence of the existence of many extinct mammalia, such as the elephant, hippopotamus, rhinoceros, tiger, bear, hyæna, cave lion, gigantic deer, extinct horse, and many others.

In the next no such remains have been met with, but it is remarkable as one of excessive cold, in which ice



and icebergs played a conspicuous part, when large boulders of rocks of all ages were carried by ice and water from all parts and scattered far and wide over the surface. This state of unusual cold was abnormal, for up to the glacial epoch the general climatal conditions were those of considerable heat, if not absolutely tropical, which more or less prevailed during the deposition of the great formations which constitute the widely-extended ages of the Tertiary, Secondary and Palæozoic divisions of Geological time, long anterior to the existence of man.

Passing over the numerous and widespread formations not represented in this county, we come to that of the Lias. The varying alternating masses of limestone, clay, and shale were deposited in seas of variable depth, at greater or less distance from land, in which, as might be expected, marine fossils of many extinct genera, Saurians, fish, shells, and some corals predominate. The Enaliosaurians were of large size, predaceous, and aquatic. Among the shells the most remarkable were the great cephalopodous Mollusks, Ammonites, Belemnites, and Sepia, which swarmed in the Liassic sea, and like the Saurians, acted as the scavengers of the ocean. In some portions of this formation the land appears to have been remote, but in others much nearer, for we have many genera of terrestrial plants, and in the lower division a large number and variety of insects, whence it may be fairly inferred that other forms of life inhabited the land, mammalia and other classes, which have yet to be discovered by some future fortunate palæontologist.

The Rhætic period which succeeded, to whatever age it may be assigned, is rich in marine remains, presenting many local and peculiar forms of conchifera and mollusca, many of which occur in this county, and more no doubt would be obtained if the strata were sufficiently exposed, which they unfortunately are not.

The New Red Sandstone period represents a widely different condition in this country, and is throughout an enormous vertical thickness, barren for the most part of animal or vegetable life; the most notable facts are the absence of shells and the presence of many singular reptiles, represented by many species of an extinct form of aquatic Salamander, to which the name of *Labyrinthodon* has been given, from the peculiar labyrinth structure of the teeth, and which has left more frequent traces of its existence in the form of footprints than in any other way; the portions of the skeleton which are preserved being mostly confined to the lower Keuper. Of the four fish known in this formation, the most abundant belonged to a species of shark, one a carboniferous genus (*Palæoniscus*), and one undescribed, both of which were discovered in the upper Keuper at Rowington and Shrewley, near this town. The fourth is the *Dipteronotus* already referred to (p. 13). These are the only entire fish which have ever been detected in the Trias, and therefore are of special interest. The plants are too fragmentary to say much about, but show the presence of land, though very remote, and the determination by Professor Huxley of the occurrence of certain Dinosauria during this epoch, proves the existence of gigantic terrestrial reptiles not previously suspected, the remains of which have been found in the sandstone on which this town is built. On the whole, the Warwick (lower Keuper) sandstone has yielded some of the most remarkable and valuable *Labyrinthodont* remains yet discovered, and your Museum here contains the finest collection in Great Britain. Considering the small amount of quarrying in this neighbourhood, a good many fossils have been detected, and if more extensively worked I believe the upper and lower Keuper would afford a much larger and perhaps more varied

number. The affinities of the fossils of this and the preceding system are more in conformity with those of the Oolitic, but have some forms which are peculiar. A rather shallow sea or salt lake, whether inland or otherwise, largely charged with saline matter and red peroxides and an arid climate, are characteristic conditions of the Triassic system generally.

The Permian rocks in this county have given us little evidence of the life of the period, though remarkable as affording the head and jaws of a Labyrinthodont reptile, in the Museum, besides some shells and plants, which are in a very imperfect condition. In the north of England it is rich in mollusks, corals, and fish; therefore it would seem that the conditions in this area were not favourable to the existence of a marine fauna, and we must look elsewhere for it. This system is very closely allied to the Carboniferous with which many of the fossils agree generically.

The absence of the marine mountain limestone in this county, and the unfossiliferous condition of the millstone grit leave the overlying coal measures as the only portion of the great carboniferous system to afford any insight into its geological history. Here, as elsewhere, abundance of peculiar plants, mostly succulent, and all endogenous, prove the vast amount of vegetable life which then prevailed, with abundance of carbon and a moist tropical heat, such as we find in some portions of the globe at the present day. For the most part these plants grew on or near the spot, in swampy tracts favourable to their growth; but in some cases they may perhaps have been carried down by streams into the sea, marine and estuarine shells, numerous fishes, some reptiles, and crustacea being in many places associated with them. On the whole, the conditions were apparently more favourable to the growth

of vegetable matter than at any other time either before or since; and to this we owe the conversion of woody matter, under heat and pressure and favouring chemical conditions, into coal, one of the most valuable and important products we possess. Though no insects have been found in the Warwickshire coal field, they may nevertheless occur, and as they are known in many other coal deposits, we may draw the same inferences from them as we have done in the case of the Lias, and look forward some day to the discovery of other and higher forms of animal life.

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The Warwickshire Naturalist's and Archæologist's Field Club held their Annual Winter Meeting at the Museum, Warwick, by permission of the Council of this Society, on February 25th, 1870. The following Papers were read:—"On 'Practical Geology,' by the Rev. P. B. Brodie, Vice-President, M.A., F.G.S.; and on 'Swiss Lake Dwellings,' by Dr. Corfield, M.D., F.G.S."

The first summer meeting was held at Dumbleton, near Evesham, on May 21st; the second at Leicester, for Barrow-on-Soar, Charnwood Forest, and the Leicester-shire Coal Field, on the 22nd of June, being the usual summer excursion for three or four days.

Owing to the small attendance, the meeting which should have been held at Bromsgrove Lickey, in August, was unanimously postponed until next year.

# Additions to the Museum and Library.

## GEOLOGY.

### DONATIONS.

Specimen of Precious Opal, from Hungary in the Matrix. *Presented by Dr. O'Callaghan.*

Specimen of Precious Opal, from Mexico in the Matrix. *Presented by Dr. O'Callaghan.*

## LIBRARY.

### DONATIONS.

Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club for 1869. *Presented by the Society.*

Practical Geology, by Rev. P. B. BRODIE. *Presented by the Author.*

Archæological Journal. No. 90 to 102 inclusive. *Presented by W. E. Buck.*

## LIBRARY.

### PURCHASES.

Annals and Magazine of Natural History. Vol. 4 and 5. 4th series.

Camden Society's Publications :—

No. 99. Diary of John Manningham, of the Middle Temple, 1602—1603.

No. 100. Notes of the Treaty carried on at Ripon, between King Charles I. and the Covenanters of Scotland, 1640.

No. 101. Narrative of the Spanish Marriage Treaty, edited and translated, by S. R. GOODWIN.

No. 102. Churchwardens Account of the town of Ludlow in Shropshire, from 1540 to the end of the reign of Queen Elizabeth.

Geological Magazine, 57 to 70.

Palæontographical Society's Publications :—

Vol: 23.—Supplement to the Fossil Corals. Part II, No. 2. Cretaceous. Cretaceous Echinadermata. Vol. 1. Part III.

Belemnitidæ. Part V. Oxford Clay, &c., Belemnites.

Fishes of the Old Red Sandstone. Part I. concluded.

Reptilia of the Liassic Formation. Part II. Crag Cetacea, No. 1.

Popular Science Review. Part 33 to 36.

# GENERAL FINANCIAL STATEMENT, FROM 31ST MARCH, 1869, TO 31ST MARCH, 1870.

| Income.                                                     |    | £. s. d. |      |
|-------------------------------------------------------------|----|----------|------|
| 1869.                                                       |    |          |      |
| 31st Mar.—To Balance of last account                        | .. | 40       | 18 3 |
| 1870.                                                       |    |          |      |
| 31st Mar.—Amount received during the year for Subscriptions | .. | 71       | 8 0  |
| Arrears                                                     | .. | 4        | 4 0  |
|                                                             |    | 75       | 12 0 |
| Received for admission to Museum                            | .. | 5        | 9 6  |
| Received from Mr. Hosken for Library deposit                | .. | 0        | 10 0 |
|                                                             |    |          |      |
| To Balance                                                  | .. | £12      | 0 4  |
| Of which £1. is deposited on Library Account                | .. | 1        | 10 0 |
| (Mr. Garner, 10s.; Mr. Kitchen, 10s.; Mr. Hosken, 10s.)     |    |          |      |
| Balance                                                     | .. | £10      | 10 4 |
|                                                             |    | £131     | 0 9  |
| Expenditure.                                                |    | £. s. d. |      |
| 31st March, 1870.                                           |    |          |      |
| Insurance                                                   | .. | 20       | 0 0  |
| Attendant's Salary                                          | .. | 2        | 0 0  |
| Coal and Firing                                             | .. | 3        | 5 5  |
| Printing (including Reports) and Stationery                 | .. | 13       | 11 0 |
| Fittings and Repairs                                        | .. | 6        | 1 8  |
| Preserving and repairing Objects                            | .. | 0        | 8 0  |
| Books, Binding, &c.                                         | .. | 8        | 4 6  |
| Cabinet for Entomological Specimens                         | .. | 16       | 10 0 |
| Cabinet for Collection of Eggs                              | .. | 3        | 0 0  |
| Subscriptions to Societies                                  | .. | 3        | 2 0  |
| Postage, Circulars, &c.                                     | .. | 1        | 17 6 |
| Carnage of Parcels                                          | .. | 0        | 6 4  |
| Incidental Expenses, Cleaning, &c.                          | .. | 5        | 16 6 |
| Poor's Rate                                                 | .. | 1        | 10 0 |
| Collector's Commission                                      | .. | 3        | 16 6 |
| By Balance                                                  | .. | £89      | 9 5  |
|                                                             |    | 42       | 0 4  |
|                                                             |    | £131     | 9 9  |

*The Council, aided by several members of the Society, have subscribed £31. 1s. Od. to pay for the valuable Herbarium collected by the late Mr. Perry, which has been presented to the Society, and is in the Museum.*



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The MUSEUM is open daily to the Members and their Friends, from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

Non-Subscribers are admitted on payment of an admission fee of sixpence each.

The Museum is free to the Inhabitants of Warwick on Mondays and Tuesdays.

The Annual Subscriptions for 1870 are due on the 24th day of May; and the Council request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.

*Presented*  
25 MAY 1886









WARWICKSHIRE  
NATURAL HISTORY

AND,

Archæological Society.

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*THIRTY-FIFTH ANNUAL REPORT.*

APRIL, 1871.



WARWICK:

PERRY, PRINTER, NEW STREET, & OLD SQUARE.



WARWICKSHIRE  
NATURAL HISTORY  
AND  
ARCHÆOLOGICAL SOCIETY,  
ESTABLISHED MAY 24th, 1836.

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*THIRTY-FIFTH ANNUAL REPORT*  
OF THE COUNCIL TO THE SUBSCRIBERS,  
READ AT THE  
ANNIVERSARY MEETING, APRIL 14, 1871.

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In presenting the annual report, the Council congratulate the Members on the continued prosperity of the Society.

Some valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.



The fine example of the "Megacerus"—"Fossil deer of Ireland," from Lough Gur, near Limerick, which was presented to the Society by the late Richard Greaves, Esq., is now placed in the Geological room of the Museum.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon Hill, Hordwell, Barton, and Bracklesham. London Clay Fossils, from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

#### ARCHÆOLOGY.

The Roman Coffin, found in the excavation for the railway near Alcester, which was purchased for the Society, has been set up at the entrance-door of the Museum.

#### BRITISH MAMMALIA.

Although no addition has been made to the British Mammals since last year, we devote this paragraph to the

collection, hoping that we may thereby meet with assistance in its completion. Unlike British Birds, which migrate, and which therefore in some species can only be obtained as stragglers, the Mammals are resident, and though some, are rarer than others, *all* may be obtained with tolerable certainty, by those residing in such parts of the country as they are known to inhabit. With the exception of the marine species, such as the Whales and Porpoises, there are none which might not take their place in our collection of British feræ. We have already some of the largest of the land animals, as the Red Deer and Roebuck, both presented by Edward Greaves, Esq. A mounted specimen of the Fallow Deer, and of the two kinds of Martin, *i.e.* the yellow breasted and the white breasted Martin, would go far towards the completion of the terrestrial Mammalia of Great Britain. We earnestly hope that some friends to this Institution will kindly furnish one or other of these desiderata. Of the smaller kinds, such as the Shrews and Bats, a few kinds are wanting, but these the Curators believe they shall before long be able to supply.

#### ENTOMOLOGY.

The Entomological collection is in the course of arrangement in the New Cabinet, the Aculeate Hymenoptera, occupying nine drawers, are already arranged, and the arrangement of the Coleoptera is commenced.

The majority of scientific Entomologists residing in or near London, have confined their researches principally to the Metropolitan district, or to the Southern counties of England; consequently the Midland counties present an almost unworked field, which must contain very many interesting novelties.

Warwickshire from its high state of cultivation has but few waste spots, on which Insects usually abound, but its

varied soil and numerous woods will doubtless yield great results to the efforts of a zealous collector. Those of our members living in the country are earnestly solicited to preserve and forward to our Curators any specimens that may fall in their way. Lepidoptera may be captured in pill-boxes and killed by means of a few drops of Chloroform. Coleoptera and other orders should be put into a bottle in which has been previously placed a small quantity of bruised laurel leaves, the prussic acid contained in the leaves not only very quickly killing the Insects, but also preserving them fresh, and in a state for setting for a considerable length of time.

#### ORNITHOLOGICAL COLLECTION.

When the repairs of the Museum were brought to a close, the room containing the collection underwent a thorough cleaning, and the specimens were taken out, examined, carefully cleaned, and returned to the cases. The windows of the rooms, the approaches to which were awkwardly blocked up with cases, were relieved of their obstructions, the specimens which were in these cases being transported to their proper places in the series to which they respectively belonged. But the most important change which has been made in this department, is the separation of the British from the Exotic species. In nearly all the extensive Natural History Museums in Europe the native species are now fostered as a distinct collection. Such has lately been the case in our National Museum, and whereas the observer had before this change to seek laboriously through thousands of birds, from every clime, for the isolated specimens which had formed the collection of some celebrated Naturalist,—as for instance that of Colonel Montague,—he may now see them all placed side by side in the gallery devoted to British Zoology. And with them

he may also see ranged the gems from the collection of the late Mr. Yarrell. The advantage of such an arrangement is obvious.

It has been observed, with great truth, "that you cannot vie with the larger Museums in a general collection, but you may *excel* them if you confine yourselves to a purely local collection." Fully agreeing with this opinion, the Hon. Curators, while enlarging the collection of British Birds, purpose to do so, as much as possible, by means of specimens obtained in Warwickshire, or the contiguous Counties. They offer these remarks in the hope that the friends of the Institution will assist them in carrying out their views, by donation of some of the species forming the following list of desiderata :—

### Order 1. Accipitress, Linn.

|                             |        |                                           |
|-----------------------------|--------|-------------------------------------------|
| Egyptian Vulture            | ... .. | <i>Neophron percnopterus</i> (Linn.)      |
| Griffon Vulture             | ... .. | <i>Gyps fulvus</i> (Gmel.)                |
| Rough-legged Buzzard        | ... .. | <i>Archibuteo lagopus</i> (Brün.)         |
| Spotted Eagle               | ... .. | <i>Aquila nœvia</i> (Gmel.) Mey           |
| Jer-falcon                  | ... .. | <i>Falco gyrfalco</i> , Linn.             |
| Red-footed Falcon           | ... .. | <i>Tinnunculus vespertinus</i> (Linn.)    |
| Swallow-tailed Kite         | ... .. | <i>Nauclerus fercatus</i> (Linn.) Vigors. |
| Goshawk                     | ... .. | <i>Astur palumbarius</i> (Linn.) Bechst.  |
| Montagu's Harrier           | ... .. | <i>Circus cinerascens</i> (Mont.)         |
| Hawk Owl                    | ... .. | <i>Surnia ulula</i> (Linn.) Bonap.        |
| Snowy Owl [Brit. Specimen.] | ... .. | <i>Nyctea nivea</i> (Thunb.)              |
| Little Owl                  | ... .. | <i>Athene noctua</i> (Retz.)              |
| Great-eared Owl [female]    | ... .. | <i>Bubo maximus</i> , Sibb.               |
| Tengmalm's Owl              | ... .. | <i>Nyctale tengmalmi</i> (Gmel.) Strickl. |

### Order 2. Passeres, Cuv.

|                                |        |                                         |
|--------------------------------|--------|-----------------------------------------|
| Alpine Swift                   | ... .. | <i>Cypselus melba</i> , Linn.           |
| Roller                         | ... .. | <i>Coracias garrula</i> , Linn.         |
| Bee-eater [British specimen.]  | ... .. | <i>Merops apiaster</i> (Linn.)          |
| Dartford Warbler               | ... .. | <i>Sylvia undata</i> (Bodd.)            |
| Garden Warbler [female]        | ... .. | <i>Sylvia hortensis</i> (Penn.)         |
| Fire-crested Regulus           | ... .. | <i>Regulus ignicapillus</i> , Brchm.    |
| Plain-crowned Kinglet          | ... .. | <i>Regulus proregulus</i> (Pall.)       |
| Black Redstart [Brit. specim.] | ... .. | <i>Ruticilla tithys</i> (Scop.)         |
| Blue-throated Warbler          | ... .. | <i>Cyanecula suecica</i> , Linn.        |
| Alpine Accentor                | ... .. | <i>Accentor alpinus</i> , Gmel. Bechst. |
| Crested Tit                    | ... .. | <i>Parus cristatus</i> , Linn.          |
| White Wagtail                  | ... .. | <i>Motacilla alba</i> , Linn. [vera.]   |
| Grey-headed Wagtail            | ... .. | <i>Motacilla flava</i> , Linn.          |

|                                  |                                               |
|----------------------------------|-----------------------------------------------|
| Rock Pipit ... ..                | <i>Anthus spinoletta</i> (Linn.)              |
| Richard's Pipit ... ..           | <i>Anthus Richardi</i> (Vieill.)              |
| White's Thrush ... ..            | <i>Turdus varius</i> , Horsf.                 |
| Rock Thrush ... ..               | <i>Turdus saxatilis</i> , Linn.               |
| Golden Oriole ... ..             | <i>Oriolus Galbula</i> , Linn.                |
| Golden-vented Thrush ...         | <i>Pycnonotus aurigaster</i> (Vieill.)        |
| Gt. Ash-color'd Shrike [fem.]    | <i>Lanius Exicubitor</i> , Linn.              |
| Woodchat Shrike ... ..           | <i>Enneoctonus refus</i> (Briss.)             |
| Nutcracker ... ..                | <i>Nucifraga caryocatactes</i> (Linn.) Briss. |
| Rose-color'd Ouzel [Brit. spec.] | <i>Pastor roseus</i> (Linn.) Temm.            |
| Red-winged Starling ... ..       | <i>Agelaius phœniceus</i> (Linn.) Vieill.     |
| Mountain Linnet ... ..           | <i>Fringilla flavirostris</i> , Linn.         |
| Cirl Bunting ... ..              | <i>Emberiza Cirlus</i> , Linn.                |
| Ortolan Bunting ... ..           | <i>Emberiza hortulana</i> , Linn.             |
| Lapland Bunting ... ..           | <i>Plectrophanes lapponicus</i> (Linn.) Selb. |
| Short-toed Lark ... ..           | <i>Alauda brachydactyla</i> , Temm.           |
| Crested Lark ... ..              | <i>Alauda cristata</i> , Linn.                |
| Shore Lark ... ..                | <i>Octocoris alpestris</i> (Linn.)            |
| Parrot Cross-bill ... ..         | <i>Loxia pityopsittacus</i> , Bechst.         |
| White-winged Cross-bill ...      | <i>Loxia leucoptera</i> , Gmel.               |

### Order 3. Scansores, Ill.

|                             |                                     |
|-----------------------------|-------------------------------------|
| American Cuckoo ... ..      | <i>Coccyzus americanus</i> (Linn.)  |
| Great spotted Cuckoo ... .. | <i>Oxylophus glandarius</i> (Linn.) |

### Order 4. Columbæ, Lath.

|                         |                                               |
|-------------------------|-----------------------------------------------|
| Rock Dove ... ..        | <i>Columba Livia</i> , Briss.                 |
| Passenger Pigeon ... .. | <i>Ectopistes migratorius</i> (Linn.) Swains. |

### Order 5. Gallinæ, Linn.

|                            |                                           |
|----------------------------|-------------------------------------------|
| Barbary Partridge ... ..   | <i>Caccabis petrosa</i> (Lath.)           |
| Andalusian Hemipode ... .. | <i>Turnix gibraltarius</i> (Gmel.) Gould. |
| Virginian Colin ... ..     | <i>Ortyx virginianus</i> (Linn.) Gray.    |

### Order 6. Struthiones, Lath.

|                       |                            |
|-----------------------|----------------------------|
| Great Buzzard ... ..  | <i>Otis trada</i> , Linn.  |
| Little Buzzard ... .. | <i>Otis tetrax</i> , Linn. |

### Order 7. Grallæ, Linn.

|                              |                                      |
|------------------------------|--------------------------------------|
| Great Plover ... ..          | <i>Edicnemus crepitans</i> , Temm.   |
| Cream-coloured Courser ...   | <i>Cursorius gallicus</i> (Gmel.)    |
| Kentish Plover ... ..        | <i>Charadrius Cantianus</i> , Lath.  |
| Crane ... ..                 | <i>Grus cinerea</i> , Bechst.        |
| Great White Heron ... ..     | <i>Ardea alba</i> , Gmel.            |
| Egret [British specimen] ... | <i>Ardea Gazetta</i> , Linn.         |
| Squacco Heron ... ..         | <i>Ardea Comata</i> , Pall.          |
| Buffed-backed Heron ... ..   | <i>Ardea Coromanda</i> , Bodd.       |
| American Bittern ... ..      | <i>Bataurus lentiginosus</i> , Mont. |
| Spoon-bill ... ..            | <i>Platalea leucorodia</i> , Linn.   |
| White Stork ... ..           | <i>Ciconia alba</i> , Briss.         |
| Black Stork ... ..           | <i>Ciconia nigra</i> , Bechst.       |

|                         |     |     |                                               |
|-------------------------|-----|-----|-----------------------------------------------|
| Spotted Redshank        | ... | ... | <i>Totanus stagnalis</i> , Bechst.            |
| Wood Sandpiper          | ... | ... | <i>Totanus Glareola</i> , (Linn.) Temm.       |
| Avocet                  | ... | ... | <i>Recurvirostra Avocetta</i> , Linn.         |
| Black-winged Stilt      | ... | ... | <i>Himantopus Candidus</i> , Bonn.            |
| Buff-breasted Sandpiper | ... | ... | <i>Tringa refescens</i> , Vieill.             |
| Broad-billed Sandpiper  | ... | ... | <i>Tringa platyrhynchos</i> , Temm.           |
| Schintz's Sandpiper     | ... | ... | <i>Tringa Schinzii</i> , Brehm.               |
| Pectoral Sandpiper      | ... | ... | <i>Tringa Pectoralis</i> , Say.               |
| Brown Snipe             | ... | ... | <i>Macroramphus griseus</i> , (Gmel.) Leach.  |
| Sabine's Snipe          | ... | ... | <i>Gallinago Sabini</i> , Vigors.             |
| Red-necked Phalarope    | ... | ... | <i>Phalaropus hyperboreus</i> (Linn.) Cuvier. |
| Ballion's Crake         | ... | ... | <i>Ortygometra pygmæ</i> , Naum.              |
| Little Crake            | ... | ... | <i>Ortygometra minuta</i> , Pall.             |

## Order 8. Anseres, Linn.

|                            |     |     |                                                |
|----------------------------|-----|-----|------------------------------------------------|
| Spur-winged Goose          | ... | ... | <i>Plectopterus gambensis</i> , (Linn.) Steph. |
| Common Wild Goose          | ... | ... | <i>Anser fesus</i> , Gesn.                     |
| White-fronted Goose        | ... | ... | <i>Anser Erythropus</i> , (Linn.) Flem.        |
| Pink-footed Goose          | ... | ... | <i>Anser Brachyrhynchus</i> , Baill.           |
| Bernicle Goose             | ... | ... | <i>Bernicla leucopsis</i> , (Bechst.)          |
| Red-breasted Goose         | ... | ... | <i>Bernicla ruficollis</i> (Pall.) Steph.      |
| Polish Swan                | ... | ... | <i>Cygnus immutabilis</i> , Yarrell.           |
| Whistling Swan             | ... | ... | <i>Cygnus fesus</i> , Ray.                     |
| Bewick's Swan              | ... | ... | <i>Cygnus minor</i> , Pall.                    |
| American Swan              | ... | ... | <i>Cygnus americanus</i> , Sharpeless.         |
| Ruddy Shieldrake           | ... | ... | <i>Casarka rutila</i> , Pall.                  |
| American Wigeon            | ... | ... | <i>Mareca americana</i> (Gmel.) Steph.         |
| Bimaculated Duck           | ... | ... | <i>Querquedula bimaculata</i> , Penn.          |
| Gadwall                    | ... | ... | <i>Chaulelasmus strepera</i> , Linn.           |
| Red-crested Whistling Duck | ... | ... | <i>Branta rufina</i> (Pall.) Boie.             |
| Scaup Pochard              | ... | ... | <i>Fuligula Marila</i> (Linn.) Steph.          |
| Ferruginous Duck           | ... | ... | <i>Nyroca leucophthalma</i> (Bechst.) Flem.    |
| Harlequin Garrot           | ... | ... | <i>Clangula histrionica</i> (Linn.) Steph.     |
| Long-tailed Hareld         | ... | ... | <i>Harelda glacialis</i> (Linn.) Leach.        |
| Steller's Western Duck     | ... | ... | <i>Eniconetta Stelleri</i> , Pall.             |
| King Duck                  | ... | ... | <i>Somateria spectabilis</i> (Linn.) Steph.    |
| Surf Scoter                | ... | ... | <i>Oidemia perspicillata</i> (Linn.) Steph.    |
| Red-breasted Merganser     | ... | ... | <i>Mergus Serrator</i> , Linn.                 |
| Hooded Merganser           | ... | ... | <i>Mergus cucullatus</i> , Linn.               |
| Red-necked Grebe           | ... | ... | <i>Prodiceps griseana</i> (Bodd.) Lath.        |
| Sclavonian Grebe           | ... | ... | <i>Prodiceps Cornutus</i> (Gmel.) Lath.        |
| Great Auk                  | ... | ... | <i>Alca impennis</i> , Linn.                   |
| Manx Shearwater            | ... | ... | <i>Puffinus Anglorum</i> , Ray.                |
| Cinereous Shearwater       | ... | ... | <i>Puffinus cinereus</i> , Gmel.               |
| Wilson's Petrel            | ... | ... | <i>Thalassidroma oceanica</i> , Kuhl.          |
| Forked-tailed Petrel       | ... | ... | <i>Thalassidroma Leachii</i> , Temm.           |
| Bulwer's Petrel            | ... | ... | <i>Thalassidroma Bulweri</i> (J. & S.) Gould.  |
| Buffon's Squa              | ... | ... | <i>Stercorarius cephus</i> , Brün.             |
| Common Squa                | ... | ... | <i>Stercorarius catarrhactes</i> , Linn.       |
| Glaucous Gull              | ... | ... | <i>Laurus glaucus</i> , Brün.                  |
| Iceland Gull               | ... | ... | <i>Laurus leucopterus</i> , Faber.             |
| Little Gull                | ... | ... | <i>Laurus minutus</i> , Pall.                  |
| Sabine's Gull              | ... | ... | <i>Xema Sabini</i> , Leach.                    |



|                            |                                        |
|----------------------------|----------------------------------------|
| Ivory Gull ... ..          | <i>Pagophila eburnea</i> (Gmel.) Kaup. |
| Caspian Tern ... ..        | <i>Sterna caspia</i> , Pall.           |
| Gull'd Lill'd Tern ... ..  | <i>Sterna anglica</i> , Mont.          |
| Sandwith Tern ... ..       | <i>Sterna cantica</i> , Gml.           |
| Roseate Tern ... ..        | <i>Sterna paradisea</i> , Brün.        |
| White-wing'd Black Tern... | <i>Hydrocheidon nigra</i> , Linn.      |
| Black Noddy ... ..         | <i>Anous stolidus</i> (Linn.) Catesby. |

### BOTANY.

The Council report, with much pleasure, that sufficient money has been raised to purchase the *valuable Herbarium* collected by the late Mr. Perry, and the thanks of the Society are due to those friends who have presented it to the Museum. Through the exertions of the Rev. C. F. Thorneville, lately resident for a short time in Warwick, the Collection has been carefully examined, a report drawn up on the condition of the specimens, and a list made out of the desiderata. The Council have now under consideration the best mode of arranging the Herbarium, and of rendering its contents available for the use of such Botanical students as may wish to consult it.

### LIBRARY.

An opportunity occurred to purchase a very good copy of the second Edition of *Dugdale's Antiquities of Warwickshire*, by 'Dr. Thomas, of which the Council availed themselves, considering that it was very desirable to have it in the Library for reference.

A Catalogue of Books in the Library has been made, to the 31st December, 1867, and a copy was sent to each Member.

The Council will be glad to receive presents of any works of Local interest, for the Library.

Any member wishing to take a Book from the Library, is particularly requested to see that an entry is made in the book kept for that purpose, which is on the Library table. The date must also be entered when the book is returned.



Before Members are allowed to take Books out of the Library, a deposit of ten shillings is required. Some of the Books cannot be taken away from the Library.

The Accounts for the year have been audited, and the General Financial Statement, to March 31st, 1871, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much might be effected if adequate means were placed at the disposal of the Council. Owing to the losses by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a less satisfactory condition than could be desired. A reference to the list of subscribers will show that only a few of the rich and influential residents in the County belong to the Society. If the members would solicit annual subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society.

During the past winter, the Museum has been thrown open on a certain number of evenings in the week, so as to make its valuable contents available to the working classes and others, who, from their time being fully occupied, are unable to visit it during the daytime.

Three Lectures have also been delivered at eight o'clock in the evening, in the months of December, January, and February: they were listened to with great interest and attention by crowded audiences, composed principally of artizans, and their families.

The First (on birds) was given on the opening night, by Mr. R. F. Tomes, F.Z.S.

The Second (on coal) was delivered by the Rev. P. B. Brodie, F.G.S.

On the Third evening an elaborate paper was read by P. O'Callaghan, LL.D., on Piers Gaveston, a subject deeply interesting to the inhabitants of Warwick, and its neighbourhood.

Elementary Classes have also been partially formed on Mechanics and Botany. They are now suspended for the summer months, but the Council intend to resume them in the autumn, on a somewhat different plan, and fully hope that they will be appreciated by those persons for whose benefit they have been formed.

The expenses of laying the gas, &c., have been defrayed by voluntary subscriptions, the Council are however anxious to get further contributions, in order to obtain the necessary apparatus and diagrams for the classes, and also (should the funds be sufficiently large) to procure the occasional services of eminent lecturers on various scientific subjects.

The following Paper was read at the Winter Meeting, (March, 1871,) of the Warwickshire Naturalists' Field Club, and at the request of the Council of the Warwickshire Natural History and Archæological Society, who were disappointed of a Paper promised them by Mr. Bloxam, is published here instead :—

*The Nature, Origin, and Geological History of Amber, with an Account of the Fossils which it contains, by the Rev. P. B. Brodie, M.A., F.G.S., Vice-President of the W.N.F.C.*

The history and origin of Amber is a very interesting one and one which has only lately been clearly elucidated in an able paper, by Professor Zaddach,\* of Königsberg; and from it many of the facts in this paper have been obtained. It struck me that a brief account of it might prove instructive and useful to the members of our Field Club, even to those who are not specially interested in Geological problems. Amber is usually a bright yellow substance, and like the beautiful Diamond and black coal, is more or less a pure Carbon; † and as we proceed in its investigation will be shown to be a resinous gum, originally in a liquid state, and derived from pines or other coniferous trees. It possesses a slight odour, certain electrical properties, and is capable of combustion; it incloses insects, leaves and other extraneous matter, and occurs in beds of clay and lignite, chiefly in Prussia, belonging to the Tertiary formation called Eocene, one of the earliest deposits of this age, and in another of still later date. Some Amber is so dark that it is called black Amber, and has in its appearance and composition, a close analogy to solid Bitumen, which latter is a dark mineral oil, smelling like tar. All

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\*Quarterly Journal of Science, April, 1868.

† The Diamond is the purest crystalline form of Carbon, and Charcoal, which is wood from which the volatile matters have been driven off by heat, is its purest amorphous state.

this clearly indicates its vegetable origin. It is valuable for certain economical purposes, such as vases, necklaces, and mouth pieces for pipes, and a very large trade is carried on in its collection and manufacture for these purposes.

It is a product of foreign countries, and is found chiefly on the shores of the Baltic, in Pomerania, Spain, on the shores of Sicily and the Adriatic, Russia, Africa, Brazil, and pieces are sometimes washed up on our eastern coasts ‡ but were probably derived from a distance perhaps by currents from the Baltic.

Although the communication between the Baltic Sea and the German Ocean is broken by the land of Denmark, and only exists through the island of Zealand, and others, which lie between Denmark and Sweden, it is quite possible, and by no means improbable, that currents may have conveyed pieces of Amber, from the coasts of the Baltic, through the Cattegat into the North Sea, and thence they would occasionally, though rarely, be picked up on our eastern coasts. They may perhaps have been brought thence during the post Tertiary period, when the now land of Denmark was depressed beneath the ocean, and hence the North Sea and the Baltic would form one uninterrupted expanse of water. There is no reason to suppose that any Tertiary deposit, exactly equivalent to the Amber-bearing earth, exists in situ, at the bottom of the North Sea, otherwise Amber would be found in abundance on British shores washed by it.

Mr. Hope says that Amber has been found in the gravel pits near London, derived probably from some of the Tertiary strata of our Island, I have detected small pieces of resin in

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‡ I lately had the pleasure of inspecting a fine collection of Amber, belonging to Lady Murray, at Leamington, collected by the late Mr. Fairholme on the coast at Ramsgate; where it is washed up after storms, but probably derived from the Baltic. One large clouded piece was valued at £500. Most of the bits contained a variety of beautifully preserved Insects, among which were many entire Diptera, Orthoptera, Coleoptera, Hymenoptera and one Lepidoptera. There were some plants, including a Dicotyledonous leaf and stems, and a small shell, apparently a fresh-water Mollusk, with a portion of the animal protruding from the interior.

the clays of the Wealden in the Isle of Wight, and some have been met with in the London clay at Highgate. Perhaps one of the richest deposits of Amber, and for which it has been long celebrated, is a province of Prussia called Samland, bounded on the west and north by the Baltic. In a portion of this district fine sections are exposed of the Tertiary formation varying from 80 to 125 feet in thickness. It consists of two different deposits, the lowest being composed of thick beds of Glauconitic § sand 65 feet thick, overlaid by the brown coal formation from 60 to 100 feet thick. This Glauconitic sand in the north and west coast, differs from that on the south. In the former, the upper part about 60 feet consists of light green sand made up of large quartz grains, and bright green granules of Glauconite, elsewhere the lower portion of this green sand is cemented by hydrated oxide of iron into a coarse sandstone, which contains numerous fossils. Below this is a deposit of finer quartz grains, and more Glauconite and much clay and mica; associated with the above, in descending order is a wet sandy stratum called quicksand, (because it contains a large quantity of water), 8 feet thick, succeeded by a blue earth, or Amber-earth, 3 to 4 feet thick, fine grained and argillaceous. In this the Amber is found abundantly, but irregularly distributed, occupying a narrow zone, the pieces are of various sizes, usually small; those weighing half a pound being seldom found, and more rarely larger ones of greater weight. The surfaces are worn and rounded and bear little resemblance to their original form as the liquid resin of a tree, formed between the bark and the wood, or between the yearly rings of growth of the stem. Fine impressions of the parts of the plants which produced these Amber nodules can be distinguished on their surface. Evidently then they were for a time subject to the action of

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§ When Marl contains a large admixture of green-sand, it forms what is called firestone or Glauconite.

water before they were embedded in their clayey matrix. Pieces of fossil wood are also associated with the Amber, when any Amber is attached to the wood itself it is often so completely penetrated by it, that it has the appearance of Amber filaments. The following fossil shells occur in the Amber earth, at the bottom of the quicksand, and in the overlying ferruginous (Glaucanite) sandstone, *viz*:—a species of *Ostrea*, *Cardium*, *Pectunculus*, *Natica*, *Spatangus*, *Scutella*, and *Echinus*, and a crab, and abundant remains of *Eschara* and *Cellepora*. These fossils determine the age of this Tertiary formation to be the Eocene, or oldest period. The Amber itself it is evident, was derivate and washed down probably by floods from the land on which the Amber trees grew, into the sea and there deposited with the marine remains which are now associated with it, although it seems probable that the land was not very far from the shore where it was abundant. Above and below the Amber earth only a few isolated pieces of Amber occur. In the southern deposit the Amber earth is thicker, 20 feet at least, and composed of two different layers, but here only the upper 'Amber earth' and the 'green sand' agree with the northern formation. The former is also further distinguished from the latter, by containing no other fossils except sharks' teeth which occur in the 'Amber bed,' and by more abundant pieces of Amber in the overlying strata. Professor Zaddach also has proved that the Tertiary Glaucanite was derived from the green sand of the older Cretaceous formation, the younger beds of which constitute a part of the Danish island of Bornholm. He also shows that the trees which yielded the Amber must have grown upon the Greensand beds of the Cretaceous period, flourishing luxuriantly on the marshy coast which then surrounded the great continent of Northern Europe. Probably the temperature was then much higher than it is now, and this even at that epoch extended to the



now frost bound Arctic regions, a fact which has been proved by the remarkable plant remains of temperate climes which have been recently discovered there. The Amber flora of the Baltic area under review, contains northern forms associated with plants of more temperate zones, and with others even which live in much more southern ones. Thus Camphor trees (*Cinnamomum*) occur with willows, birches, beech, and numerous oaks; a species of *Thuya*, very similiar to the American *Thuya*, *occidentalis* is the most abundant tree amongst the Conifers, next in abundance *Widdringtonia*, a great variety of Pines and Firs, including the Amber pine,\* thousands of these it is supposed by the professor might already have perished, and while the wood decayed, the resin with which the stem and branches were loaded might have been accumulated in large quantities, in bogs and lakes, in the soil of the forest. If the coast at that time was gradually sinking, the sea would cover the land, in due course carry away the Amber and masses of vegetable detritus into the ocean, where it was deposited amidst the marine animals which inhabited it. But in higher districts the Amber pines would still flourish, and so Amber still continued to be washed into the sea and deposited in the later formed Green Sand, and still later overlying formation of the 'Brown coal.' In the Prussian district, now under consideration, this newer Tertiary formation consists of (1) clay (2) sand, and (3) brown coal, † No. 2 only contains Amber, not so abundantly as in the Amber earth, not in regular layers, but usually harder and therefore more valuable than the richer deposit below. The Brown Coal flora differs from the

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\* It is stated by Berendt, that the wood, blossoms, fruit, and needle leaves of the Conifera have been detected in Amber, the latter very rarely, yet never corresponding with any existing trees, and although the leaves differ greatly from all known species, a microscopical examination of the wood, places it beyond all doubt that the Amber tree was a *Pinus*. The *Pinus Balsamea* approaches nearest to it in appearance, but the tree no longer exists.

† My friend Sir C. Lyell considers the 'Brown Coal' of the Rhine, to belong to the newer Pliocene period, and probably all the Brown Coal elsewhere is of the same age, and if so, much newer than the Glauconite, which contains the earliest traces of Amber.



older Amber flora, probably owing as the professor thinks, to a change which had already taken place in the climate of Northern Europe. Many of the plants which occur in it are not found living in the region now, though very similar to the existing flora. The most numerous are Poplars, Alders, Ash, and several varieties of Conifera. With these were associated Gardenia, with fruit like a pea, a fig, Banksia, &c.

As the Brown Coal extends over other parts of Germany, and elsewhere, and sometimes yields Amber, it will be understood that this product is not by any means confined to the Baltic area referred to in this paper, nor to the earlier Tertiaries. It has been discovered in Russia, in the Province of Grodno, and Italy, probably in Tertiary deposits of the same age also in Africa, Brazil, and South America, but whereabouts I am unable to state positively, but probably derived from some one of the Tertiary formations. It has been met with in Sweden, on the coast of the North Sea, and may yet be discovered in many other localities, when the stock is exhausted in the richer Baltic provinces, and the demands of trade compel the dealers to search for it elsewhere. Vast quantities are washed up on the shore near Memel, also in the Baltic, in the extreme North-East, and are thought to have been derived from certain Tertiary deposits containing Amber, in the large adjacent region of Russia and Poland, where Brown Coal containing Amber has been discovered overlying true Chalk. Stores of Amber still lie hidden in the interior of the country, and on the Baltic coast, though much still is no doubt buried under the sea, the Amber bearing stratum often lying too deep to be attainable.‡

Besides the plants which are occasionally found in Amber, the most interesting and remarkable fossils, are the insects,

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‡ Murchison's Quarterly Journal Geological Society, No. 97, Vol. 25, pt. 1, page 3.

which from their usually beautiful and perfect state of preservation, are more interesting to the Entomologist than the more imperfect remains of this class contained in many other and older formations, and are therefore more easily determined. As the flora of the inferior 'Amber earth,' belonging to the Glauconite series, differs from that of the superior and newer Brown Coal, it is possible that many of the Insects would also differ, while those in the African Amber would present still greater diversity, and a more tropical character. As a general rule, all the Tertiary insects have a more decided European character, closely approximating to recent forms, than the Carboniferous, Liassic, and Oolitic ones, and several genera and species are still found living, though many are extinct. From the lucid clearness and beautiful transparency of Amber, and its soft yellow colouring, the insect remains can be most easily examined. It would seem that they must have been caught suddenly by the liquid resin as it oozed out of the pines, and thus were entombed alive, which will account for their wonderful state of preservation. Many of them no doubt were caught while on the trees, and even the cunning spider, while watching for his prey, was like the biter bit, enveloped also. Others may have been embedded at the base of the trees, where the Amberous exudation was unusually profuse. Crustacea are also recorded in Amber, by Berendt, and certain of the class Myriapoda to which the common Centipede, Scolopendra, and Iulus belong, creatures which would abound amongst the decaying wood, and in the hollows of the trees in the ancient Tertiary forests of the period. When quickly enveloped, the insects and other organic remains are well preserved, retaining their natural colours and their more delicate parts. Those which died, and were long exposed to the air, are more or less injured, and are surrounded with a white, mouldy covering,

which obscures them, and dis-colours the Amber. This is especially the case in some of the Prussian Amber, but has not been noticed in the Pomeranian, which is always bright and clear. Dr. Burmeister states, that with respect to the families, genera, and species of insects found in Amber, they present a conformity in the majority of instances, with existing forms and even an identity of species. No new forms have been observed, and existing genera are readily recognised, nor do they belong to our latitudes, though many forms perfectly agree in this respect. This may especially be affirmed of the smaller flies and gnats, but particularly in the cockroaches, many beetles, and the majority of the Hymenoptera, the resemblance to exotic forms is still greater. Many different species occur as in the present day, but only those families are preserved in this fossil resin which are found in woods or on trees, and scarcely ever water beetles. In the order Coleoptera, among the Carabidæ is a small *Dromius*, and Germar has described another, which he calls *Lebina resinata*. Of the Elateridæ is a genus very similar to *Elater cylindricus*, and many smaller species. *Deperditores*, two species resembling *Anobium*, *Atractocerus*, and a *Cantharis*. *Heteromera*, a small *Opatrum* allied to *sabulosum*. Also a *Mordella*. The leg of a Capricorn beetle. The Chrysomelidæ are more numerous, *viz*: a small, purple shining *Haltica*, several *Crioceris*, and a few *Gallerucidæ*. The Bostrychodæ are very numerous, *viz*:—a species of *Platypus*, several *Bostrychi* and *Opatra*. The Curculionidæ too, are tolerably abundant, particularly species of the genera *Phyllobius*, *Polydrusus*, *Thylacites*, and some forms allied to exotic groups. The Hymenoptera are very abundant, and amongst them several *Ichneumonidæ*, a *Sphex* of the genus *Pepsis*, resembling the American, and particularly the African species. There is also a small Bee, which appears to belong

to the South American genus, *Trigona*. The ants are most numerous in this order, particularly true *Formicæ* and *Myrmicæ*, closely resembling European ones. One peculiar form of ant is a new one. *Lepidoptera* are great rarities, though a large *Sphinx* and several caterpillars are mentioned by Berendt. The *Diptera* are extremely abundant, as *Tabani*, *Bombylii*, *Anthrax*, *Leptis*, *Empes*; species of the genera *Musca*, *Anthomya*, *Scatophaga*, *Bibios*, *Tipula*, and *Limnobia*, also an abundance of gnats.

Next to these the *Neuroptera* are the most frequent, among which are the larva of a *Myrmeleon*, a small *Hemerobius*, a *Semblis* and its larva, the more remarkable, as they all live in water, and innumerable *Phryganeæ*. The genus *Ephemera* also occurs. Among the *Libellulidæ*, the *Termites* are most numerous, and two species of *Psoci*. In the order *Orthoptera*, there are many *Blattidæ*, some of which are American forms, and another had a greater resemblance to the *Blatta Germanica*, common in the woods in Germany. Some *Achetæ*, large grasshoppers, and a small locust. In the order *Hemiptera* are many *Cicada*, some *Cimicidæ*, and even a *Nepa* is recorded. All the above specimens are preserved in Amber in the academical collections at Berlin and Griefswald, and a few are recorded by Germar and Berendt.\*

In the British Museum, the following Amber Insects are recorded by Mr. T. Smith, of the Entomological Department.†

A dipterous Insect belonging to the European genus, *Leptis* and *Echinomyia*.

A species of the blind travelling ants (*Formicidæ*) of Africa, being either *Annomma rubella*, or closely allied species, and

\* Burmeister's Manual of Entomology, page 575.

† Quarterly Journal of Science, April 1868.

another belonging to the African or South American genus, *Polyrhachis*.

A Dipterous Insect belonging to a new genus of *Muscidæ*, allied to the European genus *Tachinus*.

A clicking beetle belonging to the European genus *Cardiophorus*, a Heteromorous Beetle allied to the genus *Statira*. A species of the tropical family of *Eumolpidæ*. A species of *Termes* (white ants). A Spider belonging to the family *Attidæ*.

At my request, Mr. Baly has kindly examined the Insects in the small collection of Amber in the Warwick Museum, and he gives the following list. *Coleoptera*: several specimens belonging to the genera *Scolytus*, *Bostichus*, and *Platypus* or allied forms.

*Hymenoptera*. Specimens of *Formica*, *Myrmica*, and a small genus of *Apidæ*, a social Bee, allied to, if not belonging to the genus *Apis*.

*Neuroptera*. Many specimens of *Raphidia*, and also larvæ and neuters of *Termes*.

*Lepidoptera*. A single specimen belonging to the family *Geometridæ*.

*Orthoptera*. Several specimens of *Blatta* and *Gryllus*.

*Diptera*. Specimens of the genus *Musca* and others.

*Arachnida*. Several specimens, very imperfect.

He thinks the species are extinct, but all of European forms.

My friend Professor Westwood informs me that in the Taylor Museum at Oxford, are several Insects in Amber, from Catania in Sicily, no doubt from some of the Tertiary deposits there, but of what exact age, I can obtain no accurate account; nor are they referred to by Sir C. Lyell, who only mentions a remarkable and comparatively recent marine formation, with species of shells now living in the Mediterranean. Mr. Westwood states that the Insects are very

interesting and different to those of the Baltic. I regret I cannot add anything further about them. He also observes that the Insects (Neuroptera and Hemiptera, &c.,) Crustacea and Arachnida, figured and described by Berendt, ('Organische Reste in Bernstein,') are many of them very like indeed to the Insects of the present time. They are marvellously like recent ones, many being of the same genera, and very few indeed out of the way forms, not more than I should expect to see in a collection from the East coast of Africa, or South America. On the other hand, the late Rev. F. W. Hope, in a paper read before the Entomological Society (of which he was President) in 1834, states it to be his opinion that the Amber Insects are altogether extra European, many of them belonging to tropical and temperate climes, while some approach South American and Indian forms. He knew of no existing species to which they were analogous, and are therefore probably extinct. This opinion he had arrived at by examination of a variety of specimens in the collections of Germany and England, and he adds that several well known Entomologists and Naturalists agreed with him. The substances therefore, enclosed in Amber, whether animal or vegetable, agree with no existing species, the plants producing it being extinct, and is therefore Geologically of remote antiquity. There is, it will be seen, a considerable difference in opinion as to the Insects in Amber, between two eminent Entomologists which I merely state, leaving the Doctors to disagree, which may, or may not be beneficial to the constitution, but it is right this divergence should be noticed.

Mr. Hope mentions the tail of a Lizard enclosed in Amber in the British Museum, and Lizards are found in Sicilian Amber; and at St. Gard in France, this substance is met with in a bed of fossil wood, mixed with numerous shells, Anopullaria, (a marine shell), Paludina, (a freshwater shell)



and *Helix*, (a land shell.) This no doubt, belongs to the Brown Coal.

A Scorpion is figured in Prussian Amber, by Schweigger, a genus properly a native of warm climates, certainly never occurring so far North as Dantzic. A new genus of spiders described by the same writer, approaches in its characters a southern, and probably an American type. *Formica Surinamensis*, or at least one like it, has already been recognised in Amber, and some Insects of the following genera *viz*:—*Gyrinus*, *Saperda*; *Hispa* and *Lamprosoma* evince a South American relationship, while the *Blattidæ*, and some of the *Hymenoptera* resemble closely oriental species. The presence of *Phryganea*, *Ephemera*, *Panorpa*, and *Leptura*, and many other genera, indicate a northern climate. Perhaps, like some of the Lias Insects, the latter were (as I have suggested) brought down by streams from the higher regions of a mountainous country adjacent. At all events, we may conclude that the climate and temperature of Europe have undergone considerable change, which other organisms tend to prove, since the Tertiary period. The above examples of tropical Insects testify that the Amber producing tree did not vegetate under such a climate as that which Prussia, especially the Baltic area, now enjoys. As one might expect, the majority of the Amber Insects are *Xylophagous*. Foreign writers on this subject, state that upwards of 200 species of *Coleoptera* are already known. Mr. Hope has recognised and described 83 genera, and various others uncharacterized, several of which belong to temperate climates, and many which are probably tropical. The major part of the insects, he adds, exhibit a *close resemblance* to existing species, though as he before remarks, not identical with them, and therefore extinct, and can be satisfactorily classed under published genera. He gives a



copious list of the families, genera, and species to which they may be referred, both in Amber and Anémé, among which are many new species, and some new genera. The latter gum is quoted chiefly from India. As this is a comparatively modern substance, the new genera and species, though previously unknown to Entomologists, might very well be so, since numerous living forms in that vast continent must be yet undiscovered, and there is no reason to suppose that the new ones in Anémé are not still living on the spot where it is formed.

The fossil Insects found abundantly in the freshwater calcareous marl at Aix, in Provence, are many of them still living in the vicinity, though probably of Eocene age, or later. With reference to them, Mr. Curtis remarks that 'they are all of European forms, and are referable to existing genera, and there is nothing in the character of the insects to warrant the supposition of a higher temperature than that of the south of France.'\*

It is necessary to be cautious about many of the fossils stated to occur in Amber, because it appears from what Professor Westwood tells me that much has been written and many species described as Amber insects and plants, which in fact were found in gum anémé, a modern deposit going on at the present day. It exudes from the stem of a North American tree, the 'Rhus Copalina,' so closely resembling Amber, that only a practised eye could detect the difference; and of course the fossils embedded in it would belong to living genera and species. It is much to be regretted

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\* At page 100 of my work on 'Fossil Insects,' I have pointed out that the Purbeck Insects are many of them allied to European forms, while the Lias are more nearly related to those which now inhabit North America, and both bear an absolute analogy to existing forms, which considering their age is remarkable, and so far indeed the Insects even of more remote Geological epochs, and really of very great antiquity, differ from the contemporary forms of animal life associated with them, which are for the most part new and extinct. But though the Purbeck and Lias Insects are thus allied to living European and North American forms, many are new and cannot like the *later* Tertiary Insects, be absolutely identified with species still in existence.

that the true Amber has in any way been mixed up with this more recent gum, but there can be no doubt about the age of the Amber-earth, from the Baltic referred to in this paper. There are other kinds of resinous gum, viz :—gum copal used in making varnish, and a gum which is derived from modern fir trees, and all of recent vegetable origin, but all may be distinguished chemically from one another. Anémé is very transparent, copal differs from it by a faint opalescence, and a pale greenish yellow tinge. True Amber is derived from an extinct coniferous tree, perhaps from two distinct trees, though probably a *Pinus*, like the living *Pinus Balsamea*, and only existing in the earlier and later Tertiary epochs. It does not soften when heated like the other gums.

This paper is by no means exhaustive. The literature on this subject is very extensive, and I hope on a future occasion to have access to some of the works, chiefly foreign but well-known, and to make any additions which may tend to increase our knowledge on this interesting question, and to make this article more generally useful and complete.

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The Annual Winter Meeting of the Warwickshire Naturalists' and Archæologists' Field Club, was held in the Museum Warwick, by kind permission of the Council of the Warwickshire Natural History and Archæological Society, on Monday, February 28th, 1871. The following papers were read :—Fortified Coventry, a sketch of the past and present condition of the defences, illustrated by plans and drawings, by W. G. Tretton Esq. On the Oolitic Drift gravel of Lutterworth, Kilworth, &c., by R. T. Musgrave, Esq. On Trees by the Rev. W. Johnson. There was a large attendance of members and several Ladies also were present.

The following is an abstract of the proceedings of the W. N. & A. Field Club during the past year.

The First Summer Meeting of the Club was held at Bromsgrove Lickey, on Tuesday, May 24th, 1871. Under the guidance of Mr. Hemming, the party first inspected an old Manor House near Barnt Green, thence to some old quarries of Wenlock limestone, with a few fossils, to Colmar's end examining some interesting and instructive sections of altered Llandovery sandstone en route. This sandstone forms the main mass of these hills, and is for the most part converted into Quartz Rock, indicating a line of eruption, and finally graduates into an ordinary grit with characteristic fossils, a few of which were obtained, here and there the Permian pebble beds were traced in situ, dipping beneath the new red sandstone. On the other side of Bromsgrove, several quarries of lower Keuper sandstone were visited, one of which affords a very fine section, and contains numerous imperfect remains of plants, chiefly impressions of a finely striated stem, these occur for the most part in the bottom rock of fine micaceous sandstone of a grey and red colour, thickly bedded. The deepest quarry is worked to a depth of fifty feet at least. Many of the sandstones make an excellent building stone, and harden by exposure. The quarry where the remarkable fish *Dipteronotus* was found, was carefully searched, but no traces of bones or scales could be discovered. The Lickey is the most eastern extension of the Llandovery sandstone; but a considerable portion of these hills is composed of Permian Breccia. Some rare plants occur there, such as *Viola rubra*, and the grass of *Parnassus*, but were not noticed on this occasion.

The next Meeting being an excursion of three or four days, took place at Woolhope, in Herefordshire, on Tuesday,

June 21st, under the able guidance of the Rev. F. Merewether, Rector of Woolhope. The party had a long walk to examine an interesting and previously unknown mass of drift, near Fownhope, visiting numerous quarries of Wenlock limestone, shale and lower Ludlow rock, near Mordiford, returning by Littlehope, to examine the Woolhope or lower Wenlock limestone, largely quarried there. Very few fossils were obtained. The following days were devoted to the examination of the Llandovery sandstone, at Haugh Wood and the Wenlock quarries, and old red sandstone towards Sollershope, the large and well-known quarries at Dormington, and lastly the passage beds at Perton, where the Rev. P. B. Brodie discovered a new and entire species of *Eurypterus*, which has been described by Mr. Woodward and named by him *E. Brodiei*. These junction beds between the old red sandstone and the Silurians are of much interest, and were shown by Mr. Brodie to have a much wider extension round the Woolhope area than had been previously suspected; and are fully described by him in a paper lately read at the Geological Society. Two exposures of Llandovery sandstone, not generally known, were pointed out by Mr. Merewether, N.W., and S. of Woolhope.

It was much to be regretted that the attendance of Members was so limited, as there are few neighbourhoods which can compete with this for the varied beauty of the scenery and the interesting and instructive Geology.

The next Meeting was held at Alcester, on July 20th, 1870, and was entirely devoted to Archæology.

The last Meeting of the season was held at Lutterworth, in Leicestershire, on Tuesday, August 16th, 1870. The party consisting of about ten members, went first to Newbold-on-Avon, to examine the few sections of Lower Lias

exposed there. The rest of the day was devoted to the inspection of numerous and interesting gravel-pits at Brocklehurst, Pailton, Monk's Kirby, &c., consisting of variable masses of Drift both above and below the Boulder Clay, in some places fine and sandy, and at other, made up of coarser materials, with much irregular bedding containing boulders of rocks of all ages, mostly from the north, with large square blocks of Lias, full of fossils, boulders of syenite, probably from Charnwood Forest, trap, chalk, flints, oolite, and many other formations. No marine or fresh-water shells have been discovered in any of this Drift, which for the most part covers the whole of this district, and entirely conceals the Lias beneath which only can be seen on the Midland Railway at Coal-pit Lane. An exceedingly fine church lately restored at Monk's Kirby was visited, and Lutterworth Church also restored, but not so striking as the former, though of special interest, because the great Reformer Wycliffe was formerly Rector of the parish.

## Additions to the Museum and Library.

### GEOLOGY.

#### DONATIONS.

Pullastra (*Cloacina*) *arenicola*. Canal, Copt Heath, Knowle. *Presented by Rev. P. B. Brodie.*

*Cerithium Brodiei* (Tate) Middle Lias, Aston Magna. *Presented by Rev. P. B. Brodie.*

Series of Fossils, from the Lower Cambrian and Silurian beds of St. Davids, Pembroke, &c., &c. *Presented by H. Hicks, Esq., St. David's and J. W. Kirshaw, Esq.*

### MISCELLANEOUS.

#### DONATIONS.

A Cabinet of Casts of Seals, principally Warwickshire, collected by the late C. Durnford Greenway, Esq. *Presented by the Miss Greenways.*

A Pix, probably of the 14th century. *Presented by the Miss Greenways.*

### LIBRARY.

#### DONATIONS.

Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club for 1870. *Presented by that Society.*

### LIBRARY.

#### PURCHASES.

Annals and Magazine of Natural History. Vol. 6 and 7. 4th series.

Camden Society's Publications:—

No. 103. Debates in the House of Lords, 1621.

No. 104. The Camden Miscellany. Vol. 6.

Geological Magazine, 70 to 81.

Palæontographical Society's Publications:—

Vol. 24.—Carboniferous Flora. Part II.

Cretaceous Echinodermata. Vol. 1, Part IV.

Fossil Brachiopoda Silurian. Part VII. No. 4.

Eocene Mollusca. Part IV. No. 3. Bivalve.

Mesozoei Mammalia.

# GENERAL FINANCIAL STATEMENT,

FROM 31st MARCH, 1870, TO 31st MARCH, 1871.

## Income.

|                                                             | £    | s. | d. |
|-------------------------------------------------------------|------|----|----|
| 1870.                                                       |      |    |    |
| 31st Mar.—To Balance of last account ...                    | 42   | 0  | 4  |
| 1871.                                                       |      |    |    |
| 31st Mar.—Amount received during the year for Subscriptions | 61   | 19 | 0  |
| Arrears ...                                                 | 1    | 1  | 0  |
| Received for admission to Museum                            | 63   | 0  | 0  |
| Paid Mr. Hosken for Library deposit ...                     | 9    | 3  | 6  |
| Received from Miss Kimberly                                 | 0    | 10 | 0  |
|                                                             | 0    | 10 | 0  |
| To Balance ...                                              | £38  | 1  | 1  |
| Of which is deposited on Library Account ...                | 1    | 10 | 0  |
| (Mr. Garner ...)                                            | 0    | 10 | 0  |
| (Mr. Kitchener ...)                                         | 0    | 10 | 0  |
| (Miss Kimberly ...)                                         | 0    | 10 | 0  |
| Balance ...                                                 | £36  | 11 | 1  |
|                                                             | £114 | 3  | 10 |

## Expenditure.

|                                                                      | £    | s.  | d.  |
|----------------------------------------------------------------------|------|-----|-----|
| 31st March, 1871                                                     |      |     |     |
| Insurance ...                                                        | ...  | ... | ... |
| Attendant's Salary ...                                               | ...  | ... | ... |
| Coal and Firing ...                                                  | 20   | 0   | 0   |
| Printing (including Reports) and Stationery                          | 4    | 7   | 5   |
| Fittings and Repairs ...                                             | 13   | 18  | 10  |
| Preserving and Repairing Objects ...                                 | 6    | 9   | 1   |
| Books, Binding, &c. ...                                              | 1    | 11  | 10  |
| Geological Map—Ordnance Survey—of the County of Warwick, Mounted ... | 6    | 13  | 2   |
| Subscriptions to Societies ...                                       | 4    | 10  | 0   |
| Postage, Circulars, &c. ...                                          | 3    | 2   | 0   |
| Carriage of Parcels ...                                              | 2    | 8   | 0   |
| Incidental Expenses, Cleaning, &c. ...                               | 0    | 1   | 0   |
| Poor's Rate ...                                                      | 6    | 6   | 5   |
| Collector's Commission ...                                           | 1    | 12  | 0   |
|                                                                      | 3    | 3   | 0   |
| By Balance ...                                                       | £76  | 2   | 9   |
|                                                                      | ...  | 38  | 1   |
|                                                                      | £114 | 3   | 10  |



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The MUSEUM is open daily to the Members and their Friends, from Eleven o'clock to Five between the First of March and the Thirty-first of October, and from Eleven o'clock to Four between the First of November and the last day of February.

Non-Subscribers are admitted on payment of an admission fee of sixpence each.

The Museum is free to the Inhabitants of Warwick on Mondays and Tuesdays.

The Annual Subscriptions for 1871 are due on the 24th day of May, and the Council request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick ; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.







WARWICKSHIRE  
NATURAL HISTORY

AND

Archaeological Society.

*THIRTY-SIXTH ANNUAL REPORT.*

APRIL, 1872.



WARWICK:

PERRY, PRINTER, NEW STREET & OLD SQUARE.



WARWICKSHIRE  
NATURAL HISTORY  
AND  
ARCHÆOLOGICAL SOCIETY,  
ESTABLISHED MAY 24th, 1836.

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*THIRTY-SIXTH ANNUAL REPORT*  
OF THE COUNCIL TO THE SUBSCRIBERS,  
READ AT THE  
ANNIVERSARY MEETING, APRIL 5, 1872.

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In presenting the annual report, the Council congratulate the Members on the continued prosperity of the Society.

Some valuable additions have been made to the Museum and Library, by donation and purchase, during the past year.

The Geological Curators have been gradually re-arranging a portion of the collection of Organic Remains, and some of the new cases are already nearly filled, and a small but judicious annual outlay in specimens and cabinets, when required, with the aid also of friendly donations, will soon make the entire Geological collection most valuable and instructive, and one of the best out of London. At present the collections of Natural History and Geology form a good educational medium for all classes, and it is of the utmost importance to maintain and increase its efficiency.



The fine example of the “*Megacerus*”—“Fossil deer of Ireland,” from Lough Gur, near Limerick, which was presented to the Society by the late Richard Greaves, Esq., is now placed in the Geological room of the Museum.

A remarkably fine head, not quite perfect, of a gigantic *Ichthyosaurus*, from the upper Lias of Whitby, and two Casts of the skulls of a large-sized *Labyrinthodon*, from the Keuper of Germany, have been presented to the Society.

Owing to the increase of accommodation upstairs, it is now hoped that some new cabinets will be added to the Geological room, in which the increasing collection can be placed, and which will render the whole less crowded than it is at present. It is impossible to arrange such a collection properly, and for the same reason it is much less profitable than it otherwise would be for all purposes of general instruction.

Though some of the desiderata have been filled up, there are several formations which are still very defective, amongst which may be enumerated the following:—The Eocene Tertiaries, especially those of Ryde, Cowes, Sconce, Headon Hill, Hordwell, Barton, and Bracklesham. London Clay Fossils, from Sheppey and Bognor, Upper and Lower Greensand, Great Oolite, Devonian and Lower Silurian will be very acceptable. The aid of the members is particularly requested in procuring fossils from the County, especially those of the Lias, Keuper, and Permian, as it should be the chief aim of all local Museums to have as fine a suite as possible from the strata which occur in the immediate neighbourhood, and this the Warwickshire Natural History Society has endeavoured to carry out.

### ARCHÆOLOGY.

The Roman Coffin, found in the excavation for the

railway near Alcester, which was purchased for the Society, has been set up at the entrance-door of the Museum.

### BRITISH MAMMALIA.

Although no addition has been made to the British Mammals since last year, we devote this paragraph to the collection, hoping that we may thereby meet with assistance in its completion. Unlike British Birds, which migrate, and which therefore in some species can only be obtained as stragglers, the Mammals are resident, and though some are rarer than others, *all* may be obtained with tolerable certainty, by those residing in such parts of the country as they are known to inhabit. With the exception of the marine species, such as the Whales and Porpoises, there are none which might not take their place in our collection of British feræ. We have already some of the largest of the land animals, as the Red Deer and Roebuck, both presented by Edward Greaves, Esq. A mounted specimen of the Fallow Deer, and of the two kinds of Martin, *i.e.* the yellow breasted and the white breasted Martin, would go far towards the completion of the terrestrial Mammalia of Great Britain. We earnestly hope that some friends to this Institution will kindly furnish one or other of these desiderata. Of the smaller kinds, such as the Shrews and Bats, a few kinds are wanting, but these the Curators believe they shall before long be able to supply.

### ENTOMOLOGY.

The Entomological collection is in the course of arrangement in the New Cabinet, the Aculeate Hymenoptera, occupying nine drawers, are already arranged, and the arrangement of the Coleoptera is commenced.

The majority of scientific Entomologists residing in or near London, have confined their researches principally to

the Metropolitan district, or to the Southern counties of England; consequently the Midland counties present an almost unworked field, which must contain very many interesting novelties.

Warwickshire from its high state of cultivation has but few waste spots, on which Insects usually abound, but its varied soil and numerous woods will doubtless yield great results to the efforts of a zealous collector. Those of our members living in the country are earnestly solicited to preserve and forward to our Curators any specimens that may fall in their way. Lepidoptera may be captured in pill-boxes, and killed by means of a few drops of Chloroform. Coleoptera and other orders should be put into a bottle in which has been previously placed a small quantity of bruised laurel leaves, the prussic acid contained in the leaves not only very quickly killing the Insects, but also preserving them fresh, and in a state for setting for a considerable length of time.

#### ORNITHOLOGICAL COLLECTION.

When the repairs of the Museum were brought to a close, the room containing the collection underwent a thorough cleaning, and the specimens were taken out, examined, carefully cleaned, and returned to the cases. The windows of the rooms, the approaches to which were awkwardly blocked up with cases, were relieved of their obstructions, the specimens which were in these cases being transported to their proper places in the series to which they respectively belonged. But the most important change which has been made in this department, is the separation of the British from the Exotic species. In nearly all the extensive Natural History Museums in Europe the native species are now fostered as a distinct collection. Such has lately

been the case in our National Museum, and whereas the observer had before this change to seek laboriously through thousands of birds, from every clime, for the isolated specimens which had formed the collection of some celebrated Naturalist,—as for instance that of Colonel Montague,—he may now see them all placed side by side in the gallery devoted to British Zoology. And with them he may also see ranged the gems from the collection of the late Mr. Yarrell. The advantage of such an arrangement is obvious.

It has been observed, with great truth, “that you cannot vie with the larger Museums in a general collection, but you may *excel* them if you confine yourselves to a purely local collection.” Fully agreeing with this opinion, the Hon. Curators, while enlarging the collection of British Birds, purpose to do so, as much as possible, by means of specimens obtained in Warwickshire, or the contiguous Counties. They offer these remarks in the hope that the friends of the Institution will assist them in carrying out their views, by donation of some of the species forming the following list of desiderata:—

### Order 1. Accipitress, Linn.

|                            |        |                                           |
|----------------------------|--------|-------------------------------------------|
| Egyptian Vulture           | ... .. | <i>Neophron Percnopterus</i> (Linn.)      |
| Griffon Vulture            | ... .. | <i>Gyps fulvus</i> (Gmel)                 |
| Rough-legged Buzzard       | ... .. | <i>Archibuteo Lagopus</i> (Brün.)         |
| Spotted Eagle              | ... .. | <i>Aquila nævia</i> (Gmel.) Mey           |
| Jer-falcon                 | ... .. | <i>Falco Gyrfalco</i> , Linn.             |
| Red-footed Falcon          | ... .. | <i>Tinnunculus vespertinus</i> (Linn.)    |
| Swallow-tailed Kite        | ... .. | <i>Nauclerus fercatus</i> (Linn.) Vigors. |
| Goshawk                    | ... .. | <i>Astur palumbarius</i> (Linn.) Bechst.  |
| Montagu's Harrier          | ... .. | <i>Circus cinerascens</i> (Mont.)         |
| Hawk Owl                   | ... .. | <i>Surnia ulula</i> (Linn.) Bonap.        |
| Snowy Owl [Brit.Specimen.] | ... .. | <i>Nyctea nivea</i> (Thunb.)              |
| Little Owl                 | ... .. | <i>Athene noctua</i> (Retz.)              |
| Great-eared Owl [female]   | ... .. | <i>Bubo maximus</i> , Sibb.               |
| Tengmalm's Owl             | ... .. | <i>Nyctale Tengmalmi</i> (Gmel.) Strickl. |

## Order 2. Passeres, Cuv.

|                                  |                                               |
|----------------------------------|-----------------------------------------------|
| Alpine Swift ... ..              | <i>Cypselus Melba</i> , Linn.                 |
| Roller ... ..                    | <i>Coracias garrula</i> , Linn.               |
| Bee-eater [Brit. Specimen.]      | <i>Merops Apiaster</i> (Linn.)                |
| Dartford Warbler ... ..          | <i>Sylvia undata</i> (Bodd.)                  |
| Garden Warbler [female]...       | <i>Sylvia hortensis</i> (Penn.)               |
| Fire-crested Regulus ... ..      | <i>Regulus ignicapillus</i> , Brehm.          |
| Plain-crowned Kinglet ... ..     | <i>Regulus proregulus</i> (Pall.)             |
| Black Redstart [Brit. specim.]   | <i>Ruticilla tithys</i> (Scop)                |
| Blue-throated Warbler ... ..     | <i>Cyanecula suecica</i> , Linn.              |
| Alpine Accentor ... ..           | <i>Accentor alpinus</i> , Gmel. Bechst.       |
| Crested Tit ... ..               | <i>Parus cristatus</i> , Linn.                |
| White Wagtail ... ..             | <i>Motacilla alba</i> , Linn. [vera.]         |
| Grey-headed Wagtail ... ..       | <i>Motacilla flava</i> , Linn.                |
| Rock Pipit ... ..                | <i>Anthus spinoletta</i> (Linn.)              |
| Richard's Pipit ... ..           | <i>Anthus Richardi</i> (Vieill.)              |
| White's Thrush... ..             | <i>Turdus varius</i> , Horsf                  |
| Rock Thrush ... ..               | <i>Turdus saxatilis</i> , Linn.               |
| Golden Oriole ... ..             | <i>Oriolus Galbula</i> , Linn.                |
| Golden-vented Thrush ... ..      | <i>Pycnonotus aurigaster</i> , (Vieill.)      |
| Gt. Ash-color'd Shrike [fem]     | <i>Lanius Exicubitor</i> , Linn.              |
| Woodchat Shrike ... ..           | <i>Enneoctonus refus</i> (Briss.)             |
| Nutcracker ... ..                | <i>Nucifraga caryocatactes</i> (Linn.) Briss. |
| Rose-color'd Ouzel [Brit. spec.] | <i>Pastor roseus</i> (Linn.) Temm.            |
| Red-winged Starling ... ..       | <i>Agelaius phaniceus</i> (Linn.) Vieill.     |
| Mountain Linnet ... ..           | <i>Fringilla flavirostris</i> , Linn.         |
| Cirl Bunting ... ..              | <i>Emberiza Cirlus</i> , Linn.                |
| Ortolan Bunting ... ..           | <i>Emberiza hortulana</i> , Linn.             |
| Lapland Bunting ... ..           | <i>Plectrophanes lapponicus</i> (Linn.) Selb. |
| Short-toed Lark ... ..           | <i>Alauda brachydactyla</i> , Temm.           |
| Crested Lark ... ..              | <i>Alauda cristata</i> , Linn.                |
| Shore Lark... ..                 | <i>Octocoris alpestris</i> (Linn.)            |
| Parrot Cross-bill ... ..         | <i>Loxia pityopsittacus</i> , Bechst.         |
| White-winged Cross-bill ... ..   | <i>Loxia leucoptera</i> , Gmel.               |

## Order 3. Scansores, Ill.

|                             |                                     |
|-----------------------------|-------------------------------------|
| American Cuckoo ... ..      | <i>Coccyzus americanus</i> (Linn.)  |
| Great spotted Cuckoo ... .. | <i>Oxylophus glandarius</i> (Linn.) |

## Order 4. Columbæ, Lath.

|                         |                                               |
|-------------------------|-----------------------------------------------|
| Rock Dove... ..         | <i>Columba Livia</i> , Briss.                 |
| Passenger Pigeon ... .. | <i>Ectopistes migratorius</i> (Linn.) Swains. |

## Order 5. Gallinæ, Linn.

|                            |                                           |
|----------------------------|-------------------------------------------|
| Barbary Partridge ... ..   | <i>Caccabis petrosa</i> (Lath.)           |
| Andalusian Hemipode ... .. | <i>Turnix gibraltarius</i> (Gmel.) Gould. |
| Virginian Colin... ..      | <i>Ortyx virginianus</i> (Linn.) Gray.    |

## Order 6. Struthiones, Lath.

|                      |                           |
|----------------------|---------------------------|
| Great Buzzard ... .. | <i>Otis trada</i> , Linn. |
|----------------------|---------------------------|

Little Buzzard ... .. *Otis tetrax*, Linn.

## Order 7. Grallæ, Linn.

Great Plover ... .. *Edicnemus crepitans*, Temm.  
 Cream-coloured Courser ... *Cursorius gallicus* (Gmel.)  
 Kentish Plover... .. *Charadrius Cantianus*, Lath.  
 Crane... .. *Grus cinerea*, Bechst.  
 Great White Heron ... .. *Ardea alba*, Gmel.  
 Egret [British specimen]... *Ardea Gazetta*, Linn.  
 Squacco Heron ... .. *Ardea Comata*, Pall.  
 Buffed-backed Heron ... .. *Ardea Coromanda*, Bodd.  
 Spoon-bill ... .. *Platalea leucorodia*, Linn.  
 White Stork ... .. *Ciconia alba*, Briss.  
 Black Stork ... .. *Ciconia nigra*, Bechst.  
 Spotted Redshank ... .. *Totanus Stagnalis*, Bechst.  
 Wood Sandpiper ... .. *Totanus Glareola*, (Linn.) Temm.  
 Avocet ... .. *Recurvirostra Avocetta*, Linn.  
 Black-winged Stilt ... .. *Himantopus Candidus*, Bonn.  
 Buff-breasted Sandpiper ... *Tringa refescens*, Vieill.  
 Broad-billed Sandpiper ... *Tringa platyrhyncha*, Temm.  
 Schintz's Sandpiper ... .. *Tringa Schinzii*, Brehm.  
 Pectoral Sandpiper ... .. *Tringa Pectoralis*, Say.  
 Brown Snipe ... .. *Macroramphus griseus*, (Gmel.) Leach.  
 Sabine's Snipe ... .. *Gallinago Sabini*, Vigors.  
 Red-necked Phalarope ... *Phalaropus hyperboreus* (Linn.) Cuvier.  
 Ballion's Crake ... .. *Ortygometra pygmæ*, Naum.  
 Little Crake ... .. *Ortygometra minuta*, Pall.

## Order 8. Anseres, Linn.

Spur-winged Goose ... .. *Plectopterus gambensis*, (Linn.) Steph.  
 Common Wild Goose ... .. *Anser ferus*, Gesn.  
 White-fronted Goose ... .. *Anser Erythropus*, (Linn.) Flem.  
 Pink-footed Goose ... .. *Anser Brachyrhynchus*, Bail.  
 Bernicle Goose ... .. *Bernicla leucopsis*, (Bechst.)  
 Red-breasted Goose ... .. *Bernicla ruficollis* (Pall.) Steph.  
 Polish Swan ... .. *Cygnus immutabilis*, Yarrell.  
 Whistling Swan ... .. *Cygnus ferus*, Ray.  
 Bewick's Swan ... .. *Cygnus minor*, Pall.  
 American Swan. ... .. *Cygnus americanus*, Sharpless.  
 Ruddy Shieldrake ... .. *Casarka rutila*, Pall.  
 American Wigeon ... .. *Mareca americana* (Gmel.) Steph.  
 Bimaculated Duck ... .. *Querquedula bimaculata*, Penn.  
 Gadwall ... .. *Chaulelasmus strepera*, Linn.  
 Red-crested Whistling Duck *Branta rufina* (Pall.) Boie.  
 Scaup Pochard ... .. *Fuligula Marila* (Linn.) Steph.  
 Ferruginous Duck ... .. *Nyroca leucophthalma* (Bechst.) Flem.  
 Harlequin Garrot ... .. *Clangula histrionica* (Linn.) Steph.  
 Long-tailed Hareld ... .. *Harelda glacialis* (Linn.) Leach.  
 Steller's Western Duck ... *Eniconetta Stelleri*, Pall.  
 King Duck ... .. *Somateria spectabilis* (Linn.) Steph.  
 Surf Scoter ... .. *Oidemia perspicillata* (Linn.) Steph.



|                               |                                               |
|-------------------------------|-----------------------------------------------|
| Red-breasted Merganser ...    | <i>Mergus Serrator</i> , Linn.                |
| Red-necked Grebe ... ..       | <i>Prodicops grisegena</i> (Bodd.) Lath.      |
| Sclavonian Grebe ... ..       | <i>Prodicops Cornutus</i> (Gmel.) Lath.       |
| Great Auk... ..               | <i>Alca impennis</i> , Linn.                  |
| Manx Shearwater ... ..        | <i>Puffinus Anglorum</i> , Ray.               |
| Cinereous Shearwater ... ..   | <i>Puffinus cinereus</i> , Gmel.              |
| Wilson's Petrel... ..         | <i>Thalassidroma oceanica</i> , Kuhl.         |
| Forked-tailed Petrel... ..    | <i>Thalassidroma Leachii</i> , Temm.          |
| Bulwer's Petrel... ..         | <i>Thalassidroma Bulweri</i> (J. & S.) Gould. |
| Buffon's Squa ... ..          | <i>Stercorarius cephus</i> , Brün.            |
| Common Squa ... ..            | <i>Stercorarius catarrhactes</i> , Linn.      |
| Glaucous Gull ... ..          | <i>Laurus glaucus</i> , Brün.                 |
| Iceland Gull ... ..           | <i>Laurus leucopterus</i> , Faber.            |
| Little Gull... ..             | <i>Laurus minutus</i> , Pall,                 |
| Sabine's Gull ... ..          | <i>Xema Sabini</i> , Leach.                   |
| Ivory Gull... ..              | <i>Pagophila eburnea</i> (Gmel.) Kaup.        |
| Caspian Tern ... ..           | <i>Sterna caspia</i> , Pall.                  |
| Gulled Lilled Tern ... ..     | <i>Sterna anglica</i> , Mont.                 |
| Sandwith Tern ... ..          | <i>Sterna cantica</i> , Gml.                  |
| Roseate Tern ... ..           | <i>Sterna paradisea</i> , Brün.               |
| White-winged Black Tern... .. | <i>Hydrocheidon nigra</i> , Linn.             |
| Black Noddy ... ..            | <i>Anous stolidus</i> (Linn.) Catesby.        |

### BOTANY.

The Council report, with much pleasure, that sufficient money has been raised to purchase the *valuable Herbarium* collected by the late Mr. Perry, and the thanks of the Society are due to those friends who have presented it to the Museum. Through the exertions of the Rev. C. F. Thorneville, lately resident for a short time in Warwick, the Collection has been carefully examined, a report drawn up on the condition of the specimens, and a list made out of the desiderata. The Council have now under consideration the best mode of arranging the Herbarium, and of rendering its contents available for the use of such Botanical students as may wish to consult it.

### LIBRARY.

An opportunity occurred to purchase a very good copy of the second edition of *Dugdale's Antiquities of Warwickshire*, by Dr. Thomas, of which the Council availed themselves, considering that it was very desirable to have it in the Library for reference.



A Catalogue of Books in the Library has been made, to the 31st December, 1867, and a copy was sent to each Member.

The Council will be glad to receive presents of any works of Local interest, for the Library.

Any member wishing to take a Book from the Library, is particularly requested to see that an entry is made in the book kept for that purpose, which is on the Library table. The date must also be entered when the book is returned.

Before Members are allowed to take Books out of the Library, a deposit of ten shillings is required. Some of the Books cannot be taken away from the Library.

The Accounts for the year have been audited, and the General Financial Statement, to March 31st, 1872, is appended to this report.

The Museum, now containing a valuable and well-arranged collection of Natural History, Geology, and Antiquities, as well as a Library, which, though not extensive, contains many works of cost and value, is highly creditable to the Town and County of Warwick, and deserves a much greater amount of support than it has of late years received. An excellent foundation has been laid, but much might be effected if adequate means were placed at the disposal of the Council. Owing to the losses by death, of several subscribers during the past year, and the small number of additional members, the funds of the Society are in a less satisfactory condition than could be desired. A reference to the list of subscribers will show that only a few of the rich and influential residents in the County belong to the Society. If the members would solicit annual subscriptions from their friends and neighbours, it is probable that a considerable addition would be made to the funds of the Society.

During the last winter season, the Museum has been lighted up, and opened on each Wednesday Evening, and Four Evening Lectures have been given, which were well attended.

The First Lecture in November, 1871, was given by Captain R. D. Knight, on the Use of the Microscope.

The Second in December, 1871, by Mr. J. T. Burgess, on Warwick Castle, in the time of the Kingmaker.

The Third in January, 1872, by the Rev. J. Reynolds Young, M.A., on Natural History, for beginners and amateurs.

The Fourth in February, 1872, by Mr. Robert Fisher Tomes, on Mammalia.

An account of the monies received and expended in the Lighting and Lectures, &c., is given with this report, and it is hoped that the interest may be maintained, and the Museum made more useful in the Winter evenings.

*At the Annual Meeting of the Society which was held at the Museum, Warwick, on Friday, April 5th, 1872, M. H. Bloxam, Esq., F.S.A., read the concluding paper on "Warwickshire, during the Civil Wars of the Seventeenth Century."*

I concluded my last notice of the Civil Wars in Warwickshire, with an account of that great, though undecisive battle fought under the Edge Hills, near Kineton. I shall now proceed to supplement that account by the relation of an Officer in the Parliamentary Army, who, though not actually in the battle, was with other forces coming up from the west to join the army of the Earl of Essex. It was in the year 1627, now 45 years ago, that I transcribed this account from the collection of Pamphlets in the British Museum, relating to the Civil Wars of the seventeenth century. This account is entitled,—

"A full and true Relation of the great Battle fought between the King's army and his Excellency the Earle of Essex, upon the 23 of October last past (being the same day twelve moneth that the Rebellion broke out in Ireland), sent in a letter from Captain Edward Kightley, now in the Army, to his friend Mr. Charles Latham, in Lombard Street, London. Wherein may bee clearely seene what reason the Cavaliers have to give thanks for the victory which they had over the Parliament's Forces."

"London: Printed, November the 4, 1642."

"Loving Cousin,—I shall make so near as I can, a true, though long relation of the battell fought betweene the King's Army and our Army, under the conduct and command of my Lord Generall.

"On Saturday, October 22, our Forces were quartered very late, and did lie remote one from the other, and my

Lord General did quarter in a small villiage, where the battel was fought, in the field called Great Kings field, taking the name from a Battell there fought by King John as they say. On Sunday, the 23 of October, about one of clocke in the afternoone, the battell did begin, and it continued untill it was very darke; the field was very great and large, and the King's forces came down a great and long hill, hee had the advantage of the ground and wind, and they did give a brave charge, and did fight very valiently; there were 15 Regiments of Foot and 60 Regiments of Horse. Our Horse were under 40 Regiments, and our Foot 11 Regiments. My Lord Generall did give the first charge, presented them with two pieces of Ordnance, which killed many of their men; and then the enemy did shoot one to us, which fell twenty yards short, in plowed land, and did no harme; our Souldiers did many of them run away, to wit, blew Coats and grey Coats, being two Regiments, and there did runne away 600 horse. I was quartered five miles from that place, and heard not any thing of it untill one of the clocke in the afternoone. I hasted thither with Serjeant-Major Duglis's troope and overtooke one other troope, and when I was entering into the field I think 200 horse came by me with all the speed they could, out from the Battell, saying that the King had the Victory, and that every man cried for God and King Charles. I entreated, prayed, and persuaded them to draw up in a body with our troopes, for we saw them fighting, and the field was not lost, but no persuasions would serve, and then I turning to our three troopes, two of them were runne away, and of my troope I had not six and thirtie men left, but they were likewise runne away. I stayed with those men I had,

being in a little field, and there was a way through, and divers of the enemy did runne that way, both horse and foote. I tooke away about tenne or twelve horse, swords, and armour. I could have killed 40 of the enemy, I let them pass, disarming them, and giving the spoil to my Troopers. The armies were both in a confusion, and I could not fall to them without an apparent losse of myself and those few which were with me. The powder which the enemy had was blowne up in the field, the enemy ran away as well as our men. God did give the victory to us, there are but three men of note slain of ours, namely my Lord Saint John, Colonell Essex, and one other Captaine, whose name I have forgot; Captain Fleming is either slaine or taken prisoner, and his Cornet, he had not one officer which was a souldier, his waggon and money is lost, and divers of the Captaine's money are lost to great value, our Foote and Dragoneers were the greatest pillagers; wee had the King's Standard one houre and a halfe, and after lost it againe; wee did lose not above three hundred men, the enemy killed the waggoners, women, and little boyes of twelve years of age, wee took seventeene colours and five pieces of Ordnance. I believe there were not less than three thousand of the enemy slaine, for they lay in their own ground twenty and thirty of heapes together, the King did lose Lords, and a very great many of gentlemen, but the certain number of the slaine cannot be knowne. Wee did take my Lord of Lindsey, General of the foote being shot in the thigh, who dyed the Tuesday morning following, and his body is sent away to be buryed, the Lord Willoughby his son was taken, Lunsford, Vavasour, and others, being prisoners in Warwick Castle; on Munday, there did run from the

King's army 3,000 foote in 40, 50, and 60, in companies ; wee kept the field all Sunday night, and all Munday, and then marched to our quarters, and on Munday the enemy would have given us another charge, but they could not get the foote to fight, notwithstanding they did beat them like dogs, this last Relation of the enemy I received from one who was a prisoner and got away.

“ Banbury is taken by the King, there was 1000 Foote in it, the Captaines did run away, and the souldiers did deliver the Towne up without discharged one musket. It was God's wonderfull work that we had the victory. We expect to march after the King. The day after the Battell, all our forces, horse and foote, were marched up, and other forces from remote parts to the number of 5,000 horse and foote, more than were at the Battell. Now at my writing, my Lord Generall is at Warwick, upon our next marching we doe expect another Battell. Wee here think that the King cannot strengthen himself, for the souldiers do still run daily from him, and I believe if we come to fight, a great part of them will never come up to charge. The King's Guard were Gentlemen of good quality, and I have heard it that there were not above 40 of them which returned out of the field. This is all I shall trouble you with, what is more, you will receive it from a better hand than mine. Let us pray one for another, God I hope will open the King's eyes and send peace to our Kingdome. I pray remember my love to all my friends, if I could write to them all I would, but for such newes I write to you impart it to them ; my Lieutenant and I drink to you all daily, and my runawayes I stop their pay, some of them for two dayes, some three dayes, and some four dayes, which days they were gone from mee, and give

their pay to the rest of the souldiers, two of my souldiers are runne away with their horse and arms. I rest, and commit you to God. Your loving Cousin.

Edward Kightley."

I have, amongst the few tracts that I possess relating to the Civil Wars in Warwickshire, one entitled, "A true and exact Relation of a Battell fought upon Monday last, betweene His Majesties forces and the Earle of Essex, with the overthrow given to the Cavaliers."

"Also a notable politick device of the Earle of Essex, who in private left his armie to view the armie of Prince Rupert and to see their works. London: Printed for John Hanson, Novemb. 4, 1642."

This is a complete catchpenny production. It contains no information whatever, and the "politick device" of the Earl of Essex was purely imaginary.

In "A Letter sent from a worthy Divine to the Right Honourable the Lord Mayor of the City of London. Being a true Relation of the Battell fought between his Majesties forces and his Excellencie the Earle of Essex," from Warwick Castle, the 24 of October, 1642, at two o'clock in the morning.

"Sir.—Yesterday being the Lords day, his Excellency intending to march from Keinton, a little villiage in Warwickshire, towards Banbury to relieve it, unexpectedly an alarm came about eight o'clock in the morning, that the Enemy was advancing within two or three miles which accordingly proved so, and it pleased God to make myselfe the first Instrument of giving a certaine discovery of it, by the helpe of a prospective Glasse from the top of an hill; when the two armies were drawn into a Battalia, about two of the clock in the afternoone a very sore and



fierce battell began, which continued about foure houres in mine owne sight and hearing, much bloud was shed and a gallant spirit expressed by our Infantry even to such a degree of valiantness, as may crowne every common Souldier with the honour of a Commander. But the left wing of our Horse being charged by the Kings right wing, was suddenly put to flight, so that the right wing in which your Son was placed did the best service for the Chevalry or Cavalry; where your Son is (or any of the rest of my Lords Guard) I know not, I hope they are safe, because upon diligent inquiry I yet hear no hurt of any of them. However if you have consecrated a sonne to so noble a Service, I doubt not but you will endeavour to bear it cheerfully, if you should hear that he is either slaine or wounded. Wee have lost none of our Commanders (as we can yet understand) except Colonell Charles Essex, and Sir James Ramsey who is either killed or taken: we have taken Prisoners from the King's side, the Lord of Linsey Generall of the Field, with his son Colonell Vavasor, who was Commander of the Kings Guard and Standard, which likewise we have taken: As also Colonell Lunsford, who are now both at Warwicke Castle, we did beat the enemy out of the Field, and gained foure peeces of Ordnance. This morning it is expected that three or foure fresh Regiments on our side, as namely Colonel Hampdens, Colonel Granthams, Colonel Barekhams, and the Lord Rochfords Regiments to joyne with the rest. The residue of our army to fall on the remainder of the Kings Forces, hoping for as glourious success as before; Colonell Vavasor assures us that the King himselfe for some time was in the Army, we heare no certainty yet concerning Prince Rupert, some say he is slaine. A few of our waggons were burned and plundered

by the Enemy, who wheeled about into our Reere, but our musqueteers played bravely upon them in the meane-time, and recovered our waggons againe, and sixe peeces of Ordnance which we had lost; our Enemy had the winde more with them, but we had more of the hill, we had but twelve Regiments in the Field, about fifty Troops of Horse, (I think,) at the most, and some two Regiments of Dragoneers. His Excellencie maintained the fight most gallantly. And our noble Lords as the Lord Wharton, Willowby of Parham, Brooke, Roberts, &c. did as bravely. All this hath God enabled our Army to performe, though from wednesday till this moment of my writing, the Common Souldiers have not come into a bed, but have lodged in the open field in the wet and cold nights, and most of them scarce eat or drank any thing for 24 houres together, nay, I may say for 48, except fresh water when they could get it. Mr. Ash was marvellously preserved from the cruelty of foure Cavaliers which set upon him, one of them cut off his hat and raised his haire with his sword, but never touched his skin. God hath brought most of our ministers this night to Warwicke, Mr. Ash amongst the rest; and Mr. Marshall whose danger was no lesse. For my owne part after I had discharged my duty as farre as I was enabled, by passing from Regiment to Regiment, and Troop to Troop to encourage them, at the latter end of the fight, not knowing what the issue of things might be, in the darksome evening while it was yet light I rid to Warwicke among hundreds of drawne swords, and yet was saved from the least touche of a blood-thirsty hand. The Cavaliers some of them pursuing our Horsemen, which as I said before, forsooke their ground in the left wing of the army and fled to Warwicke.

. . . . If you shall think it convenient to Print this

Relation, perhaps it may be usefull, if done speedily, you need not doubt of the truth of any part of it."

It does not appear by whom the above Relation was written except by a minister in the Parliamentary Army. Subjoined are the following observations,—

"And besides the victory here at Keinton Field by Edgehill on the Parliament side, done by his Excellencie, there were slaine of eminent men on the King's side, the Earl of Lindsey who was wounded and taken prisoner, and brought to Warwicke Castle, but soon dyed of his wounds: The Lord D'Aubigney (commonly called Dawbeny) brother to the Duke of Richmond and Lenox; Sir Edward Varney Knight, Marshall to his Majesty, and a little before at Nottingham made his Standard Bearer; of which three persons the letter doth not make mention: However, after their victory at Keinton Field, his Excellencie, as a Victor retreated and retired himself with his considerable army into Warwicke, and there he had the strongly scituated Towne and Castle for his better safety, during his abode there; where he was with the acclamations of all good people there triumphantly received and entertained."

Of all the great engagements during the Civil Wars, not excepting the decisive fight at Naseby, the battle of Edgehill, or of Keinton, as it was indifferently called, seems to have excited the greatest interest. More accounts of it appear to have been published than of any other warlike occurrence. Both armies claimed the victory, but, as the result proved, the advantage was on the side of the King: for while the Earl of Essex withdrew his forces to Warwick, the King pursued his own route, and the following day or a few days after, the town and castle at Banbury, with a garrison variously computed at from 600 to 1,000 strong, surrendered to him without a show of opposition.

With respect to the number slain in this engagement, not a very sanguinary one, it has been variously estimated at from 5,000 to 500. It is probable that the latter number more nearly approaches the mark. The battle commenced at two o'clock in the afternoon on the 23rd of October, old style, answering to our 3rd of November. At five in the evening darkness would set in; both armies were then in confusion. Many, on both sides, both horse and foot, ran away, thus verifying the old distich:—

“He who in battle runs away,  
May live to fight another day;  
But he who is in battle slain,  
Will never live to fight again.”

The artillery, or ordance, were pieces of small calibre, and mounted on carriages of two wheels only. One of these is still preserved at Broughton Castle, Oxfordshire. The infantry consisted of musketeers, armed with matchlocks, supported on rests, shrouded within a square of pikemen. One, if not more, of these rests are in the valuable collection of the Earl of Warwick, at Warwick Castle.

Some of the cavalry wore cuirasses, consisting of a breast-plate and back and a head-piece; others wore buff coats, their offensive weapons being swords and pistols. Birmingham, even at that period, was famous for its manufactories of swords.

In a scarce work, entitled “True Information of the Beginning and Cause of our Troubles, &c.,” printed at London in the year 1648, there appears an engraving representing the battle of Edgehill, the earliest pictorial representation of that battle. In this representation the cannon appear mounted on carriages with two wheels only. The following statement appears at the head of this pictorial device:—“At Edgehill 16 peeces of cannon shot against 80 of E: of Essex Liffeguard, and not one man hurte, & those 80 brake in upon

1600 of the Kings, 4 of ye Parlia: Reg: ran away and 16 troops of Horse. So wee wayre 6000 and they 18000, yet we took ye standerd and cleffe Sr Ed Varney standard bearer in the head & slew the Lord Lindsey Generall of the field." In another engraving in this work soldiers are represented with firelocks on forked rests.

Confining myself to the county of Warwick, I will give a few of the principal names of those who espoused the one side or the other. On the side of the Parliament the principal leaders in this county were the Lord Brook, the Lord Fielding (afterwards the second Earl of Denbigh,) Sir Edward Peto, of Chesterton, Colonel William Purefoy, of Caldecott Hall, Mr. Abbot, of Caldecott, and many of the Presbyterian ministers, who by their preaching exercised great sway, especially amongst the inhabitants of the several towns.

Amongst those who espoused the cause of the king were the Lord Northampton, the first Earl of Denbigh, the Earl of Chichester, Lord Craven, Sir Charles Adderley, Sir Simon Clark, Sir Clement Fisher, Sir Henry Gibbs, Sir Thomas Holt, Sir Thomas Leigh, Sir John Repington, Sir Richard Shuckburgh, Sir Hercules Underhill, and many of the country gentlemen who had subsequently to compound for their estates, and of whom I have a list.

The king's forces were mostly recruited from the tenantry of the lords and gentry who espoused his cause. Those of the Parliament from the inhabitants of towns. Coventry, Warwick, Birmingham, Stratford, Alcester, Henley, Coleshill, and Rugby. The country was mostly uninclosed. Spread over it were ancient British fortresses or fortified oppida, Roman camps, one medieval walled city, Coventry; three castles, Warwick, Kenilworth, and

Tamworth. Manor houses embattled and crenellated by virtue of licenses from the Crown, which licenses extended from the middle of the thirteenth century A.D. 1256 to A.D. 1483. Amongst these was the Manor house of Astley, often but erroneously called Astley Castle, the license granted to fortify which bears date the 50th of Henry III., A.D., 1266. This was garrisoned during the civil war. Maxtoke, fortified by a license to crenelate, granted the 19th Edward III., also garrisoned during the civil wars, and erroneously called a castle. Other mansion houses, for which licenses to fortify had been granted and were now destroyed or dilapidated, were those at Beaudesert, Fillongley, Caledon, and Langley, the latter in the parish of Sutton Coldfield. There had been also other ancient castles at Fillongley, Newbold-on-Avon, Brandon, and Fulbroke, the sites of which may be clearly discerned, although the buildings have long since been demolished, and had been at this period. Then there were numerous manor houses, amongst the principal of which I may enumerate Compton Wynyate, the residence of the Earl of Northampton, which was garrisoned, and underwent more than one attack during the civil wars. Aston Hall, near Birmingham, which was likewise garrisoned and attacked; Coughton House, near Alcester, the same; Milcote House and Wormleighton, both burnt down; Shuckburgh Hall, garrisoned and attacked, and of those of which I find no record of transactions I may enumerate that very curious fifteenth century house at Stoneythorpe, near Southam, the residence of Mr. Chamberlain, one of our county magistrates, the history of which mansion is a desideratum. It must, I think, have been occupied during the civil wars, though perhaps only temporarily; New Hall, near Sutton Coldfield; Charlecote House, Baddesley Clinton, Pooley



Hall, King's Newnham, the residence of the Earl of Chichester; and Causton Hall, the residence of Mr. Boughton. Lastly, there were numerous moated areas, varying in extent from half an acre to two acres, sometimes surrounding a mansion, but of which moated areas in general we have no historic account. They are, however, so different from the ancient British and Roman earthworks that I cannot but assign the period of their formation for defensive purposes only against sudden aggression, and plunder, to the intestine wars, troubles, and commotions in the reigns of Stephen, of John, and of Henry III.

I may have digressed too much in my account of the state of parties and of the country, as far as this county is concerned. When Kenilworth Castle, the Kings house at Kenilworth, as it was called, was abandoned early in the wars by the King, on account of the insufficiency of the garrison, it was occupied by the Parliamentary troops, and I find no further account of any transactions before it. What had been in the 13th century a stronghold kept so firmly by the adherents of Simon de Montfort, the great Earl of Leicester, who baffled all attempts of the Crown to take it by storm—for at last the garrison reduced by famine surrendered on terms—was now as a palatial residence indefensible, and rendered this the more, though in what year I know not, by the demolition of one of the walls, of immense thickness, of that part of the Castle called Cæsar's tower, which was in fact the whole of the original castle built by Henry de Clinton, in the reign of Henry II. It was at this period, I imagine, that the curious suit of Horse armour now exhibited at the Porters lodge at the entrance to Warwick Castle, a suit of the 15th century, was removed



to Warwick Castle. It was shown at Kenilworth Castle in the early part of the 17th century, as the horse armour of the legendary Guy of Warwick:—

“The Lord Brook having seised the Kings ammunition at Northampton, marched from thence to Warwick, and so to Stratford-upon-Avon, where he beat out of the town the forces of Colonel Crocker and Wagstaff, and coming to Lichfield, the Earl of Chesterfield and his forces left the town and betook themselves to the close. But in the fight, one of his men shooting at the window of the Lord Brook’s chamber, where his lordship was, the bullet pierced his eye, and my Lord instantly died.” Such is the brief account given by Whitelock in his memorials of English affairs during the reign of Charles the I. This transaction—full particulars I do not give, inasmuch as it took not place in this county—happened on St. Chad’s day, March 2nd, 1843. In the late calamitous fire at Warwick Castle, the Buff doublet, worn by Lord Brook when he was slain, was, most unfortunately, destroyed.

About the middle of the same month, March, Lord Brook’s great rival in this county, the Earl of Northampton, was slain at Hopton Heath, in the county of Stafford.

In April, 1643, Prince Rupert entered Birmingham by force. In the encounter which then took place, William the first Earl of Denbigh, who fought on the side of the King, was mortally wounded, and died on the following Saturday. The heat of the contest was at a place called Camp hill, and particulars relative to it are preserved in three scarce tracts, which were reprinted at Birmingham in 1815.

A short account of this engagement is given in the “*Mercurius Belgicus*,” a Royalist publication, as follows:—

“Anno Domini 1643, April the third, Prince Rupert

entered and possessed that seditious town of Birmingham, wherein was 300 foot and two troops of horse, who being gallantly charged by the Welshmen, in less than half an hour forsook their breast works and returned to their barricadoes within the town, where they found such slender defence that they took to their heels, and that so fast that though they were pursued as soon as the Prince had possessed the town, yet few of their horse were overtaken, only about 80 of the rebels were killed, and as many prisoners taken, together with about 150 muskets, and between 400 and 500 swords, and three Colours. In this service the noble Earl of Denbigh received a wound, whereof he afterwards died."

A very one-sided account of this conflict appears in a scarce tract entitled, "A true Relation of Prince Ruperts barbarous Cruelty against the Towne of Brumingham; to which place on Monday Apr. 3. 1643, he marcht with 2000 horse and foot 4 Drakes and 2 Sakers; where after two houres fight (being twice beaten off by the Townsmen in all but 140 musketeers) he entered, put divers to the sword, and burnt about 80 houses to ashes, suffering no man to carry away his goods, or quench the fire, and making no difference between friend or foe; yet by Gods providence the greatest losse fell on the malignants of the Town. And of the Cavaliers were slaine divers chiefe Commanders, and men of great quality amongst whom was the Earl of Denbigh, the Lord John Stuart: and as themselves report the Lord Digby.—London Printed for John Wright in the Old-baily April 12. 1642.

"Sir, Though I can write you but the same lamentation which I<sup>7</sup> believe you have already heard; yet I cannot be silent to acquaint you of the truth as neere as I can: If

Coventrey had sent us what helpe it might, I believe the Enemy dost not have assaulted us, but in regard they had been in danger of cutting off by the way, in case they had been sent I must excuse them, though it be to our owne suffering; We with the Captaines were sensible that if the Cavaliers came we were not likely to withstand them, they being neere 1500, and we not above 150 musketiers, with a Troope of Horse of Captaine Greaves, which did no good, but in their flight as hereafter you will heare; but in regard the generall desire of the Towne, especially of those that bore Armes, would have them stand it out, and not march away with their armes, as we might in time, and that both they, and the malignants would have reviled, and curst the Captaines and Majestrates of the Towne if they had left them, made the Captaines and better sort content to stay and trie the issue, rather than be so perpetually reproacht: And though the same fall hard on our side in loosing the Towne and some Armes, and about 80 houses burnt to ashes, with all that therein was, and some fiftene men and two women lost their lives yet their game was nothing at all, yea they count it great losse, and curse the time that ever they medled with us, for I believe they lost as many ordinary men as we, besides three men of great quality, which they much lament, whereof two of them were Lords, as we have great cause to think, the one the Earl of Denby, thats sure, the other Lord we something doubt of his name, but we heare by divers of the Cavaliers it is Digby, sure we are he is wounded; and it is sure that some of their Collonels say it was a man of great ranke, and more considerable than Denby; the other a chiefe Commander: Denby pursued Captaine Greaves Troupe some two miles out of Towne, being at

their heeles, before our Troope departed, among whom I went away, and Captaine Greaves observing his time betwixt the woods, faced about, and charged the pursuers most valiantly, at they themselves confesse, and drove them back againe: in which charge Denby was slaine immediately, and the rest fled, and so we escaped with safety, only Captain Greaves received one shot in the face, and a cut in the arm, but not mortall; in the pursuit of the Troope God made away for all our souldiers saving some two or three, to escape most with their armes, which they threw and hid away in pits and ditches as they could, whereof the most, I think, the Cavaleers found not, and not one Captaine or Officer was hurt or taken prisoner, nor any considerable man, but most poore fellows and malignants because they could meet with no better, and all are released saving two of the best, though of no great quality. Some redeemed themselves for 2d. 12d and 18d apiece and some one or two for 20s. Prince Rupert being enragd that he should take never a prisoner of so great a company, and of those not to raise £20, when he himself had undergon so great a losse; and of those that were slaine of our side were most poore malignants, some three young men of ordinary quality that bare armes, and John Carter, and that in their flight; for but one was slaine and one lightly shot in the flesh; in the entrance for pillage they spared none, friend or foe, they lighted of, yet for the most part those that did most against them escaped best; the same I may say of the fire, though they intended to burn the Towne utterly, as may be known by their laying lighted match with powder, and other combustibile matter, at the other end, which fired in divers places, and divers was found out and prevented, so that we may truly say that the flames, sword,

pilledgers, but especially the prison, made a difference betwixt those that feared God, and those that feare him not. But this is remarkeable in their vileness that all these houses saving two were fired in their cold blood, at their departure, wherein they endeavoured to fire all, and in the flames they would not suffer the people to carry out their goods, or to quench it, triumphantly with reproaches rejoyced that the wind stood right to consume the Towne, at which presently the Lord caused the wind to turn which was a token of his notice of their insultation. For pillage, I heare of but little I lost, having obscured the things I had of any value; and for fire, God did marvellously prevent, both to me and many others, whereat the malignants are so enraged that they have since pulled down my mill, and pretend that Prince Rupert so commanded, and threaten to pull down my house and divers others, which I think they dare not, lest they build it up againe, the county having sent them admonition of their insolvency.

“Your loving Friend, R. P.

“Coventry, April 8, 1643.”

Another letter, published with the former, states as follows:—

“Sir,—Being by my promise ingaged unto you, I am now to make relation of a most barbarous massacre of our townsmen of Bermingham, and of the inraged cruelty of Prince Rupert and his inhumane cavaliers: Sir, thus it was, about three of the clock one munday in the after-noone, he had with neere two thousand horse and foote, four Drakes, and two Sakers, set against the Towne, playing with his ordnance and endeavouring to force his way, with foot and horse; were twice beaten

off with our musqueteers, at the entrance of Derrington, at which many of their men fell. the townesmen held them in play above an houre we had not above one hundred and fortie musquets, and having many entrances into the towne, they were many too few. Coventry men had withdrawne their forces three daies before, all but Captaine Castledownes Dragoneers, a troope of horse of Master Perkes, commanded by Captaine Greaves, being in the towne, not fit for that service, made escape when the adversaries began to incomasse the towne and force the waies over the meadows, and fired the towne in two places, and so by incompassing them that did defend the outworke caused them to draw inward to other workes, there in Digboth, which work they defended to the adversaries losse; but being the enemy brake in at the Millone they were forced to leave that worke also, and so put to shift for themselves with breaking through houses, over garden waies, escaped, over hedges and boggy meadows, and hiding their armes, saved most of them. The enemy killed none as I here in fight, unlesse some three or foure, Mr. Carter and Samuel Elsmore being of them, some with their armes defended themselves stoutly till death, they pursued the rest in field and lanes, cutting and most barbarously mangling naked men to the number of fiteene men, one women, another being shot, and many hurt; many men sore wounded, and Mr Tillman, the surgeon standing in his dore to entertaine them, was most cruelly shot, having his leg and thigh bones broken. They pillaged the towne generally, there own friends sped worst, and one Tuesday morning set fire to divers places in the towne, and have burt neare a hundred dwellings, the Welch-end, Dale-end, and Moore-street End, Humphrey Rans, the Bell, and divers other



houses thereabout. Many other fires they kindled, but they did not burne. They left kindled matches with gunpowder also in other places, intending nothing less than utterly to destroy the towne, but by God's providence they whose hurt they chiefly intended, by God's hand is much prevented. . . . Your father's house stands, but hath lost much; Mr Roberts', Mr Porter's, and mine be safe, but are threatened to be pulled downe, and they pretend Prince Rupert's warrant, but, however, its their envy that God's overruling providence hath turned the mischief so much on the heads of those that might with their timely helpe have prevented this mischief. I am much grieved at the losse of your brother and many other friends, three being my honest worke men, whose lives I would I had redeemed with mine estate. The cavaliers have lost thirty men at least, of whom there be three or foure chief men, earles and lords, I believe you have heard them named the Earle of Denby, the Lord John Stewart, some say the Lord Digby. Thirty are said to be buried, and many carried away wounded. This did so much enrage them that they appeared more like devills then men, lamenting more their losse, than boasting of their gaine, which was much in goods and in money, its thought above two thousand pound, thirteene hundred being taken from Mr. Peake. Mr. Jennens lost much, the which men if they had parted with little before our fortification had been such as they could not have entred, which went on well for some time. So wishing you to have comfort in our God, who is able to turn the rage of men to His praise, and sweeten this bitter cup by some other comfort, I conclude and rest, yours to command,

R.G.



I could wish I might heare how the city stands affected with our losse, for a little reliefe from them might much comfort many poore people which have lost all, and are left well nie naked and harbourlesse; it would much encourage all to stand out in the cause, that are but indifferent, a helpe to ease the better party of the burthen of the which will be otherwise too great for us. I would move some friends if you think fit I have allready put on the worke of contribution in this city."

It does not appear to whom either of the foregoing letters were written. They contain the accounts of the defeated party in this contest, in which the Royal party are called malignants, but "*Audi alteram partem*," and this appears in,—

"A Letter written from Walshall, by a worthy Gentleman, to his Friend in Oxford, concerning Burmingham." Printed in the yeare MDCXLIII."

"Sir,—Hearing of the approach of Prince Rupert, his Highnesse, and comming according to my duty to attend him, In my way I heard of the miserable destruction of Burmingham by fire, which I must confesse tooke the deepest apprehension with me of any one accident since the beginning of these unhappy distractions, as presenting to my view a Picture of the present estate of Germany, and as by a Prospective shewing me (not very farre off,) the Scene translated from thence hither. This sad thought drew me to a narrow enquiry of the causes of the burning of the Towne, and whether it was done by authority or no. And I found that the Inhabitants of the towne were they who first stirred up those of Coventry to resist the King, and that about 300 from thence went into Coventry to defend it against the King's forces; that from thence they

sent 15,000 swords for the Earle of Essex, his forces, and the ayd of that party, and not only refused to supply the King's Forces with swords for their money, but imprisoned divers who bought swords, upon suspicion that they intended to supply the King's forces with them. That afterwards, when His Majesty marched that way with his Army, out of His Princely goodness, and in hope that his Grace and favour would prevayle with them to turne good subjects, he gave express orders that they should not be plundered, and because some were plundered, (though but a few, and very little taken from them,) there was exemplary Justice done by the hanging of two Officers, and they had a special protection granted to them. Yet so little use did they make of the King's clemency, that the King's Army was no sooner removed from thence, but they stayed all the Carriages which did not move the same day with the King's Army, amongst which was some of the King's Plate, and divers goods of great value, and therein they were so hearty and zealous that at their owne charges they carried them to Warwick Castle, before the King was out of that shire.

And they have still continued upon all occasions violently to oppose the King, and to ayd those who have taken up armes against him. Insomuch that they made fortification about the Town, and sent out parties to plunder the King's friends. And when his Highnesse, upon Monday last, sent one to them to take up his quarter at Burmingham, who assured them that if they would quietly receive his Highnesse and his forces, they should suffer no injury; but otherwise, they must expect to be forced to it; they refused to give him Entrance, and prepared themselves with all their strength to resist him; and when his forces drew neare they set up their Colours, and sallyed out of their workes,

and gave fire upon them, and with opprobrious speeches reviled them, calling them Cursed doggs, devilish Cavaliers, Popish Traytors, and this was done not by a few of them but by almost all of them with great shouts and clamours. This could not but incense the souldiers, and the Prince to make his passage into the Towne was forced to give order for firing a house or two; but they retiring and flying, upon his entrance into the Towne he immediately gave order for quenching of the Fire, which was done accordingly, and no more hurt was done on Munday. But yesterday his Highnesse being to march from thence, and fearing what those great Provocations might worke with the souldiers, he gave express Command that no souldier should attempt to fire the Towne. And after his departure thence some souldiers (as yet unknown) having fired the Towne in diverse places, he immediately sent to the inhabitants of the Town to let them know it was not done by his command, and therefore wished them to quench it, but the wind being high and the fire encreased, it could not be so soon extinguished as was to be desired.

“ One thing more I heard of at this taking of Burmingham, which made some impression with me which was the death of a minister killed presently after the entry of the souldiers into the Towne. But it is alleadged that he told the soldier who killed him, that the King was a pergured and Papisticall King, and that he had rather dye than live under such a King and that he did and would fight against him. . . . .

“Walshall, Apr. 5. 1643.”

Hutton, the well-known historian of Birmingham, tells us that the Parliament Forces had formed their Camp in that well chosen angle which divides the Stratford and

Warwick Roads, upon Camp Hill. It is laid down in the Map of Birmingham, of 1863, and was on the site of, or near, where Trinity Church, Bordesley, now stands. The number of inhabitants in Birmingham at this period, were about 5000. Hutton computes the population at the Restoration, in 1660, to amount to 5,472. In 1700, the population was 15,000; and in 1730, between 23,000 and 24,000. It would appear that in 1643, there was a considerable manufactory of Swords at Birmingham, with which the Parliamentary Forces were supplied.

The King's forces, in this engagement, sustained a great loss in William, first Earl of Denbigh, who fell mortally wounded, and died a few days afterwards, as a warm adherent of the Royal cause his loss was felt the more, inasmuch as his Title, and possessions in this county descended to his son, Basil Fielding, second Earl of Denbigh, who, espousing the cause of the Parliament, held a high military command in the Midland Counties of which he was subsequently dispossessed, by "the self-denying Ordinance." He afterwards seems to have distrusted the so called "Commonwealth of England," as a more absolute Government than a Monarchy, and gave in his adhesion to the Restoration. He died in 1675.

In June, 1643, Tamworth Castle, which had been garrisoned for the King, surrendered to the forces of the Parliament. Some 45 years ago, the late Sir Samuel Rush Meyrick, of Goodrich Court, Herefordshire, shewed me, at his then residence, in Sloane Square, a Buff Doublet, which, he informed me, had come from Tamworth Castle. He also stated that such coats were very scarce. This Doublet may be seen in the Meyrick Collection of Armour at the South Kensington Museum. I have, in my own small collection,

two Buff Doublets, which, I have reason to believe, came out of Tamworth Castle, and a third found on the field of Naseby.

On Monday, the 10th of July, 1643, the Queen Henrietta Maria, went from Walsall to Kings Norton; from there, on Tuesday, the 11th, to Stratford-upon-Avon, where Prince Rupert met her, New Place, where 27 years before, Shakespeare died, having been assigned as her residence. On Thursday, the 13th, she went from Stratford to Wroxton, meeting the King at the foot of Edge hill, in Kineton Field, about four o'clock in the afternoon. On Friday, the 14th, she went to Oxford. On the Meeting at the foot of Edge hill, two copies of verses were written, preserved in manuscript amongst the private papers of Sir William Dugdale, and printed at Birmingham, with an introduction by the late Mr. Hamper, a distinguished Warwickshire Antiquary. On the occasion, a silver medal was struck, now in the Staunton Collection at Longbridge; long considered to be unique. The obverse represents the King and Queen, seated in chairs, trampling down the hydra of rebellion. Round the verge IVNCTI CERTIVS PYTHONEM. On the reverse,

XIII. IVL.

CAROL. ET. H.

M. B. F. ET. H.

R. R.

IN. VALLI. KEINTON.

AVSPICAT OCCVRRENI

ET.

FVGATO IN OCCIDENT.

REBELLIVM.

VICT. ET. PAR OMEN

OXON

MDCXLIII.

In November, 1643, Coughton House, near Alcester, was entered by some of the Parliamentary forces from Warwick. In the January following, they quitted it, on hearing the King's forces were approaching, having set fire to it in three places.

On the 18th of December, 1643, Aston Hall, near Birmingham, the seat of Sir Thomas Holt, was at his request, garrisoned by Colonel Leveson with 40 Musketeers. On the 26th of that month, it was assaulted by 1,200 of the Parliamentary troops, who took it on the 28th, having killed 12 of the garrison and taken the rest prisoners, with the loss however of 60 of their own men.

On the 3rd of March, 1644, a party of troops from Warwick, beat up a party of the King's forces at Adderbury, in Oxfordshire, and took 14 prisoners; but on being pursued by Sir William Compton, from Banbury, with about 100 horse, he overtook the Parliamentary troops, some of whom fled into Chadshunt Church, near Kineton, where twelve were slain and two taken prisoners.

On the 7th of June, 1644, the Parliamentary forces, consisting of 400 foot and 300 horse, faced Compton House, drove the park, and killed all the deer, and defaced all the monuments in the church; on the 9th of June, Compton House was taken.

Another account states "that Major Bridges, with his forces from Warwickshire and Coventry, having lain before Compton House on Friday and Saturday last, on Sunday morning (June 9th) took it, and in it the Earl of Northampton's brother, Captain Clarke, Captain Bradwell, with about 12 officers more and 120 common soldiers, 80 good horses, with all their arms and ammunition, and sent them to Warwick."



Vicars, in "England's Parliamentary Chronicle," states "that Colonel Purefoy came to this attack on Compton with his own Warwick forces and some strength added from Coventry; and that besides 120 prisoners, he took £5,000 in money, 60 horses, 400 sheep, near 160 head of cattle, and eighteen loads of other plunder, besides five or six earthen pots of money, which were afterwards discovered in the fishpond."

Compton Wyniate lies on the southern border of the county of Warwick, under the Edgehills, and was the seat of the Earl of Northampton. It still exists, a specimen of a fine castellated brick mansion, moated round, with a court in the centre, erected in the reign of Henry VII. It is most curiously placed in a hollow and so completely hidden from view, that a force might appear before it suddenly. Though not a stronghold, as the castles of Warwickshire, a competent garrison was kept in it; but it was in a great measure insulated, and commanded no high road, though placed between the roads from Banbury to Warwick, and from Banbury to Shipston. In the mansion are two chapels; one on the ground floor, for the rites of the Church of England; and another in the roof, for performance of the rites of the Church of Rome, there being many recusants in that neighbourhood. Near to the latter chapel was a priest's hole, or hiding place; but the most curious feature is that the altar was the window-sill, and of wood, with the five crosses cut upon it. This is the only original wooden altar, destined for the rites of the Church of Rome, I have met with in this country.

I imagine this mansion surrendered from not being sufficiently provisioned, as there is no notice of any contest. It would have been a more severe blow to the Royalist party



if they had not retained the castle of Banbury, which the opposing party never succeeded in taking, although they often so endeavoured. The church, situate a short distance north of the mansion, seems to have incurred the vengeance of the Parliamentary leaders, when they destroyed the monuments it contained, as the present structure appears to have been built soon after the Restoration, A.D. 1662. The mutilated sepulchral effigies it contains have been well cared for, being arranged on raised slabs. They are a monument of the barbarous warfare, worthy of the Paris Commune, against the effigies of departed worthies here, as elsewhere, carried on by the forces of the Parliament.

A few years ago this mansion was in a state of partial dilapidation; it has since been properly restored with judgment and taste. It still remains a seat of the Compton family, of the present Marquis of Northampton. I shall have occasion to refer to it again.

In the possession of the Earl of Denbigh, of Newnham Padox, are two volumes of valuable manuscript letters, relating to the Civil Wars, mostly addressed to Basil, second Earl of Denbigh, when commander of the Parliamentary forces for the Midland Associated Counties. I am indebted to the late Earl of Denbigh for a leisurely perusal of these volumes, with permission to make extracts. Few of these letters, however, relate to incidents which took place in Warwickshire.

One of them contains particulars relating to a contest in and near Alcester, of which I have not yet met with any other account. It is as follows:—

“My Lord,—Since your departure from Warwickshire maior Freeser myselfe and some of your Lordships Captains

with the assistance of Mr. Boughton procured somme money as was sufficient to pay each of your comon troopers 20s. a man which being despatched your Lordships souldiers were animated to advance accordinge your order for worcestershire on the 24 of this instant [the letter is dated from Alcester, 27th July, 1644] we quartered in Aulcester where we appointed a stronge watch that night hearinge the enemy was nere at hand the next morninge we sent out a small party which took 3 scouts and having examined them apart we understoode a boddy of the Enemy's horse were advancinge towards us so we presently drue forth all our horse our forelorne hope instantly met with theres were they had a little encounter with the losse of 1 man on our side our boddy cuminge up in the interim putt them to flight and myselfe and some others being well horst persued them at least 9 miles in which persute we tooke many prissoners many forsakeinge there horses crept into hedges this persute being ended we returned to our boddy of horse intendinge to have marched quietly for Euesham but one the tope of a hill not fare distant 4 troopes of horse belonginge to Sr Gilbert Garrat were drawn up in order so immediately we advanced towards them and putt them to flight and following the persute as formerly we took many men and horse the rest escapinge with much difficultie through dangerous waters in these persutes we tooke in all Mr. Doner, Mr. Sheldon, Commissary for the provision Mr. Thornberry 3 Corprols 2 Trumpiters 60 comon Troopers and a 120 horse at the least which belonged to Sr Gilbert Garrat Sr William Russell and Colonel Knotsford with the County troope although there losse had bin great yett there cowardise is worse running thrurrow so many of their one contribution towads there Commanders were very nimble and I persuede

myselfe they looked not backe till they came into Worcester where they and the residue of there forces are taking breth and that infortions are our persute being ended we returned to Eusham and quated there that night and having certain intelligence that Colonell Luson is come to Dudly with 5 troopes and other forces from the north cuminge into these parts we thought it not convenient at that tyme to have any longer residence in Euesham but advanced to Aulcester were at present we are borocatting the townes ends.

“ Colonell Foxe haveinge sent us some foote but slenderly provided with armes so there I intend to furnish them with what I have and will raise more foote to advance our intended designe in the interim we intend to advaince what money we may to give further satisfaction to your Lordships souldiers but the difficulties will be much, for unlesse your Lordship can procure some armes and money to supply the present necessity there is no hopes of our continuance in this place by reason many forces will be united against us and there was no assistance to be expected from Warwick Major Bridges haveinge already denied your Lordships order I hope you will be pleased to take into serious condition the mutinus condition of these souldiers for want of money for if some speedy course be not taken both for money and armes to furnish our souldiers with we shall not continue in this place and then there is no possibility to advance a penny neither shall we be able to keepe the regiment of horse together, thus much I thought good to advise yr Lordship of being the true condition of our present affares so for the present we desist subscribeinge ourselves

yr humble servants

Thos G Archer

F Craven

Aulcester 27th July

1644

To the right Honourable  
Basill Earle of Denbigh  
this

In London

Indorsed from Colonell Archer  
c Major Bleasoe."

In the same manuscript collection of the Earl of Denbigh appears:—

A true relation of the Earle of Denbigh his proceedings after he he had received his Comission from both Houses of Parliamt. to comand as Generall all the forces raised or to be raised in the Countyes of Warwick Worcester Stafford and Salop wth. the Cittyes and Countyes of Coventry and Lichfield and parts adjacent in the year 1644.

This relation is in the handwriting of Henry Firebrace, his lordship's steward, and the following is an extract:—

"From thence his Lop. marcht to Coventry where havinge remained three dayes and being much grieved at the discontent of his horse for want of hay sent them into the County of Worcester to quarter on the Enemy (beinge loth to charge the County of Warwick wth. them) and then his Lop. tooke his journey towards London to sollicite the Parl: for a recruite, and for pay for his horse and foote where the more weighty affaires of the Kingdome deteyned his Lop. longer than he expected. His Lops. Regimt. of horse being marcht towards Worcestershire accordinge to his Lops. comaund they had inteligence that Capt \_\_\_\_\_ was beseiged in the Church of Alcester on the edge of Worcester hither they marcht and releived him."

I should imagine this incident preceded the former one I have described respecting Alcester.

On the 6th of December, 1644, Milcote House, near Stratford-upon-Avon, was burnt by the Parliamentary troops from Warwick Castle, to prevent the king's forces from making it a garrison.

A few years ago a number of skeletons were discovered near Milcote, laid regularly and not promiscuously. I do not think these were the remains of soldiers slain during the civil wars, but rather of the victims of that dire plague which raged in Stratford-upon-Avon in 1564, the year memorable for the birth of Shakespeare.

On the night of Wednesday, January 29th, 1644, an attempt was made by a party of Royalist troops from Banbury (stated in one account to be a regiment of horse and eight score foot, in another as being 300 horse and foot) to recover possession of Compton House. They succeeded in obtaining possession of the outer Court, about which the stables and outbuildings lay, but were ultimately repulsed. A narrative of this transaction appears in a copy of Sergeant Major Purefoy's letter (ye brave Governor of Compton House, in Warwickshire), to his Colonel, Col. Purefoy.

"Sir.—This night, about 2 of ye clock, about a 1000 or 1200 horse and foot of ye enemies fell upon me at Compton, stormed my outworks, gained my stables, & cut down my great drawbridge, possessed themselves of all my troop of horses & took about 30 of my foot souldiers in their beds who lay over ye stables, & all this was done almost before a man could think what to do. We received this fierce alarm, as we had good cause & presently made good ye new sconce before ye stone bridge, & beat them out of ye great court, there being about 200 men entered & ready to storm ye sconce. But we gave them so hot a sally, that we forced them to retreat back to ye stables, barns, & brewhouse,

where from ye windows they played very hot upon us. I then commanded Lieutenant Purefoy & my Quarter Master, having no other officers of quality at home, the rest being abroad with about 300 of my best troopers, to sally upon ye enemy with a party of some 40 & so attempt the regaining of the Brewhouse & ye rooms above, which instantly they did with ye most gallant resolution and courage. Sergeant Bird was one that came not short in bravery of any. This party I saw fought thus with ye enemy & came to push of pike, nay, to the swords point & laid about them so bravely that they forced ye enemy to fly from chamber to chamber. Whereupon I presently sent out my younger brother ye Ensign with 3 corporals of horse & about 40 more men to relieve ye first party; & I assure you Sir ye boy fought well and led on his men most bravely and relieved his Brother, by which means all the upper rooms were regained. And now ye enemy kept only ye stables & ye barns which they held stoutly, but my resolute soldiers did so thunder their horse & reserves & foot that stood within pistol shot, that Sir William and Sir Charles Compton, who were then present, began to give ground, which my souldiers easily perceiving, some leapt out at ye windows & so into the outworks, by which means I recovered my outworks again, & made a sally port by which ye enemy endeavoured to retreat at; but finding they were frustrated of their hopes, & that my musketeers did play so hot upon ye great drawbridge that they could not be relieved: & withal we having beaten ye enemy out of their work, which we stormed when you took ye sconce, I had time thereby to fully recover ye great drawbridge, and instantly got new ropes and new locks, and drew it up again in spite of them all, Now by this means all those whose names are herewith enclosed to you, are all



in Cobs pound, having no means in the world to retreat. Whereupon they fought desperately for ye space of 3 hours, & ye valiant Comptons percieving their extreme loss, attempted three several times to storm and regain my out-works but all ye three times were beaten off with as much resolution and gallantry of my souldiers as could be expressed by men. Ye enemy within set fire to all ye hay, straw, & all ye combustible stuff to smother my men out of ye upper rooms, which did indeed much annoy them; and ye enemy without threw at least an hundred hand grenades on ye houses, so as they set them on fire in 3 several places; whereupon Sir Charles & Sir William, thinking all their own, sent a trumpetter to parly, but I commanded that none should parley, nor would I permit ye trumpetter to speak at all unto me; & fain he would have said something to my souldiers, but I commanded him upon his life to be gone & not to return any more upon his peril, & we continued to fight still; and ye aforesaid fire did so encrease, that I thought it fit to offer quarter to those that were in ye stable, for their lives only: but they would not hear me. Upon which I drew all my men together, & fell violently upon them, in which assault were slain & taken prisoners all those whose names are in the ensuing list. This did so dishearten ye Comptons & all their forces that they presently drew off all their foot & only faced me with their horse, & sent another trumpetter to parley; but I commanded to give fire upon him, that he returned with no other answer but what a musket could speak. And thus by Gods providence & mercy we were clearly rid of them. Sir, this is as true & short a narrative as I can conveniently give you. I am as we all are

“your obliged servants & kinsmen

“George & William Purefoy.



“Compton Jan 30 1644.

“We recovered all our men again that ye enemy had taken.”

“A list of ye officers & souldiers slain & taken prisoners, Captains 3 Lieutenants 2 one Ensign one Quarter Master one Cornet 5 Corporals 3 Sergeants Troopers & Foot souldiers about 50; besides 6 cartloads of wounded men carried off & near upon 40 common souldiers left dead behind them in and about ye garrison. Of mine own men both horse & foot only one man was desperately wounded & another was slightly hurt, but no one I say was slain. A rare & even wonderfull providence indeed. We took of ye enemies horse & foot arms & 150 muskets 40 pistols & about 20 hand grenades,”

In “Perfect Passages” of Feb. 3 1645 is a letter from Major Bridges:—

“Sir, the enemy taking the advantage of an halfe moone fallen down at Compton house, one of our Garrisons in this County of Warwick whereof Serjeant Major Purefoy is Governour: hereupon Sir William or Sir Thomas Compton commanded a party from Banbury to fall upon this Garrison, to which purpose he marched against it with 300 horse and 160 foot, and presently fell to storming the said works, took the outworks, possest themselves of the stables, tooke the horse which were nigh upon 100 and set the stables on fire in three severall places, by which means some of them were slain, the said houses falling upon them. By this time Serjeant Major Purefoy (the Governour of the place) had drawn up his forces together, and with valiant courage sallied out of the house and fell upon them, in short time recovered all the horse except 10 or 12 killed and took almost 80 wounded many and put the rest to flight pursuing them victoriously.

“A list of the particulars of this Victory.

|                                |                                 |
|--------------------------------|---------------------------------|
| “Lieutenant Chamberlain        | 1 Lieutenant more               |
| 1 Cornet                       | 53 other Officers and Souldiers |
| 12 other Officers and Troupers | 80 Armes                        |
| Some killed with the fire      | Their Horse rescued             |
| Lieutenant Clerke              | The enemy routed                |
| Lieutenant Hervey              | Many wounded.”                  |

In the “*Mercurius Civicus*” it is stated that the garrison killed nearly eighty of the enemy, and on sallying out took about sixty of them; that among the prisoners there were two captains and three lieutenants, Lieutenants Chamberlaine, son to Chamberlaine the Lawyer, Lieutenant Clarke, and Lieutenant Hervey; and that the enemy carried away eight cartloads of dead and wounded men into Banbury.

The “*Mercurius Aulicus*,” a Royalist periodical, gives the following account of this transaction:—

Saturday, Feb. 1st.—The Rebels tell us they have taken above 100 officers and souldiers from the garrison of Banbury; indeed, on Tuesday last, his Majesty’s forces from Banbury went within the outworks of Compton House and took 44 horse out of the stables, most of which the rebels regained, with a few Banbury men, surprized in their quarters coming home from Compton; but for those officers whom the Rebels mention in print, they having taken a Banbury Quarter Master with his rolle, were thereby enabled to take so many names prisoners, the men themselves being safe in Banbury.”

That the Royal party were severely defeated in this attack there can be no doubt, but the account as to their numbers, given by Sergeant Major Purefoy, and that he had only two men wounded in a contest which he acknowledged lasted for several hours must be taken as most exaggerated.

In a MS. letter-book of Sir Samuel Luke, it is stated that on the "5th of March, Banbury troopes brought into Banbury 72 sakes of Gloster clothes, wth. 60 odd troopers wth. their horses and armes, belonging to Gloster, wch. were a convoy to them."

The "Perfect Diurnal" states, by letters from Warwick received on the 13th March, "that the Earle of Northampton's regiment of horse from Banburie the last weeke surprized about 30 horse laden most of them with cloath, comming from Gloucester to Warwick with a convoy of about fourscore; some of the convoy were, about twenty, taken; the rest fled."

The "Mercurius Aulicus" states that "the Earl of Northampton's brother, Sir Charles Compton, went with a regiment of horse from Banbury on Tuesday, the 4th March, to gather contributions from Warwickshire, where he lay at Ilmington. That on the morning of Thursday he fell in at Halford with 120 of the Rebels' horse coming to convoy near 80 packhorses laden with much of the Gloucester Rebels wealth going to Warwick, six or seven of which packs got over the narrow bridge at Halford, but 72 were seized by the Royalists, and were found to contain broad cloth of 20s. a yard, in which were concealed money, plate, fine linen, and rich apparel. In charging this convoy Sir Charles' forces killed 12 of the Rebels, and took near 70 of them prisoners, including one lieutenant and one cornet with his colours, and almost six score horses."

Some of the above accounts of transactions in South Warwickshire I transcribed with my own hand 45 years ago from the Kings Collection of Pamphlets, relating to the Civil Wars, in the Library of the British Museum; for

others I am indebted to that excellent work, "Beasley's History of Banbury," which contains a mass of information relating to the Civil Wars of the incidents which took place in the country round about Banbury.

A letter from Northampton, dated the 31st March, 1645, says:—

"Yesterday being the Lords day Lieut. General Cromwell being at this town of Northampton, with a good body of horse and foot, by the advice of his Council of War marched from thence to Rugby in Warwickshire where they intend to quarter that night about 16 miles march and after their muster to march towards Coventry, about eight or ten miles farther, and there to stay for the present, to attend the motions of the enemy for the securing those parts."

A few days before the Battle of Naseby, on the King's march from Daventry northwards, a party of his Life Guards were quartered at Willoughby, about five miles from Daventry.

The decisive Battle of Naseby was fought on the 14th of June, 1645. After this we have few notices of occurrences in Warwickshire, except of the Scotch Army. On the 4th of July, 1645, the Scots army came to Tamworth, on the 5th to Birmingham, on the 7th to Alcester. On the 9th of September the Scots had headquarters at Charlecote, on the 10th that army marched through Warwick to Stoneley, and the next day to Nuneaton.

Respecting the other movements about this time of the Scottish army, I must refer you to Clarendon's History of the Great Rebellion.

On the 7th of January, 1646, Wormleighton House, on the eastern borders of this county, one of the seats of the Compton family, was purposely burnt by the Royalist

forces from Banbury, to prevent its being garrisoned by the Parliamentary forces. I believe the ruins of this fine mansion are still existing.

On the 16th of January, 1646, Astley House, commonly known by the name of Astley Castle was surprised by my Lord of Loughborough's forces; the Governor a shoemaker, and the rest in the house taken prisoners and carried away, with most of the arms and ammunition.

This is the last incident of a warlike nature I have as yet met with relating to this county.

The distress occasioned by these unhappy wars may be in some degree estimated from a Petition addressed to the Earl of Denbigh, preserved amongst the manuscript volumes I have already alluded. This Petition, to which no date is affixed, but which was probably presented in 1644-1645, is as follows :—

“To the Right noble. & truly noble Bazill Earle of Denbigh  
Lord Licut generall of the counties of warrick, Stafford,  
Worc: and Salop the humble Petition of ye Inhabitants  
of Lillington

“Sheweth That whereas your good Lordship out of your especiall care & upon onavoydable necessity have issued out your warrants for the raysing of a company of horse for ye safe guard of ye County whereby wee are enjoyned to send in to your Lordship two horses howsoever wee are wonderfully willing to satisfy your Lo: expectation yet such is our present weake state not onely by former losses sustained and taxes imposed but also & most cheifly by the late heavy burthen of 4 troupes consisting of aboute 220 psons upon free quarter who besides the eating of our pvision in our houses and barnes, & spending our seed pvided for ye grounds have much

impoverished us by spoyling some of our horse, & exchanging others, that we are utterly onable to comply with your Lo: as otherwise we could heartily desire, our late losses amounting to 200li. & opwards more than the yearly pfitts of our Lo upon extreme racke we all of us being poore tennants & most of us deeply engaged by reason of our great debts The pmisses considered in all humility we prsume to become humble petitioners to your good Lo: desiring what favor your honr can afford us & wee shall never cease to pray to the Almighty for the pspy of your Lo: & noble family

Will Hardinge

Henry Buckerfield

John Nicholes

William X Robinson Constable

Burnaby H Avery his mke

Francis X Eborne

Tho X Nicholes Senr

Thomas Boresly

John Arnole."

The above, it may be stated, was from a village the inhabitants of which were favourable to the cause of the Parliament and against the King.

In the "Gangræna," a popular work of the day written by Thomas Edwards, a Presbyterian minister, and published in 1646, the confusion and religious anarchy which at this time prevailed is pourtrayed in a manner almost incredible. The doctrines and discipline of the Church of England were proscribed, the book of Common Prayer forbidden to be used, no religious service was allowed at the grave on the burial of the dead, but all secular pomp was permitted. A single extract from the "Gangræna" will now suffice:—"A letter out of Warwickshire dated the 2nd of November 1645 relates that two souldiers did preach at Rugby on the 25th of October, and

there said that no Minister was a true one except he was rebaptized, and that our ordinances were false ordinances, and the printers have cozened us in printing the scriptures, and more tenents they held which now I cannot write; and on the 26th day of October they baptised sixe women in a Mill-dam about eleven of the clock in the day, which was strange to us in these parts."

In 1648 the King was beheaded, his adversaries deeming his great crime to consist of his adherence to Episcopacy and to the Church of England.

In 1651, on Monday, the 25th of August, the Lord-General Cromwell, with his army from the North, was at Coventry. They marched from thence to Warwick, from thence to Stratford, and so on to Evesham, on their way to Worcester.

In September, 1651, after his defeat at Worcester, Charles the Second passed in disguise through Warwickshire, and was very near being taken prisoner at Wootton Wawen by a troop of horse of Cromwell's forces. A timely warning was, however, given. The King turned out of the main road at a place called Bearley Cross, down an old lane, which may still be pointed out. He succeeded in crossing the river Avon at Stratford, and lodged that night in the disguise of a servant, at Long Marston, at the house of Mr. Tombs.

In 1655 was published "A catalogue of the Lords, Knights, and Gentlemen that have compounded for their estates. London: Printed for Thomas Dring, at the signe of the "George," in Fleet-street, near Clifford's Inn, 1655."

This contains a list of perhaps the greater part of the Royalist Nobility and Gentry in the different counties in England, with the several sums at which each was assessed.



The names are arranged alphabetically.

Those of the County of Warwick are as under:—

|                                                                                      | £    | s. | d. |
|--------------------------------------------------------------------------------------|------|----|----|
| Adderley Sir Charles Ham War. ... ..                                                 | 0407 | 10 | 0  |
| Broth Edw. of Edrington War. Gent ... ..                                             | 0059 | 10 | 0  |
| Brown Hen. of Tiso Warwick ... ..                                                    | 3    | 6  | 8  |
| Clark Sir Sym of Broom Warw. Baro. ... ..                                            | 800  | 0  | 0  |
| Court John of Ulnhall War. Yeom. ... ..                                              | 64   | 18 | 0  |
| Clark Matth. Oxhill Warwick ... ..                                                   | 15   | 0  | 0  |
| Dugdale Will. Shewstock War. Gent. ... ..                                            | 168  | 0  | 0  |
| Fisher Sir Clem. Packington War. Bar. ... ..                                         | 840  | 13 | 4  |
| with 30 l. p an settled                                                              |      |    |    |
| Fisher Fran. of Parkington War. Gent. ... ..                                         | 422  | 13 | 0  |
| Fisher Tho. of Parkington War. Gent. ... ..                                          | 559  | 16 | 7  |
| Gwillin Peter of Southam Gent. ... ..                                                | 113  | 6  | 8  |
| Grosvenour Fulke Morhall War. Esq. ... ..                                            | 356  | 10 | 0  |
| Grosvenour Gowen Sutton Cofield ... ..                                               | 81   | 0  | 0  |
| Glover Robert Mancetter War. Gent. ... ..                                            | 75   | 0  | 0  |
| Gibbs Sir Hen. and Thomas his son of Huntingdon<br>Warwick ... ..                    | 517  | 0  | 0  |
| Halford William of Halford War. Gent. ... ..                                         | 98   | 0  | 0  |
| Harbech Thomas Colleshall Warw. ... ..                                               | 24   | 0  | 0  |
| Holt Sir Thomas of Aston Com. Warw. Baron ... ..                                     | 4401 | 2  | 4  |
| Lucy Spencer Charlcot Warwick Gent. ... ..                                           | 3513 | 0  | 0  |
| Leigh Sir Tho. Sen. of Stone Leigh Com. War. Knight                                  | 4895 | 0  | 0  |
| Mather John Mancetter Warwick Gent. ... ..                                           | 43   | 10 | 0  |
| Northampton Earl James ... ..                                                        | 1571 | 18 | 4  |
| with 270 l per annum settled                                                         |      |    |    |
| Parker Edmund Hartshil Warwickshire ... ..                                           | 239  | 0  | 0  |
| Philpot John Lighthorn Warwickshire Clerk ... ..                                     | 73   | 0  | 0  |
| Palmer Giles of Compton Warwickshire Gent. ... ..                                    | 1236 | 13 | 4  |
| Rogers Matthew of Claverdon Warwickshire ... ..                                      | 20   | 3  | 0  |
| Repington Sir John of Annington Warwick Kt. ... ..                                   | 408  | 0  | 0  |
| with 60 l per annum settled                                                          |      |    |    |
| Raleigh George of Farnbrough Warwick Esq. ... ..                                     | 289  | 7  | 6  |
| with fifty pounds per annum settled                                                  |      |    |    |
| Underhill Sir Hercules and William his nephew of Idli-<br>cott Warwick Knight ... .. | 1177 | 8  | 4  |
| Warner George of Wolston Warwick Esq ... ..                                          | 860  | 0  | 0  |
| 36 l per annum settled for his life                                                  |      |    |    |

After the King's restoration, and in the year 1662, the walls of Coventry were thrown down, probably by virtue of a Royal mandate issued for that purpose. Several of the Nobility and Gentry of the County, including the Earl of Northampton, Mr. Humphrey Boughton, Mr. Boughton of Cawston, and his brother, caused this to be done. There

were twelve gates and thirty-two towers, exclusive of the towers belonging to the gates. The circuit of the walls was three miles.

But to conclude, the memory of some of those who took a part in, and passed away amidst these troublous times, still lingers over their last resting places, as I have shewn in Sepulchral Memorials at Caldecott and Radway. To these I have to add another simple and impressive one, the memorial of a Royalist, Daniel Blacford, who died A.D., 1681, and was buried at Oxhill, in this County, to whose epitaph, on a flat stone in Oxhill Church, is subjoined as follows:—

“When I was young I ventured life and blood,  
Both for my King, and for my countries good;  
In elder years my aim was chief to be,  
Soldier to Him, who shed His blood for me!”

*The Rev. P. B. Brodie also read the following Paper on Phosphatic and Bone bed deposits in British Strata, their economical uses, and fossil contents.*

Within the last thirty or forty years, considerable attention has been directed to certain nodular masses, or stony concretions found in the Crag, a later Tertiary deposit in Norfolk and Suffolk, in the first place, and more recently in the Green Sand in Cambridgeshire and Bedfordshire. As improvements in Agriculture, and a more scientific knowledge of farming have advanced, and the necessity for the use of phosphate manures has become more prevalent, the demand for this substance has largely increased.

Many years ago, in 1848, the late eminent Botanist, Professor Henslow, drew public attention to the probable value of certain phosphatic nodules abounding in the Crag, in Norfolk and Suffolk, and from that time to this they have been extensively used for making phosphates, and are largely exported to foreign countries. With one exception these were all obtained from the Red Crag, which overlies the Coralline, or Bryozoan Crag, but Mr. Prestwich mentions that exception as an extraordinary and most interesting stratum, forming a *basement bed*, containing some large and remarkable derivative boulders, of porphyry and other rocks, Oolites and London clay fossils, all more or less rolled, and he suggests the drifting of ice as the agent by which some of these older rocks were conveyed and deposited in the Crag. This basement bed, (about  $1\frac{1}{4}$  foot thick,) rests immediately upon the London clay, and contains the phosphatic nodules similar in appearance to those in the Red Crag, with Mammalian and Cetacean remains and foreign boulders. Amongst the former are the teeth of Mastodon, Rhinoceros, Deer, and Cetaceans; vertebræ and ear bones of a Whale, four skulls of

Belemnites, teeth of Sharks and Crustacea, derived from the London Clay as in the Red Crag. At one spot in the Red Clay, 10 feet thick, the phosphate nodules are intermingled with a few shells, and under this is a seam of these concretions, with shelly Red Crag below, Mr. Prestwich considers all these so-called Coprolites to have been originally derived from the Coralline Crag. Numerous remains of Mammalia and Cetacea, more or less mineralized and worn, and most of which are probably extraneous, are associated with these nodules.

Passing downwards in the order of Geological succession, and at a still later period of working, certain brown and black nodules of irregular shape and various sizes, which had long been known to occur in the upper Green Sand, at Cambridge, but had not formerly been supposed to be either so extensive or valuable for economical purposes, have been largely worked and extensively applied to these uses, and a very large quantity have been made into a valuable bone manure. The pits round Cambridge have now been dug for many years, and many of them are entirely worked out and new ones are opened there, elsewhere, and in Bedfordshire, though of older geological date. In the former county the bed is comparatively thin, but abounds in these phosphatic concretions, it has, however, a tolerably wide range, but being nowhere very thick, it will not be very long before it is entirely exhausted. Thin as the stratum is, however, at Cambridge it abounds in fossils of the Cretaceous period, and the diggings have led to the discovery of many rare and important forms of life, especially Pterodactyles, Saurians, Amphibia, of which a fine collection may be seen in the Woodwardian Museum, in that University. For most of the earlier and more recent acquisitions it is mainly indebted to my valued old friend and former Geological tutor, the venerable Professor Sedgwick.

The Green Sand here consists of fine marl, highly charged with green chloritic grains, angular boulders, and hard, dark-coloured nodules of phosphatic matter, often covered with *Plicatulæ*, *Serpulæ*, &c. The fossils are true upper Green Sand species, and appear for the most part to have lived and died on the spot; all the shells are filled with the same substance as the nodules, which are often of a black colour, but sometimes brown, and contain shells and fish remains.

At Potton and Sandy, in Bedfordshire, in an earlier formation, (the lower Green Sand) there is a curious conglomerate, about a foot thick, overlaid and underlaid by variously coloured sands, the lower portion of which contains layers of oxide of iron, twelve feet thick. In this conglomerate the nodules of Phosphatic matter occur. This conglomerate consists of a ferruginous sand, more or less indurated, rolled pebbles, hardened clay, and light-brown phosphatic nodules, which often contain fragments of shells.

At Sandy this iron-sand forms a hard stone, mainly composed of small pebbles of quartz, sandstone, and mica, with numerous phosphatic concretions, which are here very irregularly distributed, and are occasionally altogether absent. Most of the fossils associated with them are derivative, and very much water-worn and eroded. The shells were probably washed out of the Kimmeridge and Oxford clays, the fish remains, teeth, and ichthyodorulites, from the upper and middle Oolites. A few shells which are not rolled belong to the lower Green Sand, and lived and died where they are found.

In the neighbourhood of Ely, pits have been opened, one to the depth of nearly six feet, and another from eight to nine feet; the former contains three layers of phosphatic

deposits, averaging each about a foot in thickness. The beds are less ferruginous, and contain more lime than those in Bedfordshire. They afford many fossils, some of which are derivative, and others lived in the sea in which these deposits were formed. Mr. Walker, of Cambridge, who first drew attention to these sections, in some valuable Papers published in the *Annals of Natural History*, 1866 and 1867, believes them to be of the same age as the conglomerate bed, near Potton and the Farringdon Sands, and therefore belong not to the upper but lower Green Sand.

In the Green Sand at Farnham, in Surrey, nodules chiefly composed of calcic phosphate, are found in abundance, and have been extensively employed for economical purposes. Similar concretions are also present in the Gault, a stratum of blue clay, which intervenes between the upper and lower Green Sand. The chalk marl where it immediately overlies the upper Green Sand also contains them. True coprolites occur in the chalk, but are too widely diffused to be of any commercial value. In the Lias, large coprolites of Saurians are met with, especially at Lyme, and these might possibly be collected and made available as a manure. These may, perhaps, be sought for when the Crag and Green Sand phosphate beds are exhausted, as they must be in time. At present it is these two formations which yield the greatest part of our Geological Phosphates. It is perhaps well to note that the Phosphate Beds in the Crag and Lower Green Sand present these points of identity, that they are probably extraneous, derived from other and older formations, and that a large proportion of the fossils are the same and much water-worn. We now come to the interesting question from what source these concretions derived their phosphatic matter. Although Calcium phosphate is known as a simple

element in rocks, \* it is I believe generally only present in very small quantities. It occurs native for example as a white, amorphous mineral, known under the name of Phosphorite. It also enters largely into the composition of the bones of animals. Probably, therefore, a large proportion of these concretions, both in the Crag and Green Sand, were obtained chiefly from the decomposition of animal remains, and partly perhaps from the destruction of rocks containing Phosphorite, and in some instances from vegetable matter. Indeed, Mr. Seely is of opinion that the Cambridge nodules were derived entirely from Zostera and other marine plants, although I think this is a very questionable source, to the full extent here suggested. Mr. Walker states that the concretions in Bedfordshire contain a much larger per centage of Alumina than those in the Green Sand in Cambridgeshire. This he thinks indicates that they had been formed of clay, soaked in decomposing animal and vegetable matter, since the alumina could not be derived from either animal or vegetable sources.

The following is an analysis of some of the best average samples of phosphatic nodules from Bedfordshire, made by Dr. Voelcker. †

|                                                      |     |        |     |        |
|------------------------------------------------------|-----|--------|-----|--------|
| Water of Combination                                 | ... | 5.17.  | ... | 5.67.  |
| Phosphoric Acid ‡                                    | ... | 22.39. | ... | 15.12. |
| Lime                                                 | ... | 32.73. | ... | 26.69. |
| Magnesia, Alumina, and Flourine,<br>(by difference.) | ... | 6.64.  | ... | 4.51.  |
| Carbonic Acid §                                      | ... | 3.06.  | ... | 2.18.  |

\* In a Paper, by Dr. Voelcker, read at the British Association, in 1865, he describes certain limestones and black shales in the Llandirio series, (Lower Silurian,) in North Wales, which are rich in phosphate of lime; in one case the proportion amounted to  $6\frac{1}{2}$  per cent. The mine he states contains many millions of tons of valuable phosphatic minerals.

† See my Paper on the Green Sand, at Sandy. Geological Magazine, April, 1866,

‡ Equal to Tribasic Phosphate of Lime, (Bone Earth) 48.51. ... 32.76.

§ Equal to Carbonate of Lime ... 6.95. ... 4.95.



|                  |     |     |        |       |        |
|------------------|-----|-----|--------|-------|--------|
| Oxide of Iron... | ... | ... | 8.08.  | ...   | 20.61. |
| Silicious Matter | ... | ... | 21.93. | ...   | 25.22. |
|                  |     |     | <hr/>  | <hr/> |        |
|                  |     |     | 100.00 |       | 100.00 |
|                  |     |     | <hr/>  | <hr/> |        |

The brown rounded pebbles in the Crag contain a large proportion of calcic phosphate, mixed with calcic carbonate and flouride, according to Dr. Miller. By these analysis, a comparison may be drawn between the chemical composition of the chief depositories of these nodules which are most valuable for agricultural purposes. They are carefully sorted, washed and ground in a mill, and then treated with an acid and they become a bi-phosphate, and in due course are rendered fit for the market. Some persons have an antipathy to bone manures, under the idea that they are apt to be used by fraudulent millers and bakers, to mix with the flour. But as the former article is expensive and usually more costly than the latter, they need not have much fear on this account. Perhaps they are not aware that the Pyramids are rifled of their contents by cunning Arabs; and Egyptian Mummies are imported into this country, and the dust largely employed, especially in Norfolk and Suffolk as a bone manure; so that indirectly some of us may be deriving our bread food from trucculent Egyptian Pharaohs, and dark-eyed beauties of Thebes and Memphis. I cannot say what *they* might have thought of the matter if they had known that in future ages their dust would have been employed to improve the soil of a little far distant and then unknown island, which has since helped to people and civilize a large portion of the known world.

I now come to the consideration of the peculiar strata called 'bone beds,' which though not of any commercial

value,\* are of special interest to the Palæontologist, and their history and origin is by no means easy to explain. The term is applied to certain strata which are almost entirely composed of the remains of fish and saurians, more or less rolled and fragmentary. They are known to occur in several different formations, and always at the close of one great epoch and the commencement of another, and usually form the basement or lowest, *i.e.* earliest formed stratum in each succeeding group.

In descending Geological order, the following have been recorded.

- 1.—‘Bone bed’ at the base of the lower Green Sand, at its junction with the Wealden.
- 2.—‘Bone bed’ at the base of the Inferior Oolite, † at its junction with the Lias, which I discovered some years ago in Gloucestershire, and is probably local and of limited extent. †
- 3.—‘Bone bed’ at the base of the Lias, at its junction with the new red marl or upper division of the New Red Sandstone, (Trias.) As the sandstones, shelly limestones, and clays, associated with this bone bed are now separated from the Lias, and classed with the Rhœtic by most Geologists, though some consider them to be more nearly related to the Trias; it will be better to consider them as a separate and independent group, but this will not invalidate the fact that the bone bed comes in between the two great epochs, the Trias and the Lias, forming as many of those bone beds do, the passage beds between one formation and the other.

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\* Hereafter it is possible that the Rhœtic bone bed may be turned to account in this way.

† There are hard, dark nodules both in the Inferior Oolite and Lias, which are more or less highly charged with Phosphoric Acid. These were discovered to be phosphatic twenty years ago, by Mr. Beesley, of Banbury, and although this refers more especially to that immediate neighbourhood, there is no doubt that similar phosphate nodules occur in both these formations elsewhere.

‡ Geological Journal, No. 1850-51, Vol. 6 & 7, Part 1.

But the fact that these strata at the base of the Lias are now generally classed with the Rhœtics, and therefore intermediate between the Lias and the Trias does not weaken the argument in favour of a change of life at this particular time. For while in Germany the whole series including the St. Cassian group below, are of great thickness, and therefore, are entitled to be ranked as a separate and independent formation; their representatives in England do not exceed 100 feet, and might be fairly considered to be more truly passage beds though of Rhœtic age. I am not aware that any 'bone bed' properly so-called, occurs in the district where the Rhœtic and St. Cassian formations are most largely developed.

Whether these different bone beds indicate as some Palæontologists suppose, a break or change in the mineral and zoological conditions prevailing at the time, or whether they rather shew a continuity in the Geological record, thus forming connecting links between one great Geological period and another, we should in either case expect to find many new forms of animal life mingled with others which characterize the older underlying formation; while some would die out, and perhaps remain peculiar and distinctive, and a few pass upwards into the later deposits which succeeded in the order of time.

- 4.—'Bone bed' at the base of the mountain limestone at its junction with the old red sandstone.
- 5.—'Bone bed' at the base of the old red sandstone at its junction with the Ludlow rock.

We have here then no less than five bone beds in five distinct Geological formations, all occurring at the close of one period and the commencement of another, which is so marked and peculiar that it seems almost impossible to doubt

that some similar and prevailing change affected the sea bottom at each particular epoch, and brought about the conditions necessary to form those singular accumulations of animal remains, which are appropriately termed 'bone beds.' With the exception of the Rhœtic bone bed, all the rest are simply an aggregation of broken and disconnected fragments of fish, \* chiefly Cestracionts, (sharks,) usually forming a very thin stratum, seldom exceeding a few inches in thickness, and probably of limited extent. These fish remains are usually associated with the marine shells of the period, though not in any great profusion. The Rhœtic bone bed differs from these in the mixture of rolled and broken fragments of Saurians, with fish remains, and abundant coprolites of both, and also in its greater extent and thickness. For this reason this is the only one which might perhaps be useful as a manure, as it contains abundance of calcium phosphate, the others consisting for the most part of remains of fish, which, however interesting to the Ichthyologist, would be unavailable for this purpose. Unfortunately the Lias bone bed is highly charged with pyrites, (sulphide of iron) which sometimes permeates the bones, and gives it an increased hardness and metallic lustre; although there are some layers where it is very soft and crumbly, and occasionally numerous bones, teeth, &c., are scattered in sandstones and limestones without pyrites, where they might be turned to some account; with this view I sent some specimens to the Great Exhibition, in 1851. Now it is well-known that sulphuric acid is obtained from the pyrites in the London clay, possibly this Rhœtic pyrites might also be used in the same way, and if this could be done and the animal remains picked out and made into a bone manure, the economical

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\* The Ludlow 'bone bed' is an exception, as numerous fragmentary remains of Crustacea, (Ceratocaridæ,) are associated with those of fish.

value of the stratum would be two-fold, at all events it is worth considering. \* In many places it could be readily obtained by quarrying, and as it often forms cliffs on the banks of rivers, as at Wainlode and Westbury, in Gloucestershire, and Aust Cliff, in Somersetshire, and on the Welsh Coast, (Pennarth,) which are liable to constant disintegration, the pieces could be easily collected and turned to good account. Most of the fish bone beds are of comparatively limited area, and often entirely local, as the one at the base of the Inferior Oolite, in the Gloucestershire Cotswolds; the most widely spread are the ones which belong to the Rhœtic and Ludlow series. The latter is known to occur in its usual position in Gloucestershire, Herefordshire, and Shropshire. It rarely exceeds an inch in thickness, is of a brown colour, very soft, and resembles ginger bread, and is made up of the comminuted fragments of placoid fish, (chiefly onchus,) coprolites, and crustaceans. For a long time these fish were supposed to be the earliest indications of their class, but within the last few years fish remains have been discovered in the Lower Ludlow rocks, still lower down in the Silurian, and therefore proving their existence at a much earlier period. This is only one of the many instances which prove how cautious we should be in drawing definite conclusions too hastily from mere negative evidence. The safest way is simply to state that as far as present discoveries have gone no traces of certain animals have been found lower down,

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\* My friend Mr. Beesley has kindly analysed some specimens of the bone bed for me, and states that it contains .5 per cent of phosphate of lime, and that the bone is readily soluble in diluted Hydrochloric acid, whilst the sulphide is entirely inacted on. The thicker mass at Coombe Hill contains only 20 per cent. He suggests that the simplest plan of utilising the Phosphoric acid would be to pour off the clear liquid, and use it as a liquid manure, adding first, if excess of acidity is an objection, milk of lime to complete the precipitation of the Phosphate of lime.

If the quantity was large, it might answer to burn it, producing sulphuric acid from the gases of its combustion, and then operating upon the residue with either hydrochloric acid, or sulphuric acid; or even it might be ground and applied at once to the land, as it would not be insoluble in carbonate water, like the so-called 'coprolites,' and the residue of peroxide of iron would not be injurious to the land. The excess of Pyrites makes it undesirable to grind and apply it at once to the soil without some previous preparation.

but that future investigations made, lead to very unexpected and unlooked for results. Hasty generalizations in Science are always to be deprecated and avoided.

The Rhœtic 'bone bed,' as before stated, is present at the base of the Lias, and reposes immediately on the Red Marl, the top of the Trias or new red sandstone. Generally it forms one thin stratum, of a dark colour, almost black, charged more or less with pyrites, and is entirely composed of the rolled and comminuted fragments of fish and Saurians. In some places there are two or three distinct 'bone beds,' \* divided by shale, limestone, or coarse sandstone, and sometimes there is a band of limestone, often arenaceous full of bones, coprolites, and teeth. Whatever the matrix may be in different localities, and however variable in thickness, it is always characterized by the same organic remains. It probably attains its greatest thickness at Aust Cliff, on the banks of the Severn, in Somersetshire, where it contains some large palatal teeth of the remarkable fish *Ceratodus*. From Westbury Cliff I obtained a very large vertebra of an *Icthyosaurus*, indicating a Saurian of great size. Long before the strata at the base of the Lias were assigned to the Rhœtic; holding an intermediate position between that formation and the Trias, my friend Sir Philip Egerton our great authority on fossil fish, from the peculiar character of those in this bone bed, referred it to the upper New red sandstone. Some are peculiar to it, and others belong to species which prevail in the Muschelkalk, a calcareous, and

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\* At Watchet there are three separate 'bone beds,' the first is a thin conglomerate of bones and teeth, a little more than two inches thick, underlaid by a sandy marl with similar fossils, two feet thick. Still lower is a sandy stratum, bone bed, with quartz pebbles and limestone nodules, with same fish remains as in bone beds above, somewhat more than two inches thick. Black shale, and then another bone bed, with same and additional fossils, two to three inches. Shells peculiar to the Rhœtics occur more or less in all these bone beds, but belong to different genera, some being common to each. Rolled fragments of large reptilian bones are also noticed here by Mr. Dawkins, and one hollow bone supposed by him to belong to a *Pterodactyle*.



highly fossiliferous deposit, between the Keuper and the Bunter, unknown in this country, but largely developed in Germany. Among the genera, common to both, are *Hybodus*, *plicatilis*, *Saurichthys apicalis*, *Gyrolepis tenuistriatus*, and *Alberti*, (the two latter are Sauroid fish,) *Acrodus minimus*, and *Sargodon Tomicus*. Other fish such as *Ceratodus*, *Squaloraia* and *Lepidotus*, are also associated with the above; the last has a very wide range, and passes upwards through the Lias and Oolites into the Wealden.

In addition to these facts which gives a special interest to this singular deposit, it has another and more important one to the Palæontologist, in the occurrence of the teeth of Mammalia, which although only indicating a very diminutive Mammal, is of great importance as shewing their existence at this period.

Mr. Dawkins discovered a tooth of a Mammal (*Hypsi-prymnopsis Rhœtica*) allied to the Kangaroo rats,\* in strata of this age at Watchet; another has since been found in Devonshire, and my friend Mr. C. Moore, has previously described a small Mammalian (*Microlestes*) tooth in detritus, derived from these Rhœtic beds at Frome in Somersetshire. Previous to these discoveries in England, a small tooth (*Microlestes antiquus*) belonging to this class has been observed at Wurtemberg, in Germany, in a bone bed of similar date. These are not the earliest indications of the presence of Mammalia, because a small tooth *Dromatherium sylvestre* is stated to have been detected in the new Red Sandstone in America, which is so far the earliest proof yet known of any animals of this high class, but it would not be surprising if others were found in still older formations.

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\* This interesting tooth was found by Mr. Dawkins, at Watchet, in the grey marls beneath the 'bone bed,' and therefore strictly speaking, is somewhat older, and are classed by him as lower Rhœtic. *Proceedings Geological Society*, 1861.



The Saurians, chiefly *Icthyosaurus* and *Plesiosaurus* are well known genera in the Lias, and I am not aware that there are any species which are peculiar to the bone breccia of the Rhœtics. The range of this singular stratum is very considerable, extending over an area of nearly 200 miles, which in such a thin stratum is rather remarkable. It has been noticed at Axmouth in Devonshire, at Aust Cliff, and Watchet, and elsewhere in Somersetshire, Lyme Dorset, at Pennarth and St. Hiliary in Glamorganshire, in the Mendips near Wells,† Westbury and Wainlode Cliffs in Gloucestershire,‡ Coombe Hill near Tewkesbury, near Binton in Warwickshire, Kuowle being its furthest northern limit§ in this county, and it has been observed at Gainsborough, still further to the north; but has not yet been detected in Yorkshire. There are other interesting points inland where it is known, and would no doubt be found at many others if available sections were afforded.

In 1861, my friend Mr. C. Moore, in an important paper on the Rhœtic beds, in the *Journal of the Geological Society*, 1861, pointed out the identity of the series of rocks which contain the bone beds with certain formations in the Austrian Alps, upwards of 4000 feet thick, and there termed Rhœtic (Rhœtia) but in England reduced to a thickness of one hundred, and sometimes not more than thirty-five feet. The shells are for the most part of small size and peculiar to this series; some of the species described by him are new, and others are common to the same zone on the continent. They are usually met with in the strata associated with the bone bed, and more rarely in connection with it. Whether these different bone beds are absolutely

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† See my Paper in *Journal of the Geological Society*.

‡ Fossil Insects, (Brodia.)

§ See another Paper in *Proceedings of Warwickshire Naturalists' Field Club*.

continuous or not (as they really seem to be) the similarity of lithological structure of these ichthyolite breccias tends to shew the uniformity of conditions over large areas. It is more difficult to explain the cause of the accumulation and destruction of so many fish and lizards over a *large* extent of sea bottom at the *same* time. Some Geologists attribute the sudden destruction of animal life (as it no doubt was in many cases) to noxious gases emitted by submarine volcanoes, and it may perhaps have been so in this instance. The action of strong and variable currents is attested by the rolled quartz and other pebbles, (often forming conglomerates intermingled with bone) previously mentioned, and the comminuted condition of the animal remains, which must have been present in enormous quantities, and were evidently deposited in masses at the bottom of the sea, and cemented together by iron pyrites in thin layers. It has been already stated that these osseous conglomerates whenever they have been as yet recognised, always occur at the close of one formation and the commencement of another, and it is just then that we have often a marked difference in the fauna and flora, and in the mineral conditions of the two epochs and it is evident that the chemical and mechanical change, whatever it was, must have largely affected the marine fauna, and may have partly brought about the sudden destruction of the animals whose remains constitute the 'bone bed.'

Some years ago, an account was published of a similar formation having been discovered by dredging at the bottom of the sea, where extensive accumulations of the remains of fish were noticed, consisting chiefly of broken bones, teeth, and scales, spread over a considerable space both in length and breadth, thus constituting a modern 'bone bed,' and illustrating some of those described in this paper. It is fair

to presume that the same causes which produced the one produced the other. Unfortunately I cannot refer to the article, otherwise, I might be able to give a further account of it.

I have dwelt longer upon the history of the Rhætic bone bed, because of its greater extent and possible application for economical purposes, for it is the only one which would be likely to be available in this way. The discoveries of modern science have laid open so many new sources for the practical application of the rocks, which form the crust of the earth that we can scarcely set a limit to their utilization, and we may look forward to many other and as yet hidden stores of general advantage to the public. \*

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\* One instance of this among many may be cited. The Kimmeridge Clay on the Dorset Coast, is now worked for the bituminous shale, which is used for making candles, and it yields an excellent gas, and is valuable as a manure. When distilled it produces valuable oils, and the residuum can be made into hydraulic cement.

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The Warwickshire Naturalists' and Archæologists' Field Club held their Annual Winter Meeting in the Museum, Warwick, by kind permission of the Council, on the 7th of March, 1871, when the following papers were read:—First. On the Domestic and Military Architecture of the Early Inhabitants of the British Islands, (with illustrations,) by Dr. O'Callaghan, LL.D., &c. Second,—On the Nature, Origin, and Geological History of Amber, by the Rev. P. B. Brodie, M.A., F.G.S., Vice-President, &c.

The First Summer Meeting was held at Moreton-in-the-Marsh, on May 16, 1871. The Members belonging chiefly to the Geological Section of the Club; the day was devoted to Geology; the drift was examined at Little Wolford, and

the Church and an old Manor House visited ; and some interesting quarries of Middle Lias, full of fossils, and the rich Coral bed in same zone, at Cherrington. It was intended to have visited Brailes and Compton Wynyates, but there was no time to carry out this plan which was therefore reserved for a future occasion.

On the 3rd of July, the Members were invited to assemble at Leeds Castle, by the kindness of the President, W. Martin, Esq., M.P. This meeting as might be expected was largely attended. The Archæologists visited Rochester Castle and Cathedral, Kitt's Cotty House, Luton, Knole Hall, Maidstone, and Canterbury. The Geologists visited the L. G. Sand quarries at Maidstone, the Wealden at Bethersden, the famous Chalk pits at Halling and Burham; and the Botanists obtained many interesting plants in the district.

The Archæological Meeting specially devoted to Archæology, was held at Tamworth, on the 27th July, 1871. The following places were visited during the day, the Town Fortifications, the Castle, Church, Town Hall and Dungeons, Bole Bridge, Alvecote Priory, Pooley Hall, Shuttington Church and Camp, Seckington Church and Tumulus.

The last Meeting took place at Kenilworth and Meriden, the Archæologists inspecting the Castle and Meriden ; and the Geologists the Permian quarries at both places.

# Additions to the Museum and Library.

## GEOLOGY.

### DONATIONS.

Fossil Bones, from Gravel pits between Barford and Tachbrooke, Parish of Barford. *Presented by J. S. Baly, Esq., and Mr. Rainbow, junr.*

Large slab of Wealden, with Paludina, from Bethersden, Kent. *Presented by A. Keene, Esq.*

Pecten, sp? Hamites. Cyclocyathus Fittoni. Belemnites Listeri, Cinulea inflata, Nucula pectinata, Notopocorsytes Stokesi, Belemnites, Hemiaster Baleyü, Rostellaria costata. Gault, Folkestone, Kent. *Presented by Rev. P. B. Brodie.*

Paludina, Wealden, Bethersden, (Kent.) Belemnites mucronatus, Chalk, (Kent.) Conus, London Clay, (Bracklesham.) Natica, Venericardia planicosta, London Clay, (Salisbury.) Cyprina Morrisi Thanet Sands, Reculvers, (Kent.) *Presented by Rev. P. B. Brodie.*

Head of Ichthyosaurus, (very large,) Upper Lias, Whitby. *Presented by J. W. Kirshaw, Esq.*

Vertebra, (large) of Cétiosaurus, from Padley's Quarry, Chipping Norton; Lima grandis, and Lima proboscidea, from Inferior Oolite, Combe Hill, Barford, St. John's, Oxon. *Presented by T. Beasley, Esq., Banbury.*

Fossils from the collection of the late J. Faulkner, Esq., of Deddington. *Presented by his Executors.*

Ammonites, Stonefield Slate, Eyeford, Gloucestershire. *Presented by Rev. P. B. Brodie.*

Palæoniscus elegans and P. comtus, Marl Salte, Magnesian Limestone, (Durham.) *Presented by Rev. P. B. Brodie.*

Ammonites Densinodus, (large,) and group of Gryphytes, from Fenny Compton. *Presented by J. W. Kirshaw, Esq.*

Pecten Thiollieri, L. Lias, Fenny Compton. *Presented by Rev. P. B. Brodie.*

Ammonites rotiformis, L. Lias, Stockton. *Presented by J. W. Kirshaw, Esq.*

## MISCELLANEOUS.

### DONATIONS.

Trilingual Inscription at Sau, by S. Birch, LL.D., F.S.A.

Cast of the Head of the Dodo in the Museum at Oxford. *Presented by the Rev. A. Bloxam.*

Arctic Tern, shot at Baggington. *Presented by J. Wimbridge, Esq.*

Hooded Crow. *Presented by J. Wimbridge, Esq.*

Hooded Merganser, *Mergus cucullatus*. *Presented by Philips, Esq. Whitmore Park, Coventry.*

Pair of Antique Shoes. *Presented by Mr. William Sleath.*

## LIBRARY.

### DONATIONS.

Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club for 1871. *Presented by that Society.*

"The Barons' Wars," by Blauw. *Presented by F. Manning, Esq.*

*The following 8 Works were Presented by Evelyn Philip Shirley, Esq., F.S.A.*

1. Some account of the Etrin or dominions of Fancy, 4to, London, 1845.
2. Inventory of the effects of Henry Howard, K. C., Earl of Northampton. 4to, London, 1870.
3. On the descent and Arms of the House of Compton of Compton Wyniate. 4to, London, 1870.
4. Some account of English Deer Parks, with notes on the management of Deer. 4to, London, 1867.
5. Lower Eatington, its Manor House and Church, privately printed 4to, London, 1869.
6. Lough Fea, 2nd Edition, privately printed, 4to, London, 1870.
7. Original letters of Sir Thomas Pope, K., communicated to the Philobiblon Sec.
8. A Sermon preached by the Rev. W. B., D.D., at the consecration of the church of St. Patrick of Ardragh in the Diocese of Clogher, October 13th, 1868. 4to, London, 1869.

## LIBRARY.

### PURCHASES.

Annals and Magazine of Natural History, Vol. 8 and 9, 4th series.

#### CAMDEN SOCIETY'S PUBLICATIONS.

- No. 1. New series, the Fortescue Papers relating to state affairs.
- „ 2. „ „ Letters and Papers of John Shillingford, Mayor of Exeter, 1447—50.
- „ 3. „ „ The Old Cheque Book of the Chapel Royal from 1561 to 1744.
- „ 4. „ „ The Life of Bishop Bedale, and Bishop of Kilmore, in Ireland.

Geological Magazine, 82 to 93.

Popular Science Review, 39 to 43.

# ANNUAL FINANCIAL STATEMENT,

FROM 31ST MARCH, 1871, TO 31ST MARCH, 1872.

## Income.

|                                                             |     |      |    |    |
|-------------------------------------------------------------|-----|------|----|----|
| 1871.                                                       |     | £    | s. | d. |
| 31st Mar.—To balance of last account ...                    | ... | 38   | 1  | 1  |
| 1872.                                                       |     |      |    |    |
| 31st Mar.—Amount received during the year for Subscriptions | 55  | 13   | 0  |    |
| Arrears .. .. .                                             | 1   | 1    | 0  |    |
|                                                             |     | 56   | 14 | 0  |
| Received for admission to Museum                            | 7   | 6    | 7  |    |
|                                                             |     |      |    |    |
| To Balance ... .. .                                         | £26 | 12   | 10 |    |
| Of which is deposited on Library Account                    | 1   | 10   | 0  |    |
| (Mr. Garner ... .. .)                                       | 0   | 10   | 0  |    |
| (Mr. Kitchener ... .. .)                                    | 0   | 10   | 0  |    |
| (Miss Kimberly ... .. .)                                    | 0   | 10   | 0  |    |
| Balance ... .. .                                            | £35 | 2    | 10 |    |
|                                                             |     |      |    |    |
|                                                             |     | £102 | 1  | 8  |

## Expenditure.

|                                                                                   |     |      |     |     |
|-----------------------------------------------------------------------------------|-----|------|-----|-----|
| 31st March, 1872                                                                  |     | £    | s.  | d.  |
| Insurance ... .. .                                                                | ... | ...  | ... | ... |
| Attendant's Salary ... .. .                                                       | ... | ...  | ... | ... |
| Coal and Firing ... .. .                                                          | ... | ...  | ... | ... |
| Printing (including Reports) and Stationery                                       | 12  | 6    | 1   |     |
| Fittings and Repairs ... .. .                                                     | ... | ...  | ... | ... |
| Preserving and Repairing Objects, (including Altering Cases for Insects) ... .. . | ... | ...  | ... | ... |
| Books, Binding, &c. ... .. .                                                      | ... | ...  | ... | ... |
| Subscriptions to Societies ... .. .                                               | ... | ...  | ... | ... |
| Postage, Circulars, &c. ... .. .                                                  | ... | ...  | ... | ... |
| Carriage of Parcels ... .. .                                                      | ... | ...  | ... | ... |
| Incidental Expenses, Cleaning, &c. ... .. .                                       | ... | ...  | ... | ... |
| Poor's Rate ... .. .                                                              | ... | ...  | ... | ... |
| Collector's Commission ... .. .                                                   | ... | ...  | ... | ... |
|                                                                                   |     |      |     |     |
|                                                                                   |     | £65  | 8   | 10  |
|                                                                                   |     |      |     |     |
| By Balance ... .. .                                                               |     | ...  | ... | ... |
|                                                                                   |     |      |     |     |
|                                                                                   |     | £102 | 1   | 8   |



# Warwickshire Natural History & Archaeological Society.

Account of Monies Received and Expended for Gas Fittings, Lectures, and opening the Museum in the Evenings, for Two Winter Seasons.

## Receipts,

1870-71. The 1st Winter's Lectures and Meetings were Free.

Admission to Lectures, at 6d. each.

|                                    | £ | s. | d. |
|------------------------------------|---|----|----|
| 20th Nov. 1871. On the Microscope  | 4 | 1  | 9  |
| 18th Dec. 1871. On Warwick Castle  | 2 | 18 | 6  |
| 24th Jan. 1872. On Natural History | 0 | 14 | 0  |
| 20th Feb. 1872. On Mammalia        | 1 | 0  | 6  |

(The two last Lectures were free to Members of the Society and their families.)

1871-72. Admission to the Museum on Wednesday Evenings  
Seventeen Evenings, 71 Persons at 1d. each

Donations which have been collected to cover the expenses ... ..

£37 8 11

## Expenditure.

Paid for the Gas Fittings for all the Museum Rooms, and for the Lamp at the door ...

|                           |     |     |     |     |    |    |   |
|---------------------------|-----|-----|-----|-----|----|----|---|
| 1870--71. For Gas         | ... | ... | ... | ... | 16 | 17 | 6 |
| " Attendance and Cleaning | ... | ... | ... | ... | 1  | 19 | 0 |
| 1871--72. " Gas           | ... | ... | ... | ... | 3  | 5  | 0 |
| " Attendance and Cleaning | ... | ... | ... | ... | 2  | 3  | 6 |
| Expenses of Lectures—     | £   | s.  | d.  |     | 2  | 5  | 0 |

1st. Lecture ... ..

2nd. Lecture ... ..

For Printing, Stationery, Advertising, Circulars, &c., ... ..

£37 8 11

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1871—72.

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Non-Subscribers are admitted on payment of an admission fee of sixpence each.

The Museum is free to the Inhabitants of Warwick on Mondays and Tuesdays.

The Annual Subscriptions for 1872 are due on the 24th day of May, and the Council request that the Subscribers will cause them to be paid to the Treasurer, at the Bank of Messrs. Greenway, Smith, and Greenways, Warwick; or to Mr. William Delatour Blackwell, the Collector of Subscriptions, Leicester Street, Leamington.

















