THE TRANSACTIONS

AND

JOURNAL OF THE PROCEEDINGS

OF THE

DUMFRIESSHIRE & GALLOWAY

NATURAL HISTORY

AND

ANTIQUARIAN SOCIETY.

SESSION 1867-68.

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JOURNAL OF THE PROCEEDINGS

OF THE

Dumfriesshire & Galloway Natural History and Antiquarian Society.

October 30th, 1867.

At a Meeting of Committee held in their apartment in the Dumfries and Galloway Club Rooms,

Sir W. JARDINE, Bart., in the Chair,

Dr Dickson having intimated his resignation of the Secretaryship of the Society, having accepted a situation in the Island of Mauritius, it was proposed by him and seconded that Mr M'Diarmid should be requested to accept of this office.

Dr Gilchrist, Crichton Institution, was requested to take the office of vice-president, in room of Mr Maxwell of Breoch, which he accepted.

It was proposed and agreed to that Mr Dudgeon of Cargen should be requested to accept the office of vice-president, in the place of Mr Starke, Troqueer Holm, who retires in the order of rotation. The election of new members of committee was considered, when the following were nominated in room of the gentlemen retiring from that office in order of rotation:—Sir William Broun, Bart.; Major Bowden; Mr Crombie, Architect.

Sir W. Jardine presented to the Society a pamphlet entitled "Sculptured Stones of Eastern Scotland."

November 5th, 1867.

The Society held the First Meeting—being the Annual Meeting—in their apartment in the Dumfries and Galloway Club Rooms.

DR GILCHRIST in the Chair.

The Minute of the Meeting held on 30th November was read and approved of.

The Secretary's Annual Report, as prepared by Dr Dickson, was read and approved of. A unanimous expression of regret was directed to be recorded of the loss the Society had sustained through the removal of Dr Dickson, who had held the office of Secretary to the Society since its formation.

Sir W. Jardine, Bart., was unanimously re-elected President of the Society, and Mr J. G. Clark, Dr Gilchrist, and Mr Dudgeon were elected as Vice-Presidents. Mr Murray was unanimously appointed to be Secretary, and Mr Corrie as Joint-Secretary with him. Mr Corrie was also appointed Treasurer, and Mr Starke was re-appointed Curator of the Museum and Library.

The meeting appointed as a committee to examine and arrange the papers, &c., belonging to the Society, left by Dr Dickson, late Secretary, and also to catalogue the books, &c., in possession of the Society, and the articles in the Museum —Mr Starke, Dr Gilchrist, and the Secretary.

The Secretary was directed to collect the papers for the next Journal of the Society and submit them to the President with a view to their publication.

Mr Corrie gave notice that he would propose at next meeting as ordinary members, George Hamilton, Esq., and Dr John Shand, of Kirkcudbright, and Mr James Blacklock, merchant, Dumfries. Dr Kerr gave notice that he would

propose, as a corresponding member, Mr John Hunter Broadswood, Carluke, Vice-President of the Geological Society of Edinburgh. Dr Gilchrist gave notice that he would propose Dr Rose, Wigtown, Dr White, Whithorn, and Dr Sharpe, of Thornhill.

December 3d, 1867.

The Society held the second meeting of the session in the Assembly Street Club Rooms.

Mr STARKE in the Chair.

The minutes of first meeting were read and approved of.

The Secretary reported that he had put the M.SS. and papers read during last session into the hands of the President. The Treasurer submitted his accounts, which were examined and audited. The roll of members of those who had died,—had removed,—or who had declined to continue to pay their subscriptions was read; and it was recommended that a list of members as adjusted should be printed with next Transactions. It was remitted to the ordinary committee to take into consideration the question of supplying corrresponding members and other societies with copies of the Transactions, and to report to the next meeting.

The following members were enrolled:—*Ordinary Members*—James Blacklock, merchant, Dumfries; George Hamilton, Steward-clerk, Kirkcudbright; John Shand, M.D., Kirkcudbright; Dr Rose, Wigtown; Dr White, Whithorn; Dr David Sharpe, Thornhill. *Corresponding Members*—Mr John Hunter, Broadwood, Carluke; Miss Beecher, Manchester.

Mr Starke, the retiring President, read the Annual Address, and, on the motion of Mr James Frazer, a cordial vote of thanks was awarded to him for his valuable Paper.

Dr Sharp, M.B., read a paper by himself on "Additions to the Catalogue of British Coleoptera," and exhibited an interesting collection of rare species.

A paper by Mr Gibson on Ancient Pipes was read by the Secretary, which advanced the opinion that the pipes were not of older dates than the first introduction of Tobacco. Dr Gilchrist mentioned an instance of one of those ancient pipes being found surrounded with Roman pottery, and of the discovery of one by himself in a peat bog in Cornwall.

Mr Corrie read a notice of the discovery in the house occupied by the late Mr Young, P.F., of a copperplate engraving of the Old Bridge, Dumfries, and of an old print of Daniel in the Lions' Den, of date 1790. Impressions were exhibited.

Dr Gilchrist mentioned the discovery by himself during the summer of two Camps, one on the road from Greenmill to Old Quay and one still more obvious near the east end of the Viaduct of Goldielea, which he recommended to the investigation of the Members. He also exhibited an interesting series of minerals from the Waldensian Valleys and the Gothard Pass.

January 7th, 1868.

The Society held the third meeting of the session in the Assembly Street Club Rooms,

Dr GILCHRIST in the Chair.

The minutes of last meeting were read and approved of.

The following Gentlemen were enrolled:— *Ordinary Members*—John Carlyle Aitken, Dumfries; A. J. Harkness, Solicitor, Dumfries; and J. R. Wilson, Solicitor, Sanquhar.

Mr Hogg presented a number of dried specimens of plants prepared by him for the Society's collection during the previous Session.

Mr James Shaw, Tynron, read a paper on "Right Hand Superiority." This paper called forth an animated and instructive discussion. The Secretary, in the absence of Mr

Starke, read a notice of some ancient relics found in the parish of Dalry communicated in letters from Dr Robert Trotter to Mr Starke. The relics were—1, A large spear head, 7½ inches in length, found in a moss when casting peats. 2, A large and heavy stone hammer, 13 inches long by 5 broad at the aperture for the shank, found in a large Cairn. 3, An arrow or dart head of red coloured flint found near the Cairn when making a drain. 4, Three large round water-worn stones, one of them hard millstone grit, part of a large pavement of similar stones turned up by the plough in the parish near the ruins of a building at a place called Chapel Leys, sometimes Chapelyard, similar to a pavement found in the Cheviots, described in the Border Sketches by Mr Hardy as the floor of an ancient house of the Britons.

Dr Gilchrist presented the Society a copy of the Meteorological Report kept at the Crichton Royal Institution for the year 1867.

February 11*th*, 1868.

The Society held the Third Meeting of the Session in the Assembly Street Club Rooms,

Mr M'DIARMID in the Chair.

The minutes of last Meeting were read and approved of.

Mr Corrie presented to the Society a Stone Hammer recently found on the lands of the Moat of Troqueer, with a notice of the circumstances of its discovery and the locality.

Mr M'Diarmid exhibited part of a stone celt sent to him by Mr Hamilton, Steward-Clerk, Kirkcudbright, and which had been found in the neighbourhood of Kirkcudbright, on the rising ground overlooking the eastern side of the River Dee.

Dr Gilchrist read a paper on the physical geography of the Southern Alps, as illustrative of modern geographical

theories. The Secretary read several extracts from letters by Jas. Barbour, Esq., Bogue, to Dr Trotter, Dalry, relating to the supposed ancient pavement and other antiquities at Chapel-leys, parish of Borgue, which mentioned various circumstances requiring further investigation.

James Starke, Esq., read a paper on "The Scottish Language," * directing attention to a number of marked peculiarities in the Scottish vernacular, as compared with the English. The paper excited an interesting and animated discussion.

Dr Grierson, Thornhill, read a very interesting paper on "The Growth of the Mistletoe," from observations conducted upon a plant in his own garden.

A highly valuable paper was read by W. H. M'Nab, M.D., Edinburgh, "On the Metamorphosis of some of the Lower Animals," which was illustrated by a series of drawings of the principal species described in their singular changes of form and structure. The animals described by Dr M'Nab belonged to several families of zoophytes and other elementary forms of life; the history of which, so far as yet known to naturalists, has opened up so wide a field for scientific investigation and speculation; some of the generalizations made by Dr M'Nab were of a very interesting and important kind.

March 3d, 1868.

The Society held the Fith Meeting of the Session in the Assembly Street Club Rooms.

Dr GILCHRIST in the Chair.

The minutes of last meeting were read and approved of.

The following gentlemen were enrolled:—*Ordinary Members*—James Barbour Esq., Bogue, Dalry; W. O. Macqueen Esq., banker, Sanquhar; James Halliday Esq.,

* Note.—In last year's Transactions, p. 49.

architect's assistant, Dumfries; David Boyle Hope Esq., sheriff-substitute, Dumfries.

Mr Murray presented a copy of the proceedings of the Philosophical Society of Glasgow, sent to him by the Rev. H. W. Crossley, of Anderson's University, for exchange with the Society; and the Secretary was intrusted to return a copy of the last year's Transactions and of that now being printed.

Mr Starke moved, seconded by Mr Aitken, that a small committee be appointed to make enquiries as to the desirability of procuring another room for the Society's meetings, and particularly a room which Mr Aitken learned was likely to be available. Mr Maxwell, seconded by Mr Corrie, moved that the matter be delayed in the meantime. On being put to the meeting, Mr Maxwell's motion was carried by a majority.

Dr Gilchrist exhibited a very complete and interesting collection of land and fresh water shells. Dr M'Nab exhibited several cases of rare and beautiful coleoptera.

David Sharp, Esq., M.B., Thornhill, read a paper "On Variations in Insect Life, with especial regard to the theories of Lamarck and Darwin." Dr Sharp epitomized the remarks of French naturalists on these investigations, and concluded by recommending the members who were interested in these questions of natural history to conduct experiments of the same kind for themselves. The paper excited a lively conversation on the question how far scientific discoveries had supported or discredited the Darwinian theory of the origin of species. Dr Sharp remarked that such was the situation of the controversy that it depended entirely on how a person selected his facts, whether they date on the one side or the other.

Mr Corrie read a short paper on the discovery of an ancient grave on the farm of Broomhill, parish of Lochmaben, on the 21st August last, * and exhibited fragments

* See last year's Transactions, p. 43.

of bone and several teeth which were found in the cist; also, pieces of a cinerary urn of unbaked pottery, which was unfortunately broken in its removal from the grave.

April 7th, 1868.

The Society held the Sixth Meeting of the Session in the Assembly Street Club Rooms.

The minutes of the last meeting were read and approved of.

James A. H. Murray, Esq., London, was enrolled a *corresponding member.*

The Secretary reported the suggestions of the committee with regard to the summer excursions.

A short paper was read by Mr Corrie, from Mr William Gibson, descriptive of the finding of an ancient celt and urn handle in a Roman camp at Carzeild, Kirkmahoe, which were exhibited.

Mr W. R. M'Diarmid read a paper on "Feasting at Funerals," * founded on some ancient documents containing the accounts rendered for liquors and provisions supplied at the funeral of Sir Robert Grierson of Lag, in 1733, which threw some interesting light on the manners of the period.

A paper was read by Dr Grierson of Thornhill on "The Extinction of Species." Dr Grierson exhibited a tibial bone of the Dinornis or great Moa Bird of New Zealand, and a set of the bones of the Dodo from Mauritius, explaining what was known of the remains of these singular extinct birds. A lively and interesting discussion ensued on the subject of this paper.

April 29th, 1868.

A meeting of the Committee was held to arrange the summer excursions.

* See last year's Transactions, p. 46.

SIR W. JARDINE, Bart., in the Chair.

Present—Sir Wm. Broun, Dr Gilchrist, Mr Carlisle, M. Robert Murray, Major Bowden, Mr Corrie, Mr A. D. Murray. It was agreed that the first field meeting should be held at *Auldgirth* on the 9th May; that the June Excursion should be to *Moffat;* that for July to *Parton* and *Dalry;* August, to *Lochmaben;* September, *Auchencairn* and *Dalbeattie;* and October, to *Carlaverock* or *Torthorwald.*

May 5th, 1868.

The Society held the Seventh Meeting of the Session in the Assembly Street Club Rooms.

DR GILCHRIST in the Chair.

The minutes of the last meeting were read and approved of.

Dr Menzies, Wanlockhead, was enrolled *ordinary* member.

In the absence of Mr Jas. Starke, F.S.A. Scot., the Secretary read a paper by him on "St. Querdon's Well,"* on the farm of Barbush of Cargen, which contained some interesting speculations on the origin of the name.

Mr James Shaw, Tynron, read a paper on "The Influence of the Human Period on the Sagacity of Animals," in which he cited numerous illustrations in support of the theory that association with man or warfare against him had gradually educated certain species of animals to a higher degree of intelligence and brain power, the quality being transmitted hereditarily through successive generations.

Dr Gilchrist read a paper on "The History of a Crichton Boulder," which, taken as a test or typical boulder dug up in the grounds of the Crichton Royal Institution, described the various agencies which had been at work in its formation.

A beautiful stuffed fox was presented to the Society by Mr Heron of Duncow.

* See Paper in last Transactions, p. 44.

ABSTRACT OF TREASURER'S ACCOUNTS.

Year 1867-8.

Dr.

1867-8. By Balance in hand from last year,	£0	10	1
By Arrears recovered,	4	5	0
By 97 Subscriptions for 1867-8,	24	5	0
	£29	0	1

Cr.

1867-8. To Arrears struck off,	£3	5	0
To Do. recoverable,	2	10	0
To Secretary and Treasurer's Outlays,	3	14	0
To Delivering Circulars,	0	12	0
To J. Douglas for attendance,	1	2	0
To *Herald* Office, Printing Circulars,	2	17	6
To *Courier* Office, printing "Transactions"	12	17	0
To Cash in Treasurer's hands,	2	4	7
	£29	0	1

TRANSACTIONS.

SECRETARY'S REPORT
FOR SESSION 1868-9.

THE Secretary has to express his regret that at the commencement of last Session no Presidential address was delivered, and that generally there has not been evinced among the Members so warm an interest in the success of the Society as is desirable, if it is to go on and prosper. Specially is this remark applicable to the Field Meetings, which, with the exception of the Joint Meeting with the Berwickshire Club, were carried out almost invariably by some half-dozen Members. It is hoped, however, that this state of matters will not longer continue, and that greater interest will be manifested in the Society's proceedings.

The Secretary has further to report that owing to a considerable number of removals from the district, some deaths, and a few withdrawals, the number of ordinary Members for the ensuing Session, as they stand at present, is decreased by 11—leaving 89 on the roll. As, however, there are many gentlemen connected with the district who ought to be Members of such a Society, but who are not, efforts should be made to get them enrolled, so as to ensure a successful Session.

The Treasurer's accounts having been examined are now before the meeting, showing a balance due him of 7s. 11d. as at this date, while there are arrears, the most of which will yet be recovered, amounting to £6, 15s. and no debts.

In regard to the proper business of the Society the Secretary has to report that in the proceedings printed every information will be found.

The Field Meetings for the Session were fixed as follows, viz.:—

Carlaverock,.....*May.*
Parton,.....*June.*
Castleton to meet Berwickshire Club,....26*th June.*
Barjarg, &c.,.....*July.*
Tynron, &c.,.....*August.*
Rockhall, &c.,.....*September.*

The day fixed for the May Meeting proved so wet and cold that the gentlemen who had made arrangements to be present were obliged to adjourn till the following month, when, instead of going to Parton, a select party of six visited Caerlaverock and the district, inspected with interest the Geological formations exhibited in two quarries, one near Chapelhill, and the other on the shore of the Nith below Glencaple. They also visited a British Camp, now planted, on the farm of Chapelhill, and the larger and very striking similar Camp on Wardlaw hill, overlooking Caerlaverock Castle. This camp, also planted, was at the time literally blue with wild Hyacinths, and a number of a pure white variety, not uncommon in the district, were found. Caerlaverock Castle, so well known, was next visited, and then the site of the older Castle in the wood behind, the foundations of which were exposed a few years ago through the exertions of the late Mr Maxwell of Breoch. In proceeding through the wood many beautiful plants were seen and noted.

The Meeting at Barjarg, &c., on 1st July was a most enjoyable and instructive one, and the party was a little more numerous.

By the kindness of Mr Hunter Arundell the party had free access to his splendid collection of valuable books, missals, medals, &c., and were highly gratified thereby. They also carefully inspected the Old Tower of Barjarg, forming

part of the Mansion House, and some large trees growing in the Policies. The Barjarg Lime Works, in the immediate vicinity, which are wrought as a mine, with a horizontal entrance, were also inspected. As indicating how plentful and familiar roe-deer are now in the County, it may be noted that some were seen close to Barjarg House lying within a few yards of the avenue and not stirring as the carriage drove past.

Proceeding from Barjarg the party passed on to the Glenmidge Valley, in which Lag Tower is situated, and which they visited. It is now little better than a heap of stones, and interesting only for its name. A Barn Owl was scared from its roosting place in the ruin by the party's visit. In a field near by among a heap of stones, wild Fennel was found in abundance. The party proceeded down the valley to Auldgirth, and thence home.

The valley (Glenmidge), apart from the fact of "Lag Tower" being in it, is specially interesting, owing to the tradition that at one period the valley of the Cairn, above Dunscore, was a great lake, the overflow from which passed through Glenmidge and so down into the Nith below Auldgirth. Tradition farther says that by the orders and exertions of the "Monks of old," the rocky barrier at Dalgonar Mill below Dunscore village was cut through, and the lake drained and much land recovered. Looking at the configuration of the country, and the valley of Glenmidge, which is a peat moss in great measure, the truth of the tradition seems not only possible but probable. In confirmation of this, it may be noted that in Camden's *Britannia* he speaks of "Glencairn on the Lake."

The Castleton meeting was numerously attended, and the various objects of interest in the neighbourhood, including Hermitage Castle, were visited.

The morning of the 26th June was that on which it had been arranged that a meeting with the Berwickshire Na-

turalist Club should take place at Newcastleton ; and the morning proving fine, a considerable party started early, and reached Newcastleton shortly after 10 o'clock, where they met Sir Walter Elliot, President of the Berwickshire Club, and various members. Several visitors had also joined.

Upwards of thirty sat down to breakfast, and it was afterwards arranged that one party was to drive to Hermitage Castle and afterwards to walk to Riccarton Station, while those of the Dumfries party would return to Newcastleton, and depart without remaining to dinner, owing to its being impossible otherwise to catch trains which would enable them to reach home that night. This was not foreseen when fixing the plan of meeting, and sadly interfered with the party. Another party was to proceed on foot down the Liddell, under the intelligent guidance of Messrs John Elliot and Adam Noble of Newcastleton.

The party to Hermitage explored the Castle, and returned as already mentioned, but we saw no record of what was done, and would refer to the history by Sir Walter Elliot, given in his excellent address to the Berwickshire Club, to which we refer our members.

The pedestrians were first directed to a fine old cross a little down the road, said to mark the spot where the body of a former Armstrong of Mangerton who was horribly murdered by the Lord of Hermitage, was set down on its way to the Churchyard of Ettleton, higher up the hill.

About 300 or 400 yards up the hill is the Churchyard of Ettleton, the burial place of the Armstrongs, some of whose tombstones, with armorial bearings and long inscriptions, were examined. A portion of the party crossed the Liddell and inspected the ruined Tower of Mangerton, the stronghold of the chief of the Armstrongs. All that now remains is the ruined lower storey, in the west wall of which is a sculptured stone bearing the Armstrong effigy,—not as stated by Nisbet, but the common one of an arm and two-handed sword, with the date 1580. This party afterwards joined that which had

preceded them on the Tweeden Burn, the rocky banks of which, clothed with natural wood, were much admired. The lower part of the glen, where it joins the Liddell, presents some good geological sections of the mountain limestone, in which the *Rynchonella pleurodon*, *Productus giganteus*, and *Terebratula succulus* were very abundant; and *Fenestella plebeia*, *Ceripora rhombifera*, *Glauconome pluma*, a *Polypera*, and some others covered the surface of the slabs. The water penetrating through the limestone is impregnated with calcareous matter in solution, which is deposited extensively on the twigs, grass, and foliage in the bed of the stream. Large quantities of this deposit are carried off for ornamental gardening, several tons having been carted during this year.

No new plants were found. *Typha latifolia* filled some small ponds beside the stream; *polypodium phægopteris* and *dryopteris* were observed, and many mosses were picked by Mr Jerdan. *Oenanthe crocata*, which was growing at several places, attracted attention, and Noble, one of the guides, stated that it was eaten by the sheep. Goats eat the plant with impunity, and the same animal browses freely on *Eorphorbia* in eastern countries and in the island of Malta, so much so as to affect the milk, which is poisonous when drunk by human beings, though the plant is innocuous to the goat. *Pyrola rotundifolia* was found in a glen below the village.

For the Tynron meeting in August only 4 Members left Dumfries, and on arriving at Thornhill they were met by Dr Grierson, who showed them his very extensive collection of rarities, both dead and living, and as the season was very hot and the grass on the "Doon" burnt up, he succeeded in persuading them not to attempt the ascent, but to visit instead the shady groves of Crichope Glen. It appeared, however, that some few members in the district had actually dared the ascent of Tynroon Doon, and inspected what are supposed to be the remains of an old Fort of some kind on the top of it.

The last Field Meeting was at Rockhall, &c., on 16th September.

The party (again of six) proceeded to Racks by train, and thence walked to Rockhall House, near which they inspected the remains of a Stone Cairn. Passing to Rockhall-head they examined the site of what is said to have been an ancient chapel, but of which there is now no trace. They discovered what was not previously known to any of their number, that the farm-steading itself stands on the site of an ancient camp, of which the fosse or ditch is still very distinct on one side. Within a short distance overlooking the valley of the Nith, and commanding a most extensive and splendid view, is "Rockhall Moat," a striking conical mound of the usual description with a fosse round it, but hid and disfigured like so many more by being planted with trees.

Leaving the Nithsdale side of the hill, the party proceeding to the east of it towards Lochmaben, passing through a small but interesting glen known as Thorniewhat Glen. In this glen about two years ago Mr Robert Minto, Lochmaben, discovered growing near a small waterfall a very handsome plant of the *Pteris adiantoides*, an exotic but nearly hardy fern, but though anxious search was made no second one could be found. The puzzling matter is how an exotic fern came to grow on such an out of the way place. Instances, however, of a similar nature have occurred elsewhere. The party then visited a ridge on Thorniewhat farm popularly supposed to form a continuation of the ancient rampart or dyke known as the "Deil's Dyke," but on examination it was clear that the ridge in question was natural and not artificial, and was the result of the action of water or of a moraine.

TRANSACTIONS.

St. Ninian, the Apostle of Galloway. By Jas. Starke, F.S.A. Scot.

I had lately an opportunity of being in the town of Whithorn, where remains exist of an ancient Cathedral and Priory connected with the name of St. Ninian, the Apostle of Galloway.

And being there, I proceeded on some two miles or so to the Isle of Whithorn, where stand the bare and ruined walls of a chapel called St. Ninian's Chapel.

These remains are of great interest, and well worthy of a visit by the Society.

The Chapel at the Isle of Whithorn, it is reported, says Andrew Symson, who was Episcopal minister of Kirkinner in 1684, was the first that was built for the service of Almighty God in this part of the kingdom—yea, as some say, in the whole kingdom.

The building is of small size, about 12 paces by 6, and is composed principally from the blocks of stone in the immediate neighbourhood.

In the town of Whithorn the ruins of the Cathedral are thickly covered with creeping plants, and the accumulated mound of *debris* is so great that entrance into the building is now by the eastern window of the edifice.

To the east of the Cathedral are traces of vaults which probably belonged to the Priory. In Andrew Symson's time several large and capacious vaults were firm and entire.

The earliest account of St. Ninian appears to be that of the venerable Bede, who died in 735, which was nearly 300 years after Ninian's death. And his next biographer is

Ailred, also an English monk, who wrote in the time of Fergus, Lord of Galloway, which was 400 years after Bede.

These two authorities are the main sources of our knowledge of St. Ninian.

The venerable Bede's account, which is the earliest, is this—that at a time long anterior to St. Columba, who was the apostle or great Christian missionary among the Picts of the north of Scotland, Bishop Ninian, it was believed, preached the gospel to the Picts inhabiting the southern parts of the country; after he had been instructed in the faith of Rome and in the mysteries of the Christian faith. At his episcopal seat, he continues, the famous Church of St. Martin of Tours was erected of stone, which was an unusual thing among the Britons, and designated *candida casa*, or the White House. And here his body and the bodies of many saints rest in peace.

The venerable Bede describes Ninian as by birth a Briton. Ailred adds he was of a family not ignoble, *haud ignobili familia*, and that his father was a king, and in religion a Christian.

Ailred and later biographers indulge themselves largely. And Dr Murray, in his Literary History of Galloway, says Ninian was descended of royal parentage; and born, it is supposed, near Leucophibia (of Ptolemy), the present Whithorn, in the year 360.

At this early period of our history the district would be inhabited by *Romanized Britons*, that is to say British tribes living under the sway of the Romans.

These tribes were numerous throughout the island; and each of them, like our Highland clans, had its own chief or king.

In this district of the island the British tribes were the *Selgovæ* of Dumfries and Kirkcudbright, and the *Novantes* of Wigtownshire.

The common dwelling-house was of thatch and wattle or feal and divot with wicker work; and such is known in the

Highlands of Scotland as a *tigh dubh*, or black house, in contradistinction from the house of stone and lime, or white house, the *tigh geal*, or *candida casa*.

And for some time *spires* to the churches, as well as *choirs* and *chancels*, were unknown.

Ailred gives a detailed account of Ninian's personal character. But this account is probably imaginary, or largely traditional and legendary.

He determined on going to Rome, the seat, as he believed, of the successors of the Apostle Peter.

And to Rome he went.

This was a great undertaking in those days ; and may fairly be held as indicating the possession of good pecuniary resources, as well as a knowledge of the Christian religion, which had indeed already penetrated among the Cumbrian Britons.

Ninian remained at Rome many days, and, like the busy bee in a clover field, frequented all the meetings of the learned during his stay.

And then he went to see *Martin of Tours*, who is called his uncle.

This visit to St. Martin of Tours forms an era in the life of Ninian. And by it we are enabled, in a measure, to determine the time chronologically. For St. Martin of Tours died in the year 397.

Ninian would thus be at this time from 30 to 35 years of age.

Martin himself had also visited Rome. He went out on foot, and had not proceeded far when he met the Evil One, who, in the course of a conversation together, upbraided Martin, taunting him with making such a journey on foot.

Martin's indignation was roused, and he seized him by the neck, whereupon the Devil at once succumbed, and became an animal of the asinine order. So, mounting on him, he jogged on pleasantly the rest of his way, making on his back the sign of the cross when he would have applied a spur, if he had had one, to increase his speed.

When they arrived at the Holy City, the Devil said—

Signa te signa temere me tangis et angis,
Roma tibi subito notibus ibit amor.

The visit of Ninian to St. Martin appears to have made a wonderful impression on Ninian, and, in point of fact, determined his character and subsequent life. St. Martin was his patron and exemplar. And being thoroughly indoctrinated in Martin's views, he, on his return to Galloway, set about erecting a cathedral and monastery at Whithorn, which was the capital or chief town of the *Novantes*.

A priory of Premonstratensen monks was afterwards founded at Whithorn by Fergus, Lord of Galloway, in the time of King David I. And the buildings which that Prince erected may constitute the ruins we now see at the place. But, from an anecdote which Ailred tells, and which he terms *a miracle among the leeks*, it is plain there existed in Ninian's time a fraternity of monks who were, no doubt, selected by Ninian himself when away abroad, and accompanied him in his journey home to Scotland. It was through their assistance also the first cathedral was erected.

It happened one day, says Ailred, that the blessed Ninian went in to the refectory to take a meal with the brethren, and not finding any vegetables on the table, he called the friar who had charge of the garden to know the reason why. Truly, father, said the gardener, whatever of leeks or such like remained I put in the ground to-day, and the garden has not as yet anything fit to eat. Go, said Ninian, and whatever you find take up with your hand, and bring it to me. The gardener went, and, wonderful to relate, says Ailred,—credible only to those who believe that to faith nothing is impossible,—he saw leeks and other kinds of vegetables growing and running to seed!

This is narrated by Ailred as a *miracle*, like many other things of Ninian, in his biography.

But the story is perhaps susceptible of an easy explanation. What Father Ninian said was perhaps to the follow-

ing effect:—You were too hasty, John, in saying there were no vegetables to be had. Examine again and you may find some you had overlooked. And the gardener goes accordingly and finds them. As to their *running to seed*, this only shows the friar an inattentive gardener.

Many noblemen and others, says Ailred, sent their sons to Ninian to be instructed in the holy scriptures and to be educated. And on one occasion when Ninian was preparing to castigate a youth the boy made off and endeavoured to get into one of the wicker boats of the time, when the boat upset and the boy was precipitated into the water. This was looked upon as an interposition of Providence, and the boy, pale and dripping, returned to his master.

This anecdote has probably reference to an early period of Ninian's career, when he was still at the Isle of Whithorn, where the sea is close at hand.

Ailred has some other anecdotes of Ninian.

Tudvallas, a chieftain of one of the British tribes, being taken with severe headache and blindness, sent for Ninian. The holy man came at his request, and, after prayer to God, he touched his head, making the sign of the cross, he was cured, and derived a new life both in body and soul.

On one occasion when visiting the huts of the people and looking at their flocks and herds, it occurred to him to bestow upon them his episcopal benediction. So, collecting all together in one place, he commended them to the divine care. He then blessed the house of every honest woman, and commended them for the night to God. And moved with pity for the men, with many prayers and tears he besought God for them, saying, You joke and jest and speak trifling things; think of the soul and of a future state.

To St. Ninian, whose religious teachings and instructions were from Rome, the Roman usages were the rule and standard of christianity, and whatever differed from them was wrong or heretical.

In this way the celtic usages and the forms and practices sanctioned by St. Columba would have been obnoxious. But St. Ninian did not probably live to witness them.

Like other monastic worthies Ninian had his *cave.* And in the lands of Physgill, under a cliff by the sea side, Andrew Symson says here is a cave called *St. Ninian's* Cave, to which he was in use to retire for his more secret and private devotions.

The time at last approached that Ninian must die, and he passed happily out of this world, and, accompanied by angelic spirits, says Ailred, he ascended to Heaven, there to enjoy everlasting rewards.

His body was buried in his Cathedral at Whithorn, being placed in a stone sarcophagus, near the altar, in presence of both clergy and people.

And here the virtue which shone in him when alive was manifest also in his remains. The faith of believers was strengthened, the profane were terrified, and many diseased both in body and soul obtained cure and health.

Pilgrims from all parts of Scotland, from Ireland, and from the north of England repaired to the spot to pay their devotions and to be cured of their diseases. And the many *cairns* in the adjoining parishes in the line of journey testify to the sad casualties which overtook the invalid pilgrims on their way.

Such pilgrimages continued apparently up to the Reformation. King James IV. went many times. And on the 22d of June, 1506, a safe conduct was granted to Sir Wm. Tyrwhit and 16 Englishmen with him to come in pilgrimage to St. Ninian's.

Ailred speaks of the cures effected centuries previous. But, in his anxiety to exalt his "blessed Ninian," he narrates a circumstance which must be regarded as a pious fraud.

What Ailred says is to this effect—

The invalid suppliant, being brought into the church,

prostrates himself before the holy relics until the hour of vespers, when he is thrown upon the tomb of the blessed Ninian, saying, O holy Ninian, look upon this diseased frame, it is pitiable to see, but see it in thy compassion. We are wearied, we are sad, and can do no more. Here he lies, he lives or dies, he perishes or is cured, when lo! in the silence of the night an object appears in heavenly light, clothed in episcopal vestments. He approaches and touches the miserable suppliant, he bids him arise cured and to depart, giving glory to God his saviour.

If in such circumstances a cure was effected, and the influence of the mind on the body is wonderful, the cure must be due not to the relics. Ailred, however, does not advert to this, but concludes his narrative by supposing that the invalid devotes his restored health, and, becoming a shorn monk, dies in the community.

The *diocese* of Ninian is stated to have been the province of *Valentia*, which contained several British tribes.

But Ninian's fame spread throughout all Scotland. And churches and places were named after him or dedicated to him. And in the old church of St. Congan, at Turriff, in Aberdeenshire, a painting *in fresco* was discovered, representing an episcopal figure, full length, entitled in Gothic characters, S. NINIANUS. Here the Bishop appears in episcopal vestments with a mitre and pastoral staff, while his right hand is raised as in the act of pronouncing a benediction. *

In the Calendar of Scottish Saints the festival of St. Ninian is 16th September; and the date assigned to him is A.D. 437. This date would make his age at his death upwards of 75.

At this time the Romans were still in possession of the country, they not having retired from Britain till 446. After their departure the Picts and Scots combined to harass the Britons, and it is not unlikely that it was in these circum-

* See Proceedings of the Society of Antiquaries, vol. 6, p. 427.

stances the Britons erected the Devil's Dyke for their protection, sending up at the same time to the Romans the unavailing *groans of the Britons.*

Palludius was sent by Pope Celestine as apostle to the Scots of Ireland, and several years afterwards St. Columba came from Ireland and settled at Iona, in the Western Hebrides, and Kentigern or Saint Mungo, which last from Wales, in the 6th century re-founded the church of the Strathclyde Britons—the people of this district having, it would seem, relapsed after the death of Ninian—the Cathedral of Glasgow becoming its chief seat. The chief seats of the Columban Church being the monasteries of Iona and Lindisferne.

And after all these came St. Augustine, sent by Pope Gregory the Great, who became the great *apostle of the English.* This was not less perhaps than a century and a half after the death of Ninian, the apostle of Galloway.

On the Meaning of the Names of Places in the Neighbourhood which are of Celtic Origin. By M. Moriarty.

I have been requested by some of our friends to explain the meaning of the names of places in the neighbourhood which are of Celtic origin, and I proceed to do so now with great pleasure ; but I may observe at the outset, that the present spelling is not always a sure guide to the meaning of the words, although as a general rule it does very well to preserve the sound, and thereby lead to the sense and meaning of them ; and when we consider the disuse of the language in the district for centuries back, I think we may be thankful that the spelling has helped to preserve the sound and sense of the words so well as it does.

Let us take *Traqueer* for example. We know by the sound, &c., that Traqueer is Celtic, but among other queer things we find the letter *q* in the spelling, and we know that there is no letter *q* in the Gaelic language ; the letter *q* was

therefore introduced by some one who did as well as he could to preserve the sound of the word as he heard it, and it is a remarkable fact that no other letter could have preserved it so well to an English speaking people, who, I suppose, did not understand the proper sounds of the Celtic or Gaelic letters. *Traqueer*, then, as far as its sound implies, and having regard to its situation, means a burying place on the coast, on the shore, or on the bank of a river,—I say "having regard to its situation"—because *Traqueer* consists of two words, each one of which has several different meanings, and if we were not thoroughly acquainted with the local situation or geographical position of Traqueer, we would be very apt to give it any one of the various other meanings which it admits of, and this shows that with regard to the names of places, &c., it would be necessary for the person who explains those names to see those places, because the same word may mean, and often does mean, different things, and in order to make sure of the right thing he should see the places, as already mentioned.

Loch Abar is easily explained. We know that loch means lake, and Abar means a marsh, or a boggy piece of land, and this answers exactly to our Loch Abar, but *Abbar* means also the mouth of a river, and we know from local knowledge that our Loch Abar is not at the mouth of a river, it is therefore on a marsh or boggy piece of land ; but, *Glen Cu*, near St. Mary's Loch, is not so easily distinguished, for *Cu* is a greyhound, but *Cu* is also a warrior, hero ; and whether the glen got its name from the hound or from the hero, we cannot determine just now.

I find by the map that there are numerous places named after wild and domestic animals.

As :—Garrioch, a hare.

Polmuck, the hog's hole.
Polgown, the calf's hole.
Drumshinnoch, the fox's hill, or ridge.
Benbrack, the badger's hill.

Glencapel, the horse's glen.
Glenmuckloch, the glen of the herd of swine.

Some places were named from different appearances of shade or color, as if by way of contrast with each other.

As :—Glenbuie, yellow glen.
Glendorch, dark glen.
Glenglas, green glen.
Glenleith, gray glen.

Places named from certain peculiarities of shape, or form, or position, &c.

As :—Glendyne, the deep glen.
Polmeur, the large hole.
Duneen (hill), little hill.*
Carnine, little heap.
Knockangalie, the hag's hill.
Lincluden, { a nook, or corner, or angle, at a pool, or gulf, or deep water.

Dalry means the King's district, or division, or territory. We have a great many of those *Dal's,* such as Dalswinton, Dalmellington, &c., and *dal* properly signifies posterity, or descent by blood, but in an enlarged and figurative sense it signifies a district, *i.e.,* the division or part allotted to such posterity, and thus General Vallancey and other antiquarian scholars define it ; but it means also an assembly, a plain, a field, &c., but all these other meanings are coincident with the general meaning, as they all imply ownership, or clanship of some sort or other.

Carn Sallach is a complete misnomer, it means a heap of dirt or a dirty heap, but it is not that, and never was ; however we have frequently heard it called *Garan Salach* by the country people, and that is its proper name. It is derived from garan, a thicket or underwood ; or from garran, a grove or wood ; and from saileach (pronounced *Salach*), common willow, mountain osier, *salix caprea.*

* It is not the *hill* that is little, but the *Dun* or fort that is placed on it—"*een*" is a mark of diminution.

The river *Nith* which runs by our doors may not be omitted, the word Nith means noble. I happened to say so one day to a gentleman (a member of this Society) whom I met on the banks of the river, the tide was in, and the river looked beautiful. "This," said I, "is a fine river, it well deserves its name just now, for *Nith* means noble." "O! no," said he, "it was called the *Nid* formerly, Chalmers says that it got the name of nid from a Scandinavian word which means crooked, and that, in fact, there are several rivers in Denmark that are called *Nid*, and they are all crooked, and this river is crooked, and the name is suitable."

This, of course, would be overwhelming only for the trifling fact that there is no river in the whole world that is not crooked, and another trifling fact is this, that this language, whether it be *Nid* or *Nith*, is, or was, my mother tongue, and that Chalmers knew nothing at all about it—he, like many other eminent men, had to depend in such cases upon what had been told him by literate or illiterate natives, and we shall see presently, as in the case of our own Lochmaben, (and other places which I could name,) how much "natives" are to be depended on in these matters.

Nith, then, means noble, it is a noble river now, as compared with other rivers in the neighbourhood, and no doubt it was a far nobler river then, when it was not confined to its present channel by artificial means as it is now, but, the term "crooked" would not be applied to it, nor to any other river whatever, by those ancient people, for the term "crooked" could be predicated of *any* river, and of *every* river, and those people took care always to have both sense and meaning in the names which they gave to things,—at all events, *Nith* means noble, and *Nid* is merely the *genitive* of *Neid*, a nest.

Lochmaben may be taken as another instance of those curious guesses with which we are favoured some times in the endeavour to explain the original meaning of the names of places, &c.

You are aware that an excellent history of Lochmaben

has been written by a gentleman who had the advantage of combining a thorough knowledge of the locality with those scholarly abilities which enabled him to produce a useful and edifying local history, and when *we* visited Lochmaben some two or three years ago, we had the good fortune of being conducted by the gentleman to whom I allude, and to whose intelligence and kindness we are greatly indebted for the very pleasant, and, I hope, profitable day which we spent among the old historic objects of that fine old country—I mean the Rev. Wm. Graham. I asked him about the derivation of "Lochmaben," and he told me at once that when he was writing his history, and not knowing the Gaelic language, he went off to Edinburgh, to consult with a gentleman who was reputed to be the best Gaelic scholar in Edinburgh, and that gentleman told him that *ban* was *white.*

Now, in the first place, *ban* is not white, but *ban* is a woman, and *bān,* (pronounced *bawn,*) is white ; for instance, if you say ban, ban, it means woman, woman ; but if you say ban, bān, it means white woman, &c., &c. ; but, even, if *ban* was white, what has that to do with Lochmaben ? Well, it seems it has this to do with it, viz., that a white mist or fog hangs over the Loch sometimes, and hence the conclusion that Lochmaben means a Loch with a white mist or fog hanging over it !

Of course, after *that,* it is hardly worth while asking what becomes of the word *ma* in the centre of "Loch-ma-ben ?" There is not in the whole language perhaps a word more expressive or more full of meaning than that little word *ma,* and yet, here it is lost in the white fog of Lochmaben. So that we need not go to Scandinavia for "derivations" when we can get them so near home.

I find that there are several places dedicated by those original inhabitants to their gods and goddesses, and to their warriors, and that there were a great many places consecrated to their religious ceremonies, and sacrificial rites, and so on, but, for me to enter into an explanation of these things

now, would be to draw me into historical matters which I think it unnecessary to trouble you with, although the subject is very tempting, for, in fact, the whole of this interesting district is one vast repository or storehouse of those precious monuments of antiquity, which are like so many priceless jewels to the true Antiquarian, while they are of inestimable value to the student of ancient history.

The meaning of the term "Lochmaben" is this :—A Loch or Lake of clean pure good water at the foot of a ridge or at the base of a hill.

Those people always named things by contrast or comparison with other things of a cognate kind, or by some striking peculiarity in the shape or form, such as "coomb craig" (crooked rock), to distinguish it by its "crooked" shape from all other rocks or craigs in the same locality.

I have now explained, as faithfully as I can, several of the terms or names of places and things in the neighbourhood, and I hope I have not detained you too long.

Notice of the Scottish Service Book of 1637. By Jas. Starke, F.S.A. Scot.

At a late meeting of the Society, some old books of value were kindly exhibited by the Rev. Thos. Underwood, Minister of Irongray, and the Rev. Mr Weir of Greyfriars.

The business of the evening prevented their being examined on that occasion ; but I took them with me, and I find that among them are two books of Common Prayer of great interest—one for the Church of England 1549, and the other for the use of the Church of Scotland 1637.

This last is what was termed *Laud's Liturgy*, and is of especial interest.

The title of the volume is "The Booke of Common Prayer and Administration of the Sacraments and other parts of Divine Service for the use of the Church of Scotland."

It bears to be imprinted at Edinburgh by the King's printer of date MDCXXXVII. This is the date on the first title page. But the Royal Proclamation by King Charles I. for the general use of the Prayer Book throughout Scotland is dated 20 Dec., 1636, and the "*Psalter*" which is by the King's printer at Edinburgh, and the "*Psalmes of King David*" which is printed at London by Thomas Harper, are of the same year, 1636.

It thus appears probable that the work was sometime in preparation; and the same fact is also apparent from the Royal Proclamation, in which the King states that he had "divers times recommended to the archbishops and bishops here the publishing of a publicke forme of service in the worship of God, and the same was now condescended upon."

King James 6 had already set up Episcopacy, thinking the Monarchy could not stand without Episcopacy. His son King Charles went farther and considered Episcopacy an essential in church government.

And, now, in order to put the church in proper harness, he became fanatic for a Liturgy.

At an early period of his reign the subject of a Liturgy for Scotland was agitated; and the adoption of the English Prayer Book, which appears to have been in use here, naturally suggested itself. But the Scottish prelates were averse to this.

Conceiving that the use of the English Prayer Book would operate as an acknowledgment of some superiority on the part of the hierarchy. And also, it may be, desiring an opportunity to express views respecting the presence of the Saviour at the Communion which are commonly regarded as relishing of popery.

So, out at last came the famous Service Book in the great Church of St. Giles at Edinburgh, on Sunday, 23d July, 1637.

How long the people of Scotland had been without a Liturgy in public worship seems very uncertain. Knox's

Liturgy has been referred to. But from the preface to the Service Book, and also from the preface to the Scottish Directory for public worship, we are led to believe that the only Prayer Book in use in Scotland was the English Prayer Book. In the preface to the Service Book it is said—

"Our first Reformers were of the same mind with us, as appeareth by the ordinance they made that in all the parishes of this realme, the Common Prayer should be read weekly, on Sundaies and other festivall dayes, with the Lessons of the Old and New Testament, conforme to the order of the Book of Common Prayer (meaning that of England; for it is known that divers yeares after we had no other order for common prayer.)"

The same view is presented, but in a verbose and accumulative manner, in the preface to the Scotch Directory for public worship.

"Howbeit, long and sad experience hath made it manifest, that the Liturgy used in the Church of England (notwithstanding all the pains and religious intentions of the compilers of it) hath proved an offence, not only to many of the godly at home, but also to the reformed churches abroad," and so forth.

"Upon these, and many the like weighty considerations in reference to the whole book in general, and because of divers particulars contained in it, not from any love to novelty or intention to disparage our first Reformers," and so forth. "We have, after earnest and frequent calling upon the name of God," and so forth, "resolved to lay aside the former Liturgy with the many rites and ceremonies formerly used in the worship of God, and have agreed upon the following Directory for all the parts of publick worship at ordinary and extraordinary times."

But, perhaps, *Free prayer* had latterly come into use.

So, when this, which was termed Laud's Liturgy, came to be read it was at once identified with Romanism—various reports of its tendency that way being circulated—and the cry raised was, Will ye say mass in my lug?

Confusion and disorder ensued, and when after the lapse of some months it became evident that the King was obdurate and persistent, a *National Covenant* was adopted with great popular enthusiasm, binding all that signed it to spare nothing to save their religion. Obduracy induced obduracy, till at length after a weary struggle of 50 years duration, in which the Covenanters suffered most grievously in privations, imprisonment, and death, their principles were at last acknowledged in the Revolution Settlement of 1688—when the royal supremacy was withdrawn, and this being so, Christ's Kingly Crown and Government, for which the Covenanters contended, were in a manner set up.

And the General Assembly of the Church of Scotland is convened and dissolved in the name of Jesus Christ, the King and Head of the Church.

This is done by the Moderator, who is appointed by the Assembly itself, and after him the Lord High Commissioner, representative of the Sovereign, does the like in the name of the Sovereign, both in this way harmoniously agreeing together as to the time of meeting, and thus also discriminating the Church of Scotland in its relation to the Civil Magistrate, from the Anglican Church and from the Free Church of Scotland and the Church of Rome.

The genius of Presbytery was too severe and stern to ask the aid of martial music to lead her companies, and her occupations were too urgent to dally with musical ditties. Her mind was that of the prophet Nehemiah to Sanballd and the rest of them—*I am doing a great work, so that I cannot come down.*

Yet there is a legendary piece, under the name of *General Leslie's March to Marston Moor,* which, whether genuine or not, describes well the feelings of the covenanting armies at that period.

With respect to the merits of the *Service Book,* any minute examination of it would be out of place here, as savouring more of the theologian than the antiquary. But a few general remarks may be allowed.

Chambers, in his Domestic Annals of Scotland, describes it as "prepared by Laud on the basis of that commonly used in England, but with a few innovations relishing of popery and Arminianism."

The popish tendency here referred to will be at once perceived in the passages introduced into the *consecration prayer* at the communion.

There is also a general exaltation of the clergy, as in the prayer for clergy and people which is entitled a "Prayer for the holy clergie."

On the other hand, the Scottish people had, no doubt, to be conciliated. So the *priest* is writ large, and becomes "*Presbyter*," and it is the "Presbyter" who reads the commandments and pronounces the Absolution.

And the altar always appears simply as the Holy Table and such like; though it be covered with a carpet, and fair white linen cloth, with other decent furniture, "fit for the high mysteries there to be celebrated."

The Book is of great interest and value in a theological as well as historical and antiquarian point of view.

It is in *black letter*, beautifully printed, and generally it is in good order. But the binding is sadly gone by neglect, and the volume is eminently worthy of being put in good condition and preserved with care: such as to shew how worthy they are of the gift bestowed.

Before concluding, I would here offer on behalf of the Society our acknowledgments and thanks to Mr Underwood and other members of Presbytery for their so kindly giving us this opportunity of handling and examining this interesting volume.

History of a Crichton Boulder. By J. Gilchrist, M.D., Medical Superintendent, Crichton Royal Institution.

The brief notes of this paper refer to a large stone which is now lying to the N.E. of the female airing court, Southern Counties Asylum, and which is denominated in geological language a Boulder. A Boulder is a fragment of rock, smaller or larger, as the case may be, from the size of the head to that of a house. It exhibits at least two, not unfrequently three characteristics:

1. It is rounded.
2. It is polished.
3. It is often striated.

These characteristics serve to distinguish a Boulder from other varieties of rock.

The first characteristic indicates that since the fragment was detached from its parent mass it had been subjected to the action of some influence which had modified its appearance, rubbed off its angles and rounded its form. Its polished condition indicates a greatly prolonged action either of the same or some other power. The third—the striæ—indicate the action of a peculiar agent very different from that which produced the first or second characteristics. The agent engaged in the production of these results is obviously enough Water—as the waves of the sea, the currents of a river, &c.—either in its ordinary form as *water* or in its extraordinary form as *ice*.

The striæ on a true boulder are always in straight lines, indicating necessarily the action of a solid body in a given direction. Such action, therefore, obviously can never be attributed to water or to water and ice, for the action of these agents, single or combined, is to *obliterate*, not to *produce* such lines. In short, the only agents in nature known to be capable of producing such results are

A Glacier or an Iceberg.

The former, as every traveller or even reader knows, is a river of ice solid yet plastic—constantly in motion grinding down and polishing the rocks in its banks and channel, and in certain circumstances producing the striæ referred to. The Iceberg is adequate to the production of the same results with its million horse power grinding and grooving the rocks at the bottom of the ocean. In possession of this preliminary information, let us now examine the "Crichton Boulder" and hear what it has to say for itself.

This Boulder was recently disinterred from its resting place of boulder-clay near to the S. C. Asylum. It lay about six feet below the original surface and had probably not been disturbed since its interment, *a very long time ago.* It is a mass of rock, which may be described as a rounded cuboid in form with a diameter of about three feet. If we examine it we find that it is rounded in its outline, its angles and corners having been rubbed away, and so it has the first characteristic of a Boulder.

If we examine it yet more closely we find that it is not only rounded but smoothed, planed, polished over its entire surface, and so it possesses the second characteristic of a Boulder.

In like manner we shall find that, especially on one of its surfaces, it presents a parallel series of narrow shallow grooves or striæ, as they are technically termed, and so it presents the third characteristic of a Boulder.

If we use our eyes aright, however, we shall, I apprehend, detect other important and significant indications. One of the indications referred to is presented by a hollow or depression on the surface of one of its sides. When we narrowly examine this depression we find it polished equally with the more prominent parts of the surface. This leads us to an important warrantable inference. A joiner's plane, for example, does not reach a depression in the surface it is applied to—other means have to be used—so in nature, for the law is equally applicable to a mountain as to a mole. This might be accomplished by sand, for example, with the

aid of water ; but it is more likely to be the result of glacier action.

The glacier is not only a solid but a plastic body, and when, in its slow but continuous and resistless motion, it passes over an opposing obstacle it not only wears away its prominent parts but applies itself equally to the depressions which it presents. Again if we consider the relation which subsists between the striæ referred to and the polished surface in which they occur we are furnished with another important item of information, viz., that the former were produced *subsequently* to the latter. If the striæ had been produced before the polishing action began, or even during its progress, it is manifest that during that process they would have been obliterated. It is noteworthy that the striæ are confined to *one* side, just what might have been anticipated if produced by an iceberg. To allow of its submitting steadily to the application of so great a force as is implied in the formation of these striæ it must obviously have been firmly imbedded in the underlying substratum. It is at least *unlikely* that it should have been subsequently raised from its bed and submitted to a second similar process. Indeed it is obvious that these striæ were inflicted by the tooth of old Father Time in the last stage of the Boulder's existence, just before it was interred in the grave, whence we have so recently dug it. We have not yet, however, exhausted the sources of our information. We have as yet only examined the external features of our friend's character.

Let us see if we may not learn something of the inner life. On examining the internal structure of the rock we ascertain without much difficulty that it is *silurian* in character. This, however, supplies us at once with an important item of knowledge, for we know that the nearest silurian rock is to be found in the Tinwald Hills on the one hand, or in the Galloway hills on the other, and the enquiry is immediately forced upon us—How came it here ? If we examine its contemporaries perhaps we shall be able to elicit some items of knowledge. These we find to consist of silt,

sand, shingle, and similar materials. These we know to be the products of water in some or all of its modifications referred to at the outset of the paper. As a boulder, equally with a man, may be known by the company it keeps, we can have no difficulty in deciding that its condition and position are due to the same causes, viz., the action of water. We have now completed what may be called the introduction, and are prepared to enter upon the consideration of the subject itself, viz., the History of a Crichton Boulder.

This, however, would require a minute and searching enquiry into the birth, life, death, and burial of the subject of our enquiry—its history in short from the moment at which it was detached from its parent rock, in the distant mountains, till it was deposited far from its original home in its present resting place. I need hardly say that neither your time nor mine allows of this ; at present at least.

Let me in a few words indicate what I believe to be its real history, hoping to be able on some other occasion to bring it before you at greater length. This boulder was, during the glacier epoch, when this part of the country was in the same condition as Greenland now is, detached from its parent rock far up in the mountains to the north by the action of frost ; thence it was precipitated to the glacier below, which slowly carried it to the distant ocean, then some hundreds of feet higher than it now is. There for ages it was subjected to the action of the waves, which rounded and polished it. Thus fitted for the building of the Great Architect—for he has a purpose in everything—it was firmly imbedded in the shore ice during winter. Then released from its bonds by the summer sun, it was carried off from the shore and deposited in its present position on the side of the valley then submerged. Subsequently an iceberg, detached from the ever-moving ice-river, swept along in its southern course, and, with a mass of harder rock fixed in its body, ground its surface as it passed over it, leaving those striæ to tell future ages of its previous conditions. It has now fulfilled its destiny, and kind nature covers it up in a grave of mud

and sand, whence we have just disinterred it, and glanced curiously at its strange features, and given only a few passing hints at its stranger history.

A Practical Hint.

To obtain an adequate knowledge of that interesting and remote though still obscure epoch of our earth's history—the glacier epoch—it is not necessary to visit Greenland or Iceland or even the Alpine glaciers. If a man has his eyes in his head—the characteristic of a wise man according to Solomon—he may see proofs of glacier action on the sides and bottom of almost every valley in Scotland, and if these should fail to convince him of the positive existence of such ancient agents, he has only to visit the "Crichton Boulder."

Minerals lately Found in Dumfriesshire and Galloway, not hitherto noticed as occurring in the localities.

Dumfriesshire.

At the junction of the Esk and Liddle, in Red Sand Stone. *Fibrous Gypsum*—

Glendinning, Eskdalemuir, at an Antimony Mine recently re-opened — *Cervantite, Valentinite,* (psedumorph) *Cervantite* after *Valentinite.*

Stewartry of Kirkcudbright.

Creetown—Granite Quarry—Epidote.

Pibble Mine—*Malachite,* green and blue, *Towanite, Pitchy Copper Ore, Chrysocolla, Galena, Anglesite, Cerussite, Pyromorphite, Wulfenite, Blende, Smithsonite,* blue.

Creetown—Cassencary—Kupfer Nickel, Nickel ochre, Emerald Nickel (?) *Cobalt bloom, Native Arsenic, Galena, Towanite, Blende.*

Gatehouse—Luckentyre Mine—Malachite, Towanite, Pitchy Copper Ore, Chrysocolla, Galena, Anglesite, Cerussite, Pyromorphite, Wulfenite, Vanadinite, (?) Blende.

Auchencairn—Balcary Mine—Sulphate of Barytes, Towanite, Malachite, fibrous, *Tetrahedrite.*

Note of Rare Birds that have occurred in Dumfriesshire and Galloway during the past year.

Two specimens of Capercailzie were shot, the one at Auchencairn, the other near Newton-Stewart—they were both females and most probably had strayed from Ayrshire.

Hoopoe (upupa epops). A specimen was shot near Hitae, in the parish of Lochmaben; another specimen was shot by Mr M'Quae, gamekeeper at Munches, near that place.

Turtle Dove (Turtur auritus) was shot at Lochrutton gate, Dumfriesshire, in June 1870. This bird comes very rarely into Scotland. A specimen was shot in the garden at Jardine-hall in 1814 or 1815, and it has occurred as far north as Aberdeenshire.

The black or white spotted Woodpecker *(picus)* has been shot several times, both at Munches Kirkcudbrightshire, and at Kinmount Dumfriesshire, within the last two years.

Notes on Birds and their Habits, as observed at Ashbank, Maxwelltown. By T. Corrie.

As was said by Mr Aird in the introduction to his pleasant paper recorded in our Transactions published in 1866, "I am not a naturalist in the usual sense of the term," but, like him, I take a warm interest in the living things by

which we are surrounded, and in the hope that they may not only be interesting but useful to the Society, I have strung together a few facts relating to "Birds and their Habits," the result of my observation, within the narrow limits of my own garden, and the immediate neighbourhood. The garden, though only about half an acre in extent, is fairly provided with trees, shrubs, hedgerows, and banks, is surrounded by grounds with equally favourable accommodation for our feathered friends, and has the Nith close upon its Eastern boundary. Besides these attractions, I possess what is I believe the greatest of all to the birds in the shape of a small fountain, in whose waters many of them bathe themselves almost daily throughout the year.

These circumstances may account for the considerable variety of birds (upwards of 40) in the subjoined list, in which I have followed the classification of Bewick, all of which I have observed at Ashbank or close by :—

1. Sparrowhawk.
2. Kestrel.
3. Merlin.
4. Rook.
5. Jackdaw.
6. Starling.
7. Blackbird.
8. Missel Thrush.
9. Song Thrush.
10. Cuckoo.
11. Tree Creeper.
12. Greenfinch.
13. Common Bunting.
14. Yellow Bunting or 'Yoit.'
15. House Sparrow.
16. Chaffinch.
17. Redpole or Red Linnet.
18. Skylark.
19. Tree Lark.
20. Pied Wagtail.
21. Grey Do.
22. Spotted Fly Catcher.
23. Redbreast.
24. Hedge Sparrow.
25. Whitethroat.
26. Willow Wren.
27. Least Do.
28. Common Wren.
29/32. Greater, Blue, Cole, and Longtailed Tits.
33/36. Common Swallow, Sand Martin, Martin and Swift.
37. Partridge.
38. Water Ouzel.
39. Heron.
40. Common Sandpiper.
41. Water Hen.
42/44. Common Gull, Black-headed Gull, and Lesser Blackbacked Gull.

Of these birds, Nos. 6, 7, 8, 9, 12, 13, 14, 15, 16, 19, 22, 23, 24, 25, 26, 27, 28, 29, 30, have all, once or oftener, had nests within the boundaries of my garden, while Nos. 20 and 21 breed in the immediate neighbourhood. Many of them are but chance visitors, giving little opportunity for observation, and I shall, therefore, in the following remarks, as the title of my paper bears, confine myself to recording what I have actually seen.

The *Kestrel* is a frequent visitor, evidently for the purpose of preying on the Common Sparrows, which congregate on a large thorn near the front of the house. On one occasion a fine female bird, when "trying it on" for a sparrow, missed her mark, and dashed against the plate glass of the window, which, being luckily the stronger of the two, stunned the intruder, who was lifted in the hand, carried into the house, and on recovery was restored to liberty. This did not appear to have frightened the hawk, for not long after I saw what I believed to be the same bird strike a sparrow, and coolly sit down upon the grass at the foot of the thorn to tear it in pieces. The only visit of the *Sparrow Hawk* I know of occurred exactly a fortnight ago, when a fine male bird "came to grief" against the windows, precisely as the kestrel did, recovered, and was also liberated. When about to set him free, and while holding him firm with one hand, I could not help admiring his bold and defiant bearing even when a captive, and the cleverness with which he struck with his talons at my other hand whenever I put it near enough for him to hit me. The *Merlin* I can scarcely say I have observed. I have only *seen* it—my attention being drawn to it when high in air, pursued by some small birds, where it appeared like an extra large Swift; and on one or two other occasions, when flying low, he passed me like a thought.

The *Jackdaw* I have noticed, when building his nest in spring, is knowing enough to prey upon the brittle branches of the ash, and he seems to exercise a considerable nicety in his choice of sticks, for I have often seen him break off and

drop several before getting one to his mind. The result of this is that at times the green beneath two large and rather old ash trees in my garden is strewn with sticks. I notice that the most of my branches are carried to the chimneys of the building where we are at present sitting.

The *Starling* breeds freely in boxes fixed pretty high upon my trees. He is a very active fellow, but as, unless when building his nest or bringing up his young, he is little seen, I do not look upon him as a great attraction. He is very suspicious and watchful, ever on the alert, and thus not easily seen near in his natural manner. I have thought these birds appeared in their best when I have watched perhaps 6 or 8 of them, from my bedroom window, running about the green feeding in the early morning, the sun shining upon their changing colours and bringing out all their beauties.

The *Blackbird*, *Song Thrush*, and *Missel Thrush* breed regularly with us. The habits of these birds are well known, but I may just mention what I believe is somewhat rare, that I know of one instance where a *Blackbird* having been "harried," the old nest was re-lined, eggs again laid, and a brood hatched. Last year a poor "Blackie," having built among some pea sticks, was harried by a cat; the pair then tried some black currant bushes, grown Espalier fashion, but cruel fate still followed them, for "when the wind blew, the cradle it rocked," and down came the small "clay biggin" with the callow young inside of it. Not to be beat, however, another attempt was made, and on this occasion, I am glad to say, it was successful, for they chose the fork of a tree some fifteen feet from the ground—rather an unusual locality—and there brought up their brood in safety. I have noticed in some seasons a much larger number of blackbirds than usual, and on one occasion I counted no fewer than 24 running about the green in front. The *Song Thrush* is not numerous, but we have always at least one cock bird to sing delightfully from the topmost branches of the highest tree; and it may

be mentioned, as showing the openness of the season, that we have had the song of the thrush almost every day since before Christmas, and just now (2d February, 1869) he may be heard in full song every morning. The *Missel Thrush* scarcely ever leaves us, and this winter has not done so; but has frequented the garden daily, feeding on "haws," of which there was a plentiful crop last year. In hard weather, when the supply of haws got exhausted, I have noticed that the Missel fed freely upon the berries of the "Cottoneaster" shrub growing against the wall of my house—a food also, indeed, freely partaken of by most of our common birds, even "Robins." When so feeding, the Missel becomes very bold, and will sit on a small railing within a few feet of the window, with two or three persons watching him, and admiring his beautifully speckled breast. He is too, in such circumstances, selfishly tyrannical, and drives off every other hungry bird who wishes to partake of the dainties before him. In building his nest—it is usually in the same cleft of a particular tree—he, in 1867, took the liberty of "appropriating to his own uses and purposes" a piece of lace which had been laid out to bleach, and had it all neatly woven into the fabric of his house except one end, which he evidently had left loose to flaunt in the breeze and spite the owner. When attending to his young he is very wary, and will sit long enough if he thinks he is watched before dropping to the nest. If the nest is approached he makes noise enough to frighten away almost any intruder but man.

The *House Sparrow*, so well known, I look upon with interest as a very clever, bold, and possibly impudent little fellow. It is instructive and amusing to watch the care and solicitude he expends upon his young. One old cock, in one season, who had a family of no less than five, became very tame, and having them all in a row, perhaps five or six feet from me, he would approach within a foot to pick up crumbs thrown to him, and then distribute the food in the most regular, systematic, and paternal manner to his chirping and

wing-shaking progeny. Wishing to prevent too great an increase of them I on one occasion, seeing a pair busy building in a hole of a wall, stopped the opening with a loose stone. About a week after I noticed the cock fly to that hole repeatedly as if seeking an entrance, but on closely watching him I discovered to my horror that I had imprisoned the hen bird, and that he was feeding her through a narrow opening, having evidently done so all the time of her imprisonment. It is needless to say that I at once gave the poor bird her freedom, and saw her join her faithful mate apparently none the worse of her solitary confinement for so long a period.

Of the *Chaffinch* I have little to say, except that it breeds yearly with us, there being generally two nests within the limits of the garden. Some three years ago I noticed that a pair who had been prevented from bringing up their young by the accidental destruction of their nest on two occasions, at length fixed it on the top of a stout stake, forming part of the Espalier on which the black currants before mentioned are grown, and each year since the nest has been similarly placed. The choice of locality is certainly an uncommon one with the Chaffinch, and may lead to the inference that the bird is possessed of a considerable degree of reasoning power. Both male and female become pretty familiar, but I have never been able to make one so pet as was Mr Aird's "Jenny."

The *Pied* and *Grey Wagtails* frequent the fountain principally in the autumn, and by four or five at a time. They —"the smallest bird that walks"—are most interesting and graceful. The Pied Wagtail two years ago bred in one of the gargoyles or spouts of the Old Bridge, and more than once I had to scare away a ragged urchin making vigorous but happily unsuccessful efforts to reach the young birds, while the parents sat literally trembling for their safety upon the Telegraphic wire near by. The *Grey Wagtail* breeds in holes of the wall bounding the tail race of the Dumfries Mills. In connection with these birds' familiar name of Water Wag-

tails, it is curious to note that the first Wagtail's nest I ever knew was several hundred yards from any water, in a dyke on a public road side.

The *Spotted Flycatcher* breeds yearly in a small hole in an Ash tree. It arrives about the 25th of May, and departs in September. It is most interesting to watch it at the occupation its name imparts, choosing generally two stations, and flying backwards and forwards with a sort of downwards semi-circular sweep, catching its insect prey and then perching again. Its three or four young may be frequently seen sitting in a row and being fed in rotation by the parent birds. The larger kind of midge-flies seem to be its favourite food.

Robin Redbreast we have literally "all the year round," shy and wild and cunning in the breeding season, but cheering us in autumn and winter with his clear beautiful song, and interesting us by his bold defiant manner. In hard winters we have usually one bird for the front door and another for the kitchen; both equally familiar, but both insisting most determinedly on exclusive possession of their respective premises. The winter season of 1868-9 has not been favourable to a display of Bob's pugnacity, there not yet at least having been any scarcity of food.

The *Greater* and *Blue Tits* live constantly with us, and are tolerably familiar, especially since I have hung up a piece of fat or a common tallow candle, of which they are very fond. This enables them, while holding on by their feet and perching, to throw themselves into the most graceful attitudes. I notice that it is in the early morning and at dusk they come to feed on the tallow. The *Cole Tit* I have never seen except by a single pair at a time, flitting in and out of a hedge very much after the manner of the Common Wren. The *Longtailed Tit* I have frequently seen in considerable flocks—as many as 30—passing rapidly along from tree to tree.

The *Water Ouzel.* This bird, frequently a pair of them,

frequents the Nith between the Cauld and the head of the Dock, and I have there frequently heard its low but rather sweet song while seated on a stone in the river. It is absent during the summer, apparently while rearing its young, but in autumn and all through winter and spring when the river is in its normal state it is seldom to be missed. During this winter when the river has been in a chronic state of flood I have rarely seen them. I believe this is caused by their inability to reach their food in the deep water. There are two points in regard to this bird that have often been disputed, viz., the nature of its food, and its ability to seek it under water. It has been blamed for destroying salmon spawn, and so, among the fish and game preserving community, has been classed as "Vermin." In regard to the first point I am inclined to believe that it is not a systematic eater of salmon spawn, and for this reason, that the spawn is usually deposited where there is at least enough of water to more than cover the fish, while I have never yet, and I have often carefully watched the birds, seen them seeking their food in water deeper than would cover their own backs. Their favourite feeding place seems to me to be on the slope of the Cauld and in the tail-race of the mill, in both of which places a weed grows which shelters underneath it, in great numbers, an insect known as the Fresh Water Shrimp. This insect, from what I have observed, in my opinion forms a great part of the food of the Water Ouzel. On the second point—its ability to walk *under* water—I am of opinion that in this, as in most other matters, the middle course is the true one. It does, and yet it does not, for while I have never seen it under water so deep as entirely to cover it from view, I have very often seen it seeking its food with its head under water, but that water not so deep as completely to cover its body. Nothing is more common than to see the bird pass from one spot to another with its quick jerking flight, alight in the shallow water of the river side, and instantly commence its search for food, partially covered as I have described.

I have mentioned the fact of a cock Sparrow feeding his young all in a row, and this recals to me that I have received the impression from what I have seen of all the birds breeding around us, that though the hen bird has the principal share in bringing them to life, the cock appears to take the principal charge afterwards. I have noticed this beyond doubt in the case of semi-domesticated pigeons—such as Fantails.

I have also mentioned the Fountain as a great attraction to birds. It undoubtedly is so, for almost all who visit or stay with us avail themselves of the opportunity thus afforded them, and bathe frequently, and evidently with the greatest delight, and this more in winter than in summer. I cannot say, however, that I ever saw Wagtails do so. The Robin, in particular, is scarcely ever seen to bathe in summer, while in winter it is his regular habit—no matter how hard the weather nor how wet—to take his bath just at dusk when he can scarcely be noticed, and then preen his feathers before seeking his place of rest.

In connection with, and as a tail-piece to the foregoing notes, I lay upon the table for inspection a copy of "Bewick's British Birds," and of Mrs Hugh Blackburn's "Birds drawn from Nature."

Note.—In addition to the Birds above enumerated, the Goldfinch and Golden-crested Wren were seen and noted soon after this paper was read.

Notes on Lepidoptera.

By Wm. Lennon.

The general term *Insect* has been given to the whole tribe of creatures embracing moths, bees, beetles, house flies, dragon-flies, and many others, in consequence of the

leading peculiarity which characterises all the orders, namely, the deep *insection* which occurs between the fore part of the body, or thorax, and the hinder part, or abdomen. Perhaps one of the most conspicuous examples may be found in the common wasp, where the *insection* is so conspicuously prominent; more so, perhaps, than in any other order of insects. The fine distinct order of insects containing the moths and the butterflies are known everywhere as the order *Lepidoptera*. This very descriptive title has been conferred on the whole tribe of the Lepidoptera in consequence of the minute scales with which their wings are all covered. It is to these scales they are indebted for all their beautiful colours and markings. When the scales are off the membrane of the wings is perfectly smooth and transparent. The Lepidoptera was divided by Linnæus into three great sections: first, the *Diurna*, being all those which fly by day, which comprises all the butterflies; secondly, the *Nocturna*, or those which fly by night, which includes a large portion of the moths; thirdly, the *Crepuscularia*, which was intended to comprise such as generally fly by evening, twilight, or early dawn of morning. But this third division of Crepuscularia was soon found to be unworkable, and the time of flight, as a general rule, was not a good basis of classification. The more modern system of entomological classification is much more correct, which comprises only two grand divisions, founded on the only true basis of classification, namely, anatomical distinctions. The first division embraces all those having a small club-like enlargement at the ends of the *antennæ*, which comprises all the butterflies. In the moths the *antennæ* are sometimes smooth, sometimes feathered, sometimes robust, sometimes long and slender. The *antennæ* of the males very frequently differ from those of the females, but they are never clubbed liked the butterflies—the great family of the *Geometridæ*, which is composed of a group of insects that are in many respects very distinct from the great family of the *Noctuidæ*. Nearly all the

species have the bodies comparatively slender, and small in proportion to the wings, which are much larger than those of the *Noctuidæ*, though not so strong in texture or so robustly veined. Another peculiarity which distinguishes them from the *Noctuidæ* is that, when in repose (with the exception of a very few that hold their wings erect), like all the butterflies, the wings are horizontally extended, which shows the upper surface of both pairs, while in the *Noctuidæ* the fore wings are wrapped over the hinder pair, which they entirely conceal. It is more in the *larva* state that this order presents the most striking peculiarities. The caterpillars have only one pair of ventral pro-legs, and that pair the hindermost. This peculiar formation necessitates a curious action in their mode of progression, which is effected by first fixing their six pectoral feet firmly to the substance on which they are standing, and then drawing close up to them the two posterior pairs of feet. When in this position, the intermediate or central segments of the body being raised into a kind of loop, from which they are commonly known by the name of loopers, the hind feet are then held firmly fixed while the body is again fully extended, when the hind feet are again brought up close to them as before, raising the intermediate segments into the loop form as before described. The repetition of this movement gives these singular-looking caterpillars the appearance as if they were carefully measuring the earth, or any other substance over which they may be travelling. It is from this strange mode of walking that they are named *Geometræ*. They have no legs under the middle part of the body, which necessitates this peculiar mode of progression. Some few of the species have additional pairs of ventral legs, but in almost every case they are very minute ; indeed, I may say, altogether rudimental. I have very frequently been astonished at the great muscular power of some of the *Geometræ larva*. They can rest entirely on their two pair of hind legs for hours together, with the whole length of the body extended forward in a slanting position. When they are thus resting, some of the

species so closely resemble a dead branch or twig of tree on which they may be resting that none but a practical entomologist could observe them, so closely do they resemble a dry branch. Again, the pupa or chrysalides of the *Geometræ* are rarely subterranean, while the greatest number of the *Noctuinæ* go into the earth before assuming the pupa state. The pupa of the *Geometræ* are more frequently found among dead leaves, sometimes in a loose cocoon, and sometimes suspended by the tail like the butterflies. The British *Geometræ* number about two hundred and sixty species, while the *Noctuinæ* will number about three hundred species. The most remarkable order among all the *Lepidoptera* are unquestionably the *Sphinginæ*. None attract more attention. Their large size, rapid movement, and the splendour of all the species very properly constitute them to represent the first order among the moths. They belong to the first subdivision of the great section *Hetcerocera*. They are all easily distinguished by the short stout body of the perfect insect. The family of the *Sphingidæ* contains several genera, the first genus being *Smerinthus*. All the caterpillars of this genus are green, and invariably covered with small tubercles closely arranged in regular rows. The sides are marked with a series of streaks of a paler green than the rest of the body. The most remarkable species of this fine division is no doubt the well-known death's-head moth, *Acherontia atropos:* the robust body and the wings straight at the external margin, the short *antennæ* and the shorter proboscis, scarcely longer than the head, are quite sufficient to mark this species as very distinct from the other hawk moths. The caterpillar is also very distinct in form from all the other species. The dorsal horn or tail is decumbent instead of being raised, and the body is jagged with small excrescences instead of being smooth, and is entirely without the minute tubercles which so much distinguish the caterpillars of the genus *Smerinthus*. Some seasons the death's-head moth is unusually common in the caterpillar state. Many attempts are made to obtain the perfect insect

on these occasions by keeping the caterpillar, but they generally all perish from the want of proper knowledge how to keep them. One of the finest and most typical of all the hawk moths is that highly characteristic species the *Sphinx convolvuli.* It is a very handsome species, and is much more rare than the death's-head. The fore wings are ashy grey, and most beautifully clouded with brown ; the abdomen is also beautifully barred with black, white, and deep pink. When on the wing the *convolvulis* is the swiftest of all the moth tribe. The rapidity of its movements is so marvellous and so rapid that it is a very difficult matter to give a good description of it. However, Mr Douglas, in the World of Insects, has given such a good description of this species on the wing that I will give it in full, as it is so much better than anything that I could give. Douglas says—"*Did you ever see a Sphinx fly?* There is nothing to compare its motion to except a flash of lightning. While you are looking at a flower in the twilight, between you and it glides a motion, a moving haziness, which is before you, and yet conveys to your eye no definite image. Before you have half thought what it can be, you see the flower again distinctly, and rub your eyes, thinking that there must have been an illusion, or possibly an unsteadiness of vision caused by the irritation of the gnat that was buzzing about your head, when lo ! the flower just beyond seems to shiver ; you move to see what is there, but there is a move before you, and a dim shadow flits away like a thought. Can it be anything real ? Stand still awhile ; and now, in the increasing gloom, as you bend over the *petunias* holding your breath, you see a darkness visible drop down before, but its presence is better made known by the humming sound caused by the rapid vibration of the wings. Stir not, or this aerial body will float away. Now you see it deigns not to alight or touch the margin of the chalice, but, poising itself in air, stretches out its long tubular tongue and quaffs the nectar at the bottom. Now or never, if you wish to catch it. Strike with your ring rapidly below the flower, raising your

hand and turning your wrist at the same moment. All collectors will know what I mean. There you have it, *Sphinx convolvuli.* Look, what a living glory ; its eyes like stars brought down for us to look into, and behold, we see nothing but light."

This very descriptive picture by Mr Douglas is not by any means overdrawn, as everyone will admit who has ever seen the perfect insect alive. I recollect the first specimen of the *convolvuli* that I had ever seen was one that was found at rest in the Castledykes garden by a little boy some years ago. I kept it alive till the evening, for the purpose of seeing its eyes by night, which I had heard so much about. Stainton says that hawk moths are the comets of the insect collector, which is no doubt true ; and probably many an old entomologist looks back to the time when he took his first *Sphinx convolvuli,* the death's-head, *Acherontia atropos,* the Humming Bird-moth, *Macroglossa stellatarum,* or the Elephant Hawk-moth, *Chaerocampa elpenor,* as an event in their time worth remembering. Such an event as the capture of all these does not often fall to the lot of one collector. That large class of insects which the butterflies and the moths belong to are perhaps more commonly known than any other order of insects. This may be partly accounted for by the dazzling beauty of many of the species, more especially the diurnal order of *Lepidoptera,* which are more or less familiar to all. It is quite impossible for any one to take a walk on a fine summer day without seeing several species of butterflies gambolling about from flower to flower —light-winged and graceful in every movement, arrayed in matchless beauty. Even the very commonest of our common butterflies have each a special beauty of its own which no other order of insect possesses. The combination and harmony of colours are exceedingly fine. Many species of the Coleopterous insects are clothed in much brighter colours, but they want the soft depth and the fine harmonious tone which the butterflies so eminently possess. To begin to particularise the beauty of the butterflies, one

would require to begin at the beginning, for they are all beautiful of their class. To give a true and correct description of the fair *Cynthia cardui*, or painted lady, would require some one better gifted in entomological language than I have any pretension to; and as it is always better not to give a description at all than attempt to give one unworthy of the subject, the fair Cynthia is a highly elegant species. She is well named the Painted Lady; in France she is styled the "Belle dame," or fine lady.

That fine genus of butterflies commonly known as the Fritillaries are all distinguished by the adornment of fine silvery spots and streaks, with which the under side of the wings is adorned, while the upper surface is chequered with black upon a ground of rich golden brown. Of all the British Fritillaries *Argynnis paphia* is, perhaps, the most lovely, from the exquisite softness and harmony of the fine silvery pencillings with which the under surface of the wings is adorned, and which gives them the appearance as if they were carefully indented with silver or pearl on the rich greenish ground of the under wings, although some of the other species are brighter, gayer, and more sparkling. In my own estimation there is no British butterfly equal to the red admiral, *Vanessa atalanta*, in grand vividness of colour. *V. atalanta* will stand in comparison with any other insect. He is certainly a most brilliant species; and he appears also to be quite aware of his own beauty, as it comes sailing along through the sunny lanes, gracefully inclining from side to side as if he meant to show off his colours to the best advantage. He is also a very bold insect. He will sometimes light within two yards of you. When he sits on a flower beside you, opening and shuting his wings, just make a dash at him with your net, and miss him. Catch him again, if you can. I have often done this when I did not want him, just to see the very independent way he would say good bye to you. The wings of this insect are so intensely black, with brilliant scarlet bands and borders, relieved by the cool white spots at the outer and upper corners; also by choice bits of

blue at the inner and lower angles, and near the margins. The painting of the under surface of the wings is quite beyond my power to describe them. There is, in addition to the scarlet bands, a series of fine blue spots on the upper wings. The lower are all covered with a most intricate embroidery of indescribable tints; all kinds of browns, and greys, and blacks, with metallic tints, are blended together with magic effect.

The species comes out early in August, and may be met with till late in October. It is found in all parts of Britain, as well as over Europe, and on the districts bordering the Mediterranean; it is also found in the United States of America. Parties well skilled in mythology will remember that *atalanta* was a young lady so swift of foot that she could run over the sea without splashing her ankles, or on the corn fields without bending an ear of corn under her weight. Some poetical entomologists have named it the swift-footed *atalanta*. The genus *Thecla* contains a group of very elegant butterflies. Five species are alloted to this genus, but only two are found in Scotland—*Thecla quercus* and *Thecla rubi*. *Quercus* is found at Comlongan and Dalscairth; *rubi* is found at Tinwald Downs, Dalscairth, and Jardine Hall. This group is very easily distinguished from the other butterflies by the tail-like projection on the lower edge of the hind wing. *T. rubi* has this so very slightly developed that you can scarcely observe it. They are all best distinguished by the characters on the under surface of the wings; they all bear a more or less distinct hair-like streak, which gives them the common name *Hair-streak*. *Thecla quercus* is the handsomest of the genus. The *male* has all the wings in certain lights of a dark brown colour, but by a change of position they become illuminated with a deep rich purple tint, nearly extending over the whole surface, except a very narrow border, which then appears black. The *female* has the purple much more vivid, but more confined to a *small patch*, extending only from the root to the centre of the front wings. The wings beneath are shaded with greyish

tints, and crossed by a white line on each wing. There are two orange spots on the inner corner of the hind wings. I once bred this species from *larvae* which I found in Goldielea Park, by beating the large oaks with a long pole. The caterpillar feeds on the oak. It is reddish brown, and slightly barred with black. The butterfly comes out in July and August. It is no easy matter to take it on the wing, as it invariably keeps gambolling about on the very tops of the oak trees. The only way I could take them was by throwing a handful of small stones as high as I could throw them, and in their descent they not only dislodge them, but the butterflies will actually follow the stones down, and in this way I picked them up with my net. Had I not thought of this plan I could not so easily have taken *Thecla quercus*. *T. rubi* is the next species of the genus, and is a very pretty little insect. It is easily distinguished from the other species by the rich green colour that overspreads the under surface ; the wings above are a deep warm brown. The caterpillar is green, spotted and striped with white. It feeds on the bramble and broom. The butterfly comes out in May and June, and again in August, being *double* brooded. The genus *Lycœna* contains a group of very elegant butterflies. Ten species are alloted to this genus, which embraces all the blues. Only three species of the genus can be claimed as natives of Scotland, although some ambitious collectors claim four. I never met with more than three, namely, *alsus*, *alexis*, and *agestis*. *L. alsus* is the smallest of all the British butterflies. The only locality that I know for it is the sloping sides of the glen at Glen Mills. *Agestis* is distinct from *artaxerxes*. The butterfly is out in May, June, and August. *L. artaxerxes* is a very local insect indeed. I once found a pair at the Glen Mill, but only once,—Jardine Hall, Munches Hill. The best locality that I know for it is along the high range of hills west and south-west of Dalscairth House ; it has also been taken at Jardine Hall. The butterfly may be found there in July and August. I may mention that the greatest rarity of the

season was a fine specimen of *Colias edusa*, which I found on Carlaverock shore last autumn, near the place which is known by the name of the Fishers' Thorn. *Colias edusa* is a richly coloured insect, and is, perhaps, one of the most nimble-winged of all the butterflies. None make up a finer show in cabinet, and none but an experienced hunter need ever attempt to take *edusa* on the wing. Should you miss your first chance, pursuit is useless; away goes *Colias edusa* like an aerial spirit, up hill or down hill, all the same to her; the pursuer is soon left far behind. The Rev. Joseph Green, in his Insect Hunter's Companion, gives such a good description of the chase, that I will give it in full:—"I see a strange, and at first sight an unaccountable, spectacle: it is that of a young man rushing frantically through a field of clover under a burning sun. In his right hand is held aloft, and brandished like a banner, a bag net. His hat is gone; his coat-tails are streaming behind him, and from the aforesaid coat-tails proceed a strange and mysterious rattling as of pill-boxes. About two yards in front of him is a bright orange-coloured butterfly. His eyes are fixed with undeviating steadiness on that butterfly: it nears a lofty hedge: one mighty effort—a vigorous sweep of the net: *Colias edusa* sails calmly over the hedge, and the young collector falls flat on his face." These little catastrophes will happen, and not unfrequently; nor is the slight, perhaps, but inevitable, ruffling of temper produced by them much calmed down by the encouraging remark from a cool and unsympathizing bystander, of "go in and win," just when you have lost. Several species of butterflies are so common with us all the summer that they may be found in every lane and in every garden, especially those two very domestic species, *Pieris brassicæ* and *Pieris rapæ*. Mr Colman says that the former species sometimes penetrates into the heart of smoky London; and that it is no unusual sight to see the young street birds about St. Giles', whose eyes were never gladdened by the sight of green fields, get up a butterfly hunt, with cap (or rag) in hand, feel all the enthusiasm of the chase in pur-

suit of the white-winged wanderer, who, no doubt, looks sadly out of place in the great flowerless brick-and-mortar wilderness. This and the preceding species are the only British butterflies that can be charged with committing any damage to human food. In the *imago* or winged state they are utterly harmless; but not so the hungry caterpillar progeny, as every gardener knows when he looks at the long rows of cabbage, brocoli, or cauliflower gnawed into skeletons. Some seasons the *larvæ* of these two butterflies are so numerous that few vegetable gardens escape their frightful ravages. The *larvæ* of *Pieris rapæ* are much more destructive to the cabbages than his big brother *Pieris brassicæ*, who appears perfectly content to be allowed to feed on the outside leaves; while *rapæ* bores into the very heart of the cabbage, and feeds with luxurious delight on the most tender parts. There is a common saying that impertinence meets with his reward, which, I am afraid, is often the case with poor *rapæ*, who frequently gets boiled with the cabbage, beat up with butter and pepper, eaten at table by both rich and poor. Caterpillars, like other creatures, have their troubles and their trials; they have their molting and their repeated skin shiftings; they have the birds and the Ichneumon flies as the most deadly enemies to the whole *larvæ* race. The Ichneumon flies are the worst of all; they are ever on the wing in search of defenceless caterpillars, and when she has selected her victim, she pierces the body of the caterpillar with a sharp cutting instrument, which the female only is provided with, and in the wound deposits an egg. The caterpillar twists about a good deal while this sort of treatment is going on, and to all appearance seems none the worse for it; meanwhile the enemy repeats her thrusts until some twenty or thirty eggs are thus deposited in the body of the caterpillar, and then his doom is certain beyond hope. The eggs quickly hatch into grubs, and then begin to feed on the fat of the caterpillar, till they reduce him to a living mummy; but, strange to say, by some profound instinct they keep clear of all the vital organs, as if they knew that

the creatures must keep on feeding, or their own supply would speedily fail. Colman says they are just like usurers; while draining a client, they keep up his credit with the world as long as they can. The caterpillar grows weaker and weaker as the gnawing grubs within grow stronger and nearer their maturity. Having finished all the internal remains of the caterpillar, they eat their way out, and frequently spin their cocoon by the side of their dead victim, and in a short time come out a swarm of dirty black impish-looking flies. Shortly after the young caterpillar emerges from the egg he leaves off eating, and begins to prepare for his first moulting, which he must do four or five times during the course of its *larvæ* existence. He begins by fixing itself to the food plant, or whatever is near it at the time, by the means of a few silk threads, and in this position the creature is prepared for a complete change of garments. The moulting process is very curious. The first thing you may observe is a small rent down the head and thorax. When the rent is sufficiently large for the creature to poke out his head, he begins a series of wrigglings and twisting, till such time as he manages to tear his old coat down the back. Another wriggle or two more, and he shuffles off the old rag. He is now dressed in a splendid new vesture, somewhat similar to the old one, but never exactly. The most spendid is generally reserved for the last. Not only does the outer husk come off at these times, but, what is more wonderful, the lining membrane of all the digestive passages, and the large breathing tubes are cast off and removed at the same time. I have often watched the *larva* of the Bombycinæ order going through this curious process; still, I am not qualified to describe all the minute particulars of this very curious process; probably, if it were well examined in all its parts by a competent party, it might be found that we had much yet to learn in this simple-looking matter which few ever think anything about. After the creature has rested a little from the fatigues of moulting, he begins to look about for something to eat: in many instances he begins by

making a meal of his old coat. Mostly all caterpillars are very voracious eaters. When placed in localities where they have plenty of food, they will consume in twenty-four hours more than twice their own weight of food. Some naturalists say that a caterpillar, one month after leaving the egg, will increase nearly thirty thousand times their original weight. Should this statement be correct, it is little wonder that they grow so quickly out of their skin. There are two other species of caterpillars that would deserve special notice, but from my very imperfect knowledge of their habits, I can do little more than just allude to them—I mean the Leafrollers and the Leafminers. The Leafrollers are very numerous. They are named Leafrollers from their curious mode of rolling up the leaf which they feed on. They roll up the leaf in the form of a tube, and fix it by the means of silk threads to the position which their habits dictate. Every species has a different plan of rolling the leaf. Some use one leaf, some take three leaves, to make one habitation. On all occasions the leaf is curled in the form of a tube, and open at both ends. The caterpillar lives and feeds in the interior of the tube dwelling ; and when he has eaten himself out of house and home, he just sets about making another dwelling, and so on till he is full fed up. These snug dwellings afford the creatures a great means of protection, not only from the Ichneumon fly, but also from the birds. All the leaf-rolling *larva* are very active in their habits ; and their houses being open at both ends, they can back out at one end just as fast as they can run out at the other ; so that, should a bird poke his bill in at one end, they just tumble out at the other, and drop about three feet, and there he hangs by the means of a few silk threads, which they are always provided with ; and when the danger is past, they wind themselves up by coiling the silk round their pro-legs, and in this way they soon regain their old home. Any one may observe the same thing for themselves during the summer months, by striking the branches of the oak trees a good rap with a stick, when

in all probability you may see a number of these little fellows suddenly drop from their tube dwellings and swaying about in the breeze till the danger is past, when a general scramble takes place among them, as if they were trying who was to be first home. The same sort of thing may be seen by taking a walk on the sheltered side of a thorn hedge on a windy day, when you may see a number of little green caterpillars, belonging to the *Tortricinæ* and *Tineinæ*, tossed about by the wind till the storm is past, when they regain their former place in the same way. If the thorn hedge is nearly in a line with your head, you will feel the silk threads tickling your face as you go along, the product of these small caterpillars blown out by the wind. The Leafminers belong to the Micro-Lepidoptera, the smallest and minutest of all known examples of the moth tribe. They are a part of the great family of the *Tineinæ*, a class of insects so minute and so numerous that the study of their habits has now become quite a new branch of insect lore. The Leafmining *larvæ*, however, do not all belong to the Micro-Lepidoptera; some are the *larva* of small flies, while others are the *larva* of very minute beetles. The mining course which some of them pursue is very curious. Some of the species mine a broad track mostly near the centre of the leaf. Sometimes you will find two caterpillars in one leaf, and when this is the case you will invariably find that each *larva* keeps side or part of the leaf; although I have sometimes seen the mine very tortuous and confused by the paths running into each other, and sometimes even crossing each. Some other species, again, seem to prefer the very edge of the leaf; and when this is the case, it is truly wonderful to see with what exactness they can skirt them, as if they were working or tracing out some plan. Some idea of the size of the creature may be easily imagined: when full grown they can mine a path round and round the centre of a thin leaf, without ever once breaking the upper or lower surface of the leaf. Here is a process of engineering the most perfect of its kind, performed by a creature scarcely larger than the

point of a fine needle. The perfect insect of some of these little *larvæ* are perfect gems. The long fibry fringe that edges their wings is so gorgeously beautiful that the finest burnished gold would appear dingy if put in comparison with one of these little tiny moths. To the naked eye some of them appear rather bronzy-looking; but place them under a magnifying power, when a combination of the finest and softest of rainbow tints appears to dance and quiver, and scatter light in all directions. The transformation then appears so perfect and so splendid, that the fertile brain of man would be puzzled to design a robe so ineffably gorgeous as the ones that cover some of these little tiny moths. Perhaps no man living has done so much as Mr Stainton has to advance the study and the knowledge of the *Tineinæ*, assisted, of course, by others. He has published eleven volumes describing the natural history of the *Tineinæ* of southern Europe, and is still going on. The subject, even in his hands, seems inexhaustible. All caterpillars of the Lepidoptera order have hard, horny jaws, and a body consisting of segments, to the number of twelve, exclusive of the head. They are also provided with legs of two kinds. Of these, the first three pairs are attached to the first three segments of the body, and these are the true or persistent, being only the rudiments of the legs of the perfect insect. The other legs are termed the pro-legs, or temporary legs. The caterpillar of the common cabbage butterfly has five pairs of legs. The feet of the caterpillar are also very curious. They are all provided with a set of minute, slender horny hooks, alternately and shorter. By the means of these hooks the creatures are enabled to lay a firm hold of the leaves of plants or other objects, and which also enables him to move along with great dispatch. The head of the caterpillar is quite a study of itself, as it differs so much from the other parts of the body. It is always a very difficult matter to give a good description of anything; consequently, I will not attempt to do so, but merely allude to the way which nature has so beautifully formed the mouth to suit the kind of work it has to perform. The creature is

furnished with a pair of jaws, horny and strong. The mouth is shaped exceedingly like a pair of pincers, because it opens and shuts from side to side, instead of up and down like all *vertebrate* animals. This curious arrangement of the mouth affords the creature great convenience when feeding, for on all occasions they feed on the thin edge of the leaf. Their mode of feeding is very interesting: they adhere so firmly to whatever they are feeding on with their close-clinging pro-legs. He then guides the edge of the leaf to his mouth by his fore legs, and stretches out his head as far as he can, when he commences a series of rapid bites, at each nibble bringing the head nearer the legs till they almost meet; then stretching out again in the same way, and so on repeating the process till a large semi-circular indentation is formed. Then shifting his position to another part of the leaf, he recommences another sweep; then another, and so on till the leaf is left a mere skeleton.

Another very important organ possessed by all lepidopterous *larvæ*, is the Spinneret for the production of silk, by which means some species merely suspend themselves during the pupa state, while other species again enclose themselves in a silk shroud, where they lie till the time of their transformation. Many of the cocoons made by the *Bombycinæ* are very beautiful and very varied both in form and texture. The moths of all the various Silk-worms belong to the *Bombycinæ*. Some species of the *Tineinæ* are remarkable for their patriarchal habits of living in tents of the most beautiful net-work. I once saw a colony of the small ermine *Yponomeuta evonymella* in Kirkconnel avenue; the top of the hedge was covered with their silk for eight or nine yards: if the colony is a large one they just keep on adding to the tent as they require more food. The tissue of their work resembles a species of pale crape; the troop will sometimes number several hundreds, so that in a short time the hedges to a great extent are soon rendered leafless. I I once saw the same thing at the Ruttonbridge, the *larva* of *Melitæa artemis*, the marsh Fritillary being gregarious, they

also feed under the protection of a tent ; they hang their silk on the leaves of the Plantain and other low plants, and keep together till they are nearly full fed, when they leave their tents and each goes his own way. The Spinneret already alluded to is seated beneath the horny lower lip or labium and the two first legs, and appears in the form of a conical protuberance, from which two long tortuous tubes extend down the body of the *larva*. These tubes have a very important function to perform ; they separate the silk from the juices of the body in the form of a gummy fluid, and while it is drawn through the aparture hardens into threads. Such is the silk of the Silkworm. The duration of the *Pupa* or Chrysalis stage varies in different species according to temperature and often in the same species, which is a very wise provision, as it respects the safety of the matured insect. Butterflies have at all times been special favourites with Painters and Poets. From the Butterfly the poet draws many a fine similitude, and the moralist many a solomn lesson, and the artist, who should be both poet and moralist, might draw from the study of the butterfly wing many a pleasant theme for pencil and brush. It is a well known fact that many great names both in science and art have been enthusiastic collectors of butterflies. I might cite many examples. I will give one well known case, that of Stothard the painter. Once when he was beginning to paint the figure of a reclining Sylph, a difficulty arose in his mind how best to represent such a being of fancy. A friend, who was present, said, give the Sylph a Butterfly wing and then you have it. That I will, exclaimed Stothard, and to be correct I will paint the wing from the butterfly itself. He sallied forth, extended his walk to the fields, some miles distant, and caught one of those beautiful insects called the Peacock. Our artist brought it very carefully home, and commenced sketching it, but not in the painting room, and leaving it on the table a servant swept it away before its portrait was finished. On learning his loss, away went Stothard once more to the fields to seek another Butterfly : this time one of the tortoise-shell tribe

crossed his path, and was secured. He was astonished at the combination of colour that presented itself to him in this small but exquisite work of the Creator; and from that moment Stothard determined to enter on a new and difficult field—the study of the insect department of Natural History. He became a hunter of butterflies. The more he caught the greater beauty did he trace in their infinite variety. He was often heard to say that no one knew what he owed to these insects—they had taught him the finest combinations in that difficult branch of art—colouring. I might cite another example which is told by Edward Newman of the impression produced on his mind by the first butterfly he ever saw. He says, when I was a very little boy indeed, I liked butterflies better than books. And I recollect, as well as it had been yesterday, the first butterfly I ever saw. It was a very very long time ago, and the butterfly was the Tortoise-shell: it was sitting on a leaf, and I called out, Oh, look what a beautiful flower, and I tried to pick it up, but away it flew. I recollect that I criëd out the beautiful flower has flown away. How lasting are early impressions! I have never forgotten that butterfly, and to this hour I cannot disconnect the idea of a butterfly and a flying flower. If I were inclined to ransack the Poets, I might fill a volume of quotations in praise of the butterfly. From the time of the early Greek poets, who so beautifully symbolized and recognised this great truth, when they gave the same name *Psyche* to the soul, or spirit of life; and down to our own day poets of all nations have sung in sublime verse in praise of the butterfly. I have read somewhere, but I don't remember where, that the ancient Greeks were accustomed, even with their imperfect knowledge of Natural History, to have the figure of a butterfly sculptured on their tombs, in the position of flying upwards, as emblematical of the souls of their relatives flying upwards to a better world. I believe that the heart of the deep-minded can be soothed by the study or contemplation of the butterfly andozy. First, there is the grovelling caterpillar state, so emblematical of our present imperfection. The

caterpillar state represents a state of preparation for something better, something purer, brighter, and more joyous. When we look at the sluggish-looking, leaf-eating caterpillar, and compare it with what it will be, after it has completed the great change of transformation, we feel an involuntary emotion of wonder, so striking is the contrast. And lastly, when the creatures feel themselves ready for the great change, they break the skin of the chrysalis, which covers the head and thorax, and emerge feeble and languid, with the wings all crumpled up in small bundles. Soon, however, the creature acquires strength, fluids circulate through the nerves of the wings, which gradually unfold ; the creature shakes and quivers them, as it feels its growing strength. At length, in the perfection of beauty, it leaves the pupa case behind, soars aloft, seeks out the flowers of the field, and begins a more glorious existence.