# MY STRANGE PETS AND Other Memories of Country Life

RICHARD BELL

# Table of Contents

# Table of Contents

# Table of Contents

# Table of Contents

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I HAVE all my life been a lover of pets, and during my younger years these consisted of specimens most easily obtained, and most conveniently and surreptitiously kept in a bedroom or outhouse.

## Emus and Rheas

In the same ratio as my years increased, so increased my ambition and the size of my pets, till these had run from the size of a white mouse to emus and rheas. The latter are frequently called the South American ostrich.

In the year 1874 I thought I would try my hand at breeding both species of these birds; and eventually I was enabled to state, in a weekly journal devoted, among other articles, to Natural History, that I claimed to be the first person who had succeeded in breeding emus in Scotland, and challenged contradiction. As none was forthcoming, I think I may safely repeat the boast, and give credit to my own county of Dumfries as the first one in Scotland where these birds were bred.

It is well known that the emu is a native of Australia, where, on its vast plains, they might have been seen in great numbers when our colonists first settled there; but they are daily becoming scarcer in the more inhabited parts of that country, owing to the ruthless way in which they have been hunted down by men and dogs, and are now only to be found, in diminished numbers, at a safe distance from the settlements.

Owing to this increasing scarcity, emus are rather an expensive stock to "lay in." This, however, did not deter me from purchasing a pair, as I hoped, if successful, to recoup myself the initial outlay of £20, which was the figure charged me by Mr Charles Jamrach, of 180 St George Street, East, London, the world−famed dealer in wild animals. When they arrived home the children named them "Tommy" and "Jenny," and by these names they will be distinguished in the course of my narrative.

In the above hope I was not disappointed, as my readers will understand when I tell them that not only did my breeding experiment succeed, but that I sold my young birds, thirty−one in number, at from £8 to £10 per pair, without guaranteeing the sexes; and that when I sold off all my birds in 1885, I received £16 for the original pair, or only £4 less than I paid for them; and, besides this, for ten years I reaped the profit from the sale of eggs not required for hatching purposes.

The eggs of emus and rheas are worth 5s. each; and as, between them, both species laid 260 in all, it must be allowed that these birds are fairly profitable −certainly more profitable, in proportion, than sheep, in which I am also interested; but I would not advise sheep−farmers in this country, even in those times of depression, to introduce on their runs this novel Australian and South American stock. It would not pay on a large scale; and even as an amateur I was more fortunate than many of my brethren in my small venture, and would here warn any one attempting to follow in my footsteps, that to procure a breeding pair, or even a male who will "sit" on eggs, is a risky and difficult matter.

The distinction of sex in the emu can only be ascertained by an expert, the plumage of both sexes being of the same colour and general appearance in the adult state, or at least so nearly identical as to deceive a beginner. The young birds are beautiful little things, striped black−and−brown on a grey groundwork, and their heads are nicely mottled. There is a decided difference in the colour when they are "in the down," some having the stripes much darker than others,− and at this stage colour may mark the sexes, but so soon as feathers are put on this distinction is lost. It is only after long and minute observation that an amateur can be certain that he is in possession of a male and female emu,− at least, until they are of mature age.

I am told by one who has lived in South America that the sexes of the rhea are easily distinguished even at a distance, the male being much darker than the female, and altogether more robust in appearance. My first two rheas were sold to me as a breeding pair at a time when I was ignorant of this difference in, colour; but in course of time I discovered they were both females. Until adult, rheas are quite as difficult to distinguish with regard to sex as emus, and if an amateur purchases young birds, the chance is he will be disappointed.

I purchased three different birds, guaranteed as males, with no better result than adding to my stock of females. This guarantee of sexes is of little value, and for this reason—that although you may purchase a bird at or near *one* breeding season, it frequently happens that, owing to its inborn restlessness and its new surroundings, it will not settle down in its new home, and it may be a year before you can tell which sex you have got,− too late to return it to the sellers, without *difficulties*.

As I have always failed in my attempt to procure a male rhea, I have no experience to enable me to distinguish *their* sex.

After having had them in my possession for some time I had not the same difficulty with my emus. There is a

difference in their "countenance" with which, after close observation, one becomes familiar; but the peculiar and loud drumming noise of the female— which can be heard at a long distance—leaves no doubt. This sound is quite wanting in the male, whose voice is a loud hoarse grunt. When the male is excited this sound has a very terrifying effect upon strangers, though I myself, owing to my familiarity with it, was not afraid of Tommy.

When he had a young brood with him he would "come for me" from the farthest corner of the field, grunting, hissing, and striking out his feet in front, as if he meant mischief; but I had only to stand my ground, and seize him by the neck gently, when he at once stopped his fuss, though continuing, when released, to run round and round me in a great state of excitement. A man, who had seen how I stopped the bird, having entered his enclosure, was attacked by Tommy. In defending himself he seized the poor bird by the neck, and pressed so hard that he nearly choked him: for days afterwards he could not swallow food, and had such a large and suppurating lump in his throat that for a long time I thought he could not recover.

I must confess that this standing firm, and showing a bold front, required some nerve at first; but the truth of the saying, "Familiarity breeds contempt," was vividly impressed on my mind, and Tommy and I continued to be good friends.

On one occasion a lady visitor, fearing I was going to be annihilated on the spot, nearly had a fit of hysterics when she witnessed one of his apparent attacks, and was only consoled when she learned that his seeming ferocity was mere bounce. There would have been a different state of matters if she herself had been in the field; and I never allowed strangers to approach the birds, during the breeding season, without my being with them, and never allowed a lady to enter the field at that time, whether accompanied by me or not.

I have read somewhere that a gentleman who had entered the park at Government House, Sydney, to look at some emus kept there, was killed by one of the birds kicking him on the back, and so lacerating his lungs. The kick of an emu is a serious if not a dangerous one, and is delivered in a forward direction, and not from behind like the kick of a horse. When sporting they spring up in the air, kicking sideways and backwards, more like a cow. In addition to the blow, their large strong claws make a lacerated wound.

When any one has occasion to catch these birds, he should always be provided with a shield of wickerwork, so as to guard himself against serious, if not fatal, injury: one of those flat baskets in which nurserymen send out plants makes a handy protection for the purpose.

As previously stated, I purchased my parent birds from Jamrach in October 1875 ; but as they fought so persistently on their arrival home, I was afraid at first that they were both of one sex. The one I came to know as the female was so much harassed by the other that she could get no food; and the points of her wings—or rather bones, which represent wings in other birds—were so lacerated by dashing against a stone wall in her endeavours to escape from her mate, that they bled for about ten days, and I thought she would bleed to death. I bound them up with rags, but she always managed to rub them off. I therefore ran a fence across the field and separated them. They remained so all the winter of 1875−76, and this caused me to lose a brood that year.

In April 1876, on my return from Edinburgh, where I had spent the winter, I again allowed them to run together. I was afraid they would again fight, but was gratified to find that they were most peaceably disposed towards each other. Possibly this fighting was a favourable sign of future success in breeding. I think it proved that they were strangers to each other—not members of the same brood; and, consequently, being unrelated, a greater number of eggs would be fertile: the progeny might be more robust, and be better able to stand the climate.

During all that summer, and up till February 1877, there was nothing in the appearance or otherwise to enable me, in my then ignorance, to distinguish their sex; but on February 17 my shepherd, under whose special care the birds were placed during my absence in town, found three eggs lying together in a corner of the field.

I had been in the country on the previous day, and being on the look−out for eggs, had, as I thought, looked into this very corner when searching the field unsuccessfully for them, and I concluded, from the fact of three eggs being found at once, that both birds were laying. I was glad to find, from what the gardener observed later on, that I was wrong, and that my birds were certainly male and female. The interest now increased, and I had great hopes of acquiring a brood. I was sorry that my absence from home prevented me from studying the habits of the birds at such an interesting time, and that I could not give them that amount of personal supervision which the occasion required; but the shepherd and gardener spared no trouble, and most assiduously and intelligently carried out all my wishes.

Jenny laid for some time regularly every third day till towards the end of March and beginning of April, when sometimes a period of four and five days elapsed between the deposit of each egg, and the last one was laid ten days after the male began to sit− viz., upon April 10.

Altogether, nineteen eggs were laid that season; the second year Jenny laid forty−two eggs. During a great part of the time the eggs were being laid hard frost prevailed, and I much feared their fertility would be destroyed. I therefore directed the man, during my absence from home, to lift them as they were laid and put them into a wooden shed in which the birds were nthe habit of sheltering at night.

Jenny immediately began to cover up the eggs with straw, but as Tommy appeared to take no notice of them I thought he had not discovered them, though be paid particular attention to the corner where most of the eggs had been laid. Thinking this was the place where he desired to "sit," I formed an artificial nest by hollowing out a space of ground about 2½ feet in diameter, gradually sloping it down to about 8 inches deep. I then laid a slight wall of turf round the margin, to ensure the eggs from falling out by the movements of the bird, and filled the nest with soft hay and dry leaves. Over this I built a bower formed with paling bars and spruce−fir branches, and, after admiring my handiwork, I began to wonder if Tommy, who had assisted by looking on all the time, would regard his intended retreat with the same favourable eye as I did. To test this I placed eleven eggs in the nest. Scarcely had they been put in than Tommy, resisting all Jenny's attempts to help him, began to cover them up, and hope again prevailed. He did not desire to incubate, however, for a fortnight after this, and during all that time Jenny continued laying eggs at intervals.

At last, however, Tommy displayed symptoms of becoming broody, and the eggs, which had been removed so as to save them from the frost, were again given to him.

I may here say that the symptoms of a male emu desiring to incubate are—sitting on the same spot for some time, with his neck stretched out flat on the ground; snapping right and left at any one coming near him; picking up blades of grass, dried leaves, &c., and placing them under him as if he were making a nest, though no eggs are within his reach.

Upon April 1—not a very auspicious day—he sat down on the nest; but until the 5th he never allowed twenty−four hours to pass without having the eggs all scattered round him outside the nest, and I was afraid their fertility would be destroyed owing to the prevailing cold weather.

This displacement of the eggs was disappointing, but upon the latter date he commenced to sit close; and from then till May 28—upon which day the first young were hatched—he never left the nest except on one or two occasions, when he took a race round the field for about three minutes and then returned. He did not touch food or water during the whole period of incubation, which lasted for fifty−eight days in this instance, though both were kept constantly beside him.

I may say that the principal events of incubation here described were those which took place during all subsequent times of hatching, and need not be repeated.

Three young ones were hatched upon May 28, and next day three more; one egg, ready to hatch, was crushed by Tommy, and two were stale, which proved that though they failed they had at one time been fertile. As before stated, he had eleven eggs to begin with, so two had disappeared bodily, no one could tell where.

When the young ones had left the nest Tommy was naturally very thin after his long fast, but was quite hearty, and was most determined to murder his wife if possible, who, I forgot to mention, had been fenced off the day he commenced to sit. He twice jumped over this fence, which was 4 feet 6 inches high; but, excepting a severe beating, no great harm was done to Jenny. The rheas, who were in the same enclosure as Jenny, were too fleet of foot, and Tommy could not catch them.

I added 18 inches to the fences all round, making them 6 feet high; still he succeeded in scrambling on to the top, but owing to his weak state he was unable to get over altogether. The young ones soon began to eat herbage of all kinds as eagerly as their parents, and were specially partial to Plantago major and crow's−foot,− a plentiful supply of both being in the field.

At Billholm, her first residence, Jenny laid her eggs anywhere about her small enclosure, but when she was removed to Castle O'er and had more space to roam in, her habits changed.

Her enclosure there was bounded on one side by a hedge 300 yards long, and was visible from the front windows of the house. When her day for laying arrived—which was generally about every third one—her preparations were of a most peculiar description. Almost exactly at 3 P.M. she began running along the hedge

from end to end at full speed, and in the highest state of excitement, shortening her journey at each end by a few yards. This continued the whole afternoon, and the journey got shorter and shorter at each turn till, towards the finale, it consisted of a few steps only each way, and eventually degenerated into a mere swaying of the body from side to side for a few minutes, as if she were "ringing in," after which she sat down and, pressing herself up against the hedge, dropped her egg.

As this took place generally, if not invariably, at 6 P.m., she had run without ever ceasing for three hours; and, judging from her gaping mouth and heavy panting, she must have been very much exhausted. The laying season commenced in January or February, and as hard frost often prevailed, I generally went to the field at the time I expected the egg was due, or had been already laid, to secure it from being frozen.

The first time the weather was cold enough for me to go, Jenny left the hedge and came up to me, walking round and round, at the same time pressing against me in a peculiar manner. I did not know what she meant, though she evidently *did* want something; so I put my arm round her body, upon which she sat down, and, pressing harder against me, dropped her egg. I now saw that her desire was to have a better purchase than that afforded her by pressing against the yielding hedge.

The colour of an emu's egg is well known to many people. They, however, vary a good deal, some being *vivid* green and others darker, and when freshly laid the tints are beautifully clear and bright, but soon become toned down till the colour is quite dull: any one who has noticed the difference, say, of a garden seat newly painted green and after it has been exposed to the light for some time, will understand what I mean. I have one of quite a blue colour, and the shell is perfectly smooth, not granulated as they generally are. When the eggs are exposed to full sunlight for some time they become a dirty grey colour.

The laying season of emus lasts from January till April in this climate, but in 1877 Jenny began to lay a second time on 28th December, and laid her forty−second egg on 11th May 1878.

I sent eight eggs to Mr Hearson, maker of incubators, Regent Street, London, as I thought if he was successful in hatching them with his machine and rearing the young, it might be a good advertisement for him, especially if the young ones were seen by the public among the chickens in his shop−windows. He told me he had failed as the eggs were infertile; but I think his non−success must be attributed to some other cause, as I had very few infertile eggs: I do not think six out of all my "settings" remained clear. All the others which failed with me were rotten, proving that they had been originally fertile.

At Castle O'er the rheas had two large fields to roam in, as well as the grounds round the house. They laid their eggs sometimes in strange places, as will be seen farther on.

When they laid in the fields I never noticed any preliminary symptoms, and their laying seasons being in summer, and the eggs being free from the risk of frost, they were not so particularly looked after as those of the emus; but when one was expected to be due, the whole family turned out to look for it. We walked in a line along the fields ; and as, owing to their colour, they were easily seen, I do not think we ever missed one.

As a corbie could not easily carry one away, and as we never found a sucked one, I presume these robbers either did not know what they were, or, suspecting that they were "made in Germany," despised such foreign produce. Their eggs when newly laid are almost of a pale orange colour, but very soon fade to pale cream when exposed to the light, and the shell is smooth, covered with small pit−holes, instead of being granulated: when one lay over−night the upper surface was cream−coloured, whereas the under half retained the darker yellow, being shaded from the light by itself and the grass upon which it lay.

The average weight of rhea eggs is just upon 1 lb. 9 oz.; to be exact, 1 lb. 8 $^{5}/_{6}$ oz.,− at least, that is the result obtained from six average−sized ones which I weighed together.

I have found written notes of the weight of emu's eggs for two seasons, and find that thirty−seven averaged 1 lb. 8 oz. each. I weighed one against fourteen hen's eggs, and they just balanced each other.

A gentleman who was for many years a settler in Australia told me that those laid by my birds were, on the whole, larger than those he ever saw in that country, and expressed his surprise, as he expected they would be smaller. Perhaps extra and good feeding may have something to do with this.

I measured twelve emu and twelve rhea eggs, and found their average size to be as follows: emu $5^{5}/_{8}$ in. by $3^{5}/_{8}$ in.; rhea $5^{3}/_{4}$ in. by $3^{5}/_{8}$ in. One extra long−shaped rhea's measured $6^{1}/_{4}$ in. by $3^{1}/_{2}$ in., and weighed 1 lb. $9^{1}/_{2}$ oz. Those of the rhea appear to the eye rather longer in shape and as much in circumference as the emu, but by actual measurement they are very nearly the same.

I have seen some beautiful carved emu eggs, which are cut like cameos. Not only is the green covering cut away altogether in places, down to the white shell beneath, but in other parts the green itself is only reduced slightly, until it becomes of a much paler shade than the body of the egg, and the result is a beautiful picture. Many scenes are represented: those I saw were hunting scenes, with natives chasing emus and kangaroos. Two eggs with both ends cut off formed candle−shades; and they are lovely when the candles are lighted. The finished picture is very pretty, and soft in the extreme.

In February 1897 I read a paper at a meeting of the Dumfriesshire and Galloway Natural History and Antiquarian Society, of which the principal part of my present remarks about emus and rheas is a resume. For the purpose of illustration at the meeting, Mr Bartlett, Superintendent of the Zoological Gardens, London,−whose lamented death occurred three months later,—kindly lent me a cassowary's egg, which measured $5^{1}/_{4}$ in. by $3^{1}/_{2}$ in. Since then, I purchased one from Mr Jamrach, the measurements of which were $6^{1}/_{8}$ in. by $3^{5}/_{8}$ in. Its size, therefore, is considerably greater than Mr Bartlett's, which was labelled "common cassowary."

Mr Jamrach informed me that he thought the one he sold me was that of an "Australian cassowary," and that it was laid in the Antwerp Zoological Gardens fifteen years previously. A friend presented me with an African ostrich's egg. On doing so he told me he had had it in his possession for thirty years; that his father got it from an Indian surgeon, and he hoped it might remain under my "roof−tree" as long as it had been under his: he also stated that he had compared it with all the ostrich eggs in Gordon Cumming's collection, and found it was larger than any of his. I have now kept it safely for forty−seven years. Possibly the Indian surgeon might have had it in his possession as long as my friend or I have had it, and, if so, it may have first seen the light of day zoo years ago. It measures as follows: ellipses $17^{1}/_{2}$ in., and circumference $15^{1}/_{2}$ in.

Along with the cassowary's eggs, Mr Bartlett kindly sent me some feathers from the body of the same bird, and two of the curious black quills from the wing. The use of these quills is not very obvious, unless they are used for defence. There are five on each wing, and they are quite capable of inflicting a nasty wound on any enemy receiving a stroke from the bird. The feathers from the body are double shafted, like those of the emu, black−game, and grouse.

As previously stated, the rheas, when they had access to the grounds, sometimes picked out strange places to lay their eggs.

On one occasion a lady was on a visit, and on our going to sit out on the lawn she spread a tartan shawl on the ground, but preferring to sit on the grass she did not make use of it: great was her astonishment when a rhea joined the party and laid an egg upon the shawl.

Again, a gentleman who had just returned from China was staying with us: among his paraphernalia he had brought with him a pair of Chinese slippers, made of plaited grass. One morning, when going out for a day's shooting, he was putting on his strong boots at the front door. He sat on the doorstep and placed his slippers on the gravel in front of him, when, to his amazement, a rhea dropped an egg in one of them.

Once more, two of my men were engaged on some work near the glass range. They went into the potting−shed to eat their dinner, leaving the door open. They sat on the floor, with their backs against the wall, when presently a rhea entered the shed and, crushing herself in between the men, laid an egg on the floor. These men had no fire handy, or probably that particular egg would not have been added to my collection, considering that it arrived at a hungry and tempting moment.

I do not relate the above anecdotes as trivial reminiscences only, but rather to bring home to the minds of my readers the contrast between these wild and wary birds kept in confinement here, familiar with man, and their roaming at large on the pampas of South America. They would not probably find or take advantage of tartan shawls, Chinese slippers, or even potting−sheds there as nesting−places; and I am certain they would give a wide berth to two "gauchos" sitting eating their dinner of dried meat, each with his "bolas" or lasso lying handy by his side.

I have been told by friends who have lived in South America that a dainty meal is made by cutting off the top of a rhea's egg, putting in herbs and spices, and roasting it on a fire. I once gave the cook one, and told her to make an omelette with it: the result would have been good had she not used the whole egg,− the omelette tasted of little else. I never felt valiant enough to tackle a plain boiled one for breakfast, but my shepherd once tried a fried emu's one, and he told me he got quite a "fricht" when he broke it and suddenly saw the whole bottom of the fryingpan covered with egg.

The laying season of rheas in this country is from June to August,− but one season it continued to 1st October.

The maternal duties of emus cease so soon as the female has finished laying, and then become paternal; and I generally shut the lady off from the nest when the male began to incubate, as I found that she only disturbed him by laying more eggs in the nest than were wanted.

The male sat from fifty−eight to sixty−two days, and during all that time he never touched food or water, though he always had a supply of both beside him. Besides the incubating he does all the rearing, and it is an interesting sight to see such a huge bird striding along with a brood of tiny young ones among his feet, and he never treading on one of them. My experience is that emus are more careful in this respect than poultry.

I fed the young for the first few days with hard−boiled egg mixed with biscuit or bread−crumb, rice, oatmeal, lettuce, and greens; but they begin at once to graze like their parents, so their "keep" is not a very expensive outlay. The old ones graze like geese; but I always gave them, in addition, a feed of such mixture as the pigs got, varying this with dog−biscuits or− maize.

The bores of emus bred in confinement are apt to become very brittle if the young birds are not supplied with lime, and many losses are sustained by breeders who are not aware of this fact.

I discovered for myself the necessity of giving them lime by observing them picking some off a wall. Ever afterwards I had lime−rubbish in their run, of which they consumed a great quantity. I only lost one from brittle bones: in running through a hole in a hedge, while frolicking, it broke its thigh−bone when just six months old. I put its leg in splints, but it was no use; so I destroyed it, got it stuffed, and presented it to the Museum of Science and Art, Edinburgh (now the Royal Scottish Museum), where it is still to be seen by any one interested or desirous of studying a young emu of that age.

As a proof of the hardihood of these birds, I may say that out of thirty−six reared, none ever died a natural death. The male crushed one or two in the nest when they had just emerged from the shell, but I only lost five after leaving the nest, all from violence− viz., the one which broke its leg, three starved to death owing to neglect, and one which was killed by a log of wood falling upon it when a week old: none died from the rigour of the climate alone.

Young emus are most amusing creatures, as from a few weeks old they perform all sorts of antics, such as throwing themselves on their backs, then leaping a considerable height off the ground, meanwhile kicking in the same way as the adult birds do when they are indulging in a game of romps. I have frequently seen both old and young, when engaged in such high−jinks, kick out too far when in mid−air, and, overbalancing themselves, come down with a crash on the ground.

One performance which they went through was of another character, being admirable from its solemnity and the graceful attitudes of the performers. It consisted of a dance in the nature of a quadrille. They would go through some preliminary steps, then all meet in a common centre, with their breasts brought close together and their heads and necks stretched straight up in the air; then they would "open out," change places, and repeat the manoeuvre over and over again. The ridiculous contortions before described afforded to spectators amusement only, but they gazed upon the dance with sober wonder and admiration.

Baby emus, however, are endowed with the same cantankerous nature as human babies when mamma wishes them to "show off" before female visitors—they sometimes won't "work" : and when I wished to "set the machinery going" I had frequently to call in the aid of my own children, who knew what to do. This consisted in throwing themselves about on the grass in the same convulsive throes in which the birds were in the habit of indulging. The hint was generally taken by the birds, and the visitors were delighted, though no "extra charge" was made for the exhibition.

It is a familiar saying that some folks have the "digestion of an ostrich," and as the subjects under discussion are of the same order of birds, their powers of digestion are equally good. A good appetite and good digestion are blessings to poor suffering humanity, but we must not be jealous if the miscellaneous substances in which emus delight are beyond our powers.

One day the carpenter came to repair the fence, and he excitedly informed me that he had seen "thae queer birds the a−moos" busy swallowing chips of wood. He intimated his discovery with as much pride as Columbus might have shown when he discovered America, but I, being quite aware of this propensity, was not much astonished.

A few minutes later he proceeded to the place where he had deposited his "bass" of tools to get some nails, a

paper parcel of which he had previously opened and placed beside his bass. He found the paper had been emptied of its contents, and evidently strongly suspecting me of kleptomania, asked me if I had taken his nails. When I asked him if he had seen the a−moos near his tools, he said he had, and I very soon told him where his nails had gone. He seemed to think I was e−mus−ing myself at his expense, and stared at me incredulusly, as much as to say, "I'm no' sae easy gulled as a' that" ; but when I pointed out Tommy, at that moment struggling in the vain endeavour to swallow his chisel,− which he had left unguarded when going for the nails,− he was convinced, and remarked that "there micht be something in't"; but whether he meant in the *fact* or inside the *bird* I failed to learn.

Everything is "grist that comes to their mill," whether it be nails, coals, potsherds, small china dolls, or collars and cuffs: many a tear has been dropped by members of the household over the loss of the last, as well as other small articles of female attire, when the birds got access to the bleaching−green.

Dr Bennett, in his 'Gatherings of a Naturalist in Australasia,' records that a cassowary which he possessed had the same taste for carpenter's tools and lady's "small clothes" as my emus had. A carpenter had come to his house to make some repairs, when the cassowary actually swallowed the man's oil−stone,− perhaps the man had left a good deal of oil upon it; and on another occasion the bird took a lady's cuff out of a dish of starch, where it had been placed by a servant, and swallowed it. The doctor warned the man "that if he did not take care the bird would swallow his *hammer, nails*, and *chisel*" also.

It is somewhat curious that such a peculiar taste of our pets should have come under the observation of both Dr Bennett and myself. In Tommy's case he only *attempted* to swallow a carpenter's tool, whilst it was a *fait accompli* in the case of Dr Bennett's cassowary; still the two incidents are not dissimilar. Who has not heard the lines−

*"There was once a cassowary*
On the plains of Timbuctoo
*Who ate up a missionary*
Carpet−bag and hymn−book too."

The curiosity of emus− or I should say their inquisitiveness− equals their voracity; and I could give many instances of this propensity, generally, though I believe wrongly, attributed to the human female, but one will suffice.

On one occasion the nurse was crossing their enclosure, carrying in her arms one of the children, then a baby in long clothes. This was too much for Jenny, who wished to see what the "bundle" consisted of. The nurse was already sufficiently alarmed by the proximity of the "two monsters" as she styled them, but her terror was increased when Jenny proceeded to pull the veil off the baby's face; and, taking to her heels, she offered up a prayer of gratitude when she found herself— she could not tell how—at the outer side of the fence, whilst the "two monsters" were fortunately still in the field, grunting and drumming a fond farewell.

I took advantage of this vice at the time a photograph was being taken of the birds. It is almost impossible to "take" them except by "snap−shot," as they are never at rest a moment when any one is near, and more especially if strangers are present. I threw down a white handkerchief on the ground, and directed the operator to "fire" the moment they stopped to investigate the attraction, and the result was a fairly good picture.

These birds have many peculiar traits in their character, but to enumerate half of what I have observed, even if I could remember it, would be a heavy task.

One or two, however, are impressed upon my memory, and may be of interest to some of my readers.

The trough from which they fed was placed outside the fence, and they had to put their heads through between the bars to reach their food. These bars were wide enough to permit the young birds, up to a certain age, to get out of the field. When any of them did so, the parents got into a great state of excitement, running backwards and forwards along the fence, hissing, grunting, and drumming, which was their way of scolding their babies. So soon as these entered the field again the old ones proceeded to inflict corporal punishment, which consisted of a good pecking, and, like children of another species, they appeared very contrite, and did not do it again—till the next time.

They derived much amusement at my expense, and one of their tricks was repeated frequently. This consisted of snatching off my hat, and many a start I got by feeling my hat suddenly jerked off my head, when the practical

jokers had approached me from behind so quietly that I did not perceive their presence. To give those who may never have seen these birds some idea of their stretch of neck, I may state that my height is 6 feet 2½ inches.

In the same field were both cows and fallow−deer; and many a battle−royal has taken place over the question of food. When the feeding−trough was first put down, the paling bars were wide enough apart to allow both cows and deer to put through their heads and consume the food intended for the emus, and they resented this robbery. They could drive off the deer at first more easily than the cows, owing to the greater timidity of the former. When a cow was attacked she naturally turned round and showed her horns: one bird would keep her at bay, while the other slipped behind her and administered some hard kicks, which soon caused the poor beast to beat a retreat. But when the deer were at fault the events were changed. When they first began to steal the food they were timid and afraid of the birds, and allowed themselves to be driven off easily. The birds, proud of their victory, followed up their advantage by chasing one or two of their enemies round and round the field for a considerable while, during which time another fight was going on in front of the trough between the cows and some of the other deer. Gradually, however, the deer plucked up courage and showed fight in return. Their attacks then became so serious that I was afraid they would kill the birds with their horns, and was therefore obliged to separate them. Peace between the emus and the cows was only restored after I made the spaces between the bars narrow enough for an emu only to put its head through.

Tommy once escaped from Billholm, and he probably would not have gone very far from Jenny, but when the man in charge tried to drive him into the field again he became excited, and his temper was not soothed when his keeper sought assistance.

Tommy promptly took to the hills, and when the hue and cry was raised that he was off, all the men and collies in the neighbourhood joined in hot pursuit. I was from home at the time, but the run was described to me as a most brilliant affair, and certainly equal to any fox−hunt on record up to that day.

The ground covered was about twenty miles, and it was many hours before he was run "to earth" at Castle O'er, five miles from home: having had quite a nice outing, he had reached this point on his way home to Billholm.

Men and dogs had enough of it, and a cart was requisitioned in which he was carried home in triumph to his paddock, from which he never again tried to escape unless pressed.

Another escape took place, but it was a rhea this time, and happened at Castle O'er. She, wishing to have a more extended view of the country, "climbed" the fence, and copying Tommy as her example, carried out her intentions by also taking to the hills. I heard of her from time to time as having visited sundry farmhouses and shepherds' cottages—many of them several miles away—as also of many a good hunt after her with collie dogs. Eventually, having been about fourteen days "at large," she appeared at Crurie, two miles from Castle O'er.

I enlisted the aid of one of my servants whom, in case he may read these lines and not like them, I shall call "John," and we started off to try to catch the delinquent.

We found her in one of the fields, and I sent John to the farmhouse to borrow a piece of "scone" as bait. The following plan of campaign was arranged: as the bird knew me well, I was to feed it; when busy with the bread, I was to run treacherously in, and seizing her suddenly, throw her down, when, if the feat was successfully accomplished, John was in his turn to make a dive and get hold of her legs, I at the same time warning him to "look out for squalls" and hold firm. He gave me a look of scorn mixed with pity, remarking that there was "gangin' to be an unco fuss to catch sic a wee beast as that."

The operation was successful, and having caught her round the body before she had time to kick, I threw her over and lay on the top of her.

John seized her legs, and a fierce struggle ensued on the part of all three. In a few minutes John, with the perspiration streaming from his face, gasped out that the "sma' cratur had the strength and spite o' the deevil": he was quite ignorant of the mass of muscle in the thigh of one of the large "cursores."

I sent him to the farm for a wool bag, consenting to remain lying on the bird till his return. This consent I would not have given had I not been aware that she was pumped out with the struggle to a perfectly safe degree; still, I hoed John would hurry up. When he returned with the bag we shoved the "beast" in, and, rolling it up into a very decent "parcel," sat down to take a rest after our exertions.

In the meanwhile the parcel had rested also, and presently we heard a series of rents taking place in the cover, and saw "legs and airms a−wallopin'" through many holes in the bag, which was thin and worn from much use.

John was now despatched for another bag, and again I "reclined upon my feather−bed." The bundle was repacked in a double envelope, and the question arose, how was it to be conveyed home, the farm −hands and carts being all out at work? John offered to carry it on his back if I would help to "heez't up"; this done we proceeded on our way. We had not gone half a mile till another "screed" was heard, and a leg, but fortunately one only this time, was seen waving in the air in a most menacing manner, and ominously near John's head.

Having seen and felt a fair sample of the "beast's" powers, he cried out, "For gude sake, sir, tak' hand o' that leg, or it'll hae aff ma lug." This I did, and we reached home without further mishap, though my arm was much cramped "wi' haudin'" that struggling leg for a mile and a half.

Emus and rheas are deprived by nature of the power of flight, but the enormous amount of thigh muscle, combined with long legs, provides them with a ready means of escape—by running. In the emu the wings are quite rudimentary, being merely bones about 10 inches long, though consisting of the usual joints of a bird's wing; but they appear as if they had been arrested in their growth. These bones are covered with the same sort of feathers as those which cover the body, and are of no use for enabling them to escape from their enemies. The feathers are quite unlike any we see on other birds. They are very ugly in appearance, are harsh to the touch, and have two shafts rising from a single quill. When one of the birds shakes itself, the sound produced is as if it were covered with straw.

Some other birds have bipennated feathers—black−game and grouse, for instance; and I well remember that during the visit of one of my nieces a discussion arose upon the question of such feathers. I remarked that I knew of no other bird which possessed them except grouse, but she said they were to be found on black−game also. I declared that they were not, and added that as a sportsman I should know better than she. The discussion became animated, to say the least of it, and as my sporting credit was at stake, I offered her a guinea for every double−shafted blackgame feather she could produce.

The shooting−season being over we could not settle the quarrel by producing the bird itself, but she invited me to accompany her to a fence on the hillside near, on which black−game were wont to sit. There she picked up a handful. I did not stay to count them, but a compromise was entered into as to payment, which saved me from ruin, but not from the chagrin of being beaten by a lady on a question connected with sport.

The rhea, unlike the emu, has long wings covered with large feathers, but as they are long and soft, they also are quite unsuited for flight. They use their wings as rudders; and it is marvellous how, by raising one in the air, the bird can shoot off from its course at a sharp tangent when going at the speed of a race−horse.

In 1879, when I left Billholm and came to reside at Castle O'er, I flitted my birds along with my other "furniture," and here, they led a happier life than they had previously done. They had more space to roam about in, and in addition had access to a plantation, in which they could shelter in cold weather—at least in cold rain or sleet: they did not seem to mind any other sort of weather, and their *bonne bouche* was a piece of ice.

I will now give my readers some idea of the amount of cold both species can suffer, and the information will be better appreciated if the climate of South America, or even of Australia, is mentally compared with the winter temperature of the highlands of Dumfriesshire.

The rheas arrived upon the 17th November 1874, when the first few days were wet and cold. I put them in a small enclosure, in which there was a wooden shed, but they never entered the shed unless driven in.

By the 28th I had fenced in a larger space of ground as a run for them; at the same time the weather had changed to snow, followed by severe frost.

On that day I gave them their liberty in their new enclosure, not without considerable misgiving, I must confess, as to how they would stand the cold.

I watched them all day, and up till 11 P.M., when I retired for the night. It was bright moonlight, and I could see them stalking up and down among the snow, and I was afraid their feet, at least, would be frostbitten.

That night the thermometer fell to 26°. I was up by daylight next morning, and was much relieved to find they were still alive, and moving about with complete composure. I could see from their tracks that they had never entered the shed.

The weather continued to increase in severity for some time till the thermometer reached 13°, and as they showed no symptoms of suffering, my mind was fairly well set at rest with regard to their standing the rigours of a Scottish winter.

I got my emus upon 20th October 1875, or just a year after the rheas, and any further remarks upon cold apply

to both species.

The pair of old emus sometimes, though not always, went into a shed at night, but I have seen them oftener "roosting" in the snow.

Before finding out how hardy these birds are I used to shut up the first brood I had in a shed at night, but one night after they were housed a loaded cart passed the back of the shed, which was built with wood only. The "rumpus" which took place inside when the birds heard the noise was terrible; and when I opened the door I found they were mad with fear, and were dashing themselves against the walls in their efforts to escape, and very like committing suicide. After this experience I never shut up any of my subsequent broods, and none of them ever entered a shelter willingly. Frequently I have seen them on hard frosty mornings with the tips of their feathers frozen to the soil: when they were disturbed they would rise up suddenly, leaving a ring of torn−out feathers all round the spot of their night's restingplace.

When I say that both emus and rheas survived the terrible winter of 1880−81, it is pretty certain that these birds will suffer any amount of cold they are likely to encounter in this climate provided they are well fed.

That winter, however, did not pass without disaster, though entirely owing to the cruel neglect of the man charged with the duty of feeding them. The ground was covered with snow, more than a foot deep, during several months; and the thermometer, which stood for many days at 1° only above zero at mid−day, with a cloudless sky, fell on one night to 10° *below zero*.

During the coldest period I found three of the young birds, then not quite half−grown, dead, and the others in a very weak state, and I feared I would lose all. On offering the survivors food they ate it greedily, and my suspicions were roused as to my man's fidelity. On "putting him to the question" he confessed, with great reluctance, that for more than a week the weather had been "ower coorse for him to gang and feed them," though their feeding−trough was no more than 100 yards from the dwelling−house.

The rheas were in much the same plight, though none died, and good feeding put them all to rights.

I put the latter in a stall of the stable for a few days only till they regained the strength lost by their long fast. They were then turned out again, and withstood the prolonged and rigorous winter with impunity.

The question has been put to me whether I noticed any modification in the plumage of the birds owing to change of climate, but this, I think, could only be observed after two or three generations had been bred in this country; and as I never kept any of my young ones to breed from, I am unable to give an answer. I noticed no change in the adult birds, and indeed I do not think any could be looked for.

I cannot refrain from narrating an incident which happened during the visit of a certain legal friend who shall be nameless, as, I am glad to say, he is still alive and in robust health, and might resent my exposure, in public, of the chagrin he must have experienced. He came to see the birds, accompanied by a handsome and valuable collie.

Before entering the enclosure I suggested the propriety of his leaving the dog outside. He, evidently thinking I was alarmed for the safety of my pets, said his dog was very gentle and would not harm them.

I told him that I had no fear for my pets if he had none for his, and invited him to "come on." No sooner had the dog leaped over the stile than Tommy and Jenny—who had a young brood beside them—"went" for the poor beast; and the scene that followed would have been ludicrous enough had it not been for the mortal terror of poor "bow−wow." He rushed round and round the enclosure, too closely followed by the whole pack to have time for a spring over the fence, but in his mad endeavour to escape tried to get through the bottom rails. The fence was an ordinary barred paling 6 feet high, but backed at the bottom with 3 feet of wire−netting to confine the young ones.

After trying in vain at every point to find an exit, and never getting a moment's respite, he became quite exhausted, and sought refuge in a corner where the fence joined a shed. Here Tommy promptly began to "perform the war dance" on the top of his vanquished foe; and had I not seized Tommy by the neck and pulled him away, the said foe would have been a dead dog in a very few minutes.

The only brood I ever weaned from Tommy was my first one, but it was a painful experience. I put papa into the larger enclosure, then occupied by Jenny and the rheas, leaving the young ones in the smaller one where they were bred. They were then, I think, about three months old: I am not certain about their age, but they were quite small. So soon as they found themselves deserted by their parent, they commenced running up and down the side of the fence which formed the division of both enclosures, and through the bars they could see the old birds, though the wire−netting prevented their getting through to them. Here they kept running for about a fortnight, apparently without ceasing day and night. I presume they must have rested some time during the night, but I never

saw them still a moment. They certainly did run all day, and as they went on till my bed hour, and were still pegging away at daylight, I concluded they never took any rest. They reminded me of Weston whom I left in Edinburgh on a Saturday walking round his path, and whom I still found at work when I returned to town upon the Saturday following.

I was sorry for them, but I considered this separation necessary, and the right thing to do, and I could not conceive how such young birds could undergo so much violent and prolonged exertion and survive the ordeal. After this I never separated them, but allowed them to wean themselves: when they grew up they did not mind being put in another field nearly so much.

I have detailed notes of the events which took place during two hatching seasons, and will here insert them as copied from my diary. From these any one desirous of keeping emus will learn the "ups and downs" of the business, as well as the "hopes and fears" ; and if he should encounter similar symptoms in his birds, the knowledge that all went well in the end may relieve his mind and keep him from despairing of success.

## First Season (1880).

*28th January.*− The first egg was laid; and the last one, to my knowledge, on 7th March. I found fourteen eggs only, which were put in the nest; and when nine young ones were hatched, ten stale eggs remained, making nineteen in all; so Jenny must have laid five in the nest after Tommy began to incubate: and after this I always shut her out from the nest when hatching was in progress.
*2nd March.*− Tommy was sitting in his house in the morning, which caused me to think he was becoming "broody," so I put two eggs beside him, which he pulled in under him and sat all afternoon: made him a nest by scooping a hole and putting an edging of turf round it.
*3rd March.*− When I fed the birds in the morning Tommy was off his nest, but went on again; so I placed other ten eggs in front of him, which he pulled in and again sat down: this makes twelve eggs.
*4th March.*− Off nest a short time at 5 P.M.
*5th March.*− Off a short time in the morning. Found thirteenth egg and put it by his side at 5 P.M.; it was warm when I found it. He took it in, and has now thirteen eggs.
*7th March.*− Found an egg which had evidently lain some time near the wire−fence along the river−side, and gave it to him. He took it in, and has now fourteen eggs.
*14th March.*− He was off his eggs this morning chasing the rheas, and rushed down the wood to the Barm pool field, but returned and sat down again. Counted the eggs and found he had fifteen, one of which would likely be laid on Thursday the 11th.
*2nd May.*− Sixty−second day, two young hatched.
*3rd May.*− Five young ones, but he crushed one with his leg. None out from beneath him yet. He commenced to eat food: very hungry.
*4th May.*− Six young alive, and another crushed to death, making eight in all hatched. Saw one come out from below him. Ten eggs unhatched. Laid down food for young ones.
*5th May.*− Seven young ones alive, and ten eggs. Saw two young ones trying to graze. Put down chopped greens and cress.
*6th May.*− Took away ten stale eggs, making nineteen laid altogether. Only one had an advanced embryo bird in it, all the rest were rotten—not clear. Five of the rotten eggs were of the first twelve set, so that deducting five from twelve, seven were left; and as nine birds were hatched, two of them must have been from eggs laid subsequently to March 3—possibly the one laid on the 5th, and one found in the field on the 7th.

To−day was the first time Tommy left the nest with all the young ones, having been sixty−six days on his nest, and sixty−two without food.

Jenny was very proud of her brood, and was very gentle with them. They began to graze more, but appeared to be weak, and I was glad when they all went into the shed again for the night. Two got into the garden by creeping through the spars of the gate. Gave them chopped greens, bread−crumbs, rice, and Indian and oatmeal mixed with water, called "croudie" here.

## Second Season (1885).

My last brood of young birds were hatched in 1885, and was the largest I ever had−viz., twelve during ten years; and at this time my original pair were at least eleven years old. They were adult when I got them, and I had them for ten years. I never learned their age when they came into my possession.

My notes for this season are:−

*13th April.*− Thought Tommy wanted to sit, as he was lying down in the field and snapping at me. Told my man to re−turf the floor of his usual nesting−shed, and make a new nest. Neither of the birds went into the shed that night.

*14th April.*− Much the same all day; and both birds lay out all night in the middle of the field.

*15th April.*− Tommy still excited and snappish, but noticed nothing further.

*16th April.*− Saw nothing new till the evening, when I discovered Tommy sitting on six eggs in the ditch of a "ha−ha" fence at the river−side. Took away the eggs, and put them in his usual nesting−shed; but he would not go in himself, and went back to his new nest and sat till it was dark, with no eggs under him.

*17th April.*− Tommy off his nest, and about field all morning and forenoon. Put fourteen eggs in new nest at river−side, and he worked at it till about mid−day; and at 1.15 P.m. sat down on the eggs. He sat all the afternoon so far as I saw. My man and I then began to put up a shelter round him, and he sat quite still all the time we were at work, though he rose up, just as we finished, when it became dark. This shelter consisted of a skeleton shed, the spars entwined with spruce branches, and the roof covered with the old sails of a yacht. I think he was off his nest all night. Jenny laid her twenty−fifth egg.

*18th April.*− Off nest in the morning and all forenoon, but he sat down again late in the afternoon, though I did not know at what hour. We set to work again at his shelter in the evening, and put on roof of old yacht sails and put up side bars, he again sitting still all this time till it was dark, when we stopped work.

*19th April.*− Off in the morning and greater part of the forenoon; on again when I returned from church at 2.15 P.m. Rather irregular−up and down all afternoon, but on again at night.

*20th April.*− On nest in the morning and till 11 A.M., when I began to twine spruce−fir branches round the framework of shelter. He got up when it was half finished, and remained off till 3 P.m., when I saw him go on again. He then sat till dark.

*21st April.*− On nest all morning; put on door and shut him up at 11.15 A.M., which did not disturb him a bit. Still sitting at 7 P.m., when I put in corn and water.

*13th June.*− He had sat still without moving from 21st April till this morning, when about 8 A.M. I saw him fidgeting about as he always did when young birds were "chipping." After breakfast saw one bird, and some eggs were chipped. Think four were hatched to−day.

*14th June.*− More hatching out, but only counted five at night. Tommy began to eat the food offered to the young birds, but he sat still all day.

*15th June.*− Visited nest at 7 A.m. and found that most of the birds were hatched. Could only feel two eggs. After a time found twelve young ones, and two rotten eggs. Fed young ones on oatmeal "croudie," chopped cabbage, and crow's−foot. Tommy had sat for sixty−one days.

*16th June.*− Feeding young ones on chopped egg, oatmeal croudie, and chopped greens.

During this last hatching season the corn, which was always beside him, had disappeared each morning, and I thought Tommy had changed his habitual fasting to gormandising. Ultimately I discovered that rabbits got in through the slight structure, and helped themselves.

A projected change of residence for some years made me resolve to dispose of my birds, and I very reluctantly took this step. A vivid remembrance of what had formerly happened, when they were left entirely to the charge of others who valued their own comfort at a higher figure than the lives of the poor birds, and so subjected them to suffer the tortures of starvation combined with severe cold, helped me to come to a decision to sell them. They had afforded me ten years of pleasurable and intense interest, as well as profit, and I nearly shed tears when I saw them carted off to the station. When they did go, I had the original pair and five young ones nearly full grown.

The catching of so many at one time was a serious and laborious undertaking, and having no nets, ten men

were gathered together to act as hounds, there being no other way of capturing them except by running them down, or putting up a large "corral," with fencing at least 7 feet high. As previously stated, I have seen Tommy, when in a weak state, scramble on to the top of one 6 feet high without being pressed to do so. Their run consisted of a flat field of six acres, communicating with a smaller one of two acres. In the latter was a steep bank covered with a plantation of fir−trees, and running the birds down, when this obstacle had to be negotiated, was no easy matter.

When we got each bird hemmed in a corner several men rushed forward and floored it, and it took the united strength of six to carry it from the point of capture to the part of the field where the large travelling cases were ranged.

During the fun Tommy escaped over the fence—an ordinary wire one— and got into the river; and I shall never forget the scene of the huge bird careering down the centre for a quarter of a mile, making great bounds and splashing fountains of water all round him and over his back. He might have gone altogether, but he could not conquer the innate inquisitiveness before alluded to, and came back to see how we were getting on with the others, and we took care he should not escape again.

As the chase had been carried on with considerable danger to all taking part in it, I was relieved to find, when the roll was called after it was over, that no more serious accident than a few cuts and bruises and the destruction of certain garments, both upper and nether, had occurred to mar the day's amusement.

## Antwerp Zoo.

At a time when I was trying to procure a male rhea, I noticed in 'The Field' an advertisement announcing a sale at Antwerp of sundry birds and animals, among which were some of those I wanted. As I did not feel very well at the time, and thought a short seavoyage would do me good, off I went, sailing from Newcastle so as to reap the benefit of as many sea−breezes as possible. The landing at Antwerp at 10.30 on a Sunday night was anything but pleasant. The boat arrived alongside a dock quay, and the passengers had to thread their way through a labyrinth of railway waggons: not a cab was to be seen.

Fortunately a native appeared who knew enough of English to understand what I wanted, and he volunteered—for a "consideration"− to fetch a cab for me. He was away for nearly half an hour; and when he at last returned with the coach, I offered seats to a lady and her husband with whom I had "chummed" on board.

I dropped them at their hotel, and proceeded to mine—the Hotel St Antoine.

I felt very miserable landing in a foreign country for the first time at such a late hour, and with no knowledge of the language. I rung up a sleepy waiter—it being past midnight before I reached my destination, owing to baggage inspection and want of cabs—and he conducted me to a bedroom without either of us uttering a word.

What with the novelty of my situation, the striking of innumerable clocks, and ringing of bells in the town, I passed a sleepless morning.

To my great delight, when I came down to breakfast, a "kenned" face entered the room in the shape of my friend Mr Jamrach.

I was really glad to meet some one with whom I could converse, and as he had come from London to purchase live stock also, we both proceeded to the Zoological Gardens.

I noticed on nearly all the enclosures and cages the words "en vente," and remarked that apparently the whole collection was going to be disposed of; but Mr Jamrach told me this was not the case, as only those birds and animals which would bring more money than was paid for them would be sold.

When we were walking through the gardens a lady accosted Mr Jamrach, and they entered into a long and animated conversation, during which I had retired to a respectful distance, and of which I only caught the words "têtes rouges" several times repeated,− perhaps the only words I understood.

After the lady departed Mr Jamrach told me she was the Princess "Somebody," and that they were discussing the possibility or impossibility of procuring a pair of birds so rare that he had failed, for some years back, to fulfil an order given him by his noble customer.

Having informed Mr Jamrach as to the purpose of my errand, he told me I had better be careful how I went about my intended purchase, stating many reasons for this, and, among them, the slight knowledge I had of the language used by the auctioneer, which was French.

The sale was by auction, and having discovered two fine adult rheas, of which one was undoubtedly a male, my friend advised me to permit him to purchase both birds, as he wanted the female. To this I agreed, and he told me to stand opposite to him with my umbrella held over my shoulder, and when the bidding reached the sum I was inclined to pay, to drop my umbrella.

The birds were duly knocked down to him, and I accepted his kind offer to see them packed and conveyed to England along with his other purchases. In the course of time I received a letter from him telling me that two birds had reached London, but that they were both young ones, and certainly not the pair he had purchased. How such a mistake arose, and how he got out of the difficulty, I do not know; but, unfortunately for me, I once more failed in adding a male rhea to my collection.

Mr Jamrach made a great many purchases at the sale, among which were four young giraffes. He told me that these arrived in London with their necks broken, owing to a rough passage. This was a serious loss to him, as the price of such animals is as long as their necks.

I visited the Zoological Gardens at Rotterdam, Amsterdam, and The Hague, as well as that at Antwerp, and all were very interesting; though I considered that the one at Amsterdam quite outstripped the others, owing to its containing a better collection, and to the cleanliness and health of the inmates. I remember the snakes there were larger than any I had seen up to that time in London.

Since writing the above lines I have read that very interesting work, 'The Vivarium,' by the Rev. G. C.

Bateman, in which he mentions that there was in the London Zoo a reticulated python which was supposed to weigh 18 stones, but it is a new addition to the Gardens since I last visited them.

## Mongoose Hall.

In 1869 I built a large room and heated it with hotwater pipes, and in it was installed a small menagerie, the inmates of which formed a most miscellaneous collection. I regret very much that I did not keep daily notes of all the curious and interesting things I observed during the five years of its existence, else I might now have been in possession of information which would have been of great value to those whose "hobby" lies in the same direction as my own; but no regular notes were kept, and I can only now recall to my mind certain incidents which are more vividly impressed upon my memory.

## Monkeys.

I noticed an advertisement in a local newspaper intimating that there was to be held in the town of Dumfries a sale by auction of sundry foreign birds and animals, the latter including several species of monkeys.

I had long wished to add a certain kind of monkey to my collection, and so I started off without telling any of my friends the object of my journey, having serious and cowardly misgivings as to what they would say if they knew I intended to invest in a "puggy." On arriving in Dumfries I went straight to the saleroom, and among the "pugs" was the very species I wanted—to wit, a Sooty Mangabey.

As its name implies, the colour of this animal is black, or nearly so, all over,—something similar to a "faded chimney−sweep"; the face is jet black and its eyelids are white. As the colour has some connection with the *dénoûment* of the story, it should be remembered. This "lot" was duly knocked down to the person whose determination to possess it defied all competitors, and that person was myself.

I proceeded to the nearest grocer's shop and borrowed an empty soap−box, in which Jacko was securely confined. I hailed a cab, and, with my sable friend on the front boot, drove to the railway station. Here I handed the box to the first porter I saw, telling him to be sure and put it in the van when my train arrived. He deposited it on the platform, maliciously as I thought, and it had not been long there till a jeering crowd was attracted by unwonted sounds proceeding from *inside* the package, and two black paws protruding through chinks of the lid.

The remarks of the crowd were, to say the least of it, sarcastic in the highest degree; and when a nasty small boy wished to know "wha owned the puggy"? and when I saw several inquiring faces searching among the spectators for some indication of ownership, I nearly sunk into my boots, and pretended that it "wasna me that owned it"; and, further to ensure myself against identification, I also ventured to utter a few disparaging remarks such as I had heard, and specially addressed to the unknown " bauldy," who was so weak−minded as to wish to possess such a nonsensical and villainous beast.

When the train entered the station I hastily secured a seat, with the risk of leaving poor Jacko behind, but trusting at the same time that the porter would be true to his charge. I had previously "tipped" him, and this foresight on my part saved me the discomfiture of my ownership being exposed at the last moment, by the man coming to the carriage door, putting in his hand in a way we all know, and exclaiming, "The puggy's a' richt in the van, sir."

When the train reached its destination I found the porter *had* been faithful, and fairly earned his "tip." It was now dark, and I escaped any further public demonstration under the cover of night.

It was 10 P.M. when I reached home, and my assistant and "fidus Achates" in matters zoological was in bed. I did not care to rouse him in case he also "smiled," and I was at a loss as to where I could house Jacko for the night. The heating−apparatus of the greenhouse was in the potting−shed, and I resolved to put him in there, as it was warm. The apparatus consisted of a hot−water boiler encased in a square building of brickwork, with a flat top projecting from the back of the greenhouse wall.

Jacko was already provided with a chain, one being included 'in the "lot" when knocked down to me at the sale. With a nail I secured my purchase to a post, put down some straw on the top of the brickwork, and went to bed satisfied that he would have a warm bed for the night.

Next morning my man, who was gardener as well as menagerie−keeper, met me with his face as white as a sheet, saying he had seen something "awfu'" in the stokehole. He had gone to stoke the fire in the morning twilight, and when he was stooping to open the furnace door he heard an unusual noise overhead. On looking up, his gaze met what he described to me as the "Deevil glowerin' doon o' the top o' him." He was so terrified that he did not remain to verify the fact of its really being "his Satanic Majesty," but rushed out of the shed to call for my assistance to exorcise the "fiend of darkness."

Upon my explaining matters he said nothing, but I could see from his face that he thought some of the gibing remarks I had heard at the Dumfries railway station.

Some monkeys have a bad habit—generally supposed to arise from idleness—of nibbling their tail, which becomes so sore that it causes them much pain.

Jacko was addicted to this habit, and the resulting sore became so bad that the tail broke through at one of the joints about six inches from the "far end," and kept dangling about in a most uncomfortable looking manner. This

loose piece became " dead," and it required cutting away, but I did not like to perform the operation myself, simple though it was.

It happened, however, one day that the local doctor had been assisting to amputate a poor man's leg in the neighbourhood. He called on me on his way home, and I asked him, "as his hand was in," would he cut off the monkey's "tail−piece," and he readily consented. Jacko was placed in a sack, with his tail outside, and I held him under my arm. When the piece was amputated, the stump was seared with a red−hot iron. The doctor stayed to dinner, and after the meal was over I went to see how the "patient" was, and brought him into the dining−room.

As was his wont, he sat on the fender bar. I suggested he should have a glass of wine to freshen him up after the operation, and as his medical adviser had no objections, I handed him a good bumper of sherry.

He held the glass in one paw and the tail−stump in the other. He would first look at his stump, emitting at the same time a most melancholy whimpering sound, and then take a sip of wine, repeating the action over and over again. The scene loses in the telling, but the whole thing was so ludicrous, and still so human−like, that the worthy doctor nearly fell off his chair with laughing.

Monkeys are sometimes very treacherous; and it is difficult to understand what leads them to show spite to certain members of the human family who, in the opinion of their friends, do not deserve it, and again to be quite affectionate with others. The one just described was very tame generally, and most peaceably disposed to all visitors except two. One was a young lady with a most pleasing countenance— really a pretty girl, and a great lover of pets. Whenever she entered the room where the monkey was kept, the latter flew into a perfect paroxysm of rage, and dashed himself against the bars of the cage in the vain endeavour to reach her. He jabbered and sputtered in a most menacing manner, and it would have been a serious thing for the girl if he had managed to escape.

The other visitor was a lady of a "certain age," but possessing also a most benign countenance, and was not devoid of good looks. The monkey did not display so much rancour towards her as to the younger lady, but he evidently did not like her. She approached the cage fearlessly, and at that moment Jacko put his arm through the bars, and gave her a sounding smack on the face with the palm of his hand, or rather fore−paw. These were the only two people to whom he showed animosity, and it is difficult to understand why he picked out these two ladies from among all his visitors on whom to vent his spite.

Other monkeys are very spiteful towards their own species. I had a pair of Talapoins, which are, unlike many monkeys, very pretty animals. I never kept ugly monkeys, and could never admire the common Macaque or Rhesus. Mine were male and female, and for a long time they lived on very friendly terms, till one morning I found the female lying dead on the bottom of the cage. To console the widower I gave him another mate, and they seemed very friendly for a day or two, but this one also died mysteriously.

I purchased a third,− a male this time,− and after putting it into the cage I remained a while in the room; during this interval they were quite peaceful. When I shut the door on leaving the room I heard a tremendous row in the monkey's cage, so opening the door suddenly, I was just in time to see the Talapoin attacking the other most savagely. He had got him down on the floor of the cage, and though not then dead, he died very soon afterwards, evidently from a broken spine.

I did not care to keep the savage any longer, so sent him as a present to Mr Jamrach, who acknowledged receipt in due course, and in the following terms: "The small monkey has arrived safe, and is at this moment on board a steamer, with a lot of comrades, bound for New York." I wonder how many of his "comrades" reached New York alive?

I have frequently had reason to be astonished at the agility of monkeys, but that of my Talapoins exceeded any others I had observed. When I started my small menagerie I put up a partition, covered with fine wire−netting, across one end of the room, so as to form an aviary. When I gave the monkeys liberty to have a run they rushed about like boys escaped from school, chasing each other round and round, and making most surprising leaps from cages, &c. It was wonderful how they escaped injury; but they never fell, nor missed landing safely on any spot aimed at in their wild career. They loved to swarm all over the wire−netting of the aviary, making such a noise that the feathered inmates were much disturbed.

From this netting to an aquarium in the centre of the room, was one of their favourite "dives," and I often wondered how they got sufficient purchase from the yielding wire to make the leap. I have no note of the distance, but it was much more than any one would have thought to be within the power of such small monkeys;

but they always managed to land on the edge of the aquarium without accident.

In my collection I had another monkey named after the goddess Diana. Its colours were most varied and pretty; its face was jet black, and it had a long peaked white beard, as well as a white crescent on the forehead. It owed its name to the latter ornament, as it was supposed to represent the silver crescent borne by Diana of the ancients.

Its disposition was mild, very different from the one before described; but it managed to do a lot of damage when it was at liberty in the room. Its agility almost equalled that of the Talapoins, and sometimes it ran "amuck" among my curiosities, dashing them off the tables and shelves with its hind feet, at the same time never for an instant halting in its wild rush round the room. Many a time I had the desire to let it loose in the drawing−room, but, being a married man, I never dared to even express that wish.

At this time I had a large tortoise, and it was most amusing to see the creature plodding along the floor, with the monkey riding on its back eating an apple. All its mischief was done good−naturedly, and merely for the fun of the thing. It once snatched off my spectacles and tried them on, but it found them rather wide. When I endeavoured to recover them it commenced to rush round the cage, and all over the tree put in as a perch; then it dropped them among the straw, and, being gold ones, they were to my blind eyes much of the same colour. When I crept in at the door of the cage, and was groping among the straw, Diana, who had never lost them from sight, was down like a shot, and, seizing the specs, the same game was renewed over and over again, till it was quite exhausted and allowed me to recover them.

On another occasion it got hold of my hook−book—goodness knows how, as it was at the time confined to its cage. When I came upon the scene it had every hook of a large collection scattered among its straw, except one roll of sea−trout flies, which it was examining with as much interest as a connoisseur. We had a big fight over those in its hand, during which it danced all over the others lying on the bottom of the cage, but, wonderful to relate, it had not a single hook in any part of its body.

This species of monkey is a native of Guinea, and though it is not very rare in its native country, it is not commonly imported, which is curious, considering that it really is a beautiful creature, and becomes very tame and affectionate. I have often regretted since that a tempting pecuniary offer induced me to part with it.

A dealer once sent me a monkey with no further comment than "I might pay him what I liked for it." On opening the box in which it was sent the poor beast was lying among the straw apparently dead, but when I lifted him out there was an absence of *rigor mortis*, and I thought he *might* be still alive. He was quite limp, in fact, and helpless; but after lying on the rug in front of the fire for a while he began to twitch, and I then had hopes of saving him. The warmth of the fire worked wonders after a time, and he revived so much that he was able to take food administered with a spoon, and besides food I gave him, by degrees, a full bumper of sherry, the effects of which were magical. Next day he had so far recovered that he was able to walk about, and with the generous treatment he received became, in about a fortnight, quite strong and well.

Poor beast, his fate was a sad one, as, after all my trouble bringing him back to life, he was number three who became a victim to the murderous Talapoin above Mentioned.

The following letter received from Frank Buckland may be of interest, and of use to those who keep monkeys :−

"The proper name of your monkeys is Talapoin. They come from West Africa. You should treat them as you do children. They must have a run about the room at least twice a−day. If you keep them in the cage always, they are pretty nearly sure to die. Let them drink as much water (or milk) as they will take. Bread dipped in strong soup is a very good thing for them. Give them anything they will eat, especially onions.

"Meal−worms are good, earth−worms bad; above all, make them green baize jackets, which should be sewn on behind, so that they cannot unpick them. At night they must be put in a cage with a sleeping compartment, with lots of hay, like a rabbit−hutch.

"If they were my monkeys I would have them down every day at dinner, and give them a bit of everything.−Yours ever," &c.

## Marmosets.

Marmosets are very delicate, and require much care so as to keep them alive for any length of time in this climate. They require to be kept very warm, and in cages made so as to exclude draughts as much as possible.

A pair I had were very tame and gentle, though they were always timid; but with patience they became very familiar with me, though on the approach of strangers they always retired into their sleepingbox, placed in an upper corner of the cage, from whence they kept popping out their quaint faces, at the same time giving vent to their feelings of alarm by a peculiar chirping sound.

I fed them much in the same way as my other monkeys, adding an occasional meal−worm or two. Flies they caught for themselves, but they were particularly fond of grapes, and nothing would entice them on to my knee quicker than this fruit.

Each chose a knee, and very comical indeed they looked when sitting there, sucking a grape, at the same time blinking up in my face with their beautiful limpid eyes, and with an expression of intense satisfaction,though they made a terrible mess of themselves, owing to the grape−juice running through their small black fingers and up their arms. Had they been able to speak I have no doubt they would have said, "Oh! how good that is."

Their fate was the fate of most pets; and I regret to say death, on this occasion might have been prevented.

I had occasion to be from home a whole day, and when I left the morning was warm, so I raised the ventilator of the room to allow some of the hot air from the pipes to escape. A sudden change in the weather took place during the day, and it became very cold. As I had not foreseen this change, I left no directions to have the ventilator closed, and when I returned home in the evening I found them both lying on the bottom of the cage quite benumbed with cold. The sudden shock had been too much for their delicate constitutions, and they succumbed, notwithstanding all the pains I took to counteract it.

## Lemur.

Another of my pets was a lemur, a pretty and delightful one. Its synonym of "Madagascar cat" denotes the country from whence it comes. It is classed among the monkeys, but though it has many of the characteristics of these animals, its head and face have nothing monkey−like in their form: they are much more like those of a fox.

There are several species of lemurs; but the one I possessed is known as the ring−tailed lemur, and for colour had various shades of grey, and its long bushy tail was marked with alternate circles of black and white, hence its descriptive name.

" Lemur," in the language of Madagascar, means "Night−wandering Ghost," owing to the rapid and noiseless way it flits among the branches and from tree to tree in the moonlight; and I can quite understand, from my own observation, the reason why it gets this name. He frequently had his liberty on the lawn in front of the house, which is bounded by fir−trees. A large one standing by itself was the one most to Charlie's liking, and in it he would amuse himself for hours on end; and the rapidity with which he could ascend or descend the high tree, and the immense springs he could take without making the least noise, were quite astonishing: if I were sitting underneath, a sudden flop on my shoulder from a considerable height would startle me as much as if he had been a true ghost.

The way he came into my possession was this: Whenever I go from home I look out for something interesting, especially in things connected with natural history. Being on a visit to London, I wandered one evening into the Westminster Aquarium to see the fishes. I was not long in finding myself near the stall or shop where pets of all kinds were sold. On approaching I saw a considerable crowd collected round a central object. This was a lemur, and he was being handed from one person to another, particularly by ladies and children, each one being anxious to have it in their arms to cuddle and kiss.

I "spotted" it as my own the moment I saw it. The stall−keeper informed me that the same scene took place every night, and that one little girl in particular had been brought by her father every evening for some time back to play with the animal.

Next evening the crowd, including the little girl, were disappointed to find their pet gone. Its absence resulted from a little private conversation which the man and I had in a secluded corner of the shop the evening before. I was sorry to disappoint the visitors to the Aquarium, and especially the little girl, but I wanted the animal badly. I have no doubt the directors of the show owed me a grudge, as the man told me that the presence of the lemur increased the receipts considerably during its sojourn there, many people, particularly children, coming specially to see it.

At home he was kept in the kitchen, chained to the heavy centre−table; but one day the cook, who was embarrassed by Charlie's solicitations for "cake and pudding," unchained him and fastened him to a lighter side−table: this he managed to upset, and in its fall the poor animal's arm was broken.

I sent for the doctor, who reduced the fracture and encased the arm in plaster of Paris.

No sooner had the doctor left the house than Charlie had pulled off all the dressing. Again I sent for the doctor, who came this time accompanied by an assistant, and they reset the arm with no better result,− the bandages were off next morning.

As the dressing was no easy business, we were obliged to confine the creature in a large earthenware dish, and after putting chloroform inside we fixed on the cover. Not caring to repeat the chloroform business a third time, I resolved to leave the healing process to nature. The bones very soon were knit together, but the arm had a nasty twist. When the table fell on him I suspect he received some internal injury, for though the arm healed he never recovered his wonted spirits, and died soon afterwards.

## Snakes.

It is not every one who would include snakes among his "pets," though some people do; and though I cannot say I have ever kept snakes as pets myself, I have had several in my small menagerie. Among these was a boa−constrictor 8 feet long, and a young African python about 2½ feet, and very thin in proportion to its length,− indeed its neck or throat was no thicker than a man's little finger.

I never could induce the boa to feed, though I tempted it with all the delicacies I could think of, such as fowls, pigeons, rabbits, and rats.

Snakes are subject to a fungoid growth on their gums which prevents them from feeding, and probably mine had the disease, but for obvious reasons I never cared to examine its mouth.

The teeth are very slight, and when the reptile bites they are apt to break and cause a nasty festering wound.

I kept the two snakes in a large box—the front, ends, and top being glazed with plate−glass −and inside were a pair of blankets.

Though the room was heated I thought this refusal to feed might be owing to want of sufficient warmth rather than to diseased gums. All tropical snakes should be kept in a temperature of 90°, and this I could not easily afford them. To give them as much heat as I could, I introduced hot−water tins below their box: with this view I made another shallow box or frame, open at the top, in which the tins were placed, and I put their cage on the top of the frame.

In order to allow the heat from the hot water to ascend to the snakes, I bored holes in the bottom of the cage. To facilitate the work of boring the holes, I turned the cage containing the snakes on its side. As soon as I did so I was startled by hearing a sound as if a railway engine were letting off steam. This sound proceeded from the boa, who was in a furious temper, and was rushing about hissing loudly.

When he saw me looking at him he struck at me with such force that one might have heard the sound of his "snout" striking the glass at a considerable distance away. I was never afraid of his breaking the thick glass, but often thought he would break his own neck. This did not happen: but ever afterwards he was so fierce that he never failed to dash himself against the glass whenever I or any visitors approached his cage.

Before this change of temper I had been in the habit of "acting showman" before visitors, by taking him out of the cage and allowing him to twine himself round my neck and body, having at the same time a tight hold of his neck, and taking care that he got no purchase by coiling his tail round any piece of furniture. When his temper broke I never ventured to touch him again, and prevailed upon myself to believe that his performance was much more entertaining than mine, and infinitely safer for myself.

He cast his skin more than once, and when he emerged from his old one, "beautiful for ever," one would have imagined that he had paid a recent visit to the famous Madame Rachel. The fresh and bright colours of the new skin were in vivid contrast to those of the old faded one: he looked as if he had been newly "painted."

When the skin is ready for casting it first splits along the sides of the lips, and the reptile begins operations by pushing his nose among the herbage,− if at freedom, or among the blankets if in confinement,− until the old skin is stripped backwards over his head: he then glides through the herbage or blankets, which pushes the skin still backwards, and when the snake emerges altogether the skin is left, turned inside out; even the eyes are covered with skin, and in the cast−off one the eye−scales are to be seen, which gives the impression that a snake must always be looking out of a window or pair of spectacles.

The cast−off skin is not devoid of beauty, and one which my snake shed was so fine and perfect that Frank Buckland, who was on a visit to me, asked me to give it to him, which I did with pleasure; and he told me afterwards that he had produced it at a wedding− breakfast in London, where it was very much admired, especially by Mr Rolfe the artist, who took it away to have the pattern on it worked out in lace by a lady friend of his.

This boa lived in my collection for 360 days without touching food, and how long he had fasted before coming into the hands of Mr Cross of Liverpool, from whom I purchased him, who can say?

But to return to the python: one evening I put a rabbit of about two months old into the box, intending it for the boa. As neither snake seemed to be hungry I went to the house to write some letters. As I was shutting the door of the menagerie− which was in the garden and detached from the dwelling−house—I heard the rabbit squeal, and

going back I found it was the python who had seized it. It had merely the nose of the rabbit in its mouth, and I went away with the mental remark that it was attempting a difficult task.

I returned in about half an hour, when, to my amazement, the feat was accomplished, and the python reduced from 2½ feet in length, to about 18 inches, with a large bulge in the middle, which bulge was the rabbit's tomb. I could distinctly trace the shape of poor "bunny" underneath the distended skin of the snake.

A few days afterwards I was going to show this wonderful sight to some visitors, but on opening the lid of the cage a disagreeable odour rose from inside, and I found the rabbit among the blankets in an advanced stage of decomposition, and the python appeared as if it had recently undergone the "Banting treatment."

The swallowing was a heavy undertaking, but the disgorgement must have been as bad, if not worse, considering that a snake's teeth point in the direction of the throat, and are hooked at the points.

I am sorry that my visitors missed the sight, as they might have corroborated my assertion. Witnesses were not wanting among my own family and servants, but some independent testimony would have been more satisfactory. If any person had told me that that snake had swallowed that rabbit, I could not have swallowed his story: I would simply not have believed him.

To give an example of how the imagination or an association of ideas may strike some people, I may say that before being put in the large box beside the boa I kept the python in a fern case. One morning I was going to arrange the ferns, and at the moment my hand appeared within the door of the case the python struck at and bit my finger. The pain was slight, or perhaps my fright deadened the feeling; but though I knew the snake was non−poisonous, I am certain that for a few minutes I suffered the same agony of mind that any one goes through when bitten by a venomous reptile. I received a sharp shock at the moment, and it was some time before I recovered from my fright.

In the same fern−case were some large green Jersey lizards, one of which bit me under exactly similar circumstances; but on that occasion I felt no fear, as I did not associate the idea of poison with a lizard. I do not think either of these reptiles bit in anger; possibly they were merely hungry, and thought I was introducing food into the case. Both attacks were made so quickly that I think they seized the first thing they saw moving.

This reminds me of a story told me by the late Mr Bartlett of the Zoological Gardens, London. He had got from abroad a couple of snakes of a variety new to him. Wishing to know to what species they belonged, he had the snakes put in a bag, and proceeded to the British Museum to consult Dr Gunther. When he showed them to the doctor, the latter said he knew quite well what they were, and that they were quite harmless. Upon this Mr Bartlett took the snakes out of the bag, placing the latter upon a table. He handed one to Dr Gunther, and kept the other in his own hand.

They stood thus for some time discussing the merits of the snakes, who meanwhile behaved themselves very well. All at once Dr Gunther exclaimed, " Oh! by−the−by, Bartlett, I have just remembered that there are two kinds of these snakes almost exactly alike, of which one is poisonous and the other harmless, and I am not sure which we have got hold of." Upon this Mr Bartlett reached out his hand to get the bag in which to confine the snakes, but the moment he did so, and as if the snakes knew they were going to be again imprisoned, one bit Dr Gunther on the thumb and the other Mr Bartlett on a finger.

They both promptly dropped the snakes and stared at each other for some time, their faces being as white as a sheet: at length Dr Gunther found his tongue first and said, "Bartlett, do you feel anything?" The latter replied that the only thing he yet felt was that Dr Gunther was a confounded fool for having, by his forgetfulness, brought them both into such a scrape.

Eventually, however, after they considered that time enough had elapsed for the working of the poison, and feeling no bad effects, Mr Bartlett picked up the reptiles, and returning them to the bag, got them safely into their case in the Gardens. He told me he never would forget the terror he suffered for some time after being bitten, and I can quite sympathise with him.

The stroke of a snake is instantaneous. I once put a rabbit beside a boa, and so soon as it was introduced into the cage the snake raised its head and about a foot of its body, its eye meanwhile having a most sinister expression. It struck the rabbit with a motion as quick as the crack of a whip. This stroke, and the subsequent coiling of the body round the rabbit, were so rapidly performed that the eye could scarcely follow the movements. The constricting power of the snake is so strong that I am sure the poor rabbit felt very little pain.

We are told by writers on natural history that snakes have the gift of fascination, and that all birds and animals

have an instinctive fear of them: certainly the eye of a snake has a horribly malign appearance, and this always gave me "a fit of the creeps." This power may be possessed when the creatures are in a wild state, but confinement and partial domestication may modify it.

I once put a pigeon into the snake's cage: the fluttering of the bird roused the snake, who, on seeing the pigeon, slid round and round the cage in excited alarm. The pigeon was equally alarmed for the snake, but not more so, I think, than it would have been for any other creature moving at such close quarters. In a few minutes the snake coiled itself up to renew the sleep from which it had been roused, and the pigeon actually roosted on the back of the reptile and began preening its feathers. This action did not express much instinctive fear on the part of the pigeon.

Notwithstanding the abhorrence most people have for snakes—fault of education I think—these reptiles are easily tamed, and to those whose taste lies in that line make very interesting, nay, even affectionate, pets.

Mr Holland, formerly keeper of the snake−house at the Zoo, told me that a gentleman came to him to purchase a lacertine snake. This species is not poisonous, but the specimen in question had a bad character, so much so that Mr Holland refused, at the gentleman's request, to lift it out of the cage without some preliminary preparation. The purchaser then asked Holland to at least unlock the cage−door: on this being done the gentleman, after being again warned of the danger he ran of being bitten, put in his hand fearlessly, pulled forth the snake, and allowed it to coil round his body under his coat and waistcoat. He held it by the neck, which protruded from inside his coat−sleeve, and walked in this fashion through the streets of London to his home in Chelsea.

This gentleman may have had the mysterious faculty of subduing animals with which some people are endowed, an instance of which I will give farther on when speaking of Arctic foxes.

I subsequently learned from the late lamented Frank Buckland that the name of the gentleman spoken of by Holland was Dr Mann. He told me that Mrs. Mann as well as her husband was an enthusiast over snakes, and that one of the prettiest sights he ever saw was this lady dressed in a black velvet gown, with her favourite boa−constrictor "Zoe" coiled round her body: the contrast of colours was, as described by him, simply lovely. Through Buckland's agency I had some correspondence with Dr Mann regarding reptiles. I wrote and asked him if he would kindly give me, a beginner, some hints as to the keeping of snakes. He courteously replied at length, and I found his instructions of very great use to me. I have lost trace of him or his family for many years, and after numerous attempts have failed to learn if any of them are now alive.

As I am sure that Dr Mann, if still alive, would not object to allow others, as well as myself, to have the benefit of his great experience in snake keeping, I scarcely think I will commit a grave breach of courtesy if I publish two letters received from him. The first is dated 20th August 1872, and is as follows:−

"4 CHEYNE WALK, *August* 20, 1872.

"DEAR SIR,−I should have great pleasure in giving you any information that would assist you in keeping your snakes in flourishing condition, but I ought to tell you that my experience is limited, and I can only speak with any degree of certainty as to what I have myself seen.

"As to the boas, I think that the principal and undoubted necessity is that they should be kept permanently warm. The blankets of course will *keep* them warm when once they have acquired heat; but of course a cold snake cannot become warm by putting it under a blanket: and though this appears a truism, it is one which is constantly forgotten not only by snake−owners, but by the snakes themselves, who will crawl under a blanket in the hope of finding warmth.

"As to bathing. My snakes rarely care to bathe; in fact, I have to put them into tepid water myself, and then they will not always remain. On their emerging from the water they should be placed in a hot place near a hot−water bottle, and covered with a blanket.

"A boa of even five feet long will eat a large pigeon, or a half or three−quarter grown rabbit or guinea−pig. But almost every snake has its own fancy in the way of food, and having found what the creature will take most willingly, it is better to adhere to that sort of food for that individual snake.

" I think the prey should not be too large. Although the snake may eat it, the animal's mouth sometimes gets broken round the lips.

"After a snake has fed it should not be moved for a day or two, but should have tepid water to drink a few hours after its meal.

"I had a beautiful boa some three years ago, and although tame, affectionate, and apparently happy, it would not feed. I afterwards discovered that it had a diseased mouth, but the discovery was made too late to save the creature.

"It is very necessary to ascertain if a snake has no disease. On buying one examine its mouth, which is easily done, taking care not to bend the creature's neck backwards; hold the head firmly but lightly in one hand. If the snake flushes forward through the hand, it is easily stopped without force. If it backs hold it firmly, but meanwhile tickle it gently on the stomach about eighteen inches from the neck; it will then come forward again, and will soon learn to rest its throat on your hand, which indeed a snake is always willing to do. When you examine the mouth raise the lips gently on the side—it will never attempt to bite while you hold its head, though it may dash its tail against you (which won't hurt)—see if there be any inflamed swelling on the gums, especially towards the throat.

"If it is all clear white and red, with no swelling or spots, you need not be apprehensive; but if there are swellings or a number of inflamed−looking red spots, examine it again after a few days, and if the red spots have enlarged, and especially if white and yellow spots appear in the inflammation, then keep the snake warm; and when the swellings appear to have come to a head foment them with warm water, and as soon as any white marks appear, or any slimy yellow skin forms, remove it with a quill feather dipped in tepid water. The snake may rebel at first, but if you are firm and gentle, and especially talk gently to the creature, it will, after two or three trials, allow you to treat it much as you will. With all this care a diseased snake may die.

"I have just lost a most beautiful lacertine. The disease had reached the brain, but I think must have been lurking sometime in the creature's head.

"I do not think, however, that the most healthy boa will thrive in captivity unless it be made a friend of. They are most affectionate creatures, even when of a wild and timid temper.

"I have a python whom a stranger might suppose savage; yet it is gentle and affectionate, although I have given as yet but little attention to it. I have no doubt of it rapidly becoming as tame as one could wish.

"But the South American boas are most easily tamed. They generally prefer pigeons to any other food. My present boa, which I have had about two years, invariably sleeps in my bed, round my feet. He is perfectly clean, lies still, and very seldom disturbs me; occasionally he crawls to my face to lick it. I frequently take the python to bed; but at present she is timid, and if she cannot find my feet in the night, becomes scared and walks out of bed, curling herself on the floor. The evil result is that she becomes cold.

"Their power of hurting is, I think, limited, and there is no probability that they would exert their force to injure one. In any case, by taking them by the head and tail both they are easily managed; even a powerful snake may be conquered in this way. Gently remove any coil they may have laid upon you (they will not attempt really to constrict); take care not to hurt the creature, and do not bend it backwards or forwards as you may easily break or injure the spine— only sideways, and do not twist the body: but, in fact, gentleness and confidence is the great thing.

"I do not myself believe that any python or boa is savage, but they are dreadfully timid, especially from the ill−treatment they receive on being first caught, and the misery and terror they endure on the voyage.

"There is another thing—they have no eyelids, and on being suddenly uncovered or dragged forth to the light, suffer from the glare very acutely: it is best, therefore, to let them hide their heads in your hand or under your dress.

"Handle them frequently, and give them water, pressing their heads gently into it. I feed my boas frequently from my hand. But the last time I offered the python a guinea−pig the prey escaped from my hand at the moment of attack, and the python took in the whole of my hand instead. He soon discovered his mistake and disengaged himself, but was greatly distressed, rubbed his head against my hand, and appeared to dread some sort of punishment.

"Since that time I have had great difficulty in persuading him to eat unless I nurse him or take him to bed, when he will lie the whole night with his head in my hand. But at present I allow no one to touch him except myself and my wife.

"The result to my hand of the above adventure was of so trifling a nature that I did not even wash or wipe it,

but proceeded within a few minutes to the piano, having occasion to play to some friends, from which you may judge that my hand was not hurt: even the puncture of a boa's tooth leaves a wound which is hardly worth wiping,− much less than the prick of a pin, and not unhealthy, unless the snake's mouth was badly diseased, when I would recommend careful washing.

"If within a reasonable time—say four or five days—after food your boa should be let loose and show a determination to get to the floor and hide, allow it to do so for a short time, as there may be a natural reason for its doing so.

"If there appear after a few minutes to have been no such reason, take it up lest it should get cold, and either replace it in a warmer corner or allow it to sit upon your knees or shoulder. Mine crawls inside my coat, causing me to look a very extraordinary shape. She is shy of strangers, and especially of strange voices, and puts her head in my face to inquire if the strangers are friendly or not: when I have reassured her, she stares at her new friends, and after some coaxing will sometimes condescend to put a few inches of herself on the hand or arm of some people.

"When you take up a boa, even if savage, put your hand under its throat, and then take the head by closing the same hand lightly, and don't appear to use force, only hinder the creature from escaping; with the other hand lift it by the body and allow it to coil its tail on your arm, or, better still, round your leg, or even in a corner of your pocket.

"When feeding a boa, I would first get it thoroughly warm, then place it in a moderate−sized box, say 3 feet by 2 by 2, put a blanket with it, and shut it down. Then immediately after take a pigeon or rabbit, put it in the box, and withdraw the blanket and shut the box. When you wish to know (after say two hours) if the creature has fed, take the blanket in one hand and open the box quietly, speaking gently to the snake all the time (and *before* you open the box). If the snake is not eating, and looks lively, shut the box again; but if the snake is coiled up sullenly, and takes no notice of the prey (whether alive or dead, for sometimes they will kill, and afterwards find the appetite fail), then give the creature ten minutes more or thereabouts, and if then there is no sign of its eating, put the blanket on it, and by manipulation with the blanket you may easily get the snake's head in your hand. Hold it there very gently, not as if to constrain the creature but as if to caress it, and *remove the prey*.

"If the snake has eaten, cover it with the blanket and talk gently to it, but don't touch it, unless you very slightly caress the head behind the ears. After a little while the snake will learn to feed, and you can dispense, if you think well, with many of these precautions. Still, I would advise that the most affectionate snake be fed something after the above manner,− not from any fear that the snake would *inflict* injury, but because they are not greedy creatures, and a very little thing interferes with their disposition to eat, and thus they get weak and ill.

"I should not keep a snake in a box with glass unless I had means frequently to cover the glass. The dashing of the head against the glass is not uncommon in the tamest creatures: they do not always see it, and are always more or less timid, and trying to hide their heads in a confined space when frightened, they would knock their heads against the glass. Even an *open* mouth, rare as it is, is no proof of bad temper, only of fear, which frequent handling and gentleness will allay.

"They cannot eat when nearly about to change their skin, therefore the instant you perceive a dimness about the stomach (before the eyes turn white), offer food; if they don't eat it almost at once, you must forego feeding them till the skin is off; but give them a bath to help the skin off, and warm water to drink immediately they are out, and food about six hours later.− Believe me," &c.

On thanking Dr Mann for his letter I gave him some account of my small menagerie, and asked for further information. His reply was as follows:−

"4 CHEYNE WALK, CHELSEA, S.W.,
*27th August 1872.*

"DEAR SIR,− I was much interested by the account of your menagerie. I fancy still there must have been some reason, either of a temporary nature or else arising from previous circumstances, for the irritability of your boa, as although I have frequently seen signs of a savage *state* of temper in boas, I still am of opinion that it is not in the nature of the beast, but arises first from fear, and is aggravated by the misery they suffer after their capture and

during the voyage. I possess, for example, a fine python, who still retains the marks of sword−cuts inflicted at the time of its capture, and what little irritability there may be in the disposition would be aggravated by fear and resentment. The effect remains equally inconvenient, whatever may be the cause; but I should not, from what I have above said, despair of taming even a savage boa after a time. Perhaps in feeding it, it would be better to keep the snake in the dark.

"There is another thing: they are frequently very sensitive to *noise*, and I would not take the creature out in the presence of the birds, as their chatter might irritate it—at first I mean, and until it is quite tame.

"Moreover, as the mongoose is an animal who feeds on snakes, and kills them with great ferocity, I would take care not to handle them immediately before dealing with the snakes, as the smell might alarm it, and, as I have before said, what most people call rage on the part of a boa—the eye dilated, the mouth open, and the noise of a steam−engine (as you justly compare it to)—all this my own observation leads me to attribute to an agony of fear, and not at all to ferocity: the latter quality I believe is never really overcome in any individual creature. It may be appeased, but the tranquillity cannot be trusted; but all the boas I have ever seen, I believe, if once they trust you, may themselves in turn be thoroughly trusted.

"I believe it may be true that with many animals I am at first acquaintance a favourite. Up to the present time I have never suffered any sort of injury from any creature—not even an attempt to injure— with one exception, which was that of a cat, who, making a shot at a rival tabby, missed his aim and encountered my arm and wrist, inflicting severe wounds. But both myself and my wife find ourselves on good terms with many animals reputed dangerous, and especially with many of the snakes at the "Zoo," but I think it is more from our habit of handling them very gently and yet firmly, and allowing them to coil upon us as they like : they find support by this means, and very soon understand our friendly disposition.

"I forget if I told you that I obtained a large lacertine a short time since. Mr Holland (of the Zoo) warned me that the creature was savage, and, like its companions for the time, would both strike and bite; and so I was afterwards informed by another gentleman who had seen it there, and confirmed its bad character. I took it, however, and while Mr Holland was preparing a bag for me to carry it in, I caressed it, kissing its head, and before five minutes had elapsed the creature was rubbing its nose against mine.

"Finally it put its head into my waistcoat, concealed its entire length under my clothes, and at length ran its head down my sleeve and laid it in my hand, resting it there, with an expression of content in its face that was quite comical.

"I walked home from the Zoo—some four miles through the streets— with the creature in this position: no one, of course, suspected it. On arriving at home I drew it out and gave it to my wife, who, after caressing it, gave it to the children, with whom it was instantly on friendly terms, and indeed with almost every one who sees it. *Almost* , I say, for there are a few voices and *hands* which it appears to dislike, showing its dislike by a preliminary hiss, and then by rushing to me or my wife and burying itself in our dress, but on no occasion showing anger; but I think were it permanently kept in a hot box with glass front, it might show temper, for I fancy myself that the glass provokes them, and the continual hot air in a small space is not quite so good as in a large one; and an occasional walk about the room, or a climb over their owner and his chair, will let off the spare steam.

"I have written you another long rigmarole, but I am really interested in the taming of these creatures. I shall be extremely glad if you will let me know how you succeed.

"I have some faint hope of getting a holiday, and taking my mother and wife, my children and my snakes, down to Edinburgh by sea. If we should find ourselves located for a day or two anywhere within reach of you, I should take the liberty of running over for an hour to ask you for a sight of your pets.− Believe me," &c.

I regret to say that my hopes of a visit from Dr Mann and his snakes were never realised.

I also was a purchaser of snakes at the Zoo, but very harmless ones they were—common English grasssnakes; but Holland, the above−mentioned keeper, charged me a long price for them, and a lady friend nearly lost a good servant owing to my purchase.

I had been in the country, near Bath, and on my way north to Scotland I accepted the offer of a friend's hospitality in London. I arrived there furnished with a large can containing creatures of all sorts suitable for stocking two or three aquariums, fished out of ponds near Bath. The can was put under the charge of a servant, whose fear for my insects was so great that she dared scarcely carry the can to an outhouse, where it was to be

deposited for the night.

When, next day, I purchased the snakes, I put them in a bag, and when I arrived home to my friend's house I hitched it on to a hook outside a press door in my bedroom, the intended use of which was whereon to hang clothes. On coming into the room next morning with hot water, the servant's attention was attracted by the noise of the bag bumping on the press door, caused by the wriggling of the snakes inside. When she saw the bag in motion she suspected it contained something uncanny. When I told her they were only innocent snakes she was not satisfied, but beat a hasty retreat, and informed her mistress that if the house was to be filled with such "creepy" beasts she would no longer remain in her service. She "tholed" the newts and tritons in the outhouse, but she bogled at snakes in a bedroom. She was soothed, however, when she learned that *I* was to take my departure that day.

These snakes require to be fed on frogs; and Holland laughed at me when I told him that I must also purchase from him some frogs to take home with me for their use, thinking that these batrachians could be procured anywhere; but I had always great difficulty in keeping up a supply for my snakes, though I live in a very moist district. I have wandered evening after evening through bogs on the hills looking for them, and sometimes only got one, sometimes two, but oftener got none; and if not specially searched for, very few would be met with during a whole year: and still I have a large fountain basin, sunk below the level of the ground, where frogs in great numbers congregate during their breeding season, and I often wonder where they all come from.

British frogs certainly croak, but I have an impression that they do so in a more subdued tone than their French brethren. While on a visit to some relations at St Enogat,− then a newly started and very small watering−place on the coast of Brittany,− I heard, when passing a staircase window on my way to bed the first night, a very peculiar and loud noise. On asking the cause, I was informed that it proceeded from the croaking of the frogs in a pond a mile out of the town. I could not at first believe my informant, thinking she was cracking a joke at my expense. I really thought the sound was caused by some machinery in motion at a distance; but next day, during a walk in the country with a friend, I was convinced.

When we were approaching a pond appertaining to a farmhouse we heard a noise as if a number of ducks were quacking loudly. On coming in sight of the pond, which was in a wood, the whole surface of the water was in commotion owing to the frogs diving into the pond from the banks, and the sound suddenly ceased. We stood very quiet for a few minutes and some of the frogs reappeared: they were bright green and yellow, and very large, and big though they were, it was astonishing to hear them croak so loudly.

A gentleman living in the farmhouse told us that these frogs were supposed to be new to science, and that a party of savants from Paris were coming soon to examine them, but I have never heard the result of the investigation.

I have read somewhere that croaking frogs were one of the causes of the French Revolution, the lower classes being disgusted with the nobility and gentry, who forced them to splash the water in the lakes near the chateaux, so that their sleep might not be disturbed during the night.

When I got my London snakes home they were hungry, so I presented them with one of the frogs got from Mr Holland. Both seized it at the same moment, one by the head and the other by the tail, or at least by the part where a tail is generally placed. They began to engulf the frog slowly but surely, and by degrees what I had foreseen took place,− they met in the middle; and I was anxious to see how they would get out of their difficulty.

It was certain that either the one must swallow the other along with the frog or that there would be a row, and there was a rumpus. Neither could leave go, owing to the formation of their teeth. The struggle which ensued was worth seeing but difficult to describe: it may be imagined from the remark of my man who was present, that he had never "in a' his life seen sic' a chairge." Eventually the skin of the frog got torn in the melee, and the body slipped from the mouth of one of the combatants, when the other swallowed it with much gusto.

## Manders' Menagerie.

When on a visit near Hawick in 1871 Manders' Menagerie was stationed in the town, and I was not long in finding myself there.

Snakes were my "hobbY" just then. Attached to the show was a lion−tamer and general lecturer who called himself professionally "Monsieur Massarti," but whose real name was Thomas Maccarte. I purchased from him as much personal attention and information about snakes as a 2s. 6d. tip would furnish.

He opened the snake's cage, and on lifting the upper blankets a compact mass of writhing reptiles of many species and nationalities was revealed. The noise they made was a "caution," and I would not have liked to dip my hand in. He, however, had no hesitation in doing so, and quickly withdrew it, holding a snake for my inspection. I asked him if he was never bitten, and he replied that he frequently was, especially when snakes first arrived in this country, when they were very "spiteful."

This man had some time previously got his arm so mangled by a lion that it had to be amputated at the shoulder. Next day I returned to the menagerie, when I noticed his only hand was bound with rags. I said, "Hullo! have the snakes had hold of you?"

He said, "No, sir; after you left yesterday, I was giving my 'patter' in front of the lion's cage, and without thinking I laid hold of one of the bars, and I was chawed by that brute of a lion," pointing to one crouching in a corner.

I remarked upon the danger of his calling, which he allowed, but added that he was paid £4 per week for his services.

He entered the lions' cage to put them through their performance; and after the show was over he pressed the lion which had shown temper during the performance into the far corner of the cage, and, keeping his eye on the brute, walked backwards towards the door, and when he reached it he put out his hand behind him and opened it: he sprang out, still backwards, and dashed the door to. The moment he did so the lion sprang up and, rearing against the door, roared with rage, shaking the bars till I feared he would break them.

I thought then that the man would meet his death by that lion some day, but I did not know how soon my fears were to be realised. He had only reached Bolton in the north of England ten months after I had seen him, when he was killed by his beasts in a fearful manner, the aforesaid lion being the first aggressor. I have a newspaper cutting describing the manner of his death, and as it may interest some of my readers, I here reproduce the printed report.

## The Terrible death of a lion−tamer in Bolton

The Bolton 'Evening News' of 3rd January 1872 gives the following account of this fearful occurrence:−

> "A series of farewell performances were being given prior to the menagerie proceeding to Bury, and an extra performance was announced and took place at half−past ten o'clock. Attached to the show was a man named Thomas Maccarte, whose professional appellation was 'Massarti the Lion−tamer,' and he, at this extra performance, entered the lions' den for the last time. Maccarte was a young man, not more than thirty−four years old, but he had been associated with travelling exhibitions of this kind from a very early period. He had previously lost an arm when performing with Messrs Bell and Myers' circus at Liverpool. He had previously been trained by Messrs Batty as a lion−tamer, and having joined them for a short time, he was engaged by the late Mr Manders to succeed Maccomo. He was a very bold and adventurous man, and had been frequently cautioned respecting his rashness. The unfortunate man commenced his performances on Wednesday evening, when he was hardly in a proper condition to do so; and having exhibited the gorilla and the serpents, he entered the lions' den. At this time it is calculated that 500 or 600 persons were present, and the five lions in the den were put through their performances with the usual success and applause. On all general occasions heated bars of iron and iron scrapers are in readiness, but on this fatal evening the matter had been neglected. The five lions were all powerful animals, and the unfortunate man, on entering the cage, noticed that a black−maned African lion—which had only so recently as Monday last bitten his hand—appeared very restive. He consequently fixed his eyes on it, and this in some degree diverted his attention from an Asiatic lion known by the name of 'Tyrant,' against whom he had been cautioned only that morning to keep carefully to his instructions. It is necessary here to note that when performing lions are tamed there is a line drawn, or what is known as 'the office' in technical phraseology, by which the beasts are taught to regard that line as a limit beyond which the performer must not pass, knowing if he does so the consequences to be expected are most dangerous. The presumption is that this line was overstepped, and Maccarte, who was attired as a Roman gladiator, was returning his falchion to its sheath: slipping, he fell on the floor of the den. 'Tyrant' fastened on him, seizing him by the haunches, and then the African lion fastened on his armless shoulder. Maccarte immediately called upon the keepers for help, and meanwhile to fire. He then drew the short Roman blade which formed part of his costume and commenced fighting desperately with the lion 'Tyrant,' thrusting the sword into its face, mouth, and eyes. The crowd, panic−stricken, crowded around and effectually prevented the approach of the men who were used to the habits of the animals. The shouts of the audience, the desperate and manful struggle of the fated man, and the smell of the blood which was streaming from Maccarte, incited the other animals, and their savage instinct was awakened. A third lion—an Abyssinian one—seized him by the ribs, and then a five−year−old lion, and an especial favourite of the lion−tamer, caught him by the head, literally scalping him, the flesh hanging down his neck. The treacherous favourite had no sooner accomplished his work than he returned quietly to his corner. The deadly struggle progressed, and Mr Birchall, who had from he first been most active, placed iron scrapers in the fires to heat them. Pistols and guns were discharged, but they, unfortunately, were only loaded with blank cartridge, and the blazing of gunpowder failed to drive the animals from their quarry. Meanwhile the irons were heated, an iron shutter to separate the animals in the cage when an opportunity offered was in readiness, and Mr Birchall and an assistant succeeded in beating off three of the animals; the fifth, having in the time scented and tasted the blood which streamed out of the carriage, added his fangs to those which had already played such havoc with the human form prostrate before them. The sliding−door was pushed in; three of the animals, being driven away with hot irons, were separated, and then the lion that had seized Maccarte by the shoulder was driven in a corner. The shutter was partially opened to drive him among the others, when a

> fourth infuriated beast seized him just above the boot, and dragged him in again among them. Then the frightful work went on again for a few sickening and horrifying moments. Hot irons were now available, and the brutes being driven off, the poor and almost pulseless piece of humanity was drawn out from the place it was fated he never more should enter. He retained sufficient sensibility to speak to his warm−hearted colleagues a few faint words, praying them not to take him away to receive medical aid, as he knew that he was a dead man. His anxious friends carried him tenderly to the infirmary, where, after a few moments, he breathed his last after muttering a few incoherent sentences. As the shattered frame was borne past Mrs. Manders he faintly waved his hand, and gave her an expressive look which conveyed the words that he was past all hope of aid. Many of the shots fired entered the bodies of the animals, and they received great injuries before they were driven off their prey. The lion 'Tyrant' is three and a half years old, and had been brought up from a whelp by Mrs. Manders. The animal having been a favourite, it was, during the early days of its training, allowed to run about that portion of the caravan used as a habitation, and it freely gambolled with its mistress. The sire of this animal was the one that nearly worried Maccomo some time ago. The only arm the deceased had was streaked with deep gashes from the shoulder to the hand; the scalp was torn right back; and from the hips to the knees, where he was seized from behind, the muscles are completely torn out. There are pieces of flesh gone from the ribs, and the bones of the pelvis, which are the strongest in the human frame, have had pieces bitten clean out."

I asked Mr Manders if he had no rattlesnakes, and he replied in the negative, explaining that at one time he always had them, but that after a great scare in the menagerie he had ceased keeping poisonous snakes.

The cause of the scare was this. The rattlesnakes were for greater security kept in the "living carriage" at night. An old lady—his mother I think he said—began one night to cry out with might and main that the snakes had escaped. The noise she made awoke Mr Manders, who was sleeping in an adjoining compartment, and he jumped out of bed and roused the night attendants, who in their turn summoned the rest of the staff, who were lodging in town. A regular foray took place below the animals' cages, and was even extended outside for a considerable distance round the show, but without result.

The proprietor was in despair, visions of being tried for manslaughter looming in the distance. As no snakes were to be found in the menagerie proper, they proceeded to search the sleeping−van, and one of the men bethought him to look into the snakes' box, when, to the relief of every one, there they were all right. It turned out that the old lady had dreamed of the escape; but Mr Manders was so impressed with the thought of the grave responsibility he would incur if such a catastrophe should ever happen, that he made up his mind there and then never again to keep poisonous reptiles.

I never had many reptiles in my collection, and kept no poisonous snakes other than vipers.

## Alligators.

The only alligator I ever had was a very small one, and it was not able to do me or others much harm. I did intend at one time to build a cage suitable for these reptiles, and when in the Zoo on one of my visits to London, I asked the keeper there for some preliminary information. Among my many questions was one regarding the proper heat at which the water in the alligators' tank should be kept. He said it should be kept at 92°, though less would do; but added that if I liked he would let me feel the heat of the water with my hand, at the same time warning me not to allow it to rest in the water for more than a second.

As several of these reptiles were lying on the edge of the tank, and appeared to be in a very sleepy state and did not look very fierce, I could not see any necessity for the man's caution: still, as I am always ready to take warning from those who, in such cases as this, have more experience than myself, I took advantage of his hint when he opened the door of the cage, and I received no harm: the creatures remained as they were, apparently asleep. The keeper then asked me if I would like to see them fed, and on my answering in the affirmative he brought two or three live sparrows, and threw them into the water. Suddenly a change of scene took place. The moment the birds were introduced the alligators came to life with a vengeance: starting up as if they were made of steel springs, and opening their huge jaws, they caught and engulfed the sparrows even when fluttering in the air, and I then realised the necessity for the keeper's warning.

I once visited Cross's shop in Liverpool with my sister, at a time when Cross had just received a consignment of alligators, and on their arrival they were put on the floor of the front shop until their permanent quarters were ready to receive them. There were six or seven of them of different sizes; but as their jaws were securely bound round with ropes they could do no harm except, perhaps, with their tails.

One of them was a large and formidable beast, but they showed no evidence of being disturbed by our presence, and we proceeded to have a look at the other inmates of the shop. Presently my sister had approached the big one rather nearer than he liked, and he suddenly wheeled round with a great "wallop": this was too much for my poor sister's nerves, and imagining she was going to be seized by the monster, she rushed from the shop, and along the street for a hundred yards, before I made up to her.

## Vipers.

It is said that vipers will rarely, if ever, feed in confinement, and this is certainly my own experience. I have kept several, but never could induce them to feed.

I once saw one in a glass globe in a chemist's window; beside it were a number of cranberries, evidently intended for its food. I will exonerate the chemist, presuming that he was better informed by education, but probably the reptile's captor had himself placed the cranberries in the globe, and the cautious chemist thought that he had better allow them to remain there. The viper was probably basking in a peat−moss where cranberries abounded, and the man who captured it, putting two and two together, had come to the conclusion that vipers were vegetarians rather than carnivorous, and were to be found where their food was in abundance.

There are very few vipers in my district, I am glad to say, though I would not object to encounter one or two on my neighbour's land, if only to study their habits.

I have never seen one in my life except in confinement, though I have walked over almost every inch of my own ground as a sportsman, as well as over all the moors in the neighbourhood: still I have reason to suspect that one or two may be lurking about, though they are never seen. On two occasions one of my shepherds has brought home a dead sheep, both of which had died from no disease known by him or myself. Their heads and necks, down to the shoulder, were completely tumefied and discoloured, putrefaction having set in very quickly. Each sheep had two small punctures in the nose, corresponding to the size and width apart of a viper's fangs; and I understand the nose of the sheep is the spot generally struck by vipers, owing to its proximity to the ground when grazing.

I must confess I am one of those sceptics who do not believe that vipers swallow their young when the latter are in danger. I believe that most people who say they have seen this feat performed make the assertion in good faith. They *think* they have seen it, but they labour under an optical delusion. The late Frank Buckland invited any person who believed he saw a viper swallow its young, to kill it suddenly, tie a string tightly round its neck, and send it to him; and if he found young vipers inside their mother's *stomach*, the sender would be rewarded with a guinea: but none ever reached him.

Since his death, I understand the editor of 'The Field' has given the same invitation, and has raised the reward to £5, yet this sum has never been applied for. Some specimens have been sent in, but on dissection no young have been found in their stomach.

Surely nowadays few people believe the silly story of vipers producing "adder stones."

Since writing the above lines a viper has been seen on Castle O'er ground, and so lately as the 20th September 1903, by three members of my family—a son and two daughters—when riding their cycles to church. My son saw it lying quite on the edge of the road, coiled up and basking in the sun. He jumped off his cycle; but having no lethal weapon with him, he went to a shepherd's cottage close by to procure a stick. During his short absence his sisters, who were left to watch, saw the viper uncoil itself and slide into some rough grass; but on my son's return they searched in vain for it. As the patch of grass was quite small they thought it must have got into some hole.

I was rather alarmed for the safety of the shepherd's children, who were in the habit of running about the spot with bare feet, and I advised him to make them wear shoes, for some time at least, so as to give it time to shift its quarters.

One of the girls said if she had seen it first, when riding quickly past, she would have taken it for a coiled−up cycle chain glistening in the sun. Possibly this was the viper which killed my two sheep before referred to.

## Geckos.

My eldest son, who has lately gone to Burma, writes home that, among the many strange things he sees in a strange country, the walls of the rooms are covered with lizards. Among them is one called a "Gecko," whose feet are furnished with suckers which enable the creature not only to run up and down walls, but even along the ceiling of a room without falling. I had a pair of these reptiles in my collection—the fan−footed gecko,—whose toes are provided with a wide membrane in the shape of a fan, and hence its name.

The pair escaped and got down the grating which ran along the wall of the room to permit the heat to ascend from the hot−water pipes, and I never saw them again; but my impression was that they were killed by rats. However, before this happened they must have bred. Frequently, when visiting my beasts at night with a lantern in my hand, I heard a quick rustling sound among the straw which a monkey had broken into short lengths and thrown out on to the floor in front of his cage: this rustling sound puzzled me, as it was like something running swiftly among the straw, and still I could never see anything. One evening I entered the room very quickly and made a sudden run to the front of the cage, and there I discovered a very tiny young gecko scuttle from among the straw and disappear down the grating: its small size and pale cream colour had caused it to escape my notice up till then. It came to the cage to feed upon young earwigs which were in hundreds among the straw, feeding on the crumbs which fell from the monkey's table. I tried frequently to capture it but its movements were too quick for me, and I fear it met the fate of its parents.

## Slow−worms.

Are slow−worms or blind−worms viviparous, oviparous, or ovoviviparous, or all three? The general belief is that they are ovoviviparous, which means that they hatch their eggs *inside* their body, and produce their young already born, so to say; but one specimen which I captured and placed in a fern−case certainly deposited eggs, from which the young emerged by degrees from the day of deposit till next day, though one or two struggled through the egg−film very soon after being deposited. This may have been a premature birth.

The young ones were beautiful creatures, and were exceedingly lively as soon as they were free from the egg; but they did not survive long, owing, I think, to my being unable to supply them with insects small enough for them to swallow.

Most snakes are oviparous− that is, they deposit eggs which are hatched afterwards; but vipers are ovoviviparous, as the slow−worm is said to be.

Many people have the same horror of a blind−worm as they have of a poisonous snake, though it is perfectly harmless; and it is not a snake at all, but is classed among the lizards, it having a distinct tail and rudimentary feet hidden below the skin.

A man who was building a dry stone wall near my house in one of the early months of the year, told me that when he turned over a large stone to break it up he found a complete mass of slow−worms. They were thirty in number, and were so entwined, one round the other, that he could not imagine what they were till they began to wriggle about: here they were evidently hibernating.

## "Ether−bells.

The fear of innocuous creatures is widely spread, even among those persons who should know better. I can well remember, when a small boy, visiting a large water−hole in a peat moss, accompanied by several companions, when one of them rushed homewards, at the same time screaming out, "Oh! there's an ether−bell." I, not knowing what this was, and believing it to be some terrible water−kelpie coming out from the cavernous depths of the pool to devour us, joined my companions in a scamper for home, which we all reached in a great state of terror. Had I known that an etherbell was a dragon−fly, I do not think, even at my tender age, I would have been afraid of it.

I have never been able to ascertain from whence this name of ether−bell is derived. Adder is pronounced "ether" in these parts, but I cannot explain the "bell," unless it is a contraction of the French "libellule," a dragon−fly. Sometimes the dragon−fly is locally called the "flying ether" or adder.

## Water−newts.

Another creature which inspires much terror upon the mind of uneducated folks is the water−newt, in my district called an "ask,"− apparently a corruption of the word "asp," owing to the belief that it is venomous.

## Heather−bleats.

Then, again, there is a bird which scares many a country man and woman, though they do not know what what the terrible thing really is. Once, when quite a child, I was coming home from a cottage among the hills in the dusk, under the charge of a servant woman, a native of the country, and then grown up. She entertained me on the way by recounting all the ghostly sights and sounds which could be and were often seen and heard at that time of night. Among other terrors she told me about the "heather−bleat" as being the most fearsome of all, believing, as she did, that it was a ghost pure and simple.

It was several years after that before I had the pleasure of meeting with one, but by that time I had, fortunately for my peace of mind, learned that the strange bleating sound was produced by a snipe. The sound which this bird makes is certainly calculated to inspire terror in an uneducated mind, especially when first heard out among the hills in the gloaming. This fear is intensified by the sound appearing to be of a ventriloquial nature: you think you hear it far up above your head, then somewhere to your right or left, and again close to your feet. It was long thought, even by naturalists, to be produced by the bird's throat; but it is now well established that it is caused by a peculiar tremor of the wings and tail. Both the male and female birds make this sound during the breeding season; and it is, I have no doubt, quite familiar to many people, especially to those who have lived in a marshy country where snipe breed.

## Ghosts.

While on the subject of ghosts I will relate a ghost story, of the incidents of which I was one of the spectators. It comes, I think, within the province of a book treating of natural as well as *supernatural* history. I had been visiting a friend and stayed to supper, and when I thought it was time to go home my friend and his wife accompanied me to the door. My friend and I were prolonging, on the door−step, a conversation commenced at table, when we were startled by his wife exclaiming excitedly," What is that?− look at the lawn!" When we turned our eyes in the direction in which she was pointing we saw two small figures, hand−in−hand, dancing in the bright moonlight. They seemed to be sometimes waltzing, sometimes advancing and retiring, and at other times stooping down and bowing to each other, while all the time they were uttering a peculiar puffing sound. The lawn was a large one, and when we first saw them they were a good way from the door. We all three felt a little—not quite *fear*, but a certain amount of awe, and were quite unable to account for the apparition. As the dancing went on they approached nearer and nearer the edge of the lawn. When at last they were near enough for us to distinguish them clearly, we discovered they were two buck hares engaged in a fierce combat. The idea of dancing was conveyed to our minds by the apparent saltatory movements of the hares during a fight carried on at a distance.

What we thought was the joining of hands was one of the positions they assumed. They stood on their hind−legs, spurring each other with their forefeet, which at the distance appeared as if they were holding each other by the hands; their dropping down on all fours for a second or two was for the purpose of relieving the strain on their hind−legs, and this led us to imagine that they were stooping down and bowing: the puffing sound was no doubt the language in which hares swear at each other. I may say in passing that all three of us had been teetotal during supper.

A clergyman once told me that when he was taking a walk on a moonlight night he met a labouring man with whom he entered into conversation, standing as they met−face to face. In a few minutes the man exclaimed, "Mercy me! what's that?" at the same time pointing along the road stretching behind the clergyman's back. When he turned round he saw what he described to me as something which, for a minute or two, inspired him with a feeling akin to fear. The road where they stood sloped gently towards them, and there was a gate leading to a house close by. He saw a ghostly figure gliding−not walking−down the slope, and when it reached the gate it entered it and melted into space at the kitchen−door.

Being an educated man he could easily account for it. It was a column of mist, rather taller than a human being, which was wafted along the road by a slight draught of wind that took a twist in the direction of the gate and carried the mist inside with it, and when the ghost reached the kitchen−door it was dissipated against the wall of the house.

I must say that in such cases as the above I can quite sympathise with an uneducated, or even a poorly educated, adult, rushing off in terror without investigating the matter, and believing in the one case he had seen two fairies dancing in the moonlight, and in the other a full−fledged ghost. This lack of special education deserves the attention of school boards.

The minister said he had never before seen anything approaching his idea of what a ghost *should* be like; and certainly *I* never before saw "fairies dancing on the green."

As an instance of the childish fear which some grown−up people have, even at the sight of a creature so harmless as a blind−worm, I will relate an incident which took place some years ago. My brother−in−law, the late Mr John Wilson, Billholm, on going one day to the harvest−field, picked up a blind−worm and put it in his pocket. When he entered the field he approached a female worker and asked her if she had lost a bracelet, at the same time producing the reptile. She gave a scream and rushed towards the gate, followed by all the other hands; and it was only when Mr Wilson assured them that the creature was quite harmless, and when they saw that the "maister" was still alive, that they returned to their work.

It is a melancholy thought that grown men and women are so terrified for the most innocent creatures which they may meet with almost any day in their surroundings. This is owing to the neglect of such education in the old schools; and it is to be hoped that the teaching of children as to which animals, plants, or fungi are harmless is not being neglected by school boards. For myself, I have always striven to train my children first to learn from books

which of these things are harmless, and then to have no dread when they meet in with them.

## Ocelots.

I had an ocelot (*Leopardus Pardalis*) in my menagerie, which was interesting owing to its beautiful, glossy, and spotted skin, as well as its graceful movements.

These animals are of the leopard genus, but are among several kinds of the smaller carnivora popularly known as "tiger−cats." Mine was quite young and small, though a good deal larger than any domestic cat; and its graceful feline movements always afforded pleasure to visitors. It used to play itself by rushing wildly round its cage and all over a tree put in for it to climb upon; but unfortunately its gambols were one day of a very exuberant nature, and it struck its head against the tree so violently that the brain became effused with blood, and this proved fatal to it.

The only incident worth recording about it was rather amusing. One day my man was stooping down to sweep the floor of the room, with his back to the cage, when I was startled by a series of yells to which the man was giving vent. On going nearer to ascertain what all the row meant, I discovered that the ocelot had clawed him by the part of his body which was nearest the cage, and as the claws of the animal were so firmly fixed in the cloth of the dress covering that part, he, in his fear and struggle to get free, was in danger of pulling out of joint the fore−leg of the poor beast altogether. I had some difficulty in detaching its claws, and incurred some considerable risk of receiving injury myself from the infuriated cat. He is the same man who had the adventure with the monkey in the stoke−hole, and who will be mentioned further on as using curious names when describing the animals to visitors; and it is strange how some people will persist in contorting words which they hear almost daily pronounced correctly by others. Here is a case in point.

The foreman of Mr Wilson, Billholm, came to his master one day and told him he had got notice that the "shandradans were at the station." As Mr Wilson had not ordered nor expected the arrival of any Irish inside cars,− frequently called by the above name,− he could not think what the man meant; but told him to go to town with a cart and fetch them home, whatever they were. When the man returned his cart was loaded with "rhododendron" bushes, which had been ordered along time before and had quite escaped Mr Wilson's memory. Probably had he remembered this order he might have guessed the man's meaning.

## Suricates.

When I read Frank Buckland's account of his pet "Jenny" the suricate, in his 'Notes and Jottings from Animal Life,' I was so interested with his description of the small creature that I resolved to add one to my collection; and the first time I was in London I was not long in finding my way to Jamrach's shop, which was, after the Zoo, one of the first places I visited when in that city. On asking Jamrach if he had a suricate, he told me that he was "quite out of the article," but that "he expected a supply next week"; and he added that since Frank Buckland's work was published the price of suricates had risen considerably in the market, owing to the greater demand for them.

I booked an order for one, but as I had to wait my turn in the order−book, it was some time before it arrived. When it did reach me, I found that its interesting ways and quaint appearance bore testimony to everything Buckland had written about this animal.

As the details of the manners and customs of mine were, with variations, very similar to Frank's, I need not here enumerate them. They can be found in the work above−mentioned, which has been read, or ought to be read, by all students of natural history,− especially by those who combine the "pet" with the scientific branch of that study.

The illustration in his book of Jenny sitting on a chair is an exact representation of the position assumed by mine when sitting on the fender−bar in the drawing−room. He used to sit there for an hour at a time enjoying the heat, though usually, when at liberty, he never was at rest a single moment. When sitting on the bar he stuck his stomach out as far as possible towards the fire, and the position of his fore−feet suggested the idea of an alderman patting his "tummy" after a good meal. At this length of time I do not remember the cause or the details of his death, but that he died when in my possession is certain.

## Jerboas.

Jerboas make delightful pets, and have nothing objectionable about them. I can therefore recommend them to ladies. They are fragile−looking creatures, and are more suited for the gentle handling of ladies and girls than the rougher hands of the male sex, young or old. Their legs are very long in proportion to the size of the body, which is about equal to that of a full−grown rat, and are altogether very slight in build.

When first taken in the hand for taming purposes, the legs whip about in all directions when the animal is struggling to get free, and rough usage might very easily be the cause of a fractured limb; at the same time they can stand the shock caused by their jumping off a table on to the floor, owing to the way they land.

Though they are beautiful and innocent−looking animals, they are rodents, and would very soon eat through a wooden cage unless lined with tin or zinc. For a pair I had I got a cage made entirely of galvanised iron wire, the only wood about it being the hardwood tray which drew out for cleaning purposes. They had a sleeping−box in one corner of the cage, kept full of nice sweet meadow−hay, frequently renewed. In appearance they are not unlike miniature kangaroos, and have very fine soft fur.

When tea−time arrived the jerboas were generally placed upon the table, and it was a pretty sight to see them hopping about among the cups and other tea−table requisites, nibbling any tit−bits which were offered them. Sometimes, when suddenly startled, they would leap off the table and reach the floor with their long legs straddled out, on which occasions I generally expected, on picking them up, to find a leg or two fractured, but fortunately this accident never happened.

## Armadillos.

Armadillos make very nice pets if properly treated, and if one of their favourite foods− viz., carrion−is kept from them. A pair which I had were very gentle and never attempted to bite, though when I first got them they were untamed, and struggled to get free when lifted up; but in a very short time they allowed themselves to be handled in any way. They have enormous claws, which are necessary for digging their burrows and tearing up the carrion upon which they delight to feed: their legs are of great strength, and when struggling in the hand one must be careful to avoid being wounded by their claws, which are sharp as well as long.

In a wild state the food of armadillos is of a very miscellaneous character: they will devour anything which pigs will eat, both vegetable and animal, the latter being preferred "high." I fed mine upon bread and milk and putrid flesh, with an occasional apple and other fruit. They mostly had their liberty to run about the room, and though one would not think so from their appearance, they can run very fast.

When out of sight below the cages or in dark corners, they could always be discovered, owing to the loud clattering noise made by their claws upon the wooden floor. Alas! too much kindness caused their death. They died within a few days of each other, and on dissecting them I found they were enormously fat, and that inflammation was the cause of death.

## Mongooses.

The nucleus of my menagerie was a pair of mongooses; indeed I got them before the menagerie was built, and till then I kept them in my snuggery in the house. They were really a sort of joint−stock affair, the price of them being divided between myself and a friend.

We invested in them with a view of utilising them for rabbiting instead of ferrets, but they were never used for the purpose. They are natives of India, and I think we considered them scarcely hardy enough for such a use, especially during winter, when this sport is mostly indulged in; so they remained in my hands for such a time that I became attached to them and they to me, and I bought up my friend's share in them.

They are handsome animals, and bear a beautiful soft fur of a mottled grey colour. In shape they are something like a ferret, but much larger. They are capital rat and snake killers, and are frequently kept in houses in India to rid them of such vermin.

At one time they were supposed to be proof against snake−bite, as in any fight between these reptiles and a mongoose the latter always came off victorious. It has now been established that their immunity from death in such encounters is entirely owing to their wonderful agility, enabling them to save themselves from being bitten in the tussle.

They make very nice pets, as they have no disagreeable odour in themselves, and become very tame when kindly treated. Mine were very tame, and allowed me to handle them in any way I liked.

They are very inquisitive, searching every hole and corner of a room, and are good climbers. I had a large desk with drawers in my room, the back of which was placed across a window; and the back being longer than the breadth of the window, continued along the wall for about a foot at each end. The angles formed by the ends of the desk and the wall were used by the mongooses to scramble up on to the top. As they soiled my papers, I tried to stop their climbing by hanging pint beer−bottles from a string, which was fastened to the desk at the top of each angle; my idea being that if they managed to get up the length of the bottles, they could get no hold for their claws upon the smooth surface of the glass, and this would cause them to fall back on to the floor. Still they managed to swarm up somehow, and my papers continued to be both soiled and torn.

On opening the door of the room one day, I saw something on the floor the nature of which I could not for a time make out. This "something" was a cone of a dull green colour, and the apex was the head of a mongoose wagging to and fro. On approaching the mystery was easily solved: the animals having got to the top of the desk, encountered there a large jampot full of bird−lime, and of course they knocked the pot off the desk, and in its fall it was broken, the birdlime forming a gluey heap on the floor. On the creatures coming down from the desk to investigate the destruction which they had caused, one of them, the female, got her hind−legs stuck in the bird−lime, and in her endeavours to escape had struggled round and round in a rotatory direction, until her whole body up to her head was enveloped in the sticky stuff. It was this rotatory motion which made her body covered with the bird−lime to assume the form of a cone.

Their end was a sad one. I had fed them on bread−and−milk and Spratt's dog−biscuits, thinking that flesh might give them the bad odour which many animals have when fed much or entirely on such food. On the above diet they throve perfectly, and had no disagreeable odour whatever. In spring, when cows go "dry" before calving, I was informed that milk was becoming too scarce for both children and mongooses, and that I could get no more for my pets, so I was obliged to fall back upon flesh to feed them with. I unfortunately made the change of food too suddenly, and the consequence was both died in a few days.

I might have saved their lives if I had been so callous to the wants of my children as the miner represented in one of Leech's pictures in 'Punch,' who, coming into the house and finding the milkbowl empty, addressed his wife thus: " Martha, wast'e done wi' the milk?" "Geen it to the child." "Dang the child !−thee should ha' geen it to th' bull pup."

## Fallow deer.

In an enclosure in front of the house at Castle O'er I kept several fallow deer, among which was a spotted doe, very tame—too tame indeed for a lady's peace of mind, as on the approach of any lady, "Spotty" commenced to chew the trimmings of her dress; and if there was a hat with artificial flowers above the trimmings, Spotty reared up on her hind−legs and tore out the flowers from the hat. This was all in good−nature, however, and no harm was done beyond the damage to clothes; but she displayed a different temper towards one of my daughters. This girl was quite young at the time, and had, in a sense, been brought up along with the deer. Spotty had shown no animus towards her, till one day, when she entered the field alone, the doe attacked her and hurt her very much. When she told me of this I could scarcely believe it, so gentle had Spotty been up till then; but a few days afterwards, when she and I were in the field together, the doe attacked her again in a most savage manner, and, knocking her down, tore her clothes, and cut her face badly by striking her repeatedly with her fore−feet.

One of my sons had two tame herons, and from want of a better place to keep them in, I advised him to put them in the deer's paddock, from whence they could not escape, as their wings were clipped, and the fence had wire−netting round it to prevent the fawns from getting into the woods. We each carried a bird into the enclosure, and the moment we put them down the doe attacked them so savagely that she had beaten them to death with her fore−feet before either of us had time to interfere.

She frequently escaped from her enclosure, and although she would disappear for a time she always returned home again. She was in the habit of following any trap she saw passing on the public road, and keeping up with it for some miles. Our church is four miles from the house, and one Sunday the family walked there, accompanied all the way by Spotty; but she was prevented from entering its precincts, and we found her at home on our return. If she had followed us inside the church, her presence would have been remarked at the present day by the younger members of the congregation, though thirty years ago a deer even might have been "tholed." Before that time the shepherds' dogs, and sometimes a greyhound, accompanied their masters to church, and with the exception of an occasional fight, in which all joined, they behaved very well during the service, sleeping at their masters' feet; but when the minister was pronouncing "the blessing," before the congregation dispersed, a change took place. Just before the benediction the shepherds made their preparations for bolting the moment the minister uttered the word "Amen." The dogs took their cue from the men, and, knowing that time was up, howled and barked so loudly that the noise drowned the minister's words. In the present enlightened times dogs, and far more deer, are not tolerated in church, and one more old country custom has disappeared.

June is the usual month for the breeding of fallow deer, but instances of fawns being dropped in autumn are known, though such late births are of fairly rare occurrence. Spotty had a fawn so late as the 2nd October, but unfortunately it was killed when a few days old by one of the bucks.

## Foxes.

I sometimes read of complaints by masters of hounds of the scarcity of foxes in some counties in England, but there is no lack of them at Castle O'er. I am expected to preserve them to provide sport for a local pack of hounds, but the numbers killed are few compared to those which harbour in my woods.

If they are not *all* bred here, they are brought by their parents from a distance so soon as the cubs are old enough to travel. Three years ago six "earths," probably holding five cubs each, were visible from the windows of the house, and if each litter had a papa and mamma all to itself, the number of foxes which might have been seen at one time would amount to the respectable total of forty−two. The only use I can attribute to foxes, beyond giving sport to a few people, is killing voles during a vole plague; and I have frequently seen them doing so, with the aid of a field−glass.

When they get their eye upon a vole they suddenly halt and crouch backwards for a second, and then, with a sudden spring forward, they pounce upon their prey, exactly as a dog does.

On the other hand, they are very destructive, and will carry on their depredations even at mid−day, and are so void of conscience that they will carry off poultry within thirty yards of a damsel hanging out clothes; and they have been seen over and over again in the daytime prowling about in the back−yard where the fowls run.

One day, when my man was minding a visitor's horse at the front door, he saw four pass leisurely across the lawn within forty yards of him. The same man's daughter saw one eating something at the edge of a wood: as she approached the fox sneaked off, and she found that he had been feasting on an owl.

The man, who lived in a cottage, at the back gate heard a great noise among his poultry, also in the daytime. He rushed out and found that a fox had seized his favourite "chanticleer." On giving chase the fox dropped the bird, and the man recovered his rooster with no further damage than the loss of its tail,− and a sorry figure it cut for many a day owing to the want of its "flag." My impression is that these are nearly full−grown cubs who do daylight mischief, and that the old ones confine their marauding expeditions to nightfall.

So numerous are the cubs in the month of Juneabout which time they begin to rove about more, and when the bedroom windows are open on account of the heat—that sleep is much disturbed by their sharp bark, three times repeated, when prowling round the house during the night.

They are impudent in other ways than killing poultry in daylight. One evening at dusk I, along with some members of my family, was taking a stroll along the public road. We were accompanied by a cub, though he kept at a respectful distance. He was on the sky−line of the low hill along which the road runs, and when we came on a line with him he ran forward a short distance, then sat down on his haunches and kept barking at us till we came below him again; then he went on, and repeated the same thing over and over again for fully a mile.

Every year there is an "earth" containing cubs in the avenue, about one hundred yards from the house. The earth is on the top of a steep wooded bank, and between this and the avenue is a small clearing of about thirty yards square. Here the cubs love to gambol in the evening, and it was a great pleasure to the children to go softly up the avenue and watch them at play.

One evening my wife accompanied the children, and they witnessed a scene which, I dare say, is a rare one, for ladies and children at least.

Whilst they were watching the cubs—six in number—the vixen came out from the wood on to the clearing, where she was immediately surrounded by her babies. She sat down on her haunches, and the onlookers had the satisfaction of seeing the cubs enjoying their evening meal.

Either the mother's sharp sense of smell discovered to her the intruders, or she must have been startled by some sound, for all at once she sprang up, and, throwing the cubs away from her, disappeared into the wood.

I cannot understand how foxes catch owls. It is conceivable that they may pounce upon one at night when the bird is on the ground devouring a mouse, but the incident which the girl saw happened during the day, and as owls are very seldom seen on the ground, it must be a rare thing for a fox to fall in with them; still I have frequently seen the remains of those birds at earths where there are cubs.

I have noticed, in connection with the *débris* from their larder, that although rabbits abound here their remains are seldom found at an earth. I have seen any number of the remains of lambs, hares, poultry, all kinds of game, and owls,− but rabbits rarely; and still they must and do eat them, and the question is, Why do they not carry them

to their cubs? This has been observed by other people besides myself, as I have seen the question discussed, I think, in 'The Field.' They are well known to rob rabbit−snares, and I have seen them hunting rabbits.

Mrs Bell and I were one evening taking a walk on the public road. On the opposite side of the river there is a hillside, having on it two woods about a quarter of a mile from each other. Half−way between the two woods a rabbit was grazing and hopping about in all directions, when presently a fox appeared, coming out of one wood and heading for the other in the usual sneaking way. So soon as he reached the place where the rabbit was grazing he became quite alert when scenting the tracks of the rabbit. At the same moment each saw the other, and the rabbit made for one of the woods, followed by the fox at full speed. The chase was a fine one, and the evening sun shining on the hillside lit up the course and enabled us to see the run clearly. I backed the rabbit and won.

Another evening at the side of the same wood we saw a white rabbit hopping about among some brackens close to the stone fence, on the top of which was a fox intently watching its desired−for prey. When the latter came near enough to the wall the fox made a sudden spring at it but missed its aim, and the albino promptly reached its burrow.

I have no objection to their taking my rabbits, but I do object to preserve foxes at the rate of £15 per litter.

In the spring of 1897 there was a litter as usual in the avenue earth; and on the hill quite close to it thirty lambs were destroyed, I have no doubt by the one vixen. As this loss was beyond bearing, I set a trap at the entrance of the earth, and in it next morning was a fox's "pad," after which no more lambs disappeared.

These lambs were, according to the season's market price, worth 10s. each at least, so this one litter cost me, as I said, £15 at the lowest calculation, and for such losses I get no compensation from the local hunt.

A litter of foxes have more than once been reared under the floor of the room where I sit writing, and the possibility of such a thing occurring was revealed in a strange way.

There is the mouth of a drain on a steep bank close to the side of the house, at the depth of ten feet below the level of the gravel drive. Whenever a run fox took refuge in this drain, which frequently happened, it was given up as lost,− as digging vas vas out of the question when the amenity of the surroundings had to be considered, and terriers could never manage to bolt them.

On one occasion, however, during a hunt, the fox as usual entered this drain, and, though it was a forlorn hope, terriers were introduced to try to bolt it. The excitement among the huntsmen was very great, and many an ear was placed at the drain−mouth, listening to the "worry" going on at a distance inside. Presently a gentleman, who was engaged on business with my father, came out of the house and said there was a tremendous rumpus going on under the floor of the room in which they were sitting. I at once entered the room to investigate, and sure enough I heard the fight between dog and fox below the flooring−boards. As the sound indicated, the dogs were pressing the fox farther up the drain and eventually through below the foundation of the outer wall.

The drain had originally been made to carry surface−water from the avenue, but when an addition to the house was made it was disconnected and forgotten, or no fox previous to this time would have escaped.

We found that the upper end of the drain was quite near the surface, and about six yards from the house wall, so the fox was got out with very little digging.

Next year a litter was reared under the same room, the vixen having made her entrance this time through the soil which had been loosened by the previous year's digging.

Having heard that about forty years ago a pair of otters took up their abode and littered under the floor of one of the rooms in Thirlestane, the seat of the late Lord Napier and Ettrick, I asked him if he could give me any particulars as to this. His lordship told me that the supposed incident happened when he was abroad, and that although he knew that otters were found under the foundations of the house, he was not quite sure if they littered there. The animals had got access to the walls through a drain which carried the roof−water into a burn near by.

Foxes do not *generally* climb trees, but the following incident proves that they may occasionally do so under certain circumstances.

I was standing one morning at the front door, when my attention was drawn to a peculiar sound in a wood at the edge of the lawn. The sound was as if two dogs were snarling at each other, but as no dogs should have been there at that time, I went to investigate the matter. As I approached an oak−tree I was surprised to see a fox cub, nearly full grown, drop from a branch, which I eventually found by measurement was six feet from the ground. The grass was very long at the time, and the cub quickly disappeared from my sight.

When I was gazing in the direction it took, and wondering if I had not been the victim of an optical delusion, I

was startled by some object flashing past my face and nearly touching it. This was another cub, which had also dropped from a branch right above my head, and this branch was eleven feet from the ground. I am aware that foxes are not generally arboreal in their habits, like monkeys and lemurs, and the only theory I could think of to account for their unusual proceeding was that two cubs had been indulging in a game of romps, and that one had, with a race, clambered up the rough bark and was followed by its companion, eager to catch up with it.

## Badgers.

Badgers are "few and far between" in my district, and five only have been recorded within my remembrance, and all were killed in the parishes of Eskdalemuir and Westerkirk.

I remember a very large and heavy one was killed at Westerhall on 3rd September 1856, weighing 42 lb. Eight foxhounds and four collies were engaged in the "worry," and as they were unable to despatch it, it received its *coup−de−grace* by a cudgel wielded by one of the onlookers; and although it had been worried for a very long time, none of the dog's teeth had penetrated its thick hide, except at the joints of the legs. It was so extremely fat that my impression is this state of obesity caused the teeth of the dogs to slip over the distended and thick skin.

Two were captured within a day or two of each other,− one on the farm of Clerkhill, the other on Rennelburn, both in the parish of Eskdalemuir, and by a gamekeeper named Henry Dickson and a shepherd named Thomas Anderson, respectively. Both men are now dead, but I wrote to the game−keeper's son asking if he could fix the date, and he answered that, though a boy at the time, he thought it would be either in 1857 or 1858. He added that he well remembered that his father took the live badger which he had captured to the manse, at the request of the minister, the Rev. John Strathearn, to try his terriers; and his father told him he had been much amused by seeing the minister, who had a lame leg, limping round and round his dogs in a great state of excitement, urging them on to their deadly work.

Another was killed by Peter Ker, shepherd at Upper Phawhope, at a place called "Little Nick," on the 2nd May 1889. This one had its hole close to the boundary fence between Eskdalemuir and Ettrick. The man's dogs tackled the beast, but being unable to kill it, he did so himself with his stick.

The fifth of which I have any authentic information was killed in the "Hole Syke," on the Bombie hirsel of Hopsrig, in Westerkirk, in the winter of 1892−93.

A sixth is reported to have been killed between Westerhall and Burnfoot, also in Westerkirk parish, but I have no particulars as to date, &c., regarding it.

I have a fine stuffed male otter, which weighed 22 lb. It was killed by a shepherd boy of mine who met it in the day−time on the top of the Yards hill, and just at the boundary fence between Castle O'er and Billholm, a considerable distance from the river. His two dogs were unable to kill it unaided, but they held on to it whilst he strangled it with his leather bootlace,− a proceeding I would not have liked to undertake myself.

There is a popular belief in this district that badgers and otters can "turn in their skins," whatever that means.

## Arctic Foxes.

When studying my beasts, I came to the conclusion that Arctic foxes are sneaks compared to British ones: and I have read that in Iceland they will watch the hunter set his traps, and whenever his back is turned, will walk right into them.

I had six of these animals, and kept them all together in a large cage, which for obvious reasons was placed *outside* my menagerie. One of them was such a confirmed bully towards his companions that many a battle−royal took place among them, and the noise they made when fighting, especially at night, was such that I had to warn all ladies who stayed in the house what the frightful screaming sounds were which they would hear during the night. The one above mentioned was familiarly called the "devil," owing to his malignant ferocity.

At this time the Earl of Granard, wishing to reduce his deer, advertised the sale of extra stock. As I wanted two, I answered the advertisement, and in this way arose a long correspondence between myself and his lordship's bailiff.

During this correspondence we opened our hearts to each other, I telling him of my collection− foxes included,− and he telling me of Lord Granard's predilection for animals. Among other things, he told me that the crest of the family was a muzzled bear, and to keep up the tradition a live bear was always kept in the yard: in fact, at that time the yard contained two bears− an old one and a young one. His lordship, wishing to reduce the number of his bears as well as his deer, offered to present me with the young bear. Such an offer, to a man of my tastes, was too good to be refused, and I speedily accepted it, at the same time requesting information as to how he should be housed, fed, &c. I was directed to have a large kennel built, with sheet−iron fastened on the edges of the doorway, or any other place where Bruin could get a grip with his teeth. That kennel was never inhabited by a bear. It was made twenty−six years ago, and must have been well built, as I have it yet, though tenanted by more peaceable inmates− viz., my wife's ducks.

When the house was ready I gave directions for the bear to be despatched by first steamer from Dublin to Silloth. I went to Silloth to meet the boat, fully expecting her to have my bear on board. When she was nearing the quay my anticipations of pleasure were extreme; but when the boat was alongside and I was told no such passenger was there, my disappointment was unbearable.

I returned home very crestfallen, and after waiting the return of the boat a week later, still with no bear on board, and no letter explaining why, I wrote inquiring the cause of delay. The reply was that the day the bear was to be packed up it escaped into the yard. The weather was extremely hot, and after a long hunt the animal, which was overy fat, got much overheated, and a chill, which developed into pleurisy, was the consequence. The bailiff, always hoping it might recover, did not write me; but after lingering on for ten days, it died just the day before my letter of inquiry was received. I was grieved at the time, and considered that the chance of adding such a grand beast, *for nothing*, to my collection would probably never occur again. It never has: and I was very glad, after my excitement had time to cool down, that I got no bear. These animals are amusing and safe enough when quite young; but even though brought up as pets, they become, when adult, dangerous brutes, who never can be trusted even by their master. This one I must either have destroyed, probably, or sent as a present to the Zoo.

When on the subject of bears I will recite a story told me by a former station−master at Langholm. He said that before he came there he had held a similar post on some other line, but which I now forget, though my impression is that it was either in Dumfriesshire or a neighbouring county. A friend had sent him from America a very young bear−cub, which on its arrival he deposited in the back−yard of his house, where it made night hideous with its yells. Naturally his neighbours resented the loss of their night's rest, caused by his intended pet; and as no one was willing to take it off his hands, and so cause loss of sleep to himself or others, he was at a loss how to get rid of it: but eventually he resolved, so as to get himself out of such a dilemma, to give the beast its liberty.

With this view he carried it under the cover of night to a plantation some considerable way from his house, and left it there to do its worst. From that day to the day of telling he never heard more of it. A bear cub, however small, is easily seen and *heard*, and is not commonly found in these parts. No person ever spoke of seeing or hearing it, and no account appeared in the public prints recording the presence of a ferocious beast prowling about a well−inhabited part of the south of Scotland. My impression is that either the poor beast crept under a bush to die, or that a discreet gamekeeper "put it down" as a pheasant poacher, and kept the matter to himself.

After this long digression let us return to the foxes.

A letter arrived from the bailiff to say that Lady Adelaide Forbes, Lord Granard's eldest daughter, then a girl of thirteen years of age, was anxious to possess an Arctic fox, and would I sell her one? Of course my natural gallant feelings, combined with the remembrance of the offer of the bear without price, induced me to reply that her ladyship was welcome to one as a present. I am afraid I did not make this offer without mental reservation, and I felt that I was as great a sneak as the foxes were. I told my man that this would be a good chance of getting rid of the "devil," as of course such a young girl as Lady Adelaide Forbes would only want it to keep as a "specimen" along with the bears, and no inquiry as to its being tame was made. Knowing the danger of catching him for packing purposes, we used a long iron rod with a running noose of stout cord, the free end of the cord being as long as the rod. This noose I deftly slipped over the fox's head, and, drawing the long end of the cord tight, I lifted him out from among his companions and dropped him into a box, the lid being very quickly put on and nailed down. We had some difficulty in doing this, as the moment his neck was free from the noose he made a terrible fray, yelling and struggling to escape, and very nearly did so. I had previously bored some air−holes on the top of the lid, and my man remarked, "I peety ony body wha pits their fingers intae yin o' thae holes."

The box was despatched to its destination and receipt acknowledged. A month afterwards another letter reached me saying that "Lady Adelaide Forbes again begged to thank Mr Bell for the fox; that it was the nicest pet she ever had, and that she carried it about in her arms wherever she went." This information filled my mind with remorse, as I never for a moment imagined a girl of thirteen would have attempted to handle a full−grown fox; and make a pet of it or I would never have sent her such a vicious brute, though at the same time none of the others were more suitable for such a purpose, so far as I could judge.

Lady Adelaide is a married lady now, probably with a family of her own, and I hope if she knew the circumstances, and that I had no evil intentions, she would grant me a free pardon.

This rapid conversion of a devil into an angel is one of the strange instances of the mysterious power some people have of subduing wild animals, another of which I mentioned on a previous page when speaking of Dr Mann and his snakes.

The question may arise, however, as to whether the young girl actually possessed this faculty, or whether, in this case, the change in the beast's character may not have been owing to his being really gifted with a very sweet temper, but which was latent and undiscoverable either by me or his own relations, and only temporarily broken by the constant nagging ways of the latter. When removed from such vitiating influences the better side of his nature may have asserted itself. Be that as it may, I was very pleased indeed that my remorse was so short−lived, and that the young lady received no hurt owing to my apparent bad conduct. I can only say, like the small boy who is being reproved for some fault, "I'll never do it again," and trust that my promise of amendment may be more sincere and more lasting than that of many small boys.

## Eagles.

The person from whom I got the foxes was a Mr Slimon, who, besides being a contractor for ships' stores, was a ship−owner himself, doing a large business importing Iceland ponies, of which trade he was pioneer. He brought home many curiosities from the island, and I got from him, besides the foxes, a white−tailed sea−eagle and a pair of jerfalcons.

I have not much to record concerning these birds, except that the eagle killed a vulture, which disproves in some measure the old Scotch saying that "Hawks winna pick oot hawks' een."

## Jerfalcons.

The jerfalcons both died during a time of great heat. Hot weather always affected them severely, and they often sat on their perch with their mouths gaping open, evidently suffering great distress. I may have kept them in too warm a place, but I was anxious to give them as much sunlight as possible to cheer them in their captivity; but I found this was mistaken kindness, and I thus learned that beasts or birds coming from a cold climate should be kept, during our summer at least, in a cool shady place.

## Iceland collies.

In Mr Slimon's shop I once saw two dogs which, to me, had an unfamiliar appearance, and I was told that they were Iceland collies. They were very small, about the size of a large terrier, of a rich rufous colour, and they carried their tails curled over their backs. They were not unlike small Eskimo dogs. Mr Slimon mentioned, as an example of their sagacity, that when he went to the island for a cargo of ponies he was obliged to go to the mountains to make his purchases. These ponies are bred and run wild on the hills in the same way as our sheep here. When bringing a drove down a valley where a river runs zigzag through it, there are naturally many fords to cross; and so soon as the ponies reached a ford each dog chose a mount, and, jumping on the back of the pony, rode through the ice−cold water. These dogs were wise in their generation!

I have had two aviaries under my care, the first one at Billholm and the second at Castle O'er.

## Bilholm aviary.

When I built my menagerie at Billholm in 1869, I portioned off one end with fine wire−netting, to serve as an aviary for keeping both foreign and British birds. In the absence of written notes I cannot recall to mind many incidents which would be of general interest to my readers, though I know that several events did take place among my birds, as well as among my animals, which would have been worth recording had they been entered in a note−book at the time; and I can only remember one or two connected with the aviaries proper. Still, I had many birds outside, and as these may, I think, be safely treated of under the general heading "Aviary," I will narrate those incidents of which I am certain, from memory, and which any of my readers who may be fond of birds might like to hear.

As locality has little to do with the events, I shall not state at which home each took place, but shall record them—unless special remark is necessary—as if I had only one aviary.

I have referred to the spite one Talapoin monkey showed to another of its kind, and I discovered that the same temperament exists among birds. In the aviary was a cock−robin, the dear, kind, little cockrobin of the "Babes in the Wood," whom I so venerated in my childhood; and though any hope of breeding was out of the question in a miscellaneous collection such as I kept, I generally tried to have all my birds in pairs, so that each sex might have a mate of its own kind to converse with in such a mixed company. I was unable to provide this solitary bird with a companion of the opposite sex, but remembering the pretty story above alluded to, I thought that he would be kindly disposed to one of his own sex. With this view I introduced another cock into the aviary. Next morning I found it lying on the floor with a large hole in its skull. I put in a second, then a third, but each suffered the same fate. I never suspected the gentle robin as being the murderer, and blamed one of the foreigners; but on releasing a fourth in at the door, the original cock, at the moment the bird left my hand, dashed at it and in a second or two killed it.

This revealed the real culprit, and the romantic impressions of my childhood were for ever dispelled.

## Bullfinches.

I was more successful in procuring a cock bullfinch as mate to a hen. Bullfinches are very rare in the district, and I have only seen one nest in all my bird−nesting expeditions, though in autumn a small flock is sometimes to be seen.

On taking a walk which led me through a thicket of sloe bushes, I saw a small flock of these birds, and I returned as quickly as I could to the aviary, at no great distance.

I caught the hen, put her in a cage, and, having provided myself with a limed twig, returned to the bushes. I was glad to see the birds still flitting about, so I put the cage down on the footpath with the twig on the top of it. I had not retired twenty yards when a very fine cock bird pounced down on the twig, where he was firmly secured, and I returned in triumph with as fine a mate for my hen as I could desire.

## Yellow ammer.

I also had a hen yellow−ammer for whom I had in vain tried to secure a mate. After some time I was successful, and the manner of its capture was one of those coincidences which are difficult to explain: indeed the one I here mention was so strange that the Scotch expression, "no canny," is the only one to apply to it.

I had just left the aviary, thinking how greatly I desired a cock bird, and had approached the flower−garden, which was fenced with wire−netting, when just at that very moment a male bird flew against the netting and fell to the ground, slightly stunned, within a yard of my feet. It was little hurt, and when it regained consciousness it found it was a married man!

## Rat in aviary.

During some time it appeared to me that the ranks of my birds were thinning somewhat, though before this there were so many of them all together, and so many of each species, that I did not know them all by head−mark, nor had I counted them for some time. Now that my suspicions were roused I began to take more notice of them, and tried to familiarise myself with each one. Almost every morning I missed a "kenned face," and their disappearance was a mystery. The wire−netting was made of one−inch mesh, through which no bird bigger than a waxbill could escape, and there was no hole for a full−grown rat to get in by. There was no lurking−place for vermin except a long box, extending the whole length of one end of the aviary, about nine feet from the floor, and divided into compartments with small entrance holes, intended to serve as nesting−places if any of the inmates *did* choose to breed. I procured a step−ladder with which to reach the nest−boxes, and see if it was possible that any of them were sheltering vermin of any sort.

I was greatly surprised to see a *full−grown* piebald rat snugly curled up in one of them. As the hole was too small to allow my hand to enter, and perhaps thinking it was as well it was so, I barred it up and went to the house for a long two−pronged cooking−fork, with which I impaled the evident culprit, and quickly put it out of pain. Many people may think the act was a cruel one, but it was the only plan I could at the moment think of, and I bethought me that "desperate ills call for desperate remedies."

The rat was as fat as a pig, and well it might be, as it had not lived on "deaf nuts," having both the birds and their seed to fatten on.

Its presence in the aviary I think I can explain. I kept a number of piebald rats and mice for feeding different−sized beasts and reptiles, and I remembered that a whole litter of these rats had escaped when they were very small, and one had squeezed itself through the wire−netting: there it had lived on the seed till it was big enough to kill birds, and then had fed upon both till it was in the flourishing condition in which I discovered it.

## Waxbills.

In the aviary there were a pair of St Helena waxbills. These are certainly very small birds, but I did not think they could have got through such small−meshed netting. It was a long time after I got them that they resolved to show me I was mistaken, and out they went. Their escape would not have been worth recording were it not for what took place afterwards, and to prove the hardiness of birds coming from a hot country and kept for many weeks in a hot aviary. After their escape I heard nothing of them for some time till a man, who lived in a cottage about a mile from Billholm, told me that "twa queer wee birds" came every day and fed with his poultry. I paid his cottage a visit next morning at the hour the gudewife fed her hens, and sure enough there were my two waxbills looking quite cheery. I did not try to capture them, thinking I had better leave them at liberty, and so test their quality for standing this climate.

They continued to come and go all the summer and into autumn, but I thought they could not survive the winter. One of them disappeared early in winter when the weather was not at all severe, but the other was seen all winter and well into spring, when it also ceased coming for food. As this one had encountered very hard frost and severe snow−storms, the possibility is that the first one, or perhaps both, at last may have fallen a prey to some hawk or prowling tabby. It is astonishing that such a fragile−looking foreigner could survive a Scotch winter, which is generally very rigorous in the district where it lived so long.

Let me here warn owners of aviaries to search for holes occasionally, for though they may be made bird− or rat−proof at first, holes may be found afterwards, especially if parrots or other strong−beaked birds are in the collection. When I built an aviary at Castle O'er no escapes took place for two or three years, but eventually some budgerigars got through the division between their compartment and that of the small birds. The wire−netting appeared quite secure, but I eventually discovered a small hole at the junction of the netting with the wall in a sharp angle where some of the parrots had pulled the wire away. The hole was so small, and there were so many sharp points of wire, that it was difficult to understand how even budgerigars could get through; but this was their place of escape, as after I repaired the netting no more got through.

## Ravens.

Ravens, for want of suitable building−places, are scarce in this pastoral district, and I may add, so far as I know, in any part of Dumfriesshire. There is only one place—near Langholm—where I know of a pair who breed, or did breed annually, and as a special favour I obtained a young bird from its nest.

I thought a raven would make a very nice and amusing pet, and I have no doubt his on−goings would be highly amusing to disinterested persons, though his proprietor failed, in time, to see any fun in them. Before he was fledged, getting out of bed at daylight was a trial to my temper, especially as I thought he should be fed several times before breakfast. After he could fly and pick up his own livelihood, it behoved him to perch on my bedroom window−sill, likewise at daylight, and sleep was entirely banished by his incessant cawing.

As he grew up he began to sow his wild oats, and the reaped grain brought little profit either to himself or me. Every hour of the day he was engaged in mischief and destruction.

On returning home from fishing one day I found him in the porch, busy stripping not only the paper but the plaster off the wall; and he had been so industrious that he had managed to denude the whole of the wall of plaster—down to the laths—as high up as he could reach. When I entered he bolted out: his conscience was so bad that he generally did bolt when he saw me approach; and this act was frequently the cause of my discovering some damage which otherwise I would have passed by without suspecting it. When he got outside the door I had my fishing−basket in my hand, and as it was the most convenient missile at the time, I pitched it at him, with the secret hope that it would kill him—by accident.

The basket, fortunately for him, missed its mark; but some trout tumbled out of it, one of which he seized and proceeded to devour, evidently thinking my intention was the reverse from what it really was, and that I meant to provide him with a good meal.

I found a young sparrow which had either left or had been ejected from its nest by its relations. It was on the ground, and thinking it might be pounced upon by a cat, I took it home and brought it up by hand.

So soon as it could take care of itself I resolved to give it its liberty, and for that purpose took it outside the house. When I opened my hand the poor bird was rather bewildered, and instead of flying to a tree it fluttered to the ground: at that moment the raven, till then unseen, rushed out of a corner and seized it; and I distinctly heard its poor bones "crunch," and it disappeared down the raven's throat in a gulp.

Another of his little pranks, and one that was the "last straw which broke the camel's back," was this: I had invested in what an advertising gardener called "100 bedding−plants for a guinea." On their arrival they were planted out in the flower−garden, and looked very nice. Next morning, on looking out of a window giving upon the garden, I saw the plants really "bedded out": every one of them was pulled up by the roots and lying withering on the ground—the work of "Ralf."

My managing shepherd at a distant farm had often admired the bird's quaint ways when he came to see me on business, and to him he was presented, without being informed of the plant incident. The next time we met he told me that his new acquisition was the most "sensible bird" he had ever seen: that when he was weeding the garden the raven picked out a weed for every one he did.

Next spring, when my man planted out his young cabbages, they suffered the same fate as my flowering−plants, and the raven was handed on to his next−door neighbour, who lived some miles off, where I lost trace of him.

## Choughs.

Choughs are now very scarce in Scotland, whatever they may be in Cornwall, where they bred in abundance at one time, and there they are known as "Cornish crows." With much difficulty I procured a pair from the Mull of Kintyre, where a few pairs then bred, but it is long since, and they may be extinct now.

My pair were located in a special outside aviary, along with a "laughing jackass" and a jay. A laughing jackass is not a "merry moke," as its name would imply, but a species of kingfisher, and a native of Australia; but it is devoid of the beautiful plumage of its British namesake, being dressed in sombre colours, and is about eighteen inches in length. Its laugh may be described as "fiendish," and my bird could be heard at a distance of a mile. I can quite understand with what terror "new chums" arriving in Australia, and camping out in the bush, hear it for the first time suddenly burst forth from several of these birds, when they have stealthily approached their camp−fire on a dark night.

All the five birds above−mentioned fell a prey to rats which harboured in the thatched roof of their house.

## Pheasants.

As a curious case of a pheasant recognising an old friend, I may here relate that, during a prolonged snow−storm one winter, I picked up a hen pheasant in such a state of starvation and consequent emaciation that it was unable to fly. I carried it home and placed it in an enclosure beside some black−game. Good feeding brought it round, and it was soon quite fat. As it regained its strength it became very wild, and dashed itself about whenever I entered the enclosure. I kept it there all the winter, and in spring a gamekeeper, employed by a neighbouring proprietor who reared a large number of pheasants each year, came to see my collection. When he entered the enclosure the pheasant showed no fear whatever, and merely moved away from the man's feet as he walked about. He said to me—and I was quite ready to believe him—that he had no doubt the bird was one of those he had reared the previous season: certainly it appeared quite familiar with the man, who spoke to it in the endearing language he used when rearing them, and it was strange that it recognised him after so long an interval of time.

## Several birds.

I have bred many birds of all kinds, including grouse, black−game, and partridges, but never succeeded in rearing the two former to maturity. Black−game lived longer than grouse, but both species died when still young, while pheasants and partridges did well. I never shut up any of these birds, and though they remained for some time about the lawn and garden, they gradually disappeared, joining others of their kind, no doubt.

## Mountain blackbirds.

A nest of young mountain or ring−necked blackbirds paid me back shabbily for my kindness in rearing them. I kept them for a long time after they were full grown, and they were in perfect health and plumage; but eventually I gave them their liberty. They lived principally in the garden and devoured all the fruit, getting in below the strawberry and currant nets, where they did great mischief; but being both rare in the district and pretty birds, I rather preferred to let them help themselves than destroy them. However, they occasionally visited other gardens, and I fear fell under the displeasure of some one less sentimental than I was, as they also disappeared, never to return.

## Birds starved.

I lost a good many birds in my aviary at Billholm, owing much to the same cause as my three emus before referred to—viz., carelessness of the person left in charge of them. I had gone to town for ten days, and after being there for nearly a week a parcel arrived by rail—there was no parcel post in these days. On opening the parcel I was astonished to find in it fifteen of my foreign birds dead. A note along with them told me they had been found dead in the aviary, and were sent to me so that I might have them stuffed.

I got no other explanation until my return home. When I did so, my man, who had remembered the loss of a pair of marmosets, caused by the room ventilator being left open on a cold day, gave me this excuse for the death of the birds; but I was informed some time afterwards that he had forgotten to feed them for several days: fortunately the above number were all that succumbed. When deaths did happen—and they were not infrequent in a large collection—I generally got them stuffed. This fact was noticed by one of my daughters, then very small, and when a poor woman died in a neighbouring cottage she asked "would papa get Jenny Clegg stuffed?"

## "Cocky."

I had a lemon−crested cockatoo presented to me which was a curious and interesting bird. As he was very tame I gave him his liberty, and he remained about the garden and the trees surrounding it, never attempting to go far afield. He picked up a few accomplishments, two of which were accurate imitations of sounds he heard. There was a wooden door leading into the garden, and when this was either opened or shut the hinges, which required oiling, produced a most peculiar sound, not at all like the usual sharp sound of an unoiled hinge, but rather like the deep−toned growl of some wind instrument which a beginner is trying to learn. This sound "Cocky" picked up to a nicety. Frequently, both before and after I knew he had learned the note, I looked round to see who was opening the door, if he was not quite near me at the time. His other accomplishment was that of imitating a dog coursing a hare. A shepherd who lived just opposite the house had a collie which was very fond of hare−hunting, and any one acquainted with the "tongue" a collie utters on such occasions cannot mistake what the dog is doing, though the hunt may not be in sight. So many of these hunts took place on the hillside across the river that "Cocky" picked up the noise perfectly, and I was continually being deceived, never knowing whether a real hunt was taking place or whether it was the bird imitating one, when he was out of sight among the trees. By the way, a shepherd's dog can be broken off running hares or rabbits as easily as he can be prevented from chasing sheep. If a master is out on the hill with a shepherd, and his dog chases every hare and rabbit it sees, accompanied with the excited yells of the herd to his dog "to come in a'hint," the master may be pretty sure that that dog, when he is not present, has either been encouraged to hunt or at least has been allowed to do so.

When I was tenant of a farm my shepherd consulted me what he was to do about his dog,− a very clever and valuable one, both when it was engaged in honest work and when it departed from the paths of rectitude. He told me that scarcely a week passed without its killing two or three brace of young game, and he was afraid he would get into difficulties with the gamekeeper. I told him that probably I might be held responsible if he was suspected of being even an unwilling poacher through his dog's bad conduct, and that I might be summoned by my landlord to dismiss him as well as his collie, and therefore advised him either to watch it more carefully or part with it. This form of poaching is more difficult to stop than hunting hares, as the dog pounces suddenly upon a bird when sitting close, especially on a wet day when its feathers are "draigled," and the deed may be done before the shepherd can stop it. Knowing the difficulty he had to contend with, the man parted with his dog, much to his regret as well as to mine, as it was a very "canny beast" among sheep. Was this man sincerely honest, or was he only frightened for the gamekeeper? We will give him the benefit of the doubt.

But to return to Cocky. He became almost as mischievous as the raven, and as he "barked" all the fruit−trees in the garden, I was obliged to imprison him on a stand. When in this position he performed many curious and extravagant antics. His vocal powers were limited to a few words only, such as "pretty Cocky" and "poor little fellow," uttered in a most dolorous tone when any one scratched him on the head; but his other accomplishments made up for want of speech. If any person whistled a tune he would have danced for an hour, I am sure,—at least he generally tired out the "fiddler." His contortions, accompanied by screams of laughter, were extremely ludicrous: during his performance he would throw himself into every possible position, and even fall off his perch altogether, when he hung by his chain, flapping his wings, still continuing his outbursts of hilarity. A friend who came to see him remarked that he had never seen anything approaching his peculiar on−goings except a "drunk woman." Why a woman in a state of— excitement should be a *funnier* sight than that of a man under similar circumstances, I fail to see.

*Note.*− When writing the above lines I thought "Cocky" had left my house for good, but he has recently returned after an absence of eighteen years. When the family left Castle O'er to live in England for some years, a cook who was leaving our service asked me to allow her to take the bird to Edinburgh, where she meant to take up house; but lately, feeling that her health was failing, and not wishing him to fall into the hands of strangers, she asked me to take him back again, which I did. On 12th July 1868 I got him from a friend who had possessed him for three and a half years. I myself had him for eighteen years, the cook also had him for eighteen years, and as he would be six months old when he first came home from Australia, he is now forty years old for certain. As I write he is going through some of his performances with as much vigour as when I first made his acquaintance thirty−six years ago. He shows no signs whatever of old age, and his health, plumage, and spirits are as perfect as

when I first saw him.

## Castle O'er aviary.

My aviary at Castle O'er was an independent one, situated some way from the house, and consisted of a good stone−and−lime building covered with slate. It was lighted by rows of obscured hammered glass on the front and back slopes of the roof as well as on the ends. Besides this, the upper halves of the doors were glazed as windows with clear glass. I glazed the roof with obscured glass to ward off the fierce rays of the sun, and considered sufficient sunlight would be derived from the door windows. The ventilator was a ridge one like those in hot−houses, and was raised and lowered by brass cord—the parrots would soon have destroyed hempen rope. It was heated by a hotwater boiler and pipes, the stoke−hole being a separate building by itself, so that all smoke from the furnace fire was avoided. The size of the house was 16 feet long by 8 feet wide, and 8 feet high to the spring of the roof.

I divided it into two rooms, each being 8 feet square, and there was a courtyard in front of each room 21 feet 6 inches long by 10 feet 6 inches wide, covered entirely with ½−inch wire−netting, and divided in its length by the same material. The one room was devoted to parrots and paraquets of many kinds, and the other to foreign birds, ranging from the size of waxbills to bleeding−heart pigeons. It, like the one at Billholm, contained a miscellaneous collection, and the numbers were much greater. The rooms were not at all overcrowded as they were not "ceiled," and the birds had room to fly about in the whole space from the floor to the ventilator, besides having access to the courtyards at all times when the weather was not severe. In summer the doors stood wide open all day but were shut at night, whereas in winter the doors were always shut, though the birds could fly out and in through one of the panes of the window which was framed and hinged. On a sunny day so many bright−coloured birds, both of the parrot tribe and others, flitting about in every direction was a pretty sight. I had a seat in the small birds' courtyard where Mrs Bell or my daughters sat with their knitting or other work, and frequently they and myself were entirely covered with birds of various hues, so tame and confiding they became.

Here again want of notes prevents me giving many interesting details of bird life, and I might have filled a volume with nothing else.

## Bleeding heart pigeons and Java sparrows.

Of course in such a mixed company were to be found Java sparrows, and one of the most touching spectacles I remember was the devotion of a bleeding−heart pigeon to two of these birds. Though the temperature of the house was kept at tropical heat through the night, the pigeon always "cuddled" a sparrow under each wing. Many visitors were taken to see the sight, and when, by the light of a lantern, the trio were looked at from behind sitting on a perch above head, it appeared as if the pigeon was holding a baby under each arm; and when looking at them from the front, the two heads protruding from among her feathers seemed in a way as if they were part of the pigeon herself.

## Jays; and parrots eating each other.

I became possessed of a pair of Brazilian jays, and not caring to keep them in a separate enclosure, and being afraid to put them among the smaller birds, I resolved to introduce them into the parrots' compartment.

These birds required different feeding from the parrots altogether, and it was necessary to provide them with some sort of animal food. I gave them chopped mutton sometimes as a change from their usual food, but they did not live very long with me. I cannot exactly remember the immediate cause of their death, but I have a dim recollection that they were found dead, as if they had been hurt in some way, and now think they were murdered by their companions. Shortly after their death, I found one of the parrots lying dead with a large hole in its skull, which was emptied of its contents. No rats or other vermin could get into the aviary, and I did not suspect any of its companions. Had it simply been killed, I might have thought it had lost its life during a fight; but the empty skull was a mystery. A few days afterwards another was found in exactly the same state; and still I could not think that a seed−eating parrot would kill another for the purpose of eating its brains. However, after several had shared the same fate my suspicions were aroused, and I was determined to watch the behaviour of the others, and sat in the other compartment for a couple of hours each day for some time, but never saw the slightest animosity displayed by any one of them to a companion, though still the slaughter continued when my back was turned. As my doubts became convictions, and as I was reminded of Hood's poem "The Last Man," I resolved to hand over the remains of a valuable collection to Jamrach at his own valuation.

There is no doubt whatever that the parrots had acquired a taste for flesh by eating that supplied to the jays, and to satisfy this vitiated appetite had destroyed their companions. I may remark that although the brains were the only part eaten at first, other parts of the body were being consumed before I disposed of those remaining alive.

## Sheep−eating parrot.

A somewhat analogous case of depraved appetite is that of the now notorious Kea of New Zealand, a parrot, inhabiting the mountains of that country, which is a great scourge to flock−masters by its actually devouring the fat round the kidneys of live sheep. It was supposed to have acquired this taste for flesh by visiting the slaughter−houses at the stations, and eating the fat from skins hung out to dry when there happened to be a scarcity of their ordinary food. It is said to alight on the sheep's back and eat out a hole in the poor animal's loins right above the region of the kidney, and having extracted the tit−bit, to leave the rest of the animal alone. Of course this mutilation of the sheep is certain death, and the losses of sheep−owners are so great that a price is set on the bird's head, and consequently the species will possibly be very soon extinct.

## Paraquet escapes.

As an addition to my aviary, I requested Mr jamrash to send me a pair of Nanday paraquets.

The beasts and birds supplied by him were always despatched by the night mail leaving Euston at 9 P.M., and they reached Carlisle early next morning, and thence by a branch line, reaching Langholm, our station, at 9 A.M. As our local post−runner, who "ran" a gig with our mail, left Langholm on the arrival of the train, he always brought my live stock from town, and so saved me from sending to the station expressly for them. Our letters, &c., were left at a cottage two miles from Castle O'er, but whenever I expected something alive I used to meet the trap at a point of the hill−road much nearer the house, and thus I got my creatures sooner home after their long journey than if they were deposited at the cottage.

The day I expected the Nanday paraquets I met the trap as usual, and found the driver in great distress. He said that during the whole journey from Langholm he had heard a gnawing sound proceeding from the birds' travelling box, which was under the front seat. He suspected no evil, but when he saw me coming over the hill and still some distance off, he prepared for the delivery of the box to me.

When he lifted it out from under the seat he discovered there was a hole eaten through one end, and one of the birds was at that moment struggling through the hole, but he was too late to prevent its escape, and it flew out of sight over the hill. I made the remaining bird secure, and though I searched the hill for an hour in every direction, I neither saw nor heard the fugitive, which was strange, as these birds are very noisy, and after its long confinement it could not be expected to fly a long distance at its first essay, certainly not farther than the extent of ground I covered when searching for it.

However, no one ever heard of it again. It is possible it may have fallen exhausted to the ground and crept into a thick bush of grass, and there died from cold during the night.

## A forlorn parrot.

My friend Mr Beattie of Davington, in this parish, told me of the escape from his house of a parrot which was recovered under peculiar circumstances. He was not sure of what species the bird was, but it was addicted to the bad habit of plucking its feathers—a vice very common to many parrots. It had carried on its work until its whole body, as far as it could reach, was nearly denuded of feathers, though it had not quite destroyed its power of flight by pulling out all those from its wings. It escaped from its cage and then through an open window. The day was very cold and wet, and there was a gale of wind blowing. A shepherd, on going his rounds next day, had his attention drawn by a great sensation among all the curlews and peewits in the neighbourhood, assembled at one spot. They were screaming and diving in the direction of a peat−hag—that is, a place where turf has been cut for fuel. When he approached the hag to learn what all the excitement and noise was about, he was astonished to see a most woe−begone object crouching in a hole, trying to hide itself as far as possible from its tormentors. He could not at first distinguish what the poor, naked, shivering creature could be; but at last he saw what it was, and having heard that Mr Beattie had a parrot, he took it up—not without a tussle—and restored it to its owner.

My friend thinks it lived some time after its terrible experience, but could not say how long. The presumption is that as the spot where it was found is about three miles from home, it had been caught up by the wind when trying to fly, and had been blown rather farther than it wished.

## Budgerigars at Castle O'er.

When I first came to Castle O'er I invested in a dozen budgerigars, and give them their liberty. When I first got them, I put them in a cage at Castle O'er and placed it on a table below a tree growing on the lawn. On a branch of the tree I hung a bell, and for some time I rang the bell each time I fed them, and eventually opened the cage door and allowed them to find their own way out.

They very soon took advantage of the open door, and I removed the cage, still continuing to place seed upon the table and sounding the dinner−bell, which summons they never failed to answer so long as they remained in the neighbourhood. There is a fir wood on the hillside on the opposite side of the river, and they looked lovely, always in a flock, flying backwards and forwards along the wood, with their bright plumage showing well up in the clear sunlight against the dark background of trees.

They remained thus for some months, and took their departure all on one day. Before they went a cat brought one into the house, but this was the only one accounted for, and my impression is that they attempted to migrate to their native country. It is, however, a stiffish journey to Australia, and it is *very doubtful* if they ever reached it.

## Long fast of birds.

In a large and mixed collection of birds from all climes, an amateur must make up his or her mind to suffer many losses which, in most cases, it is impossible to prevent. On entering the aviary some morning, one will find dead on the floor a bird which appeared to be quite well yesterday, and it is probably the greatest favourite of the whole lot.

I believe one great cause of death among foreign birds is the long fast they must undergo during the dark nights of the winter months. Here it is too dark for them to see their food by about 4.20 P.M., at least that is the average time for lighting lamps in the house, and sometimes when the sky is overcast 3−30 P.M.,—and it is scarcely daylight in the morning till 8.30, and owing to a hill to the east the sun does not rise to view till 9.20 on the shortest day.

The small stomachs of these foreigners were not meant by Providence to suffer a fast of sixteen hours at a stretch, and when they are subjected to it in this climate their constitutions become weakened, and they die. They are unlike our native sheep, of whose fasting powers I will have occasion to treat farther on.

## Mandarin ducks and goosanders.

It is a pity that the plumage of some gaily coloured birds fades so soon after death,—for example, the mandarin drake and the goosander.

I kept a number of fancy ducks in a small enclosure outside the dining−room window at Billholm, among which were a mandarin drake and duck. On looking out of the window one morning I remarked that the colours of the drake, up till then so varied and beautiful, had very much faded; and the next morning he was dead, and as usual I got him stuffed. Before it came home from the stuffer it had become quite a different object from the gorgeous bird it was in life. In this case illness had commenced the change; but had its death been sudden, fading would not have taken place till afterwards.

Goosanders frequent the river nearly every winter, and at that season are in splendid plumage and colour.

I once noticed a male more beautiful than any I had before seen, and shot it as a fine specimen for my museum. Its neck, breast, and abdomen, usually of a buff colour, were deep orange. When I sent it to Mr Small, bird−stuffer, Edinburgh, he wrote to say he would do his best in the way of stuffing, but that the next time I saw it I would not recognise it. I told him I was to be in town shortly, and asked him to keep it till I saw him. I went there in about a fortnight, and certainly I scarcely did recognise my bird: it had faded to almost a cream colour, and in a very short time became pure white. This was the first time I knew that such a complete change took place in the colour of birds so soon after death.

Mandarin ducks—or at least the drakes—are magnificent birds. I do not know any bird where the combination of colours is so beautiful and harmonious. Their name is derived—so I have heard—from the fact that in China no one under the rank of a mandarin was at one time allowed to keep them. The price of these birds was, I understand, not so many years ago £40 per pair; now they may be purchased at a much reduced figure—probably a tenth of the above sum.

There is the old story of a gentleman who wrote to a friend in China requesting him to send home a pair of these birds. His friend replied that he could more easily send him a pair of mandarins than a pair of mandarin ducks.

## Parrots.

At the time of writing I have a grey parrot which I purchased four years ago. When it arrived most of the tail feathers were mere stumps, and the few long ones were bleached to a bright yellow colour for half their length, showing that though the tail had been washed before being sent, it had at some time been kept in a very filthy state.

The irritation caused by the broken stumps incurred physical pain on the poor bird and great mental pain to me. It was really sad to see the poor thing hanging on with one foot to the top wires of the cage for days on end without ceasing, so as to more easily reach its tail by twisting its body; and the continual plucking noise made by the bird when trying to pull out the feathers with its beak was unbearable. As my nervous system could bear the strain no longer, I pulled them out myself. I would have done this so soon as the bird came into my possession, but I knew that when a parrot reaches a new home its first impressions are lasting, and if there is the least misunderstanding between it and its new master or mistress, any friendship on the part of the bird is very difficult to establish in the future. For this reason any one getting a new parrot, and who means to make a pet of it, should never be the one to transfer it from its travelling to its permanent cage: some disinterested person should always be chosen for this work.

This bird was sold to me by a gentleman as "a good speaking parrot." When it arrived home, its cage was put upon a table beside that of a ring−necked paraquet. The latter put its head through the bars to examine the new−comer, who in her turn put out her head and said "Get out!"− and from this I thought I had got a treasure. After having it for some time, and never having heard it utter any other words than "get out" and "cuckoo," I wrote and asked the gentleman what it *did* say.

In reply he gave me a list of a few words it spoke, but after having it for upwards of four years it has only repeated some of these words at long intervals; and, with one or two exceptions, it has never been heard to utter one when any person was in the room. If it says anything at all, it can only be heard by listening with bated breath in the lobby; for if it hears any one even breathing at the open door it becomes dumb.

It has been all these four years in my sitting−room; and I have fed it and tried to be its friend in every way, but all my recompense is a blank stare. It is a "dour," stupid bird, and it is extraordinary how elastic some people's consciences are when they wish to sell a parrot or a horse.

It is vicious as well as dour, and, over and above, is treacherous. It will come to the front of the cage and bend down its head to tempt some one to scratch it; but if a confiding person accepts the invitation, the bird will pretend to enjoy the operation for a second or two, when suddenly its head twists up as quick as lightning, and a finger is bitten to the bone. It has no respect of persons, as it will bite me or any member of the family as fast as a stranger, notwithstanding all our kindness to it.

I had occasion to offer hospitality to a new parish doctor during the time his own house was being prepared for his reception. During his stay of a fortnight, I warned him over and over again to be cautious in putting his fingers near the wires of the cage. He evidently thought he would try his blandishments on the bird, or perhaps teach me that I did not know "how to do it," for one day, on entering the room which I had left for a few minutes, I found him busy mopping up the blood from a bitten finger with his handkerchief.

An exactly similar incident happened to another doctor, −a *locum tenens*,− who was also warned, and again I had left the room: on my return the same wiping−up process was going on.

It is strange how many people will do the very thing they are warned not to do, and suffer for it. These two gentlemen, however, must be excused, as being both medical men, and enthusiasts in their profession, they had the courage to suffer pain themselves in order to study conveniently the effects of "parrot−bite" on the human body.

If this bird is uninteresting in one way it is not so in another, in so far as it has never moulted since it came,− I mean it has never gone through a complete moult. Now and then it casts a few feathers, but only about a dozen or so for two or three days at a time; still, it is in perfect health and plumage. I am aware that there are other parrots known who do not speak when anybody is in the room, and some who do not moult, and unfortunately the one in question *possesses both of these peculiarities.*

I have been always much distressed in reading of the cruel treatment parrots receive when on board the

steamers bringing them to this country from Africa, and even after their arrival home. There is a mistaken idea that parrots should have no water to drink. They are purchased for a small sum at the different ports where ships call, and packed into cages in such numbers that they have no room to move. During the voyage these cages are never cleaned out, and the poor birds never get a drop of water, though fed solely on dry ship−biscuit and Indian corn. The consequence is, that being packed together, breathing the pestilential odour from their accumulated droppings, and being deprived of water, they acquire the seeds of septic fever, and very few survive long when they come into the hands of their purchasers in England. This close packing causes the poor birds to "heat," and their feathers drop out: hundreds arrive in almost a complete state of nakedness.

My son, who has lately returned from the West coast of Africa, purchased on the homeward voyage two young grey parrots, one at Bonny and one at Accra, the length of voyage from these ports being about one month and three weeks respectively.

He was advised by all on board *who knew anything about parrots* , not to give them water, or they were sure to die. He carried out these instructions, much against his own inclination, and he fed them exclusively on ship−biscuit and Indian corn. They survived this ordeal, and, as he kept them in his own room, they escaped being infected with septic fever.

He arrived home at 10 P.M. when the family were at supper. On the table were two crystal jugs, one containing water and one beer; besides these there was a wine glass half full of sherry. The moment the cage was brought into the room the birds stretched out their necks towards the table, through the spars of the cage. So soon as the rough wooden spars of the travelling cage were torn off, the birds scrambled with great haste on to the table; one rushed straight to the water jug, and the other to the beer jug, and tried in vain to drink the liquid through the glass. One of them finding itself foiled from getting its intense thirst quenched, caught sight of the wine glass, and before it could be stopped, thrust its head in and began to drink the sherry.

It was a melancholy sight to see the intense desire of the poor birds to quench their torturing thirst, and I told my son that I would give them water whether it killed them or not, as I would rather they died quickly than that they should do so by the slower agency of thirst.

I gave them water very cautiously for about three weeks, shortening the time between each drink. I have had them now for twelve months, and both are in perfect health and plumage.

## Rare birds in Eskdale.

In the parish of Eskdalemuir, a student of ornithology will find his observations limited to the more common species of small birds, and to owls, the smaller hawks, and the corvidæ. Rare visitants are rare indeed, and these, for some reason best known to themselves, seem generally to give the parish a wide berth. I think this paucity is owing in great measure to the natural features of the parish, which lacks the bosky brakes, the hedgerows, and young plantations so congenial to the wants of our feathered friends, who find plenty of their favourite haunts in the lower and more cultivated parts of the country.

The surroundings are almost entirely pastoral, consisting of hills and moorland; while the woods, which are generally of spruce fir mixed with a few hardwoods, are full grown, and lie for the most part in the valley along the river. These trees with their large coarse branches are not suitable nesting−places for the smaller birds: they prefer trees of from six to ten feet high, with closer and greener foliage, which afford them better shelter from their numerous enemies.

Owing to these circumstances I will confine my remarks, with one or two exceptions, to some of the rarer visitants who *have* found their way into the district, and been observed by myself or friends. Several of them are common enough in more favoured places, and I will only refer to those which I know are rare in Eskdale.

One or two which I have seen farther from home are rare anywhere, and being specimens of general interest I shall treat of them also.

While giving a list of them I will, as I proceed, add any comments I have to offer regarding them. The first one which I note is−

## The golden eagle.

I have only heard of one specimen being seen in the district. It was shot on the farm of Cote many years ago.

## Honey buzzard.

A specimen was shot at Castle O'er by my brother in the year 1850, and was stated by the late Sir William Jardine to have been the second Scottish example recorded up till then.

## Rough−legged buzzard.

I myself shot one at Billholm in the year 1867. I saw it fly from a steep bank planted with thorn and hazel, and disappear behind a large tree which screened it from my view for a second or two, but so soon as it passed the tree I, on the impulse of the moment, fired, and unfortunately my aim in this instance was too sure. I say unfortunately, as I deprecate the destruction of every rare visitant; but I was younger then, and anxious to secure anything uncommon. I confess myself culpable, and the fact of my being ignorant as to which species the bird belonged till I picked it up was no excuse, as I was aware it was a rare one of some kind. I regret the barbarous act, and would not now destroy a rare bird.

This one had indulged so heartily in a feast of partridge meat that its crop burst open when it fell to the ground.

Seven specimens were seen at one time during the vole plague of 1876 ; and some years ago one frequented the parish for a considerable time.

I will again refer to these birds when treating of plagues.

## Merlin hawks.

Merlins sometimes, but rarely, breed in the district, and I never saw one till I came across a brood of young birds in a wild outlying part of the country on the watershed dividing Dumfriesshire and Roxburghshire. I was walking over the heights when my attention was arrested by a hawk rising close to me and settling a few yards farther on. When looking about me I saw other four, and I then discovered they were young merlins, the parent bird having come on the scene. The chance of procuring a live specimen of such a rare bird was too good to lose.

As they apparently had very lately left the nest, I thought I would have no difficulty in securing one; but I was foiled in my attempt, and in a most irritating way. Whenever I got close to one of them, and imagined that I had but to put out my hand and seize it, it rose up and flew about twenty yards only, carrying out the same tactics over and over again.

In my eagerness I commenced running in the hope of tiring one out, but it was they who tired me out, and I frequently fell down exhausted in the act of stretching out my hand. After spending an hour in this fruitless work, and considering that I had a walk of twenty miles before me, I gave it up in despair, and my collection remained minus a native merlin hawk.

## Short−eared owls.

These birds, though rare, have frequently bred here, and will be treated of fully when describing the vole plague.

## Kingfishers.

Within my remembrance a kingfisher was unknown on the river, but now a season scarcely ever passes without one or two being observed, though no nest has been discovered so far as I know.

## Night−jar.

I have known of four specimens only in the neighbourhood. One was killed by a shooting tenant on the open moor, at the head of the parish; my brother saw one on the lawn at Castle O'er, hawking in the dusk round a cherry tree; I myself saw one, also at Castle O'er, sitting along the trunk of a fallen tree (these birds sit lengthways on a branch or log, not across it); and one was shot at Westerhall, in the parish of Westerkirk, some time in the 'Sixties.

## Sand−grouse.

During the invasion of sand−grouse into Britain in 1887, several were seen on Castle O'er ground, as well as at other places in the parish; but as I was residing in England at the time I did not see any myself. They did not remain to breed.

## Quails.

One was shot many years ago on Castle O'er by my brother−in−law, Mr Wilson. It was stuffed and kept as a curiosity till a cat ate its head off. Another was shot on the same part of the ground some years later, and I was presented with an egg taken from a nest in Roxburghshire.

## Water−rail.

The only example I have known was brought to me alive by one of my shepherds, who caught it far out on the hill−ground. I tried to keep it alive, but it died owing to the want of its natural food.

## Redshanks.

Several pairs of these birds, which were unknown in the district till a very few years ago, come annually now into the parishes of Eskdalemuir and Westerkirk, apparently to breed. No nests or young birds have yet been discovered, but as they have been seen all the breeding−season, and heard uttering their peculiar cry when any one approaches a nest or young, Mr Beattie of Davington tells me he has no doubt whatever that they breed every year on the farm of Dumfedling, of which he is tenant.

## Dunlin.

Again I have to thank Mr Beattie for letting me hear of the nesting of a very rare bird in the parish− viz., the dunlin ; indeed it is the first example ever recorded.

In 1900 one of his shepherds found on Dumfedling a nest containing three eggs; but the single bird, which he once saw near the nest, was unfamiliar to him, and he never saw a male.

Mr Beattie, after allowing more than the usual time of incubation to pass, lifted the eggs and discovered that they were infertile. As he had never seen eggs like them before, and never saw the bird which laid them, he took them to Edinburgh and showed them to Mr Small, bird−stuffer, who without hesitation pronounced them to be those of a dunlin, at the same time producing one from his own collection exactly resembling Mr Beattie's specimens.

A short time afterwards the same shepherd saw a pair on another part of the ground, but could not find their nest, if they had one. The bird which laid the eggs must either have arrived on the ground unaccompanied by a male, or had lost him some time before nesting.

## Skuas.

I had presented to me a fine stuffed specimen of a very rare bird in Britain−viz., a parasitic skua. It was shot at the head of the river Kirtle, in this county, in the autumn of 1867. A pair were seen together, but only one was secured.

This bird is a native of the Arctic regions, and is a very rare occasional visitor to our shores. I sent it on loan to the late Dr John Alexander Smith, Edinburgh, for exhibition at a meeting of the Royal Physical Society held on 22nd January 1868. Up till then very few instances of its occurrence in Scotland had been recorded.

In acknowledging receipt, Dr Smith wrote me as follows: "It is a fine specimen of a rare bird, although several young birds have been got in England. It is the *Lestris parasitica* of Temmk., the *Lestris buffonii*, Buffon's Skua, of Yarrell's 'British Birds.'"

A bird in a very weak state was seen on the river Esk here a few years ago, which from the description given to me was no doubt a skua, but as it was not secured, the species was not determined.

## Crossbills.

Three or four years ago a small flock frequented the avenue for some time. My attention was drawn to them when passing under a spruce fir, first by hearing a grating sound overhead and then by seeing many fir−cones fall to the ground one after another. On looking up I saw that there was a small flock of them, and that the same thing was going on in several other trees. The grating sound was produced by the birds extracting the seeds from the cones. They remained for several days, and were so little shy that they allowed me to get quite close to them and examine them with a field−glass without being at all alarmed.

Crossbills were reported as being particularly numerous throughout both Scotland and England that season. When the flock left a pair remained all summer, but if they stayed for breeding purposes I never could discover their nest.

## Greater spotted woodpecker.

A specimen of this bird was seen in the parish by Mr Richard Leach, tenant of the Moodlaw shootings, on 22nd April 1905. This is the first example I ever heard of, and possibly it may have come for breeding purposes.

## Solan goose.

When living at Billholm a message was sent to me asking if I would come to a cottage about a mile away and see a curious bird which had been found in an exhausted condition on the hill by a shepherd. Being interested in everything curious, I promptly answered the call. I was taken to an outhouse, where I saw on the floor a solan goose. Beside it were both oats and some trout, evidently put there to see which it liked best. I did not offer it any corn, but picked up a trout by the tail and dropped it into the gaping mouth of the bird, and with one gulp it disappeared down its throat. As the poor creature appeared to be starving, I held another trout in my fingers, meaning again to drop it where I did the first; but this time the goose anticipated my intention, and, springing up in the air, it seized both the trout and my thumb. The result to me was excruciating agony: the first joint of my thumb was cut to the bone by its formidable and razor−edged beak. Cutting to the bone on such a part of the human body does not make a very ghastly wound, but the pain I suffered for several days was great. A surgeon could explain the reason for this, which I suppose has some connection with the nerves round the joint.

This stranger was an involuntary visitor, as it had evidently been carried inland all the way from the Solway Firth−which is, as the crow flies, about twenty−five miles off−by a storm of wind which blew from that direction the night before.

A neighbour begged for the bird to keep as a pet; but as it treated a servant girl much in the same way as it did me, it was destroyed and sent to the bird−stuffer.

Solan geese, after being salted and dried, are used as an article of food in Orkney, and I remember the late Professor Aytoun, when sheriff of that county, sending my mother one as a present, which tasted something like ham.

Many years ago these dried geese found their way to the lowlands of Scotland, and were used as an "appetiser"—a small portion, when eaten before meals, was supposed to tickle the appetite.

In this connection I have heard a good story. A worthy farmer in the neighbourhood gave a dinner−party, and when the dinner was in progress he asked one of his guests if he would have "another portion," upon which the guest remarked: "I think I will, as I et a bit o' solan goose afore I left hame, and it has made me very hungry"; upon which his neighbour said: "I dinna believe in thae solan geese, for I et a *haill* yin afore I cam awa', and I dinna feel a bit the hungrier."

These birds were included in the bill of fare at ancient feasts, as indicated by the following lines:−

Sea fowls dried and solands store,
And gammons of the dusky boar,
And savoury haunch of deer."

I found these lines in a book in the library of the Antiquarian Society, Edinburgh, but I forget its title.

## Guillemot.

Another involuntary visitor was a guillemot, which was brought under similar circumstances as the solan goose. I myself found it flopping along the public road which runs by the hillside just at the gate of the back entrance to the house. As it also was in a very exhausted condition, I brought it home and put it in one of the courtyards of the aviary. But after considering the difficulty of procuring a constant supply of its proper food, I, after the bird had rested some time, opened the door, and the moment I did so it rushed out, still unable to fly, and fluttered away straight to the river. How did the bird know that the river lay in the direction it took? I am quite satisfied, judging from the place where I picked it up, that it had never been near, or even seen, the river: it had evidently just come off the hill on to the road.

When it left the aviary it could not see the river. In the first place, it was invisible owing to the screen of a thick hedge, beyond which was a flat field, and the river itself was bounded by steep banks: still, the bird made for it as if it had been familiar with its position all its life. Was it instinct, or did it hear the sound of the running water during the time it was in the aviary?

## Storm−petrel.

Still another rarity was met in with by one of my shepherds. On going his rounds on 10th December 1901, when the ground was deeply covered with snow, he noticed that his dogs were moving about in an excited state, close to a heavy wreath: on approaching the spot he saw a dark object almost buried in the snow. When he picked it up he was astonished to find that it was a bird quite strange to him.

As he knew I "had a crop for a' corn" of a like nature, he brought it to me. I at once recognised it as a common storm−petrel (Pvocellavia fielagica). To return it to the snow−covered hill during an intense frost was almost certain death to it, so I put it in a cage.

Though I knew that these birds are almost helpless on dry land, this one appeared besides to have lost the use of its legs; otherwise it looked quite healthy. It was fat enough to "use as a lamp," as some of the northern islanders at one time treated them, before the days of cheap mineral oil; and it was so undisturbed by its novel surroundings that it confidently preened its feathers all over its body, and then flapped its wings whilst several human faces were watching its toilet through the bars of the cage.

Its food was a difficulty, as shredded flesh and breadcrumb was all I had to offer it, in the absence of its natural food. This it would not touch, so after keeping it for a few days I gave it its liberty in the river, in the hopes it would find its way to the Solway Firth.

Mr Robert Service of Maxwelltown told me I should have tried to feed it by tickling its bill with a feather smeared with oil; also that the *common* storm−petrel is, of five scarcer species frequenting our coasts, most rarely found inland.

## Teal.

These birds are very seldom seen in Eskdalemuir. I have only once observed a covey during all my sporting experience, and out of it I shot one bird only. They are common enough, and breed annually, over the watershed in the parish of Ettrick.

## Wild−geese.

Thirty or forty years ago wild geese might have been seen annually, flying to and from their breeding−grounds, both in spring and autumn: now such a sight is not at all common, and whether these birds have become less numerous, or whether they have changed their line of flight, it is hard to say. I remember some years ago that when conversing with my groom on the subject of wild geese in front of the stables on a pitch−dark night, I remarked how seldom they were seen now, when at that very moment we *heard* a flock cackling overhead. The coincidence was rather a startling one.

I only remember of one being shot in the district; a flock having landed in a neighbour's field, he secured one by stalking the birds.

## Wood−lark.

In the year 1851 or 1852 I found a nest with eggs in the Galaside wood, about a mile north from Langholm. Being unfamiliar with the eggs, though an ardent collector, I took them to the then keeper of the Natural History department of the College Museum, Edinburgh, who declared them to be those of the wood−lark. This is the only nest of this bird recorded in the district.

## Wood−sand−piper.

I cannot include this bird in a list of rare ones in Eskdale, but as I succeeded in securing the first specimen then recorded as having been shot in Scotland, I shall take the liberty of alluding to it.

I shot it on the 14th August 1856, a little to the west of the village of Heriot, among the Muirfoot hills in Mid−Lothian. I sent it also to Dr Smith, who exhibited it at a meeting of the Royal Physical Society the same year. In the course of Dr Smith's remarks he said:−

"As I could find no notice of the wood sandpiper having previously been observed in Scotland, I sent the specimen to Sir William Jardine, and from the answer he was kind enough to send me I quote the following passage: 'There is no doubt of the bird being the *Totanus glareola* , Temm., as you suppose, but it is an interesting specimen, as I am not aware of any other being recorded as killed in Scotland, although it has been got in Northumberland and the Borders. Your bird, I think, is in its first year's plumage, indicated by the brown markings and the thickening of the tarsal joints. The season in which it was obtained also is just that of their leaving their breeding−places.'"

## Velvet scoter.

I saw one of these birds in the river Esk, in front of Billholm house, either in 1870 or 1871, I think. It is easily distinguished from the black scoter by the white bar on the wing and the white round the eye. It was not at all shy, and may have been an "escape."

## Waterhens.

These birds are not exactly visitors here now, as a few pairs have taken up their abode permanently on the river, and breed there; and although they are rather uncommon they cannot altogether be described as rare.

The country is devoid of the most suitable places for breeding, there being an absence of lochs or ponds, and the river is a rapid one, without a single sedgy backwater. One may pass along the river−banks for a long time without seeing one.

The most suitable place, perhaps, in the parish for their breeding— besides a few spots where willows overhang the river−banks—is at Davington, the property of my friend Mr Beattie, before mentioned. Here there are some meadow fields which are marshy, but still are annually cut for hay, and have no permanent pools in all their extent.

Mr Beattie told me an amusing story about one, which perhaps should have been included in my remarks referring to ghosts; but though the incident might have suggested bogeys to an uneducated mind, there was nothing of a supernatural kind about it. I will merely relate it here as a strange proceeding on the part of a waterhen.

Mr Beattie was sitting at 10.30 P.M. in his smokingroom reading, when all the rest of the household were from home. (He did not say so, but it is possible he might be feeling just a wee bit "eerie" by being left in the house all alane.) Suddenly he was startled by hearing some one, as he thought, indicating his presence at the window by making a rubbing sound up and down the glass.

Sometimes a neighbour, unwilling to disturb a servant at a latish hour, made a similar noise on the window as a hint that he desired admittance; and Mr Beattie, thinking it was a friend, called out "Who is there?" Getting no response, and the noise continuing rather louder than before, he repeated his question, with no better result. He then suspected that some "young blood" was playing a trick, so he rose off his chair and pulled the window−blind to one side, but saw no one. Then he seized the cord and rushed the blind up, hoping that the sudden glare of light would reveal the identity of the practical joker outside. Instead of seeing a human being, as he expected, he saw something which he could not at the moment make out. With the sudden increase of light the noise was redoubled, and he perceived the something flopping up and down the glass. On looking closer he found that it was a biggish bird of some sort.

On opening the window to carry out his investigations further, the bird dashed into the room, and after running round it two or three times, took refuge under a piece of furniture, and when he routed it out he discovered it was a waterhen. He put it in a press for the night, intending to have a better look at his prize in the daylight, and retired to bed.

Next morning after breakfast he went to have a smoke, and when sitting quiet he was again startled by a tremendous row taking place— in the press this time,—when he suddenly remembered his prisoner, whom up till then he had forgotten. After having quite satisfied himself as to the identity of the apparition of the night before, he gave it its liberty.

Of course the light from the window had attracted the wanderer,— but it was a curious place for an aquatic bird to visit at that time of night, and considering that the house stands upon a hillside, high above and at a considerable distance from the river.

Some years ago a waterhen entered the cottage of one of my men in autumn, and took up its abode there all winter. It fixed upon a certain corner of the kitchen, and though it went and came during the day, it always returned to its favourite roosting−place for the night: it was perfectly tame, and mixed with the household and dogs in the common sitting−room. It was fed chiefly upon bread and potatoes,— rather a strange diet for an aquatic bird,—though I have no doubt it procured a sufficient supply of its natural food from the river, close to the side of which the cottage stood.

## Wild duck's and hen's nests up trees.

It is an established fact, and now well known to naturalists, that wild ducks will occasionally change their usual habits to the extent even of nesting on trees instead of on the ground and I myself have witnessed an instance of this kind.

A duck had taken possession of an old corbie's nest, fifteen feet up a thorn tree. I was so much interested in this peculiar act of arboreal nidification—which was then new to me—that when I expected the eggs would be hatching out I paid very constant visits to the place to discover, if possible, how the duck would get her young ones down; but unfortunately I missed the interesting sight by a short time only. I had been there late the evening before, and returned early next morning, but the feat was accomplished.

I was satisfied the young had been got down in safety, and not carried off by some rapacious bird, as I saw a duck and clutch of young ones in the river close by the tree, and these were evidently the family party in which I was so much interested.

It has been alleged by some that in cases of this kind the mother duck carries down her ducklings in her bill, by others that the back is the mode of conveyance, and I am not sure that any one has ever actually witnessed the performance.

At one time I kept a private poultry−yard in opposition to the household one, and in the open run were some very high spruce−fir trees. I frequently saw a black Minorca hen fluttering up through the thick branches, and wondering what her object could be, I sent a small boy up, and he found an old deserted corbie's nest with fifteen hen eggs in it. The nest was forty−two feet from the ground, and as I missed seeing the hen ascend for some time I concluded she was incubating, and did not wish to disturb her; but after waiting for three weeks anxiously looking forward to see her bringing her chickens down, none appeared. I therefore sent the boy up again to "inquire," and he found the nest empty, evidently having been harried by a corbie or egg−sucking rook.

I was much disappointed by being deprived a second time of witnessing an unusual performance on the part of two such dissimilar birds.

## Frank Buckland and Mr Bartlett.

My first acquaintance with the late Mr Frank Buckland arose from a correspondence we had as to my intention of building the house to contain my menagerie, which as previously stated was called "Mongoose Hall," in allusion to its first inmates, a pair of mongooses. I had asked him if there was any book in the market on the keeping of foreign pets, and here is the answer to my first letter:−

"I answer your question with the greatest pleasure, and you must be a good fellow and a good naturalist.

"There is no book such as you describe; I wish there was. You must not build your house till you have seen my friend Bartlett of the Zoological Gardens; he can give you many hints.

"You must put a coat on your 'Jack' [a monkey], *house flannel* just round his chest, and then a green baize coat with sleeves tied behind. Let him loose as much as you can, and let him eat what you eat. Monkeys die from want of amusement and picking 'bits.'

"Write to Bentley, Publisher, Old Burlington Street, London, and order a copy of his magazine with my chapter on *monkeys*. Mon *geese* (queer) from Jamrach, nobody better."

When Buckland was appointed one of H.M. Inspectors of Salmon Fisheries the river Esk came under his control, as, though any one would naturally consider it a Scottish river, it was included among those of England by Act of Parliament owing to its course being through England for some way above where it flows into the Solway Firth.

In 1873 he wrote me to say that on a certain day he was going on a tour of inspection of the rivers in the north of England and of the Esk, and invited me, in the following terms, to meet him in Carlisle:−

" I think it is my duty to inform you, as you were kind enough to fill up the queries under the above inquiry" ("Scottish Salmon Fishery Inquiry") "relative to the Solway, that Mr Young and Mr Walpole and myself propose holding a meeting at the Court−House, Carlisle, on the 29th inst., to consider the question of England and Scotland over the Solway, and I should be very pleased if you could be present at the meeting.−Yours ever," &c.

I readily accepted his invitation, and added that I would be glad if he would stay with me at Billholm when he inspected the Esk, after finishing his business at Carlisle: This arrangement was agreed to, and I proceeded to Carlisle, where I found him accompanied by his colleague, the Honourable Mr Walpole (now Sir Spencer Walpole, late Secretary to the General Post Office, London), and his friends, Mr Young, Advocate, Edinburgh, and Bartlett of the Zoological Gardens, who I regret to say has "joined the majority" since then.

A meeting of riparian proprietors with the three inspectors was being held in the Court−House when I arrived in Carlisle, and when it was over we all went together to inspect the Eden and Caldew.

The "wrack" lying along the banks of the latter river at high−water mark was composed almost entirely of corks. How so many corks came there astonished us all,− there seemed to be cart−loads of them; and if they all came from the town, I am afraid Carlisle is a "drouthy" place, and the inhabitants must suffer from that thirst which is generally attributed by Englishmen to Scotsmen: still, the Cumbrians may defend themselves by saying that Carlisle being so near the border, the corks are a striking evidence of the frequent visits of Scotsmen to that town. I cannot, however, admit this theory, as the corks had more the appearance of having belonged to beer−bottles than to whisky−bottles.

After our inspection was over we dined at the County Hotel, and just before dinner the three gentlemen retired to their rooms, and not having my dress−suit with me, I was in terror that they might don theirs. Buckland was the first to reach the dining−room, and his toilet had not taken long to put on−or rather off. When he appeared, my astonishment equalled my relief when I saw him in his shirt−sleeves, the shirt being a dark−grey flannel one, and in this costume he sat through a very swell and *recherché* dinner, such as the County Hotel knows how to produce.

Frank was a great smoker, and I have been told that this habit, carried to excess, accelerated the disease from which he died. I was late for the meeting when I arrived in Carlisle, so I waited at the door till it was over. On entering the room I found Buckland already smoking a cigar,−he may have been smoking during the meeting; he smoked all the time he was inspecting the rivers, and only ceased during dinner. After dinner he commenced again, and from that time till one o'clock next morning he always had a cigar in his mouth: he did not carry his cigars—on this occasion at any rate—in an ordinary pocket−case, but in the wooden box in which he bought

them. We had a railway journey of twenty miles and then a drive home to Billholm of nine miles, and during the whole journey he kept the cigar box on the seat beside him: when one cigar was finished—and they disappeared very rapidly—he helped himself to another out of the box, and this went on even after we reached Billholm.

When the train was nearing Langholm I had the satisfaction of affording him a new "sensation." From a wood was rising a high column of what might be mistaken, at a distance, for either smoke or mist. On my asking him if he knew what this was, he confessed he did not, unless there was a fire in the wood, though the erratic movements of the column puzzled him, as they were not those usually observed in smoke or mist. He was very much surprised when I told him that it consisted entirely of some species of small fly. I have frequently seen them in my own woods. They rise to a very great height, and are swayed about in strange contortions either by the movements of the insects or by every puff of wind.

I once became involved in one of these clouds when fishing. The flies were of a bright−green colour, about the size of ants, with large wings. The cloud was so dense that I had to keep my mouth shut till they passed, otherwise I believe I would have been choked. Not being an entomologist, I am unable to say to which species the insects in this case belonged. These columns are not always composed of the same species as those in which I was involved, and each column is formed of a special species of its own.

Mr Walpole and Mr Young left us at Carlisle, and when we arrived home Mr Bartlett and I had a "toozy tea." Frank preferred whisky−and−water, which refreshment did not interfere with his long smoke. We sat down at table somewhere about 8 P.M. and did not rise again till I A.M., and all that time the smoking continued.

I do not remember of ever having spent a more enjoyable night: listening to these two men was quite a treat to me, as the conversation consisted of matters pertaining exclusively to natural history. I well remember Frank every now and then saying, "Now, Bartlett, tell Mr Bell the story of so−and−so,"—upon which Mr Bartlett drew himself together, with a shrug of his shoulders, whilst his face beamed with dry humour.

It was on this occasion he told me the story about the snakes and Professor Gunther. He told many more than Buckland,− but most of them have escaped my memory. The post of Superintendent of the Zoological Gardens would be, I imagine, a very fascinating one, though one must not forget that the duties at times entail considerable risk to the person holding it. It is an appointment I myself would like very much if this risk were not included in it.

## Bear escapes.

Mr Bartlett told me that on one Sunday—a day when half the hands are off work—a man came to his house in a great state of excitement to say that one of the bears had escaped from the bear−pit, and was prowling about the gardens. He at once started off to see what was to be done, meanwhile sending the man to summon any hands who were free to come and render assistance. When Mr Bartlett was looking for the bear, quite by himself, he spied it coming along the path at the side of the cages where the carnivora were housed. These cages were under the raised terrace where the bear−pit is situated, and from whence children hand the bears buns with the aid of a long pole. When Mr Bartlett saw the bear coming along the walk he expected it would turn when it saw him standing in its way, but this Bruin failed to do. Instead of even slackening its pace, it made a rush towards Mr Bartlett, who had come unprovided with any weapon of defence. At this supreme moment, when a man must summon up all the courage he is possessed of and act on the impulse of the moment, Mr Bartlett's eye caught sight of a long−handled broom leaning against one of the cages. Quick as lightning he seized this poor substitute for a rifle, and at the instant the bear reared upon its hind legs to hug him. Mr Bartlett struck it with all his might right between the eyes with the head of the broom. The broom was very dirty and dry, and the impact caused a great shower of dust to come out of the brush. This blinded the brute, when, instead of carrying out its loving intentions towards Mr Bartlett, it turned and fled, fortunately in the direction of the pit. On reaching the pit it climbed to the top of the railing, but refused to take the leap in. By this time some of the keepers had arrived, and one of them seizing the bun−pole pushed the brute right over into the pit. It fell to the bottom with a crash, and was naturally severely injured by such a fall. I forget if the animal died, but my impression is that it eventually recovered.

Its escape from the pit was a curious one. Round the walls at the bottom are some side dens with iron doors, into which the bears are driven when the pit is being cleaned out. These doors slide up and down by means of a long chain worked from the outside. The chain is attached to a door, and runs up the wall to near the top, where it takes a horizontal turn along the wall. To prevent any chance of the chain hanging down into the pit, and so giving a bear the opportunity of climbing up by its aid, it is enclosed in a long narrow box, or rather square wooden pipe. Constant friction of the chain when being pulled along the bottom of the pipe had worn it through, and the chain hung in a long loop down the wall. The bear had somehow got hold of this loop, and with its aid had scrambled to the top. This was the only and evident way in which the beast could have managed to escape.

## Lions and tigers.

It is strange, but I understand that it is a fact, that in the London Zoological Gardens lions and tigers cannot rear their cubs. I am informed that many cubs born there have cleft palates, and as they cannot suck they soon die; and those who have not this defect are taken from their own mothers and suckled by canine bitches.

## Stealing cubs.

A tigress had a litter of cubs in a small den off her large cage, and Mr Bartlett determined to take them from her and have them brought up in the usual way. This, however, was easier thought of than done. The doors of these side dens are small, and the mother could not be persuaded to leave her cubs. The question arose, therefore, how were the cubs to be got at, when a keeper named Cocksedge—if I remember aright—volunteered to enter the den and remove the cubs.

This offer was a courageous one, and showed that the man was endowed with wonderful nerve. No persuasion would make him relinquish his desire, and when he crept in at the small door with a lighted candle in his hand, the spectators stood in breathless excitement, expecting he would be torn to pieces. They were greatly astonished and much relieved to see the tigress bound over the man's back into the big cage, and crouch in a corner in great terror. Before the mother had time to recover from her fright, caused by the sudden invasion of her den by a man with a lighted candle in his hand, Cocksedge quickly seized the cubs and retreated safely from the cage as fast as he could. It would have been a different matter if he had lingered long enough to allow the beast to get over her sudden panic.

## Sawing off the horn of a rhinoceros.

Another of Mr Bartlett's stories was about a rhinoceros; but before repeating it I may explain that the "horn" of these animals is not a horn in the usual acceptation of the word, as, instead of being composed of the osseous matter forming the horns of other animals, it is entirely composed of hair, or a hair−like substance, cemented together by a glutinous matter, and in time this becomes very hard and heavy, and to a casual observer has all the appearance of a horn proper. The animal referred to had, by knocking its head against the bars of its cage, managed to distort its horn until, instead of growing outwards with an upward bend, it grew downwards right over its mouth, and so prevented it either from eating or drinking. In order to save the animal's life, it was resolved to remove the obstruction. To do so was a difficult and dangerous operation. Not many men, I fancy, are as courageous as Cocksedge, and possibly the keeper of a rhinoceros with a tetchy temper would hesitate before entering its cage and attempting to cut off its horn straight away.

The only expedient open to Mr Bartlett's mind was to saw the horn off; but as the animal had a very bad temper, and resented any liberties being taken with it, he did not very well see how he was to attain his object. However, after thinking the matter over, he arranged his plan.

I think he told me it took many days of preparation before the operation could be performed. He began by coaxing the beast near enough the front of the cage to allow its horn to protrude through the bars. He then for some days stroked the horn with his hand, which the animal resented at first, but gradually became used to. When it found that Mr Bartlett meant no harm it allowed him to take the horn in his left hand, and with the forefinger of his right to imitate the motion of a saw by drawing it backwards and forwards across the spot where the incision was to be made. After this manceuvre was carried on for a certain time he used a piece of wood in the same way as his finger, and when he thought the big beast had become sufficiently familiarised with this sort of manipulation, he used the saw with perfect success, and the animal's life was saved, so the time taken up by the preparation was not thrown away. After many stories of the same interesting kind we retired to rest.

## Brindled collie.

Next day we drove out to inspect the river, and on our way we saw a brindled collie dog, when Mr Bartlett told us something that neither I nor Buckland knew before−viz., that a dog so coloured had generally, if not always, one eye brown and the other white.

Many people may not know that a black sheep has the whole inside of its mouth and tongue as black as its wool. Being accustomed to handle sheep, I had long known this fact, though Mr Bartlett did not, so we gave each other a lesson in natural history.

## Buckland's lamb

Speaking of sheep, I must put on record a story which caused me much amusement at the time I heard it.

I had mentioned to Buckland that we frequently had lambs on our farms suffering from a peculiar deformity. This was enough for him: he must have one for examination, so he asked me to send him the first one I found, and directed me to kill it and send it to him without doing anything further to it, fearing that if I skinned and "cleaned" it I might destroy the part he wished for dissection. When preparing my lambs for market that season one of the kind he wanted was discovered, and I faithfully followed out his instructions, pretty well suspecting what the result would be. The weather happened to be very close and sultry, and the lamb was packed up and duly despatched by train to his address. He told me afterwards that one morning before he was out of bed he heard a tremendous row going on downstairs between one of his servants and a strange man. On getting up and opening his bedroom door to investigate the matter, his nostrils were assailed by an abominable odour, which filled the whole house. The altercation arose from the woman's refusal to take delivery of a most odorous package from a railway vanman, who insisted upon delivery at the address upon the label. Buckland discovered it was my lamb, but his olfactory nerves were too much shocked for him ever to think of carrying out his researches.

Here are his own words from a letter he wrote me describing the scene: "I smelt a terrible smell; going downstairs, I found the long−wished−for lamb in this style" (here there is a sketch of the animal lying on its back with its legs in the air and much swollen, but as the drawing is poor I cannot reproduce it), "its legs in the air, and no balloon was ever so full of gas as the poor lamb; his head was green, the stench something awful. I had to pay a cab 2s. to take it away, so there ends our experiment. It was lucky my *missis* was not at home: there would have been an awful row."

Thus owing to a sultry night was poor Buckland deprived of a great pleasure, and anatomists in general of a new scientific discovery.

## Butcher and lambs.

Some other men may, owing to a warm night, suffer pecuniary rather than scientific loss.

As a rule the draft of wedder lambs sold off a hill farm are purchased by middlemen as lean stock: these men either sell them so soon as they see a chance of making a profit, or keep them for a year and then sell them to others, who may keep and feed them till they are fit for the fat market.

There is an exception, however, to every rule, and it sometimes happens that a good season will make lambs fat by the month of August. During one of these seasons a local butcher bought my stock of lambs to kill and send to the London market. This man knew his business, and was not tied down by any directions from Frank Buckland, intent on scientific discoveries. He cleaned and dressed the lambs in the usual way to make them presentable to the consumer, and insure their "keeping," so far as he could, during a long journey. Notwithstanding all his care the poor man suffered a great loss. The first consignment encountered, on the railway journey to London, a sultry night and heavy thunder−storm, and on their arrival they were, as he described it to me, seized by the sanitary inspector and were "a' thrawn intae the Thames." I scarcely think the inspector could take upon himself the duty of shooting them into the river, but I have no doubt he took some other means of destroying them.

## Mountain finch.

During our drive inspecting the river Esk we called at Castle O'er, where my father then lived, some female relatives forming part of the household. Among the latter was my niece, before mentioned as being so much disliked by a monkey. She had a cage full of birds, and among them was a mountain finch, which was her particular pet. This bird was in perfect health and plumage with the exception of its tail, the feathers of which were broken into mere stumps.

For some reason, possibly from having been kept in too small a cage before coming into her possession, and being weak during its previous moult, these tail feathers were not cast, and consequently the bird had a very comical appearance. Mr Bartlett suggested a cure which I myself had advised during a previous visit, but which my niece had indignantly refused to carry out. Mr Bartlett urged her now to allow him to perform the operation, which was merely to pull out the old stumps, and he explained that this would very soon improve the appearance of her pet, and at the same time save it from a great deal of irritating pain, as the presence of the stumps caused much the same torture to a bird as toothache to a human being. Still she was obdurate, and said she could not consent to the infliction of even the temporary pain of a second or two which her darling would suffer, and was very sceptical as to the growth of new feathers after this artificial moult, and so the discussion came to an end. However, she left the room for something, and I said to Mr Bartlett that we would have the thing done during her absence. So I quickly caught the bird and he pulled out the old feathers. I would not have dared to do this except under his shielding presence, but I knew that she, being a lady, would not relieve her feelings before him, and I was anxious to prove that I had been right in my suggestion, which was now backed up by him.

So soon as she entered the room she discovered the trick we had played her, and she was naturally and justly very cross, but did not say much, as she wisely thought it was no use "crying over spilt milk," and was eventually consoled when, in a very short time, the bird was adorned with a magnificent tail.

## Carlisle fair and storks.

In his 'Notes and jottings from Animal Life,' Frank Buckland has mixed up his visit to me at Billholm with a casual meeting at Carlisle Cattle Market, therein recorded. I met him there by chance a few days after the opening of Southport Aquarium, at which place we had been in company. His visit to me with Mr Bartlett was on 9th September 1873, whereas Carlisle Market was held on 19th September 1874.

At the former date my menagerie had been mainly dispersed: only a few odd creatures were left, and among them were a pair of storks which are mentioned in Buckland's Notes. When first I got them I fed them regularly, but in time they ceased coming for food, and appeared to pick up sufficient sustenance in a large field where they roamed at liberty, so I left them to their own resources.

As the food of storks consists of fish, frogs, &c., it was astonishing how they procured a livelihood in a dry field, even in open weather. Possibly they may have found frogs and toads coming out of their hidingplaces at night, but these birds are day feeders, and I doubt if they could see the reptiles in the dark. During the day I could find no frogs to feed my snakes with, and I am of opinion that *then* they could find nothing but insects, which are "small deer" for such large birds.

The winter of that year was a hard one, and the field was covered with snow, and ice−bound for weeks on end, and I am certain that neither frogs nor insects could exist above−ground. Their wings were at that time clipped, and they could not escape from the field to seek food elsewhere. Knowing the field, with its dearth of food such as storks require, it is inconceivable to me how the birds lived.

After the spring moult they acquired the use of their wings, and made short excursions in the neighbourhood. But alas! one morning when dressing I saw from my window a man on the opposite side of the river carrying one of my storks in his hand. He laid it down on the river bank, and after breakfast I crossed over and found it had evidently been killed by a fox in a corn field, where the man found it.

Shortly afterwards the other flew away for good, and a certain Scottish Natural History Society recorded in the newspapers a few days thereafter that a stork had been shot in their neighbourhood, and believed it was a rare visitant from abroad. I wrote to the secretary of the Society requesting particulars, and suggesting that it might possibly be my "escape." The reply was an indignant denial that such a possibility could occur,− why, I failed to see.

I still "hae ma doots," and think that as the county where the bird was shot lay in a direct line between my house and the Continent, the poor thing met its doom when migrating to some country across the North Sea.

## Southport Aquarium.

Frank Buckland very kindly invited me to the opening of Southport Aquarium, which event took place on the 16th September 1874, just three days before we accidentally met at Carlisle market. A ticket of admission to the grand banquet accompanied the "invite," and as there were a great many gentlemen interested in natural history present, we had rather a good time of it.

I need not here enter into details of all that took place that day; but I well remember the opening ceremony, the defile of a very great number of Mayors and Mayoresses, all in their "war−paint," a lecture by Buckland on fur seals, and the grand banquet.

Mr Cross, the great animal dealer in Liverpool, had sent on loan a large number of animals and birds in charge of Buckland. This was a good advertisement for Cross, and before the opening ceremony Buckland pressed all his friends into his service to assist in placing the cages in the most conspicuous places. The workers were willing, and their several duties were performed with great spirit and many a jest. Our arrangements were excellent, and the cages with their inmates formed one of the great attractions of the show.

After the banquet, where many interesting speeches were made, we proceeded to inspect the Aquarium proper, and there a scene took place of a tragi−comic nature.

A guest, who had gone through all the courses of the banquet and felt himself very valiant afterwards, was one of the spectators surrounding the seal's tank whilst the keeper put his animals through their paces. When the performance was over and the keeper had retired to another part of the building, the said guest intimated that he could give as good a lecture as the keeper. With this view he got over the iron fence round the tank, and as if to show "there was no deception," and that he had complete confidence in the animals, he approached one with the intention of patting it on the head. The moment his hand was near enough the seal made a snap at it and began to chew it heartily. At the cries of the victim the keeper rushed to the tank and disengaged his hand from the seal's mouth, or he might have fared still worse. With the close of the seal's mouth on the hand was closed the never−begun lecture, and the would−be exhibitor, now completely "damped in spirit," disappeared among the crowd, from whom he received no sympathy, as all thought he only got what he deserved for his temerity.

## Buckland's notes.

Frank Buckland lost all his notes which he had taken during his tour of inspection before referred to, and this loss was a serious one to him. After he left Billholm he wrote to ask me if he had not left them behind him at my house, or in the carriage in which we drove home from Langholm ; but they were not found in either place, and as I had never seen them in his possession during the whole journey from Carlisle, I think he must have lost them somewhere about that town. I believe he never recovered them.

Frank was an eminent naturalist, a genial companion, and, judging from a conversation I heard between him and a brother naturalist on the terrace of the Southport Aquarium, on the Creator and His works, I believe he was a good Christian. I read all his works with avidity, and when Death commanded him to drop his pen, I deeply mourned his loss.

## "'Arrys" torturing animals.

What fools some people are when they visit zoological collections and think they are at liberty to tease and torture the help less animals behind iron bars with impunity to themselves.

## "Gamping" a lion.

A case in point happened when I visited the Bristol Zoological Gardens. In olden days, when keepers of wild beasts wished to have a sleepy lion or tiger roused up for exhibition, they used to cry to an assistant, "jack! stir him up with the long pole"; but on the occasion of my visit to these gardens another visitor tried this dodge at his own instigation. He had no long pole handy, but he had a short one in the shape of his umbrella.

In one of the cages was a huge and famous lion, named, I think, "Nero." The beast was lying stretched out to its full length close to the bars of the cage, fast asleep, or seemingly so. The gentleman(?) proceeded to give a few vigorous "prods" with his "gamp" right into the orifice of the poor beast's ear. Quick as lightning the lion rose with a bound and a roar, such as I had never heard produced by a wild beast. I had heard lions roar often enough, but never in anger. Nero's was a roar of rage and pain combined, and one to be remembered. He reared himself on his hind legs and tore at the bars of the cage, so that I really thought they would give way; and if they had, his tormentor would have been mince−meat in a few minutes. I shall never forget the fright I myself got, owing to the suddenness of the whole scene and the awful sound the beast produced. A general stampede was made for the door, but the author of the panic was the biggest coward of us all: his face was livid with terror, and he was the first to reach the outlet.

## Llamas.

Visitors to zoological gardens or travelling menageries should give llamas a wide berth.

When in the London Zoo one day I came to the llama's enclosure, and seeing the animal putting its head over the rails in my direction I naturally supposed it was seeking some friendly recognition on my part, so I went forward to pat it on the face, but just as my hand approached it I was blinded by a sudden splash of something liquid on my face. The thing was done so suddenly that I could not at first realise what had occurred, or even if it had any connection with the animal.

My first impulse was, naturally, to pull my handkerchief from my pocket and wipe my face. On withdrawing my handkerchief I was surprised to find it covered with green filth. On further investigation I found my coat, waistcoat, and shirt front in the same disgusting state, and I knew I must be a sorry−looking object among the other visitors. When I had time to collect my thoughts I understood what it all meant.

When children, a gentleman friend of the house was pointed out to us as the man on whose face "the llama spat," and at that time we, with our childish thoughts and with some smattering of geography, looked up to this gentleman as having been the recipient of some special honour from the Grand Llama of Tibet, and the scaffolding of my youthful imagination was suddenly wrecked when I discovered that to have a llama spit on one's face was anything but an honour.

On proceeding to the office of my friend Mr Bartlett to have myself "cleaned up," he told me that I was the victim of thoughtless visitors, and that the animal was so frequently annoyed by "'Arrys and 'Arriets" that it usually made use of this form of defence when tormented. He added that it could not well distinguish between those who wished to be kind to it and those whose great pleasure consists in being cruel to dumb animals. These pests generally commence operations upon the animal they mean to torture by approaching it with all the wheedling signs of friendship.

## Game and shooting.

In many parts of Dumfriesshire black−game were at one time very plentiful, though they are less numerous, in my immediate neighbourhood at least, than when I first began to carry a gun.

My house is quite among the hills, and the hill ground only ends at the avenue gate. The consequence was, in these early days, that in the woods within the grounds black−game were shot in numbers, and I have frequently seen young coveys picking up grit from the gravel in front of the house.

Times have changed, and one must now undertake much more exercise in order to make a bag. The general belief is that a greater amount of hill−draining has, in drying the bog−land, lessened the food necessary for these birds.

Grouse were then very numerous, especially on the higher hill−country; and when the corn was cut, but still "in stook," they came from their usual haunts to feed on the stubble simply in hundreds, when I used to go to a stubble field about 4 P.m. with my gun,− a cheap single−barrel muzzle−loader,− and, choosing a good spot *inside* the field with my back against a dyke, would blaze away to my heart's content till darkness set in. Both grouse and black−game used to stream over my head in large batches every two or three minutes; and though I must confess that, as the birds came like a whirlwind and were heard only when close overhead, every shot did not tell, I still managed to make good bags. I have actually seen men, when carting the corn, throwing stones at the grouse sitting on the stooks. No shooting was done on the high ground then, and the birds did not seem to dread the noise of a gun if the shooter was out of sight.

Frequently, when I was outside the field and hidden by a dyke, have I fired three or four shots at the same pack of grouse before they appeared to understand what the sound of the gun was and flew away. Not so now. I do not crop my land; the surrounding shootings are let, and the birds have learned to know what the sound of a gun means.

It is many years ago since the first great outbreak of disease which I can remember took place. The birds were nearly decimated by the scourge, and their number has never increased to the same extent as before it broke out. As the shootings for several years have been let, they probably never will become so numerous again.

The days are past when all the birds on the Castle O'er grounds might have been one day shot, and still on the next a very good "bag" could have been made from the birds which had come over the march from the Duke of Buccleuch's unlet shootings.

Besides this wealth of birds at home, my brother, Mr Wilson, and Professor Aytoun joined in taking the shooting of Glendinning in Westerkirk, the property of Sir Frederick Johnstone of Westerhall, and which ground marches with Castle O'er, or rather Crurie. Over this additional range of ground big bags were made, all shot over dogs: the luxurious driving butt was not then invented.

About this time Professor Wilson and Sheriff Gordon were frequent visitors at Billholm, as well as Professor Aytoun, and my reminiscences embrace many happy days listening to the learned conversation of four men who were great wits, as well as learned. I was then a young lad, and many jokes were practised at my expense by Aytoun and my brother−in−law during our wanderings over the hills.

## Professor Aytoun's dog.

One episode which I remember was anything but a joke to me. The Professor possessed a setter which was treated more as a pet than a sporting dog when off duty, and his love for it was so great that, instead of its being relegated to the kennel after a day's sport, it slept in the bedroom occupied by him and Mrs Aytoun. Once when the beast was ailing, Mrs Aytoun got out of her bed in the middle of the night and boiled water on the kitchen fire wherewith *to bathe its feet!*

We were out on Glendinning one day, and when we sat down by a well to eat our lunch the Professor began, as was his wont, to caress his favourite. He found one or two pellets of shot just under the dog's skin. At once he concluded that it was I who had shot his dog, and "fell foul of me" in language which was not quite parliamentary.

My conscience was perfectly clear, but he would take no denial. In the afternoon, his wrath having been expended, he came to me and made a most humble apology, which to me, then a youngster, and corning from a man to whom I looked up with so much respect, was far worse than the swearing I got.

The dog had certainly been struck, and on that very day, as the wounds were fresh and bleeding, and the person who did it, I am satisfied, was the Professor himself. In the morning I noticed a bird get up and fly in a straight line towards the dog, which was setting another bird at some distance off. The Professor fired and killed the bird, and I was much astonished at the time that it did not kill the dog also, or at least wound it severely.

That was the only time during the day that there was any possibility of the dog having been hit, and I have no doubt it was then done, though the strange thing is, that the dog neither visibly winced nor gave tongue. The wounds were certainly only skin deep, but they were sufficient to "sting" the dog sharply.

Other memories of these bygone days occur to me, one being a visit of Professor Wilson to Billholm. He started one morning to walk over the hill to Castle O'er, which is only about two miles distant, though the journey took him four hours. There is a long pull from Billholm to the top of a ridge of hill lying between the two houses. When one reaches the top of this hill there is a steep descent to the bank of the river Esk, close to which, on the opposite bank, stands Castle O'er. When the Professor came to the river, across which there is no bridge, he sat down and "hailed" the house. So soon as his voice was heard a horse was yoked to a farm−cart, which was sent to bring him over.

It was in the height of summer, and as he had donned, when starting, two coats, two waistcoats, and three neckties, when he arrived at the house he was in a considerable state of moisture. He immediately began to divest himself of his duplicate clothing, still retaining a sufficiency of vestments to appear fully "clothed, and in his right mind."

Professor Aytoun always wore a kilt when in the country, and when he stood up in the middle of a room to recite "The Fhairshon," holding in his hand—but merely holding it in his hand *for effect,* be it understood—a tumbler containing whisky and some water which must have escaped the Fhairshon's son when he

> "nearly spoiled to Flood,
> *By trinking up to water,"*

it was most entertaining to hear the poem declaimed with all that *verve* and sentiment which could not be so well introduced into it except by the author himself.

One day he came to Castle O'er, still wearing his kilt, and when roaming about in the yard we encountered a flock of turkeys. He asked me if I had ever seen a turkey mesmerised, and on my answering in the negative, he said he would show me how it was done, upon which he made a dive at a promising young "bubbly−jock," which he considered the one most likely to be affected by the mesmeric influence. At that moment his foot struck a stone, and he was sent headlong into a large bed of nettles of very rank growth, the result to the poor professor being deplorable. On picking himself up he was so much "irritated" by the *contratemps* that he could not proceed further with his demonstration, but contented himself by revealing the secret,− and this is how it is done:−

"First catch your turkey," or any other fowl, and, holding the body by your left hand, take it gently by the neck, close to the back of its head, by the right hand; then, having previously drawn a chalk−line, or placed a straight straw of about three feet long on a boarded or flagged floor, put the point of the bird's beak at the extreme end of

the line or straw; hold it there for a minute or two, then gently release the patient, and it will remain in the mesmeric sleep as long as you choose.

I have frequently carried out the experiment myself with complete success.

On one occasion, during the absence of the cook, John Wilson had several fowls captured, and, drawing chalk−lines on the kitchen floor radiating from the centre like the spokes of a wheel, he mesmerised a bird at the outer end of each line, thus forming a circle of sleepers. When the cook returned to the kitchen she nearly had a fit, thinking the spectacle was produced by satanic agency.

It is my sad province to record that none of the above−named friends is now among us, though I am glad to say that one visitor to Billholm in these early days still survives and is able to superintend an important business. I allude to Mr William Blackwood, head of the eminent firm of Messrs Blackwood & Sons, Publishers, George Street, Edinburgh, and who joined us in our sports and social gatherings.

In one of my diaries—kept consecutively, without a break, for fifty−one years—I find the following entries:−

*"28th July* 1859.− John Wilson, William Blackwood, and I started from Billholm at 3 A.M. to hunt otters at Burnfoot, five miles away. Not at home."

Folks were early risers in these days.

*"29th.*− Dinner−party at Castle O'er, consisting of Wilsons, Gordons ('Sheriff' Gordons), William Blackwood, Borthwicks, Scotts, and one Bell."

## Shooting "flukes."

During many years of my life—until failing eyesight put an end to my sporting capacities some years ago—I have carried a gun; and during that time I have made seen and heard of some rather wonderful shots, either by myself or by intimate friends. If I here record those which I remember, I do so in no boasting spirit, as nearly everyone of them were "flukes," and hundreds of sportsmen may have knowledge of some even more wonderful still. I would not have mentioned them at all had I not thought they were entitled to a place in the "omnium gatherum" of my reminiscences.

Mr Wilson was out one day in the late season, accompanied only by a bag−carrier, and with no dog. He saw a single old blackcock sitting on a rail running along the top of a stone dyke, and proceeded to "stalk" it. At the moment he raised his gun to fire his man called out "Mark!" upon which Mr Wilson instinctively lowered his gun, and saw a large batch of black−game which came and joined the single bird, and when they landed on the rail their heads were looking in different directions− "heids and thraws," as the Scotch express the position. The moment the birds lighted, and before they had time to be aware of his presence and settle themselves, he fired right along the line of stretched−out necks. The result was so astounding that he could not collect his thoughts quick enough to discharge his second barrel when the birds rose. The ground on both sides of the dyke was covered with dead and dying, many of the latter fluttering about in a young plantation of which the wall formed a boundary.

When he had picked up and counted his spoil, he found he had secured *eighteen* cocks and hens, and he thought more had escaped him by getting among the rough grass in the young wood, but having no dog he could not be sure.

This shot may be termed a *wonderful* one, and almost "lee like"; but no one who was acquainted with Mr Wilson would for a moment dispute the word of one who was an honourable gentleman and expert sportsman.

On another occasion he saw one blackcock sitting eating "haws" on a very close−grown thorn−tree. He fired at it, when four fell to the ground, three of which had been concealed from his view by the branches.

I myself was astonished at a shot of my own. I was walking through a young plantation where the trees would be no higher than a couple of feet. A small covey of black−game, consisting of four young birds and the old hen, rose close to me and skimmed over a ridge. They were just almost out of sight over the rise, and I had only time to pick out a fine cock pretty far advanced in his change of colour, when I fired— indeed I think he was the only one in sight at the moment; but when I crossed the ridge I found all five were down. I secured the young ones; but the old hen, who was only slightly wounded, got up again, and I allowed her to go.

The next two "flukes" are not unique, as similar ones are of frequent occurrence; but as the same incident happened twice in the same day, and in my own presence, I will relate them.

I had taken a friend—who had just come home from India, and had never before shot a grouse—out for a day on the moors. In the morning a blackcock got up before him, and at the same moment I raised a hare from its "form." The latter crossed the line of fire at the moment my friend pulled the trigger, and he shot both the bird and the hare with one shot. In the afternoon I fired at a partridge when it was passing the front of a piece of rising ground, and killed it; and at the same time a rabbit sitting in a bunch of grass on the slope was killed.

Any one who possesses one of Holland's rook rifles will testify as to their precision. I myself purchased one, and have never regretted the small outlay of £5 for such a clever little weapon. I am not at all what is termed "a very good shot," but I was a very fair marksman, both at target and game, until my eyesight failed, and have made some shots with the aforesaid rifle which I think are worthy of being recorded here. One was at a blackcock which I killed at 110 yards; and another a pheasant whose head I cut clean off at a very long range, but which I did not measure.

Mrs Bell frequently accompanied me when out with my rifle, and during one of these excursions she pointed out to me a pheasant in a stubble−field. I was not quite sure that it had altogether the appearance of a bird, but it was a long way off. Upon her assuring me that she could distinctly see its head moving in the act of eating corn, I took a good aim and fired. A cloud of feathers testified to the accuracy of my aim. We started off to bag our spoil, she very jubilant at having secured me sport; but her pleasure was short—lived when we got to the spot and found that the feathers were earth, and the bird a mole−hill!

This is a good example of the adage, "The wish is father to the thought," and shows how people's imagination will sometimes run away with them in the desired direction.

On returning home the sarne day I made a shot of which I was not a little, and justly, proud, and which compensated us both for our previous chagrin. We happened to meet two or three of my men on the road, one of whom was a shepherd accompanied by his dog. Whilst we were standing discussing business, this man's dog went into a hazel wood, on a steep bank below where we stood, and raised a hare. Whenever I saw the hare I boasted that I would shoot it running, and this elicited a smile of incredulity from all present. I waited till "puss" was crossing the road on its way to mount the hill, then raised my rifle and fired−with no apparent result.

I cannot say I was much "put out," as I had made the boast in a joking way, and expected it had been accepted as such by the others. I was very proud, therefore, when the poor beast, after having got up the hill about fifty yards, dropped down stone dead, shot right through the middle of the body.

I received the hearty congratulations of my witnesses very modestly, and did not disabuse their minds as to the sincerity and temerity of my boast.

This poor hare succumbed to a wound which did not at first appear to be a mortal one; but on another occasion I was astonished to learn how an animal of about the same size as a hare could survive the shock of a wound which any one at the time would have expected to be fatal in a very short time.

A great many cats leave their cottage homes and infest the woods, to the great detriment of game and rabbits. I had frequently noticed a huge black−and−white one prowling about, but it had been so long at large that it became very wary, and kept itself at such a distance that no one had been able to shoot it: traps were strictly avoided.

Mrs Bell and I were again out looking for good rifle shots, when, on going over a slight hillock, we spied my old friend the cat some 80 yards from us, and about 100 yards from the edge of a wood, and so intent on hunting that it did not notice us. I waited till it stopped a second or two, when I fired a quick shot at it, scarcely expecting to hit it. It must, however, have been struck in the region of the spine, as its hindquarters became paralysed, and it could progress only by the aid of its fore feet. Apparently it had not yet seen us, as it moved in our direction; and Mrs Bell felt quite sickened with the sight of its agony, so I moved forward to give it the *coup−de−grâce* at close quarters. It then saw me and made for the wood, and I could not have believed that an animal in such a condition could travel so fast: it beat me in the race, and entered the wood by a broken part of the stone dyke, when it was lost to sight. I returned to Mrs Bell, who was still in distress, and told her that I had seen blood on the stones of the wall, and that she might rest satisfied the poor brute would be in some rabbit−hole, and could not live many more minutes.

For many a long day after that a *very* lame blackand−white cat was seen prowling about the same woods, and I have no doubt whatever it was the one I hit with a rifle bullet.

"The last shot in my locker" is also the last one I will fire at my readers. The shot itself had nothing *wonderful* about it, but its sequel was amusing.

I was in a thick wood, along one side of which ran the public road, when a long−eared owl—not a very rare bird here—rose from a tree, and I shot it as a specimen for my collection. Just after firing I heard a great row on the road, which lay at my back, and on listening I heard that it was a serious quarrel between a man and a woman, and, judging from the style of language indulged in, I suspected they were tramps. The woman was vociferating that she was shot, and the man, in equally strong language, was calling her very ugly names, and declaring she was not telling *quite* the truth. As I knew the impossibility of shooting a woman at my back with a gun pointed in front of me, I paid no further attention to them.

In the afternoon one of the servants came to the drawing−room where my mother was, and said that a woman wished to speak to her in the kitchen. On my mother entering the kitchen the woman said, "Ye'll mebbie no ken that yir son has committed an accidence." My poor mother, naturally very much alarmed, asked what had happened. The woman replied, "He has shot me in the ee, and I hae been tae the doctor, whae gied me this poother to bathe't wi'," showing a paper packet in her hand, at the same time exhibiting an inflamed "orb." My worthy mother came to me in great distress to relate the story and ask me what was to be done, evidently seeing visions of her poor little boy being arraigned before a court of justice and mulcted in heavy damages for the "culpable use of firearms." I solaced my mother by detailing the circumstances connected with the shot, and saying the woman was an impostor, and that I would go and tackle her.

When I entered the kitchen, and the woman saw a man 6 feet 2½ inches in height, dressed in a kilt, she gave a

start, and without uttering a word made for the door as hard as she could, with me after her; but as she began to run so soon as she got out of the house, I did not think it necessary to follow her farther than the end of the avenue, so as to ask her what more she had to say for herself.

She must have been told that it was a *son* of the house who was shooting in the wood, and, thinking he would be a "small boy," hoped to extract blackmail from his mamma, but my appearance upset her calculations.

I saw the doctor next day and asked him if he had had a wounded patient calling for him. He said he had a female tramp the day before, to consult him about a bad eye, and that he had given her a powder with which to bathe it, but that her complaint arose from quite a different disease than a gunshot wound− viz., inflammation.

## A devoted blackcock.

I will here relate a wonderful instance of devotion on the part of a blackcock to a deceased spouse. It took place when I lived at Billholm.

The house is situated close to the river, on the other side of which was a large haugh field, a favourite resort of black−game. I have counted seventy−five in the field at one time, principally old cocks. One morning my attention was drawn to a pack of these birds about 150 yards from my window. I particularly noticed the antics of one cock, rather apart from the rest, whose love−gestures seemed more fervid than any other. He was "crooning" round and round a particular spot of the field, but I could see no hen.

Upon procuring a telescope, however, I observed in the centre of the circle he was walking round, a hen lying flat on the ground. As the hen did not get up, and had one wing raised in a suspicious manner, I concluded she was dead; and to make sure I went across the river and found that this was actually the case.

For a long time afterwards the poor cock stood sentinel, or rather strutted round the remains, singing his love−song, until a circle six feet in diameter was "paidled" quite bare round the place where they lay.

A fortnight afterwards I revisited the scene and saw nothing but a small heap of bones and feathers; and after this a heavy roller was drawn over the spot, which act, I thought, would have driven the last atom of sentiment out of his poor head. But no− there he remained, a daily watcher beside his dead wife; and though he absented his post for longer intervals than at first, still he came daily, and could be seen for a time every morning, noon, and evening.

Two months elapsed from the time I first saw him till he ceased his visits, and I think such an unprecedented example of strange behaviour on the part of a bird, especially a polygamous one, is worthy of record.

## Ice−flood.

As I have had occasion in the course of these pages to mention the river Esk more than once, I feel constrained to narrate the events of an ice−flood which took place in January 1871, as possibly the incident may interest some of my readers, notwithstanding that it may be thought unworthy of a place among the notes of a naturalist, except in its relation to salmon; and the description may give some idea of what these fish are sometimes subjected to, irrespective of their *unnatural* enemies− the poachers.

The frost had been intense for fifteen days previously, the night average for that time being as low as 17° Fahr., counting from sunset till 9 A.M., with the exception of one morning at 9.50. It was a strange circumstance that on three of the days the cold was more intense after 8 A.M.

I always took a note of my thermometers at that hour, and I find from my notes that on the morning of the 23rd December 1870 the mercury was standing at 5° Fahr ; at 9 A.M. it had fallen to 4° ; on the morning of the 24th it was at 10°, and at 9 A.M. it was at 9° ; on the 31st it was at 10°, and at 9.50 A.M. it was down to 8°. The consequence was, that the river was entirely and thickly frozen over with the exception of a hole or two in very rapid streams, and the bottom was so covered with "ground ice" that in very many places the water ran through what might be called *tunnels.*

On the night of 4th January 1871 a sudden thaw set in, accompanied by deluges of rain, which very soon changed the face of nature—the ground being deeply covered with snow the night before. The melted snow from the higher hills had caused the ice on the upper reaches of the river to break up first, and the flood had gained in strength as it advanced.

About a thousand yards up the river from the house there is a very deep pool at a sharp bend, where the ice was unusually thick, and there the accumulated mass of ice and water came to a check for a time, and was gorged for nearly half a mile up the river. I foresaw what would happen when the pool gave way, and went to watch the break up; but after waiting for some time no further result took place than an extension of the "gorge" above.

I, with some friends, entered the menagerie to feed the animals, telling my man, who was working in the garden, to warn us if he heard an unusual noise in the direction of the river. In a very short time he rushed into the room crying "She's coming! she's coming!" (Everything is "she" in these parts.) We bolted from the room helter−skelter, and made for the river.

Suddenly the pool broke up with a noise like thunder, and the ice came crashing like an avalanche down the stream till it reached the part in front of the house, where the water is again comparatively still. Here the scene was really grand, and it is difficult to describe it sufficiently. On looking up the reach of the river immediately above, we could see the huge surging mass coming in several distinct waves, like sea breakers, each successive wave being higher than the, first,—the first acting like a plough−share to raise the ice in front, and throwing out hundreds of tons on each bank.

When it was passing, the apparent power of the flood was truly awful, and the noise deafening. It lifted huge plates of ice, thirty or forty feet square and seven inches thick, with as much ease, seemingly, as I could lift a sheet of paper with the point of my finger, reared them up on their edge and dashed them over on the solid ice below, which was in turn treated in the same way, until the whole was smashed up in one seething mass of fragments.

It was very wonderful to notice the level of the river rise so suddenly, for almost in one moment the previous surface of the water, or rather ice, was raised from about three feet deep at the spot where we stood to about seven feet.

For about six feet from the bank, on each side, the water was comparatively free from ice, and I could have counted each block as it boiled about in the turbid water, but beyond that distance there was a sharply defined line of demarcation between the free ice and the "pack." From that line the surface gradually rose in height to the centre like a well−made road, and where, I daresay, it was two feet higher than at the edges, and I am sure that any one might,, by lying still, have been carried along on the top, as not a drop of water was visible, the blocks were so firmly cemented together with ground−up ice. Many trees and large pieces of wood were so carried along. When the flood passed its force was much expended, and farther down the river the scene had lost much of its grandeur, though sufficient remained to imprint itself on the memory of all who were fortunate enough to

witness it. I can never again expect to see such a wonderful sight as that break−up of the ice on the river Esk; and even the "oldest inhabitant" confessed that such a sudden and complete "ice burst" never happened in that river in his day.

It seems to me that the river must have been swept clean of fish, as I am bound to say nothing with life could have been involved in the flood without being crushed out of existence. One man told me he observed two or three salmon wriggling on the top of the ice as it passed him, but there might have been many a dozen besides unseen. Numerous dead ones were seen in the river next day.

A gentleman—a near neighbour—who mounted his horse and galloped along the river bank to observe the effect of the flood at different points, told me that he had seen a gravel−bed, on which grew some willows, lifted bodily up and carried away, the gravel being firmly bound together with ice.

## Salmon feeding in fresh water.

It sometimes happens that, in some of the deeper pools of the river Esk during a spring drought, salmon may be seen in the state of "mended kelts" very late in the season. They have, when in the water, all the appearance of clean fish, and are quite as silvery in colour as if newly run from the sea; but when taken out of the water and handled, few experienced anglers can mistake them: their shape is not the same, and they have a distinctly slimy feeling when handled which is foreign to fresh−run salmon.

I remember seeing, in the deep pool where the ice−gorge took place, seven or eight of these mended kelts as late, I think, as the month of April. The spring had been very dry, and the river had become very low and very clear. When I first saw them they were not easily scared, and allowed me to approach quite close to them and watch them from the rocks. They were all ranged along the rocks just under me, and were feeding on some insects, probably, which they must have found harbouring among the algae growing on the stone, and which we call "glet." As insects are not very plentiful in this river so early in the season, I thought they would be hungry, and that if they would take a bait I might have a nice run, so as to keep my hand in for the coming season. I went home and got my rod and some worms,− a fly was out of the question,− and returned to the pool with great hopes. I found them still feeding, and I dropped a worm very gently down the side of the rock till it was right in front of the nose of one of them. Instead of seizing the worm greedily, as I hoped, it actually backed away from it, and, as it retired, I kept moving the bait along with it. When it got about four or five feet away from the rock it stopped backing and swam forward again to the rocks, and commenced feeding as before. I tried the same thing with one or two more, but each acted in the same manner, and this disappointed me of a run. I scarcely think they swallowed the glet, but they picked it off the rocks, at the same time swallowing *something*, this latter action being quite visible, and no sane person who saw them could say they were not feeding.

The question as to whether salmon feed, or do not feed, in fresh water has led to much discussion among anglers, and though I cannot here enter into all the pros and cons, I can state my own opinion—and it is that salmon *do* feed in fresh water. Frank Buckland was strongly of this opinion, and his argument, like that of many other folks, was that a run fish will disgorge its food; and he offered, as one of H.M. Inspectors of Salmon Fisheries, so as to settle the question, to allow any person, with his written permission, to kill one with a spear suddenly, and said he was quite satisfied that food would be found in its stomach: but I do not know if the experiment was ever tried.

In my youth, when "leisters" were not illegal, or at least when their use was winked at by the powers that were, I have myself speared many and seen others spear many; but as the question of feeding in fresh water either had not arisen or I had not heard of it, I cannot aver that I have seen food taken from their stomachs, though I have disembowelled many myself in order to secure their eggs to make "salmon roe," a deadly bait, the use of which was then also winked at. My impression, however, is strong, that when engaged in this work the presence of half−digested minnows and other food in a salmon's stomach is familiar to me.

Why does a salmon take a *bait* if not for the purpose of eating it, if it finds it to its taste? I believe that fish, and especially salmon, will "rise" at almost anything, irrespective of colour, even at a floating leaf when it passes them quickly through the water; and when they seize it, they will swallow it or reject it when they find out whether it is a natural or artificial bait. I shall give an instance farther on of this when I refer to minnows, which strengthens my opinion.

Why are worms, minnows, or prawn such deadly baits compared to artificial flies? Simply because they are *natural* baits with which salmon are familiar, whereas the artificial flies are not, and they try to spit out the latter when they find that they have made a mistake, though they may be hooked by the lip or tongue when doing so.

I would like to know what number of salmon are hooked by the lip, tongue, or palate with fly, compared to those which are hooked by the gullet with natural bait, and the reason why the latter case happens oftener than the former?

What insects are salmon−flies supposed to represent? When a student I attended the Natural History class in Edinburgh University. During a lecture the worthy professor of that day exhibited the picture of a whale and solemnly remarked, "Gentlemen, I am of opinion that any one is at liberty to worship this creature with impunity, as it is the representation of nothing in heaven, or on earth, or in the waters underneath the earth." For the same

reason I think any one is at liberty to worship a salmon−fly. They represent no British creature I ever saw, and I do not believe there are any like them even in tropical climates, where gorgeous insects abound: the nearest approach to them that I know of are humming−birds, but I have never seen a "flight of them on the water" in this country. I must confess I have seen some small trout hooks which are as good an imitation of small natural flies as man can make them, and these may deceive a trout for the moment.

Salmon, however, are of superior intelligence: they can, with a glance, perceive that the fly which is offered them is the very counterpart of the natural one on which they are feeding for the moment; and not only this, but they can discriminate between the makers, and will be tempted with one made by Tom Jones, the eminent fly−dresser, and reject another of an inferior build, though to the eye of man both are exactly alike in general appearance, the only difference being that one is better "finished off" than the other.

Tom, Dick, and Harry are all fishing the same cast, and each using, we will say, a "Jock Scott." A salmon will take Thomas's hook simply because it was made by the above−named Thomas Jones, and will reject those of Richard and Henry because their hooks were made by an inferior dresser. An angler will select from his book—containing possibly fifty flies—one which he, in his vanity, thinks will deceive a salmon, and, holding it up knowingly between his eye and the light, remark, "*That* is the fly for to−day." He goes to the river full of what is perhaps one of the greatest attractions, often the only attraction, of fishing− viz., "hope." He returns empty−handed, and if he is asked his reason for his want of success, says, "Oh, that particular fly was not on the water to−day." When did he ever see that particular fly "on the water"? Oh, foolish angler! to think salmon are fools.

Take the case of a gentleman, fitted out with all the most expensive and *fin−de−siècle* tools that Tom Jones can produce, threshing one side of the cast, while on the other side is a country bumpkin fishing with a worm, or even with a fly of his own dressing, the chances, in my opinion, are ten to one that the bumpkin is the man who gets the fish.

I remember going to the Isle of Harris many years ago for a week's fishing. I stayed in the only hotel in the island, and the hotel keeper had the right of fishing in some lochs in the neighbourhood, which right he extended to his guests. He also gave leave to a native loafer for one day's fishing in the year for services rendered.

This man came one day to the side of the loch where I was fishing, sat down, and in twenty minutes he had dressed a fly and landed a ten−pound salmon. The material used by him probably did not cost him a penny, possibly nothing, whereas many enthusiastic fishermen cannot approach a river with any hopes of success unless furnished with an equipment of flies costing some pounds, and a rod costing, say, £12.

I have been an angler all my life, and though never a very proficient one, I have landed many fish with small outlay. If I fish with a worm in preference to a fly, because with that bait I land more fish than with the other, I am dubbed a "pot−hunter": I say I am not. When I go fishing I never think of the anticipation of a feast off my victim, or the hope of reducing my household expenses, but fish for the sport alone; and I generally find that I get as much sport when running a salmon hooked with a worm as with a fly, and I like to *land* my fish after running him. This appears to me more satisfactory, and saves me a good many of the naughty words used by some anglers when they lose a tenderly hooked fish. Another satisfaction to me is that I can more accurately determine the weight of a fish when landed than of one which escapes, though I may be left in wonder how it happens that those which do escape are invariably the heaviest: indeed it appears that it is generally the lighter weights only which get hooked on a fly and landed,− those which are only seen to rise, and have time to reject the tempting and gaudy morsel without being hooked, or are hooked and escape, are the bigger ones. The above remarks are made from a naturalist's point of view rather than from an angler's, and if they should ever be published and be read by an enthusiastic member of that fraternity, I am well aware that I have laid myself open to severe criticism. I am quite willing to suffer the lash, but

> "A man convinced against his will
> Is of the same opinion still."

## Herons.

Herons are well known to be successful fishers; and who has lived in the country and has not observed these birds standing in a river, it may be for an hour, on the same spot, patiently waiting for their prey? That they are successful cannot be denied, but how do they catch fish? I have heard the question gravely discussed: some people alleging that by standing still their patience is rewarded by the chance of a fish coming near enough to be seized; others that these birds are furnished with a certain *oil* which exudes from their legs, and which, on floating down stream, attracts the trout to come up to their doom! As I have never seen one using a rod, nor even a bait, in *running* water, I incline to the first theory. Nevertheless, my impression is that they will, under certain circumstances, use a bait in still water.

One of my sons took two young herons from a nest and brought them up as pets. They were put in the garden, and had access to the glass−houses. Two of the houses had each a tank sunk under the staging to ground−level, and were each 2½ feet deep and of corresponding length and width. In one tank was a shoal of minnows. After the herons were introduced I noticed that the number of minnows was decreasing, and suspected the herons, though I could not imagine how they reached them, as the water was too deep for them to get into the tank, and their necks too short to reach the bottom. I began to observe that on the surface of the water in the tank containing the minnows, and on it only, were floating numbers of short pieces of raphia fibre used for tying purposes, and stems of plants. This I also suspected was the work of the herons, but could attach no meaning to it. While standing, near one day, and wondering why these floating straws were in the one tank and not in the other, one of the birds, who were at the edge of the tank looking intently into the water, suddenly leaned forward and gave itself a vigorous shake : a cloud of scales from the bird's body fell on the surface of the water, and as soon as they reached it up came the shoal of minnows to inspect the *bait*. So soon as they reached the surface each bird seized one and promptly swallowed it. I have no doubt I will be laughed at for telling such a tale and believing it possible; but I am quite convinced in my own mind that both the straws and scales were purposely used as an attraction to the fish to come up and be caught. The fact of the minnows rising at the scales confirms my belief that fish, when hungry, will rise at anything moving, and the chance of their being caught depends upon whether the attraction is furnished with a hook or not.

Herons proved themselves to be useful birds during the vole plagues here, and they should be preserved for the benefit of farmers.

In two of my woods these birds breed annually on the tops of tall spruce−firs, of which the plantations are mostly composed. Each wood holds from four to six nests, and we frequently visit one of them, about a quarter of a mile away, for the purpose of seeing the parent birds feed their young ones, and see the latter standing in a clump on their nests when just about ready to fly. The young make a loud cackling noise when being fed, and we can distinctly hear it all the way from the house. Notwithstanding that I preserve these birds, the number of nests scarcely varies each year, though there are ninety−two acres of spruce plantations on Castle O'er, all containing trees as suitable for nesting purposes as those already occupied; and the only reason I can suggest for this is that many birds are shot when they cross the marches.

I have a large fountain basin on a flat piece of ground below the bank on which the house stands, and in it I usually have a number of different kinds of fish. Every morning when dressing, during the continuation of the last vole plague, I used to see a couple of herons robbing the basin of fish; and I told one of my sons to fire a shot from the top of the bank, but not to aim at the birds, only to scare them. On one occasion he saw a heron which had apparently just left the basin. It was at such a distance that he considered it to be quite out of shot, and fired directly at it, but unfortunately one pellet entered its head and it fell dead. It seemed to have recently made a good meal, so I had it opened to ascertain if it had really been feeding off my pet fish, but—on this occasion at least—the bird was innocent, as, instead of the fish, I found it was crammed with field voles.

I purchased from Mr Armistead of the Solway Fishery, and introduced into the fountain basin, one dozen of American brook−trout. I am not certain whether they were one year or two years old when I got them, but they were about six inches long. I fed them regularly with worms, until they attained the weight of about 2 lb. They were beauties, and what "risers" they were! When they saw me approach the fountain they were immediately on the alert; and when I threw a handful of worms there were twelve simultaneous plunges, and twelve "garden flies"

met their doom! Sometimes they were seized before they actually reached the surface of the water.

## "Yellow fins.

When on the subject of fish and fishing, I may say that I recently noticed a great deal of correspondence in 'The Dumfriesshire and Galloway Courier' anent "Yellow fins": one side contend that they are fry of one of the Salmonidæ, and the other that they are not. A local case was decided in a law court which seems to have settled the matter, and I trust that in future yellow fins will be recognised as "fry of the salmon kind," and that they may have the same protection meted out to them as the black fin. Something like forty years ago my late brother and I set to work to satisfy ourselves as to the different kinds of Salmonidæ frequenting the river Esk. We took a great deal of trouble in the matter, comparing their shape, markings, gill−covers, dentition, &c. The notes we took then are lost, but I still have the dried specimens we used during our investigations. We proved the matter then to *our own* satisfaction, and classed them as follows:−

| | |
|---|---|
| Black fin. | Yellow fin. |
| Grilse. | Herling. |
| Salmon | Sea−trout. |

This was also the opinion of a writer in 'The Courier' some time since, but I thought the matter had been settled long ago, till the recent dispute and correspondence arose.

## Gulls in winter.

How do gulls obtain food in rivers during winter and spring when the water is frozen almost solid? I remember that during a very hard spring I was one of a party trying to shoot corbies. I was standing at the corner of a wood with a friend, watching in vain for these birds that never arrived; a gull, however, came sailing over the wood, and my friend shot it. When it fell on the ground it disgorged three salmon smolts. The river was almost entirely frozen over, only an open hole here and there being seen in rapid streams, from each of which, by the way, issued a cloud of steam, owing to evaporation from the warmer water beneath the ice, and its condensation on coming in contact with cold air, and one could have believed that the water in the river was near the boiling−point. I have often seen this phenomenon in very hard winters, and it has a strange effect.

If it were a pond with springs in it, instead of a running river, I can understand how gulls could get fish,− for this reason, that the water being still, the oxygen in it becomes exhausted, and the fish require to come to the holes above the springs to breathe atmospheric air. This is not required when the water is running rapidly below the ice in a river, since it takes up plenty of oxygen as it goes along. I once lost a whole lot of trout and other fish in my fountain basin, which became entirely frozen over, and in which I neglected to break breathing holes.

A friend residing near Barrow−in−Furness sent me home some gulls, surreptitiously removed from the gullery on Walney Island. I am aware he did wrong, but his desire to afford me a new pleasure must be his excuse. I am glad to learn that the Home Secretary has now made special provision for the protection of these Walney island gulls. Those my friend sent me were very young, still in the "down" stage, and though they underwent a prolonged journey, I reared them successfully. When sufficiently grown, I put them in the garden to keep down slugs, &c. To ensure their safety I shut them in the glass range at night, but I reckoned without my unknown hosts. Some rats had taken up their quarters among the hot−water pipes without my knowledge, and destroyed the poor gulls, and it was only on finding their bodies dragged into the rat−holes beneath the walls that I discovered how they had disappeared.

I also procured some gulls from Cobbinshaw Loch in Lanarkshire, and reared these to maturity: this was when I lived at Billholm, and they had liberty in the flower−garden on which the drawing−room window looked. The house at that time was infested with rats, and after a most successful feast of poison, enjoyed by the vermin, the odour from their dead bodies, which lay below the floor of the room, was so bad that we had to cease occupying it. I had some of the floor boards lifted, and the man who performed this work found several dead rats, which he thoughtlessly threw out of the window into the garden: these were pounced upon by the gulls and eaten, the result being that they in their turn were poisoned. From this it is evident that rats, dead or alive, may be a source of danger to a gull's life.

## Gulleries.

If any one who takes an interest in such things has not already seen a large gullery, he should not lose an opportunity of doing so, even if it is at some distance. It is a wonderful sight.

I once visited the one in Cockerham Moss, some way from Lancaster. The gullery belongs, I understand, to Lord Winmarleigh, and to protect the gulls he keeps a man there from April till August, providing him with a portable wooden house. I was there on 24th May 1887, but the greater proportion of the young birds were hatched, though there were a great number of nests still containing eggs. It was almost impossible to walk without treading on either eggs or young gulls. As the name of the place indicates, the gullery is on a large peat−moss; but the droppings from the birds have changed the nature of the soil,− on the part which the gulls occupy,− and coarse grass and large plants of dock grow there. The leaves of the docks spread widely out from the stem and hang down to the ground, forming almost a bush. On lifting up the leaves with the hand, one could see a moving mass of young birds who had sheltered beneath them. The keeper told me that there were somewhere about 30,000 gulls of the black−headed species; but at the time of my visit he thought about half of them—and these male birds— were at the sea procuring food for the young. The space covered with nests extended to eight acres. Owing to the mischief and disturbance caused by the public, permission to visit the place is given by ticket, issued, in my case, by the keeper of a hotel a few miles off. Though I had to go by train from Lancaster to Bay Horse Station, and then had a walk of seven miles, I did not grudge the journey, as I felt quite remunerated for the trouble. The noise made by the birds was an interesting feature of the gullery.

There are many places throughout the country where these gulls would form a colony if unmolested. Several years ago I visited a small piece of water called Langshawburn Loch, some eight miles from my house, where I was informed I could procure an egg for my collection. The visit was made on horseback, but too early in the season; and I well remember riding through a heavy snow−storm across the moors—one of those late and unexpected snow−storms we so frequently suffer from in the south of Scotland. No gulls had arrived when I reached the loch, and I thought I was a great fool to come so far in search of an egg in such wintry weather. The month was April, and the weather fine when I started, so I considered I was quite justified in hoping to procure an egg. I did not take the instinct of the gulls into account, and found they had "more sense" than I had, and remained at home.

This reminds me of a story told of one of the judges of the Court of Session, Edinburgh. He occupied a house on the slope of the Pentland Hills, near Edinburgh, and when taking a walk one day a snow−storm came on. He noticed that the sheep, instead of taking advantage of a snug and sheltering hollow of the ground, kept to the side exposed to the storm. Presently he met a shepherd, whose attention he drew to this fact, and remarked that if he was a sheep he would have lain down in the hollow. "Eh, but, my lord," retorted the shepherd, "sheep have mair sense than you." His lordship did not understand that from instinct, and probably also from experience, sheep know to avoid the sheltered hollows unless forced there by stress of weather, as there they would almost certainly be covered up with snow and be smothered. But "after this digression" let us return to our gulls.

I called at a shepherd's house near the loch, and he told me that during the previous season he had taken thirty−two dozen of eggs and eaten them: of course this prevents a colony from establishing itself, which is greatly to be regretted, as the black−headed gull, instead of doing harm, is of great use to farmers, consuming as it does a vast number of noxious insects.

There is another pool of water in the middle of a large peat−moss about two miles from my house. This pool is no more than twenty or thirty yards across, and here a few years ago some gulls took up their abode, and nested on a few tussocks of moss of about two or three feet in diameter. During a wet season these nests were comparatively safe, as the bottom of the pool when full of water is treacherous; but one or two dry seasons evaporated the water, and a safe access was afforded to the nests for egg−stealers. The eggs were taken whenever it was possible, and for a time the poor birds abandoned the spot, but have returned, and at the time of writing about twenty nests are to be seen. This place is not congenial for a large colony, but it is not far from the Solway Firth, and the fact of the birds nesting there at all shows their anxiety to form settlements, great or small, wherever they are permitted to do so.

Langshawburn Loch holds no trout, as it is only a hollow among the hills without either inlet or outlet, and still

many deluded people have fished it, in the vain hope of "making a basket" at some hour of the day.

## Professor Wilson at a Highland loch.

This want of success brings to my mind a good story about Professor Wilson (Christopher North), and as it was told to me by his son John Wilson, my brother−in−law, I think I have good authority for its truth.

The Professor, on one of his many fishing excursions to the Highlands, espied a loch of very promising appearance, and determined to have a good day's fishing in it. He plied his rod all forenoon unsuccessfully, and in the afternoon he broke it. He had seen a shepherd herding sheep all day on the hillside near who had evidently taken a great interest in the fisherman's doings, and the Professor, not being provided with any material suitable for repairing his rod, left the loch−side to ask the man if he had any string in his possession. When the Professor approached the shepherd the latter remarked, "Ye'll no' hae gotten mainy fush this day." "None as yet," said the Professor; "but the best time of the day is coming, and I hope to kill a good basketful in the evening." The herd replied: "I didna think ye wad get mainy fush, for there was never known to be no troots in that loch." The Professor's feelings may be imagined, and he himself said he never felt the desire to commit murder till then,− that the temptation was *almost* too strong for him, and he was obliged to beat a hasty retreat.

## Fairgreve's Menagerie.

The sale of a menagerie is not of frequent occurrence, but I had the pleasure of being present when Mr Fairgrieve disposed of his famous collection by auction, at Edinburgh, in 1872. The sale, though an interesting event, was not devoid of sadness to me, as I had spent many happy hours in the menagerie as a boy in Mr Wombwell's time, and then in that of Mr Fairgrieve, when I was grown up; and I saw the collection dispersed for ever with much regret.

The Earl of Rosebery had the honour of being first bidder at the sale, and I was the second, he having purchased a racoon, and I pair of agoutis, which I was assured by the auctioneer were "sharp, active little animals, who could sing like a canary."

When my purchases were installed in my own collection, they were a great attraction to visitors, to whom my man—whose pronunciation of the names of some of the animals was, to say the least of it, peculiar − always described them as "gowttas."

The menagerie was stationed for some time in Edinburgh before the sale took place, and one of the greatest attractions, especially to ladies and children, was a camel calf about two months old. It had a special stall provided for it, and round it was always to be seen the greatest crowd. It was very quiet and gentle, and seemed much pleased with the attention bestowed upon it, and loved to have its nose patted, possibly in the expectation that the hand which patted it might contain a bun or other delicacy, of which it had no lack. On the morning after the sale I went to claim my purchase, and Mr Fairgrieve asked me if I had any objection to sell one of my agoutis to a gentleman who had taken a fancy to have one. I objected to sell an animal which I had been so anxious to add to my collection; but Mr Fairgrieve urged me to see the gentleman, who he said was on the premises. The gentleman appeared from behind the scenes with his shirt−sleeves rolled up, and his hands and arms smeared with blood. When I asked him why he was desirous of possessing one of my agoutis, I was horrified when he informed me that he wished it for dissecting purposes. I indignantly refused to part with my "beast" at any price, and my horror was increased when he told me he was then engaged in dissecting the poor camel calf, which had *not* died a natural death. I nearly dropped a tear over the fate of the poor animal, and I could not, with my then feelings, realise how the thirst for scientific research could drown all sentiment in the human breast. I had nearly purchased the calf myself, arguing in my mind that I would keep it as a "pet" in my collection so long as it was young, and that when it grew up I might sell it at a good profit, as it brought £9 10s. only at the sale, while adults fetched up to £30.

A curious incident took place as a sequel to the sale. The largest elephant was purchased for some zoological gardens in England, and I saw the keeper start with it to send it off by train, a horse−box having been secured for this purpose. Some time elapsed, and the keeper appeared again in the menagerie, accompanied by the elephant. When asked by Mr Fairgrieve why he had returned, he explained that no sooner was the huge beast put into the horse−box than he smashed the front part with his head, and the back end with his tail−end, and that the railway company refused to have anything more to do with it. It was then resolved that the beast must go by road, and a discussion arose as to the best route. As I knew the country roads to England well, I suggested he should go by Selkirk, Hawick, Langholm, and on to Carlisle,− in fact, by the old coach road between Scotland and England. This route was chosen, and the road passes not far from my house. Shortly afterwards I met a man who told me he had met the elephant en route not far from Langholm. The day was warm, and the keeper called at a cottage and asked for a drink of milk. He was invited inside, provided he left his elephant outside. Cottage doors are not very wide and high in these parts, and the keeper readily acquiesced in that part of the bargain. In front of the cottage was stationed a cart filled with the small branches of the ash−tree, with the leaves on,− "ash rice," as he described the material to me. Whilst the keeper was busy regaling himself with milk, the elephant began to regale himself with the "rice." Though an elephant can stow away a considerable quantity of provender at one meal, this one must have been extra hungry, or the man's imagination must have been as colossal as the animal, for he told me it consumed nearly the "hail caart−load." If it did, the feast was one of a truly Gargantuan nature.

## Old showmen and the London Fairs.

A curious coincidence occurred to myself which had some connection with the sale above mentioned. I happened to be leaving Liverpool by train, after paying a visit there. When I arrived on the platform I found I had some time to spare before the train started. To kill time I approached the book−stall, where I soon spotted a book which I thought might interest me−viz., 'The Old Showmen and the Old London Fairs,' by Thomas Frost. I quickly removed the book from its shelf, and on the first page which I opened I found my own name mentioned. This astonished me, as I did not expect to see my name mentioned in any such work. On looking into it farther, I found the paragraph was one treating of "Fairgrieve's Sale." My address was wrongly given as "Lamonby" instead of "Langholm," but the writer who reported the sale may have confused the sound of the two places when I gave my address to the auctioneer. I could quite easily identify myself, as there was only one pair of agoutis in the collection, and as I was the only Mr Bell who bought them. As it may interest some of my readers who have not seen it, or who may have forgotten it, I now reproduce an account of the sale as reported in 'The Scotsman' of 10th April 1872.

## Sale of Wombwell's Royal No. 1 Menagerie at Edinburgh.

"One of the most remarkable sales ever witnessed in Great Britain took place yesterday in the Waverley Market, Edinburgh. Wombwell's Royal No. 1 Menagerie was dispersed at the hands of Mr R. Buist, auctioneer; and the collection of wild beasts, birds, and reptiles which has delighted the youth of the United Kingdom for four generations is now no more. Wombwell's, although not the first peripatetic zoological collection, was certainly the largest, and the one which did more to familiarise the minds of the masses of our people with the denizens of the forest than all the books of natural history ever printed, during its wandering existence of nearly seventy years. In the last decade of the eighteenth century, an Italian named Polletto first entered on the then novel and bold speculation of forming in this country a small collection of wild animals, which he conveyed from town to town for exhibition at fairs; but in crossing the Channel to Ireland he and his collection were lost during a severe storm in the Irish Sea. Except the lions in the Tower and a few animals at the various ports, no collection of wild beasts was formed till George Wombwell organised his. Wombwell was born in 1777 at Dudnorend, four miles from SaffronWalden, Essex, and followed the trade of a shoemaker in early life. He was always fond of animals and birds, and his shop in Soho, London, whence he removed, was surrounded by highly trained pets. Making a visit one day to the docks, he saw a pair of boa−constrictors, which were among the first of these ophidian monsters imported into England. He purchased them for £75 and commenced their exhibition, and so successful did the speculation prove that he discarded his last and turned showman. With acquisitions from various sources he shortly filled a caravan, and the novelty attracting crowds, he continued increasing his specimens till at last his collection filled no fewer than fourteen large waggons. Even then he was not content, but added each new importation to the country if money could purchase it. With the shrewdness which characterised Mr Wombwell throughout life, he soon perceived that a travelling menagerie of more than fourteen waggons would not pay, and when the collection exceeded this number he formed a second menagerie known as Wombwell's No. 2, and eventually a third. Of course, having commanded success, he found a host of followers, perhaps the most formidable of whom was a menagerist named Atkins. Wombwell and Atkins regularly attended for many years St Bartholomew's Fair, and great was the rivalry between the two establishments. One year Wombwell, finding a paying business in the North, resolved he would not attend St Bartholomew's Fair; and Atkins, hearing of this, advertised far and near that his wildbeast show alone would be seen at the fair,− Wombwell, by his absence, confessing that his collection was inferior to his (Atkins'). Wombwell, happening to be in London inquiring after animals, saw Atkins' announcement, and at once made up his mind to refute the insinuations of his rival by appearing as usual at the great fair. This was on the 17th August, and the fair opened on the 1st September. Nothing daunted, Wombwell engaged a carriage and four, drove post to Newcastle−on−Tyne where his menagerie then was, arrived there on the 19th, and ordered a start for London to be made that evening. Roads were not so good then as now, but by dint of tremendous exertions Wombwell's collection arrived in time to open at the fair in London on the 1st September,− at the cost, however, of the life of the elephant, which had been overworked, and died in the morning of their arrival in London. Atkins finding the indomitable Wombwell had not allowed him to be 'cock of the fair,' was rather chopfallen, but immediately brightened when he heard that the opposition elephant had died. He immediately got a large canvas painted− 'The only live elephant in the fair!' which he was sure would give his show the superiority over Wombwell's. The latter, however, on seeing his opponent's notice, determined not to be outwitted, and a few minutes afterwards a large scroll bearing the words 'The only dead elephant in the fair!' was hung from the front of Wombwell's collection. The public, of course, recollecting that they could see a living elephant almost every day, flocked to see the dead one, and during the fair time Atkins' concern was nearly deserted. Mr Wombwell was extremely enterprising. He

purchased for his collection the first rhinoceros ever imported into this country, and also the first pair of giraffes. For the latter he paid £1800, and he ordered a special carriage to be built for their exhibition, but before it could be finished his costly purchases died. A short time after he bought a lot of four giraffes, for which he paid £2000, but all of them died within four months. It is said that, by disease and death, Mr Wombwell lost during his career animals to the value of £15,000. His ambition was to possess the largest and best travelling menagerie in the world, and as he had realised a handsome fortune he spared no expense in acquiring new or rare animals. In 1825 Mr Wombwell revived at Warwick the sport of lion−and−dog−fighting, which had been the favourite amusement of James I. and his courtiers in the Tower. This circumstance at the time created considerable excitement and comment; but as erroneous versions of the affair have been published, it may be well to give the authentic narrative as related by the late Mr Wombwell. Some gentlemen in Warwick who possessed several celebrated bull−dogs which had distinguished themselves in bullbaiting, offered to wager that their dogs could successfully fight two lions which Mr Wombwell then possessed. Mr Wombwell accepted the wager, and the dogs were sent into the den with the lion called 'Nero.' This animal, it must be remembered, was very tame, and indeed so lamb−like in temper was he that the public were allowed, on payment of twopence, to enter his den and get a ride on his back,− a privilege of which large numbers daily took advantage. Well 'Nero,' when he saw the bull−dogs enter his den, slunk away to a corner, and would not be tempted to fight. The dogs were then drawn and placed in the den of the second lion, called 'Wallace.' In this lion the dogs found a different customer to deal with, and in a short time the six famed bulldogs were successively killed. Such an exhibition would not now be tolerated; but it must be remembered that in 1825 bull−baiting, badger−drawing, and cock−fighting were common sports of the people. The only other great event in the seventy years' history of the menagerie was the death of the Lion Queen in Chatham about 1851. The Lion Queen was a niece of Mr Wombwell, and had been accustomed to the animals all her life. Yielding to the injudicious solicitations of some visitors, she one day went into a tiger's den when the animals were excited by feeding. The tiger sprung at the poor girl and seized her by the neck, but immediately let her go. When taken out of the cage the Lion Queen was dead, although it was said to have been more from sheer fright than from actual injuries caused by the tiger. Mr Wombwell was himself a man of indomitable will and great courage. He thought nothing of entering the den of the most ferocious beast; and he invariably, when any of his animals were sick, got beside them and administered with his own hands his unfailing remedy—a dose of castor−oil. In two articles of dress he was particular almost to eccentricity. He would only wear the finest linen ruffled shirts, and he would never put on a pair of mended boots. His boots at all times had to be kept scrupulously clean, but of the remainder of his wearing apparel he was absolutely careless, and we have been assured on the best authority that at his death it was not worth more than five shillings. He was married, but never had any family. Mrs Wombwell managed the financial affairs of the concern, and there was one stretch of twenty years during which that good lady never was away from or slept out of the menagerie. Mr Wombwell had a real love for the showman's hard but free life; and although he had long realised a handsome fortune he refused to retire, and at last he died in the living caravan of the show in Northallerton in November 1850, at the age of seventy−three years. Mrs Wombwell carried on No. 1 collection, and he left No. 2 and No. 3 respectively to his niece and nephew. On the 1st January 1866 Mrs Wombwell handed over her menagerie to her nephew and niece, Mr and Mrs Alexander Fairgrieve, Edinburgh, by whom it was conducted till its dispersal yesterday. Under its later proprietorship the collection lost none of its reputation− the beauty, variety, and number of the specimens being invariably maintained; and it may be mentioned as an interesting fact that almost every animal exhibited, except the elephant and rhinoceros, was bred within the show. In the course of its existence the menagerie was four times patronised by the Royal family.

"A sale of wild beasts is an event so novel and out of the way that it excited considerable attention, not only in Edinburgh, but all over the country. The day was fortunately fine and bright,

and a large crowd collected early in the forenoon in the Waverley Market to witness the elephants and camels take their last constitutional walk as belonging to Wombwell's menagerie. The pavilion itself was, despite the half−crown charge, well filled long before the hour announced for the commencement of the sale, and in the afternoon it was quite crowded by an assemblage of all classes, who watched the proceedings with great interest. Considering the class of animals to be disposed of, buyers were numerous, and from various and distant quarters. Perhaps the most prominent was Mr Jamrach, the most extensive dealer in wild animals in the world; while next to him was a quiet modestlooking gentleman, who turned out to be the great Jamrach's almost equally great rival, Mr Rice. Then there was Mr Wm. Cross, the well−known naturalist and animal dealer, from Liverpool, who was a spirited bidder; Mr Ferguson, the representative of the famous Van Amburgh, who has now three menageries in America; Mr Jennison, proprietor of the Bellevue Gardens, Manchester; Mr Jackson, of the Zoological Gardens, Bristol; Professor Edwards, Jardin des Plantes, Paris; and a number of proprietors of travelling collections. Exactly at a quarter−past twelve Mr Buist ascended his rostrum and announced the conditions of the roup, which was to be without reserve. A commencement was made with the monkeys, which were recommended as pets for the drawing−room and for the kitchen, as lively, frisky, intelligent, cleanly, beautiful, and half able to speak. For some of the rarer species competition was brisk, and the mandril and anubis baboon ran up to £30 and £10, 10s. respectively. The knight of the hammer capped the whole of the many clever things he has done by selling the devil for sixty−five shillings; and his Tasmanian majesty will now be confined to Mrs Day's peripatetic establishment. An interesting, and, on the whole, a very beautiful lot were the birds. The black vulture took precedence of the rest of the feathered tribe, and bids being scarce, bidders were assured with all confidence that he was worth a guinea for his plumage and a sovereign to eat afterwards,− to those who cared for roast vulture. He was acquired, we dare say scarcely for these purposes, by the London dealer for £3, 10s. The oldest inhabitant in the establishment was the condor, who had been attached to Wombwell's Menagerie for forty years, and despite his age he fetched £15. It was suggested that some gentleman should try ostrich−feather farming in this country by an investment in the emu, but no one seemed enterprising enough to desire the sight of a five or six feet bird looking into his breakfast−room in the morning asking for a picking; so Mrs Day picked him up for £7. The brace of pelicans which used to amuse the children by racing for fish, and which were bought at the late Earl of Derby's sale, were secured by Mr Jamrach at £6, 15s. each. The parrots and cockatoos provoked lively competition, and the majority of them were purchased by local fanciers. One beautiful lemon−crested cockatoo ran up to £8, but this enhanced price was due to his excellent talking abilities. The ocelot was recommended to the attention of small showkeepers on the ground that 'he had all the beauty of the tiger and leopard, could be bought for an old song, and made a capital subject for a magnificent large picture for the outside of the show.' Such a rare acquisition for a 'sell' was, with evident propriety, bought by Van Amburgh, the prince of Yankee menagerists, at £6, 10s. The same gentleman secured three fretful porcupines 'in fine plumage,' which, it was said, would entitle the purchaser to quote Shakespeare every morning at breakfast. It was jocularly said that a well−known Edinburgh hairdresser desired much to make an investment in the bears, but Professor Edwards was more anxious to restock the Jardin des Plantes, despoiled of its magnificent collection during the siege of Paris, and he secured the Polar bear for £40, while the Thibetan Sun and the brown bears were sold respectively to Mr Jamrach and Mr Bostock for £5, 5s. and £7. Three performing leopards, beautiful glossy lithe animals, were purchased by Mr Jamrach for £60 ; and the same gentleman secured the magnificent performing tigress 'Tippoo' for £155. The companion of the latter, and a more valuable, though scarcely a more beautiful animal, named 'Poonah,' was seized with cold last week and died. Mr Rice, London, was the largest purchaser of this class of animals. He secured the lion 'Wallace,' with which Lorenzo used to perform 'Androcles and the Lion,' for £85; the three−year−old 'Duke of Edinburgh' for £140; a pair of lionesses, three and a half years old, 'Princess' and 'Alexandra,' at £80 each; 'Nero,' seven and a half years old, at £140; and a pair of

eighteen months old lions, 'Prince Arthur' and 'Prince Alfred,' at £90 each. Mr Rice also purchased a zebra at £50 ; the young organ−grinding and whistling elephant at £145; and a male dromedary at £30. When 'Boss,' a three−year−old lion, was put up, and there were no bids beyond £10, he of the hammer said that at that figure it would be a good investment for an Edinburgh shopkeeper to put in his window or at his shop door. The lion had hurt his eye on the bars of his cage, and only brought £20. The black−maned lion 'Hannibal,' six and a half years old, said to be the finest and largest in Britain, was started at £50, and the bidding was comparatively slow for a time. On reaching £225, Mr Buist said he was ashamed of such a ridiculously small price being offered for the finest lion in the world, and he was sure that 'Hannibal' was as disgusted as he was, and would turn his back on the crowd. Sure enough, the animal did at that moment deliberately turn round, and the amusing episode created some liveliness in the bidding. 'Hannibal' was eventually knocked down for £270, to be sent to the Zoological Gardens in Bristol. Competition for the large performing elephant was limited, and this was the only animal which was sold much below its value. For a time the bidding rested at £380, till a suggestion was made that a prominent butcher should invest and introduce a new elephant sausage. The vision of mammoth sausages quickened the offers, and at last, by dint of perseverance, the figure reached was £680, at which price Mr Jennison secured it for Bellevue Gardens. The small musical elephant, which, as before stated, sold for £145, not to make minced collops, was bought by Mr Fairgrieve from the gentleman who yesterday repurchased her, at something like £600. The camels and dromedaries were an interesting lot, and realised prices ranging from £14 to £30. Dr M'Kendrick bought the baby camel at £9, 10s. The total amount realised for the animals was about £2900. On the whole, the sale, according to good judges, was an excellent one. Many of the animals drew more than their market value, and others perhaps below it, but the prices ranged good throughout. The material of the menagerie, including waggons, &c., will be sold to−day. The following are details of the prices: Racoon ( *Procyon lotor*)− Earl of Rosebery, 20s.; Agouti (*Dasyrocta Agouti* )−Mr Bell, Billholm, Langholm, 10s. ; do., Mr Bell, 10s.; " &c., &c.

## Albinos.

Every one is aware that albino specimens of both animals and birds are far from rare, and that this freak of nature is found in the human species, though not so common as among the lower animals.

## Rook.

One of my shepherd lads found on the ground in the rookery here a white rook. It was more of a cream colour than pure white, but it had not a dark spot on it; its legs and beak were equally cream−coloured, and it had the red eyes which usually accompany this natural phenomenon. As it was on the ground, I suppose its parents or its sisters and brothers had looked upon it as an "ugly duckling," and in order that its presence in the nest should no longer be an eyesore to the other members of the ebony−coloured household, they had chucked it overboard. When I got it it was fairly well feathered, but not quite advanced enough to be a "brancher." It was put into the garden when I thought it was old enough to look after itself. There it found plenty of food in the shape of worms, slugs, &c. ; but in order to keep it tame and familiar, I fed it in addition with small bits of flesh. When it had enough of this food, it began burying that which remained in various parts of the garden for future use. A household cat discovered this peculiarity and dug up the pieces of meat, though at first it did not know who had "planted" them. One day, however, the cat happened to be present when I was feeding the bird, and it then saw the remains of the feast laid away in this peculiar "crow's larder." The cat followed behind the rook, and as each bit was buried it was quickly exhumed and swallowed. From this day pussy learned to as sociate this windfall with the rook's dinner−hour, and she appeared on the scene so soon as she heard from the expectant cawing of the bird that dinner was ready. After this the poor rook's burials were in vain, and it never again ate a scrap of food after it was once hidden under the soil. At first many battles took place between them, but pussy always had the best of it, and the poor bird resigned itself quietly to its task, though invariably it saw the piece of meat scratched up by the cat and eaten. Gradually the two became great friends, and the cat deserted the domestic hearth altogether and shared the rook's couch, which was a small dog−kennel placed in a corner of the garden. This peculiar trait of domestic happiness between two creatures of such opposite natures continued till the cat mysteriously disappeared altogether from the scene.

The end of this poor bird was a tragic one. It was always noisy, cawing from morning till night, but as the garden was not quite close to the house the noise did not disturb the household. Being in the garden one day, it suddenly struck me that I had not heard the familiar sound of the rook's voice for some two or three days, and I wondered if the poor bird could be dead. The garden was fenced by a hedge, and outside the hedge was wire−netting to exclude the rabbits. After searching for some time, I found the rook crouching between the hedge and the wire−netting in a pitiful state. It was still alive, but on the verge of death from starvation. On lifting it, I discovered the under mandible was torn clean off at the base, which of course deprived it of all power to feed. The cause of the disaster was not far to seek, as close by I found the mandible hanging to a sharp point of broken wire. The bird had evidently fluttered up the netting, when the wire point entered the loose skin at the base of the mandible. The weight of the bird when falling back to the ground had torn the mandible off. The reason why I did not miss my bird sooner was that I had ceased for some time to give it food, as it had a plentiful supply in the garden and continued quite tame. Reluctant though I was to lose such a curiosity, I was obliged to put it out of its agony.

## Fly−catcher.

I was fortunate in securing an albino of a rarer kind. I noticed a white bird which had taken up its quarters on the roof of the menagerie, whence it kept darting after flies and returning to its perch for nearly a whole day. From its evident liking for flies and its other habits I concluded it might be an albino spotted fly−catcher, and that it was worth my while to try to capture it. With this view I fastened a twig smeared with birdlime on the top of the roof, expecting that the bird might prefer a more natural−looking perch than a zinc ridge,−and my hopes were realised. After setting my trap I went into the house for dinner, and when the meal was over I returned to the garden to ascertain the result. I met my man on the way in a state of excitement, and he told me he had got the bird in a cage. On going to see what it really was, I did not like the look of it: it was too tame, and had one wing hanging rather loosely at its side. It lived for some days, and continued so tame that at the end of that time it took mealworms and other insect food from my hand. I was quite aware that if a bird when freshly caught resents imprisonment, and dashes itself about the cage on any one's approach, there is more hope of its living than one which appears tame by moping in a corner. Still, I hoped from the fact of my capture eating out of my hand for some days that it might prove an exception to the rule. However, one morning it died suddenly, and on examining it I found out the cause of its collapse. When the bird was fastened to the lime, my man, who was very much excited and proud to show me that he had got it, had climbed on the roof and torn it roughly from the limed twig, and in so doing had broken its wing close to the shoulder. Mortification set in at the fracture and extended to its body. I was quite sure it was a fly−catcher; but to satisfy myself I sent it to the late Mr Bartlett of the Zoo, who corroborated my opinion, and said it was the first specimen of an albino fly−catcher he had ever seen.

## Hedgehog.

On crossing the hills one day I met in with an albino hedgehog—the only one I ever saw or heard of. It was not only of unusual size, but was entirely white, or at least, like the rook, of a pale cream colour, and had red eyes: it was accompanied by a half−grown young one of the normal colour. I was tempted to add the albino to my collection, but as I was to be engaged all day "sorting" sheep, and the spot where I saw them was a long distance both from the folds and the house, I left both at liberty.

I have more than once seen albino moles; and several voles—white, black, and yellow—during the vole plague, which will be treated of farther on.

## Cats: tortoiseshell Tom.

Tortoiseshell Tom cats are supposed by many to be so exceedingly rare that they are worth almost a king's ransom, but this is not the case. Mr Bartlett told me that never a year passed without his being offered several. Still, they are uncommon enough to cause any person having one to be proud of his possession. I was one of these fortunate individuals, though my pride was of short duration. A neighbouring shepherd said his cat had a litter of kittens, and among them was a tortoiseshell Tom. I told him that though they were not worth the extravagant price some people thought, yet it might be worth a £5 note. I offered to advertise it at this price for him, and receive answers. Answers came, but inquirers wished to know before purchasing it if it had the colours arranged in an orthodox manner, suitable for show purposes. I was not aware that at cat shows there was a special class for tortoiseshell Toms, and could not guarantee it, and I told inquirers that I was quite ignorant as to the show points of such cats, and that I wished to sell it as a tortoiseshell Tom pure and simple, and could not guarantee the arrangement of its colours. The consequence was pussy did not find a purchaser. I made an offer for it myself, which was accepted by its owner, and it passed into my possession. As our house was already provided with a male cat, I resolved to have it kept at the hothouses. I directed the gardener to keep it safely confined in the houses till it settled down in its new home. However, he allowed it to escape, and under such circumstances that I suspected he did so maliciously. It was seen frequently prowling about the woods for some considerable time, but eventually disappeared, having probably wandered on to my neighbour's property and fallen a victim to a gamekeeper's trap.

## House cats.

When speaking of cats, I will narrate a curious circumstance which, I fear, I must call a coincidence, though I would prefer looking upon it as instinct. One of my daughters possessed one which was a great pet, and much devoted to her. The time came when the girl was sent to school in the south of England. The first time she left home the cat deserted the house and took up its quarters in the byre among the cows. When my daughter came home for her first holidays, the cat on the same day, but *before* her arrival, returned to the house. We thought this a strange coincidence, and the matter would have passed from our minds, but when my daughter again left for school the cat also left the house for the byre; and this occurred at the beginning and end of every holiday for about three years. The curious point was, that the cat invariably returned to the house on the morning of each day my daughter was expected, though she always arrived by an evening train.

A somewhat similar thing took place with a dog of mine. I had gone to reside in Edinburgh for the winter months, and during my absence the terrier attached herself to the gardener, and remained with him all day in the glass range. I returned to the country at intervals during the winter, and the gardener told me he always knew when I had arrived, as the terrier would suddenly become greatly excited, whining and scratching at the door to get out. When he opened the door, Floe, as she was called, rushed to the house in a frantic state to welcome me. The explanation of this may be attributed to the dog's acute sense of hearing. Though the range is a considerable distance away from the house, she *might* have heard the arrival of my trap, notwithstanding that the distance was too great for the gardener to hear it. But I would ask, How did the dog discriminate between the trap conveying me from the station—which was always a hired one—and other traps arriving at other times? It was only on the arrival of *mine* that the above scene took place.

These may be coincidences merely, but they appear to me to have a little bit of instinct in them. The next incident I will relate must, I think, be attributed to instinct alone.

## Pigeons and rain.

One of my sons and I were standing at the front door feeding nine fan−tailed pigeons. At the same moment every one of the birds dropped down on the gravel as if they were in the agonies of death,− throwing themselves from side to side, and at the same time raising each wing alternately in the air. I remarked, "How strange that is. I never saw a bird go on like that except 'Polly' when I give her a bath with the watering−can." The pigeons kept going through the same performance for at least three or four minutes, when all in a moment a heavy shower came down with a sudden plump. The birds were aware of its coming, though my son and I did not anticipate it.

Why is it that trout, if hooked and jerked suddenly behind the angler—bad angling, I know, but it is constantly done by beginners— on to dry land, at a considerable distance from the river, invariably wriggle *towards* the stream, *never away* from it, though they may be entirely out of sight of it, and do it so quickly after landing that one would think they had no time to make up their minds as to the direction in which the river lies?

## African sheep.

In my collection were three African fat−tailed sheep—one ram and two ewes. These animals are white, with black heads and tails, and instead of wool are furnished with smooth hair similar to that of a pointer dog. They had their liberty in a field during summer, and throve quite well the first year. The ram having died, I mated the ewes with a Cheviot ram, and in course of time each ewe produced a lamb, though the purebred Africans did not breed among themselves. These cross−bred lambs were peculiar, as instead of being black−and−white, and having hair like their female parents, they were jet black, and had short curly wool, exactly like Astrakhan fur used for trimming ladies' jackets. It would have been interesting to learn what quality of wool this would have become on the animal when adult, but both the lambs died before reaching this stage of life. I do not now remember where the sheep were housed the first winter; but noticing at the beginning of the second winter that the climate was affecting both parents and progeny, I put them in the byre among the cows for warmth, yet notwithstanding their being fed on good sweet meadow−hay, turnips, oats, and linseed−cake, they pined away during the cold months, and by spring they were very thin and weak,− so much so that when I put them to grass they could scarcely walk to the field.

The parents did not live long, and were the first to die, the lambs following soon after. After having been well fed, and being housed as comfortably as was possible in an ordinary farmyard, I am afraid the climate so far north was accountable for their death.

If the experiment was tried in some of the southern counties of England, a new and possibly useful skin for trimmings and similar purposes might be introduced into the country.

## Sheep fasting.

When speaking of the long fast which foreign birds are obliged to undergo in this country in consequence of the short days and long dark nights, I incidentally alluded to the fasting of sheep also. Providence has endowed sheep with the faculty of being able to abstain from food for a much longer time in winter than during the summer months−I mean sheep on mountain pasture, where they are never hand−fed except in cases of dire necessity, such as during the time when the ground is covered with snow, and ice−bound. Those kept in fields in the lowlands fare differently, as they are regularly fed. During summer hill−sheep will feed all day and nearly all night, but it is different with them during the long winter nights. They are formed by nature to accommodate themselves to the change gradually taking place between the long days and the long nights, and when darkness forces them to endure a longer fast, they receive no harm provided there is sufficient food for their wants during the hours of daylight. But if the ground is covered with frozen snow for any length of time, when the days begin to lengthen out they will suffer from hunger much more than they did when the nights were long: indeed it is said that a good sharp "storm" of a month or so about the very depth of winter, if followed by a fair spring, does them good rather than harm by making them more hardy.

Farmers have suffered great losses among their flocks for many years back owing to snow−storms in spring. These do much more harm than when a farmer requires to have recourse to hand−feeding in winter, for at this early season, as I have explained, sheep require more food as the days get longer; and besides this, their lambing season is approaching nearer, when not only the sheep itself but the unborn lamb require sustenance.

It is a fact well known to farmers of hill sheep−runs that if their flocks can be brought through the winter without hand−feeding, even if just enough natural grass is obtainable to keep them going, and afterwards there is a good spring, they will nurse their lambs better than those which have been fed on hay alone for any length of time.

This was brought home to my mind forcibly during a severe and prolonged snow−storm when I was tenant of the farm of Craikhope, and when during its continuance it was deemed necessary to feed the whole sheep stock with hay. There was very great difficulty in conveying hay to one particular "cut" of sheep. (A " cut," let me here explain, is a certain number which are, by long training, taught to occupy one particular part of the ground, and the cuts come at length to keep themselves separate from their neighbours, and do not mix with each other.) The special cut I allude to was on the highest and most "ungetatable" part of the farm, and the shepherds were worn out by the irksome duty of carrying hay on their backs for a long distance through deep snow: it was therefore resolved that if hay could not be got to the sheep, the sheep must be brought to the hay. They were with great difficulty brought to a "stell" (a feeding—place for sheep in winter), but they would not touch the hay, and left it to return to their "ain heft" (accustomed ground). When they reached the top of a hill they encountered such a blast of cold wind that they proceeded no farther; and my man told me that though he could not see how they procured a mouthful of food; they remained there for nearly a month till a thaw came. These sheep nursed their lambs better than those fed on hay at the stells.

Many suggestions have been made to me by persons living in towns, and who are not sheep−farmers, how to mitigate the effects of snow−storms. One seriously advised me to erect a glass roof over my ground to protect it from snow. This would make rather a large house, and it would cost a few pounds. Another, with equally foolish ideas, thought that pulling an iron roller filled with hot coals over the hills to dissolve the snow, when it did fall, might be efficacious. Such trifles as to how air was to be supplied for the combustion of the coal, how long one "charge" would last, or where a new supply was to be procured when the roller cooled down, were so insignificant as to be unworthy of consideration.

## Hedgehogs.

I am not aware if it is generally known that hedgehogs can whistle, and whistle loudly and shrilly too. One evening I was fishing for salmon in a pool close to the house. The pool was at the bottom of a steep bank, along the top of which was a gravel−walk bordered on the side next the river by large plane−trees. It was autumn, and the trees were pretty well denuded of leaves, though they were not quite bare. During all the time I was fishing the pool, I heard a continuous and piercing whistling sound, produced, as I thought, by some strange bird perched on one of the trees behind me. There was not a sufficient number of leaves on the tree to hide a bird larger than a blackbird, and I certainly had never heard such a sound proceeding from a bird of that size. My fishing was much interfered with owing to my continually staring up into the tree trying to discover what new species of bird was entertaining me with its evening serenade. The sound was sharp, and quite as loud as that of an ordinary dog whistle. In vain I tried to discover the *siffleur* on the almost bare branches, and I came to the conclusion that there was something "uncanny" hovering about.

Feeling rather "eerie," and having finished fishing the pool with as poor a result as my search for the ghost proved to be, I proceeded homewards, and when I reached the gravel−walk on the top of the bank, I saw, and picked up, a young hedgehog scarcely half grown. I carried it home and placed it in the flower−garden on which one of the drawing−room windows looked, and forgot all about it. It was dusk when I reached the house, and as the whistling had ceased from the time I reached the walk, I supposed my movements had scared away the invisible bird, and I did not then associate the sound with the beast.

When sitting reading in the drawing−room some time after complete darkness had set in, I was startled by hearing the same loud whistle quite near the window. I lighted a lantern and went outside, determined to solve the mystery; and I was much astonished to find that it was the hedgehog who was producing the noise. When I was carrying it home it emitted no sound, but remained curled up in my hand. I again lifted it up, and this time it never ceased whistling—so loudly that it almost became a shriek—all the time I was returning to the place where I found it.

The discovery of this gift appertaining to a hedgehog was new to me, and my impression was that it was calling for its mother.

It is not so very long ago that I learned that hedgehogs devoured frogs. My son and I were fishing Rankleburn, in Ettrick, and when dusk set in we wended our way to Tushielaw Inn, where we were staying. My son had hidden his cycle in a clump of alders a little way up the hillside on passing in the morning, and he climbed up to get it on our return. The spot was marshy, and on searching about to find the cause of a strange munching sound, he discovered a hedgehog enjoying his supper off "froggy."

## Cry of moles.

I accidentally learnt that moles, as well as hedgehogs, can give vent to quite a loud noise; and I have, as in the case of the latter, only heard the sound on one occasion. I was passing through a field quite near the house, and in approaching a very thick patch of grass and nettles, I thought a partridge was hidden in it,− the noise I heard being exactly like the cry of that bird. Still, it seemed to me strange that it did not take wing or cease crying when I came close to the patch. I poked my walking−stick into the bush, but the sound only ceased for a second or two and then commenced again. As I had never heard any *beast* give out a similar sound,− and it evidently *was* a beast of some kind, as I found now that the noise was proceeding from under the ground,− I hastened home for a terrier. So soon as the dog got near the place it set like a pointer, and then, with a spring, it seized a mole from among the grass and pitched it up in the air to prevent it fixing its teeth in its lip.

This dog was a grand mole−killer: indeed these animals were its specialty. It was "game" enough otherwise, though it was a mongrel which I bought from a tramp for 2s. 6d. It acquired the dodge of throwing the mole up in the air, so as to prevent it biting, in the following way. I was out one day surveying a piece of hill ground, when the dog caught a mole; and being almost a puppy then, it allowed the mole to catch hold of its lip, to which the brute clung viciously. As the dog was suffering great pain, I put my foot on the mole, which even then would not let go its hold, and I was obliged to transfix it with a surveyor's iron pin. After this lesson "Tramp" never allowed time for a mole to seize him by the lip.

## Parasites.

Hedgehogs, like many other creatures, are subject to parasites. When a lad, I fetched home a young one which I placed upon my dressing−table, where I intended to feed it on raw meat. A young hedgehog will eat from the hand immediately after capture,− at least this is my experience with several I have kept. As soon as I put it on the table I was surprised to see dark moving specks all over the white cover. On looking nearer I saw that these specks were fleas, with which the animal was infested. I at once thought that if these creatures were hopping on to the table−cover they must have hopped on to me when carrying it home. On investigation I found this was the case, and I trembled for my future comfort. However, I never suffered from their attack, either at the time or subsequently in my bedroom.

A question here arises as to whether certain parasites of certain animals will attack human beings. I say certain ones will, as it is well known that human beings will suffer from the fleas which sometimes infest fowl−houses; but I remember that I once put my hand into the nest of a dipper, built in a hole under the archway, of a bridge, from which the young birds had just flown. When my hand was in the nest I felt much the same sensation as if I had put it into a bag of linseed. On quickly withdrawing my hand, I found it and my arm covered with fleas. I was so disgusted that I lay down on the edge of the burn which ran below the bridge and dipped my arm, up to the shoulder, in the water. A host of fleas floated off down the stream, but sufficient were left to cause me much annoyance had they been so inclined, but not one of them gave me trouble, and they very soon relieved my body of their presence.

On another occasion I had gone to the rookery, some distance from home, to procure a few rooks to serve as food for certain of my flesh−eating animals. I filled a gamebag with "branchers," and slinging it over my shoulder proceeded homewards. The day was warm, and I sat down at a well to have a drink. After sitting some time, with the bag still on my back, and with my hat off, I felt a queer creepy feeling as if my hair was proceeding to "stand on end," and I was afraid I was suffering from incipient sunstroke. My mind was soon set at rest on this score by observing on the lapels of my coat a swarm of parasites, of a different kind than fleas, which, when they take up their quarters on some folks negligent of sanitary operations, require more energetic means for their removal than mere soap and water. On reaching home my clothes were quickly sent to the wash−tub, and with a warm bath and plenty of soap and water I soon got rid of my disagreeable companions. The subject is not a pleasant one, and I merely mention it so as to express my opinion that though human beings and the lower animals are both subject to parasites of very much the same appearance to the casual observer, it does not follow that the one will be tormented with those of the other.

## Cuckoos.

The average date of the arrival of the cuckoo in this parish (Eskdalemuir) is the 27th April. The number of these birds has diminished considerably of late years—at least, in the immediate neighbourhood. At one time their monotonous cry was quite tiresome, and fully a dozen might be seen in the woods close to the house, but for some years back very few have been seen or heard during their stay in this country. Notwithstanding their number in former years, I have only observed two or three eggs, and one young bird, each taken from different nests of the titlark, or "mosscheeper" as these birds are called here. A shepherd had once brought me a fully fledged young one, but as I knew it was no use trying to keep it, I sent him to put it down on the part of the hill where he found it.

A writer once stated in 'The Field' that he had been on a visit to this parish and had seen a *flock* of cuckoos at the "Martyr's Tomb," one of our ancient monuments. As *I* had never seen a flock of cuckoos of more than three or four at a time, I thought the writer was either "drawing the long−bow," or did not know cuckoos when he saw them. However, a few years afterwards I was walking through a field on what is now my own ground. As I approached a wall I saw birds—whose species at a distance I could not distinguish—flying off it, one after another, to the number of several dozens I should say, but leaving a number still sitting on the wall, and as I got nearer I saw that they were cuckoos, and a very large flock of them too. This taught me a lesson not to disbelieve every one's word who happens to record a fact they have seen, though it had not come under my own observation. I owe the above−mentioned writer an ample apology for having doubted the correctness of his observation, as I now believe such a curiosity might be seen even in my own neighbourhood. I have all my life gone about with my eyes open, but a flock of cuckoos is a sight so rare here that I never saw another myself, or ever heard of one beyond that which was recorded in 'The Field.'

I only once had the pleasure of seeing a young cuckoo fed by its foster parent, and it was interesting to see the comparatively huge bird being fed by such a tiny one. The cuckoo was on the top of the ruins of Dunskey Castle, near Portpatrick, Wigtownshire, and with my field−glass I saw the operation well enough, but could not distinguish the species of the foster parent.

## Woodcocks.

I had the privilege of seeing another assemblage of birds rare in this district− viz., a flight of woodcock. I was out shooting, and had entered a very thick plantation of spruce firs. So soon as I got into the wood I heard the sound of rising birds in every direction, but owing to the closeness of the trees I could not see what they were. I therefore knelt down, and looking along the ground, which was quite bare below the trees, I found the place was alive with woodcocks running along in front of me. Shooting in this position was out of the question, and I had no one to beat the wood towards its outer edge, where I might have posted myself. Next day I went back accompanied by some beaters, but after searching the whole wood we only saw two birds, at which I did not get a shot. Though I never heard of a flight of these birds so far inland, there is no doubt, from so many being together, that they had newly arrived, and had dropped into the plantation to rest.

By next day they had spread themselves over the country in twos and threes, which is the greatest number we ever see together in this district. A pair of these birds were seen more than once in the same plantation in the summer of another year, but though no nest was found, I have no doubt they were there for nesting purposes. They are known to breed in the neighbourhood, and my wife was present with some cycling friends in 1897 when one of the party caught a young one with a broken wing at the side of the road near Langholm.

## Highlander's wall.

The above−mentioned wall on which I saw the flock of cuckoos has some historical interest in this part of the country. It is really a dry−stone dyke, built of single large boulders placed one above another; and its stability is ensured by the ingenious way in which one stone is wedged by another. None of the stone−dykers here now could build one to stand for such a length of time as this one. It is quite sound, though it has stood since the retreat of Prince Charlie's Highland army from Derby in 1745, when he was persuaded to relinquish his attempt to take London. Many men straggled from the army and worked their way north by dyke−building, road−making, &c.

A cottager, when digging his garden a few hundred yards from the said dyke, turned up, a good many years ago, what I thought at first sight was a large copper coin about the size of a twopenny−piece. On the obverse side there is a representation of the Prince, with "Carolus Walliae Princeps, 1745"; on the reverse is a figure of Britannia standing on the shore waiting the arrival of a vessel, seen in the offing, and the motto "Amor et spes." I built up quite a little romance in my own mind that this "coin" was part of a Highlander's pay for serving under the Prince, and that during his sojourn in the country, building the dyke, he had dropped it on the spot now occupied by the garden. I have since learned that it was a medal struck in commemoration of the Prince's return from France; but how or when this one got to the place where it was found is a mystery. I believe that these medals now command a good price from collectors, though they must have been of little value when issued.

## Black snow &c.

A shower of black snow fell in the parish of Eskdalemuir on the evening of the 3oth January 1897. On the morning of the 31st I had walked up the avenue thinking of other things, did not notice anything abnormal in the colour of the snow; but on my return I noticed that the marks made by my previous footsteps were pure white below the original surface of the snow, which was of quite a dark colour in comparison. On investigating the peculiarity, I found that the surface of the unbroken snow to the depth of about a quarter of an inch was deeply coloured as if mixed with soot. I paid no further attention to this at the time, as, the avenue being so near the house, I concluded that the snow owed its colour to the "blacks" coming from the chimneys. However, having gone farther afield during the day− in fact, the day being Sunday, during a walk of four miles to church− I found the whole of the snow on the road and hillsides was of the same black colour; and on looking across the valley the hills appeared as if they were bathed in the lights and shadows, as seen during bright sunshine.

As the day was dull, sunshine could not account for this peculiar appearance; and it was evident that it was caused by the wind during the time the snow fell. The wind swept the more salient parts of the hill and deposited the fall of coloured snow in the hollows, thus giving the country the appearance of light and shadow. I met one of my shepherds, and asked him if he had noticed this strange appearance: he told me he had, so soon as he left his house in the morning, and, like me, had attributed the colour to the soot from his kitchen chimney, but that he found this state of matters extended at least a mile across the sheep−walk under his charge, and entirely beyond the influence of soot coming from any chimney in the parish. Sheep also were affected in the same way as the surface of the country, as instead of being of the usual clean colour of these animals grazing on hill−pastures, far out of reach of any outside contamination, they were of that dirty appearance which sheep assume when grazed in fields close to a large town. The area over which the snow fell was, to my own knowledge, four miles long by about a mile and a half wide, and every one living within this space had been astonished at the unusual phenomenon, and could offer no explanation of it.

There is no doubt the snow had encountered as it fell a floating layer of some colouring matter; but what did this consist of, or where did it come from? The two nearest towns of any size to the ground affected are Carlisle and Dumfries,− the former about thirty and the latter twenty−six miles distant. If the colouring matter was soot, I do not think either of these towns− even with the manufactory chimneys they possess− could supply such an amount of soot as the snow took up in the short time of its fall; which fall, judging from the amount deposited, had only been a shower. Presuming that the colouring matter really was soot, I am of opinion that it was drifted from some of the large manufacturing towns in the North of England, or from Glasgow or Edinburgh,−none of them nearer than sixty miles. For the same reason I give as to Carlisle and Dumfries being unable, in my opinion, to supply enough soot, I cannot think Hawick or Langholm could do so. These are, though nearer, much smaller towns, and the only "tall chimneys" there are those serving woollen mills.

If the colouring matter was meteoric dust, I must leave meteorologists to suggest how the dust came there. As the fall took place during the night, I could not say from what direction, or from which town, the soot was likely to have been wafted, and now I cannot even remember from what quarter the wind blew on the Sunday morning. I regret now that I did not collect some of the snow and have the foreign body analysed, but I soothe my conscience for this neglect by knowing that had I done so, I would have been guilty of "breakin' the Sawbath"; but the real reason is, that I did not think of it till too late, and when the snow had dissolved.

## Weather gaws.

People living in the country with their eyes open have many more opportunities of observing natural phenomena than those living in towns, and I am glad to say several curious things have been observed by myself, and afforded me much interest. Among them I may mention "weather−gaws." These are large and very beautiful iridescent patches in the sky, much like mother−of pearl. They assume different forms, some being mere shapeless patches, though they are frequently of a diamond or triangular shape. Sometimes only one at a time is seen, but at other times as many as three or four make their appearance, and their presence almost invariably forebodes cold stormy weather. They are most commonly seen from about October to March, and are sufficiently rare to be objects of interest to any one who is fortunate enough to see them. They are not at all familiar objects, such as rainbows, and when one is seen it is commented upon by natives as something uncommon. They are quite distinct from rainbows as usually seen, though scientists may attribute their appearance to the same cause. I have only seen them on three or four occasions, and at long intervals. The last one I saw was some years ago, and its appearance is associated in my mind with a severe chill I caught during a drive in an open dogcart.

My wife and I were, in the month of January, staying with some friends in the neighbourhood. The day after we arrived at the house it was exceedingly warm, quite a "summer" day, such as one seldom enjoys at that season of the year. Our friends proposed a drive of fifteen miles into the Vale of Ettrick. When we started the sun was quite hot, and there was not a cloud in the sky: so warm was it and so likely to continue that I did not take an overcoat with me. Before we reached our destination the atmosphere suddenly became intensely cold, and we encountered a very heavy and prolonged squall of snow, raging down from among the high hills at the head of the river Ettrick. We took shelter in the stable−yard of Thirlestane, the seat of Lord Napier and Ettrick ; and hoping that the storm would not last long, and our time being limited, we did not put up the horse in a stable, but merely drew it up on the sheltered side of one of the buildings and threw over its loins a shepherd's plaid, the only available cover in the trap. The heat arising from the horse caused the snow to dissolve, and the plaid soon became saturated. After the snow ceased the evening cleared out, but the wind which accompanied the snow continued, and hard frost set in— a violent contrast to the weather we experienced when we started in the forenoon. Soon after we began our journey home I began to suffer much from the cold, and it was suggested that I should put on the shepherd's plaid. When I took hold of it I found it was frozen hard. After giving it a good "squeezing" I made it pliant enough to put round my shoulders, hoping that though it would not impart much heat it would at least break the wind. On remarking to my friend—who had on starting furnished himself with a thick Ulster coat—that I wished I was he, he told me that notwithstanding his foresight his teeth were chattering, and that he could scarcely hold the reins, his hands were so benumbed with cold. It was during this return journey that we saw a splendidly coloured "weathergaw." A severe cold resulting from our drive has vividly impressed the fact on my memory.

I am unable to find the derivation of the word, and possibly it may be only a local one. I have no doubt these phenomena are well known under another name to meteorologists, but I have never been able to find them accounted for in any work I have read: the name is not in Jamieson's 'Etymological Dictionary of the Scottish Language.'

As I said before, these apparitions are supposed to presage stormy weather, and if one of them has that gift, what power must a combination of such omens have?

I once had the good fortune to witness such a combination which would probably have driven some of our forefathers frantic with terror. I had trysted my farm manager to meet me at a certain point on a beautiful winter day. The sky was very clear in some places, but cloudy in others; there was a dead calm, and it was sharp frost with snow on the ground. When we met we stood some time talking over business, when I happened to look up at the sky and witnessed a sight which probably no one had ever seen before or since, and at the time probably only could be seen by observant folk in our immediate neighbourhood. The signs consisted of a complete and brilliant rainbow with its reflection, two "weathergaws," two mock suns, and a "Noah's Ark." The appearance of so many natural phenomena in the sky at one time was, I must confess, awe−inspiring, and though neither of us felt fear of the signs themselves, still we were alarmed for the coming storm they were supposed to prognosticate—such a storm as must necessarily be made up of the terrible convulsion of every element known to science. I am glad to

say nothing abnormal happened in our district; but the newspapers of next day recorded that many counties in England had been subjected to severe and violent snow−storms. The rainbow was one of the finest I ever saw, and it had one striking peculiarity− viz., that the whole of the sky within the arch was so dark that it appeared almost deep black when contrasted with the otherwise pale grey of the cloud upon which the bow was reflected.

## "Noah's Ark."

A "Noah's Ark" as applied to a strange appearance in the sky is probably a local name also. It consists of a wide band of filmy cloud stretching in a straight line across the whole sky. In shape it exactly resembles the flat boat upon which rests the toy of the same name so dear to the hearts of children. Wiseacres will tell you that from the direction in which the two sharp ends point they can predict not only from which direction the storm will break, but also of what nature the storm will be—either snow, rain, or wind only.

## Peculiar rainbow.

I happened on another occasion to see a wonderful rainbow when walking up the valley of the Tweed. It was the month of March, and on ascending rather a sharp rise of the road I encountered a heavy fall of sleet accompanied by a high wind. As I was making slow progress against the storm, I turned my back to it so as to regain my breath. When I looked down the valley I was astonished to see a rainbow which did not consist of the usual narrow bow only, but the whole of the arch inside, unlike the black−coloured one before described, had all the colours blended together, and at the same time was so transparent that I could see the houses and trees quite distinctly through it, as if through a thin veil.

## Krakatoa and sunsets.

Many people will remember the magnificent sunsets which followed the explosion of the mountain on the island of Krakatoa, and which meteorologists tell us were caused by the great amount of dust floating in the air. Before this explanation was given, I had noticed that towards evening, when the sun could be looked at with the naked eye, there was quite a pale brown veil over the clear blue sky, and extending for some considerable distance from the sun. I drew the attention of several people to this at the time, and after learning that dust was floating in the air in such a quantity that it caused the glorious sunsets, I was convinced that the dust also produced the brown haze which I had remarked, and which did not appear to be of the same character as the ordinary evening haze so frequently seen when the sun is on the decline. Even during the middle of the day, when the sky was quite clear, this brown veil was visible if one held up a hand between the eye and the sun.

I had the misfortune to miss all the sunsets except two, and one which I saw during a railway journey to Edinburgh was a sight to be remembered.

If I missed most of the sunsets, I saw the reflection of one which was extremely weird. My house stands in a valley lying north and south, and the hill forming the east side was completely covered with snow. The sun had set, and it was almost quite dark, when all in a moment the hill became a deep blood−colour. To see the hill lighted up at all after the sun had set was wonderful, but to see it blood−red instead of pure white was exceedingly startling. I climbed the hill forming the west side of the valley, expecting to find some grand appearance in the western sky; but I was too late—the sun had completely disappeared, and the only thing visible was a slight gleam of light on the horizon where it had gone down.

## Snow appearing green.

This change of colour reminds me of a strange experience I had when suddenly entering a wood after a walk across the hills entirely covered with snow. The day was very bright, and my eyes had suffered a good deal from the glare caused by the sun shining on the snow. The plantation was of spruce fir, and the trees were so close together that the sun's rays could not penetrate, and it was very dark in the wood. Snow had drifted in below the lower branches of the trees, and on entering I was astonished to find that on looking on the snow it appeared bright green, of that vivid colour which I believe is called "Scheel's green." Of course I am aware that the reason of this delusion was quite different from that which caused the hill to appear red: the former was some temporary derangement of the eyesight, while the latter was caused by reflected light.

## Earthquakes.

Some parts of the British Islands are more liable to be affected by earthquakes than others, and Dumfriesshire appears to lie in the line of these seismic waves. Four have occurred here to my knowledge, of three of which I have either felt the tremor, or heard the noise which generally accompanies them. This noise is very much the same as if a carriage was passing the house at a rapid rate. One happened about 10.30 P.M., when Mrs Bell and I were sitting in the drawing−room. She was working at a piece of "white seam," and we both heard what we thought was a carriage passing the window, though it sounded as if it passed the house in the opposite direction from that usually taken by drivers when visitors arrive. Mrs Bell, thinking we were going to have late visitors, put her work out of sight, but no one came. Next morning several people told me that they had both heard the noise and felt their houses shake.

A pretty severe shock passed through this country in the spring of 1888, and in 1897 one happened on 5th August at 7 A.M. I was just preparing to get out of bed when I felt it shake, and the basins and china ornaments on the mantelpiece rattled loudly.

Lightning also seems frequently to be attracted to one spot of ground. One of these places is on the hill opposite Billholm, and sheep have not infrequently been killed within a very short radius from the spot.

## Plague of voles.

Since I took to farming, forty−six years ago, my brother farmers and myself have suffered, in our flocks and herds, from about as many plagues as the Egyptians of old. We have had foot−and−mouth disease (murrain of the Bible?), rinderpest, loupin' ill, braxy, lung disease, hail, snow, and frost, drought, two vole plagues, two plagues of caterpillars, and one other which is, I fear, becoming more common and widespread each year than formerly: I allude to premature birth of lambs. Some of these are pretty permanent with us, while others have occurred periodically only. When any of them *do* happen, they leave their track behind in the shape of reduced numbers of sheep and cattle, and reduced incomes to the farmer.

In these pages I will only treat of two of these plagues−that of the voles and that of the caterpillars; and I shall refer to them more as a naturalist than an aggrieved farmer.

If any one desires to peruse the history of the last vole plague more fully, it will be found in all its details in a "Report of the Departmental Committee appointed by the Board of Agriculture to inquire into the Plague of Field Voles in Scotland," and which may be procured from the publishers, Messrs Eyre & Spottiswoode, East Harding Street, Fleet Street, E.C., at the cost of 1s. 4d.

I may here state that though the plague in this district was popularly termed the "mouse plague," the animal is not a mouse: it is the short−tailed vole (*Avricola agrestis*), and must not be confounded with the long−tailed field mouse (*Mus sylvaticus*), which is a mouse proper. The voles vary in colour from light fawn to the beautiful dark brown of a sealskin jacket; black, pure white, and orange yellow varieties were not infrequent, and I have kept alive specimens of each shade. The average length of their head and body is four inches, while the tail, which is hairy, is one inch only in length, and hence its descriptive name; the ears are very short, and almost hidden among the fur. They are of the same family as the water vole, popularly though wrongly called the "water rat," as it is no more a rat than the plague vole is a mouse.

There have been two vole plagues in my experience,− one so far back as the year 1876−77, and the last one so lately as 1890−g3.

The natural features of the country in my immediate neighbourhood are hills and valleys, mostly mountain pasture utilised for grazing cattle and sheep. Agriculture is carried on on a comparatively limited scale, confined generally to the flat haughs lying close to the river banks, though in some places extending a very short distance up the hillsides when the land is suitable for ploughing.

The hills at the lower and southern end of the parish of Eskdalemuir, where I reside, are low, and covered in the main with finer pasture than the higher hills at the head of the parish, these latter being clothed with a "stronger" pasture and heather. At this higher part there is a wonderful jumble of hills, the highest of which is Eskdalemuir Pen, rising to a height of 2269 feet above sea−level.

The right naming of this hill has been the cause of many disputes among the inhabitants of Eskdalemuir and Ettrick. The former say that Eskdalemuir Pen is right, and the latter contend that Ettrick Pen is its name. Certainly both the rivers Esk and Ettrick have their sources on it; but considering that threefourths of its bulk belongs to Eskdalemuir, which lies in Dumfriesshire, while Ettrick parish, which lies in Selkirkshire, can only claim one−fourth of it, I think the folks in Eskdalemuir may justly lay claim to the name by which it has been known to them from time immemorial.

The boundaries of the shires of Dumfries, Roxburgh, Selkirk, and Peebles, all converge on these hills, which at the same time form the watersheds of the Esk and Ettrick with their tributaries, Tima Water, Moffat Water (a tributary of the Annan), and Borthwick Water (a tributary of the Teviot). It was on these watersheds that the voles first increased to such an extent as to become a plague both in 1876 and 1890. The outbreak of the former year, though quite as bad on the lands infested, did not extend to anything like so far as that of 1890−93. It was confined to a comparatively few farms, of one of which − Craikhope, at the head of Borthwick Water in Roxburghshire, and owned by the Duke of Buccleuch—I was unfortunately tenant. This farm was one of those termed a "led" farm—that is, a farm without a suitable farmhouse, and which may only have one, two, or more shepherds' cottages on it, according to the extent of ground and number of sheep.

Sometimes there is a farmhouse on one rented by a tenant who styles himself a "gentleman" farmer, and when he considers the house either not "good" enough or not large enough for his needs, his landlord may permit him to

reside on another farm having a better dwelling−house. But landlords are, for several reasons, rather averse to such an arrangement, and only agree to it owing to some exceptional circumstances.

It had been the custom for many years that Craikhope was let as a led farm along with Billholm, and when I entered the latter farm my landlord kindly made no change in this arrangement, and I became tenant of both. The distance between the two places was ten miles, entirely across hill ground, and owing to this distance, and my having engaged a trustworthy working head shepherd, I did not visit it except when the exigencies of business called me—such as counting lambs, preparing sheep for the markets, sheep−shearing, "keeling," and "dipping."

For the benefit of those of my readers who are not conversant with farming phrases, I may say that "keeling" may be termed a sort of stock−taking, when the different classes of sheep are counted and marked with "keel" (ruddle in England), so as to secure identification if a sheep goes astray: "dipping," as its name implies, consists of dipping the sheep in a tank containing some mixture poisonous to certain parasites called keds, with which these animals are so frequently infested.

At the beginning of the plague, my shepherd, who never complained without just cause, did not at first take much notice of it, probably owing to the voles, spreading from adjacent grounds, not being in such numbers as to cause anxiety.

However, between two of my visits the destruction grew so rapidly worse that he became alarmed, and sent for me to come and see it for myself. When I arrived on the ground I was astonished to see the amount of progress the plague had made in the short time since I had been there before. One part of the ground—a narrow stretch of flat "bog" lying between a steep hill and a burn, and in extent about two miles long and two hundred yards wide—was completely denuded of pasture. Not a green blade was to be seen, nothing but the withered and rotting grasses rejected by the voles, who devour the white and succulent part at the bottom of the blade; and the bog, instead of having the usual rough appearance owing to the rank growth of many coarse grasses, was quite flat, as if it had been mown, leaving the "bulls' snouts" standing in solemn array, all the more visible since the surrounding pasture had disappeared. These bulls' snouts are large tufts of a grass, scientifically called *Aira caspitosa*, or tufted hair−grass, which is too coarse for sheep to eat so long as they can get a better choice. In consequence of their rejection by the sheep these tufts go on increasing for years, and become large "stools" of vegetation from a foot to eighteen inches high, and about as much in diameter, and are then known by the above name. These were left standing as if still growing, but if they were pushed by the foot or walking−stick, one found they were quite detached from the soil, and toppled over as soon as touched.

The first appearance of the voles on that farm took place after the snow−wreaths disappeared in spring. They had evidently come just before a snow−storm and taken shelter under the wreaths during winter, and it was only on the snow−wreaths dissolving that my shepherd became aware of their presence, and his notice was called to this by seeing the pasture had entirely disappeared in the places previously covered by the wreaths. He told me that during the hay season, when his children were at home for their school holidays, their whole time was taken up destroying the nests of voles containing young ones; and that his dogs, who devoured large numbers, became so emaciated that they were quite unfit for work. The bogs were the first parts of the ground which were affected by the ravages of the voles; when they finished these they applied themselves to the "bent," which is a finer and less succulent grass than that of the bogs. When this was finished they had recourse to the lea ground, which is of a drier nature, and the soil grows a much finer pasture than either of the two other classes.

The bogs of the South of Scotland must not be confounded with the bogs of Ireland. The soil of the former is of a heavy clayey nature, always wet, and on it grow a great number of semi−aquatic plants,− the natural food of the voles, who are themselves semi−aquatic,− while the latter are the places from which peat or turf is cut to be used as fuel. The places where the inhabitants of the south of Scotland cut their supply of fuel are called "peat mosses." So serious was the destruction of pasture on the worst affected farms that, as the expression is, the sheep were "stormed," and I was informed that from one farm part of the sheep stock had to be removed to the lower lands so as to procure food.

The term "being stormed" was originally used to express the want of food suffered by sheep when the ground was covered with snow, either to such a depth that sheep could not reach the pasture by scraping, or, if of a less depth, so that the sheep could not "work" owing to the snow having been partially thawed and then frozen hard. When the surface of the snow bears only a slight crust of ice the sheep can break this through with their feet, and it is pitiful to see the snow covered with blood, the result of their hoofs having been worn to the quick owing to

the continued efforts of the poor starving animals to reach food. Now the term "stormed" is applied when pasture cannot be obtained owing to some such unusual cause as a "mouse plague" or "caterpillar plague," as well as to that want of grass so frequently caused by a hard winter and barren spring. Sheep then die of "poverty"—that is, from emaciation, the result of starvation.

The voles disappeared as suddenly as they came. My shepherd told me that not one was seen on ground where thousands might have been observed two days previously. He could suggest no reason for their sudden disappearance except that one day was very stormy, with the addition of sleet and frost. He saw no dead bodies, and they did not emigrate to neighbouring farms. If they died they must have died in their holes below the surface of the ground.

During this plague rough−legged buzzards arrived—from whence no one can explain, if it were not from Norway. My shepherd counted seven of these birds on one company hawking about the hillsides, and he had ocular proof that they preyed on voles. A single bird of this species is a rare sight, as previously mentioned, and if they came from a foreign country, as I am fain to believe, how were they attracted from such a distance?

As the plague of 1876 was confined to a comparatively limited tract of country, the damage it caused was neither so serious nor so far−reaching as that of 1890−93. Then it commenced very much on the same grounds, but it rapidly extended in every direction, even down to the lower cultivated lands of the different counties which suffered from its ravages. It was some time after the farmers at the head of the parish began to suffer that the army of voles invaded my lands of Crurie and Castle O'er. I did not employ a gamekeeper, and consequently my "vermin" were unmolested, and in my woods were bred annually a great number of owls—of two species, the brown and the long−eared—as well as many sparrow−hawks and kestrels. These last, in the absence of more congenial nesting−places, build on the fir−trees, of which my plantations of ninety−two acres principally consist. When the plague broke out these birds forsook my woods and went to the "moused" ground. Not an owl or hawk was to be seen for several months, and when the army of voles arrived on my ground I was pleased to welcome back my own "vermin," accompanied by a great number of short−eared owls which had been drawn to the plague, how or whence no one can tell. They turned up in the same mysterious way as did the rough−legged buzzards in 1877.

Mr Beattie of Davington told me that he had seen fourteen owls sitting in a row under an overhanging bank of the river: he also counted forty−two short−eared owls on the wing at one time.

## Short−eared owls.

This large increase of short−eared owls was a strange feature of the plague. Letters appeared in the public prints noticing it, and more than one writer said that up till then these owls were merely winter visitors, and that they had never been known to have previously nested in this country. My experience is entirely opposed to this belief. I have known of these birds nesting in my neighbourhood so far back as 1864. There was never a season up to 1879—when I had more occasion to travel over moorland than now—that I did not either see their nests or see a pair or two of the birds diving at my dogs in such an aggressive way as to leave no doubt that a nest was in close proximity. I knew two cases of serious attacks by these birds,one on a man and another on a lad, the latter having the back of his head cut with their claws.

During the plague the short−eared owl bred on most of the farms ravaged by the voles. One evening, when driving along a road stretching for some miles over moorland, I counted fifteen parties of these birds, each consisting of from four to eight, and I have no doubt that each was a separate family, as they kept all together hawking after voles and at long distances from each other.

They began to breed very early in the season, as one of my shepherds saw a nest so soon as 29th February 1892, leap year. The female was sitting on twelve eggs with only her head visible above the snow, which covered the ground to some depth. Round the nest were seventeen dead voles, evidently brought there by the male bird.

No one who did not see it could realise the extent of ground affected, the damage done, and the myriads of voles engaged in the destruction. In the report before referred to it was estimated that there were from 80,000 to 100,000 acres affected in Roxburghshire, Dumfriesshire, and the Stewartry of Kirkcudbright, and that a supposed area of somewhere like 960 square miles was infested with voles in the counties of Selkirk, Peebles, and Lanark.

During the outbreak there was much controversy between farmers and game−preservers as to its cause. The farmers alleged that it was owing to the destruction of the "natural enemies" of the voles, while game−preservers were of opinion that the destruction of "vermin" had nothing to do with it, and in support of this latter opinion one witness stated before the Committee of the Teviotdale Farmers' Club— appointed to inquire into the cause of the outbreak in 1876—that the farmers' view was a "popular opinion" to which not much weight was attached, and that the destruction of owls, hawks, buzzards, stoats, weasels, and other vermin could not be blamed for the outbreak, because they had in fact been "well−nigh extirpated long before the outbreak took place." Quite so; and these so−called vermin were not there to check it!

My own opinion is that the "outbreak" took place owing to the mildness of one or two of the preceding seasons producing a rank growth of grass which hid the voles from the few enemies remaining, and that it became a "plague" owing to the want of a sufficient number of enemies to check it in its initial stage. If game−preservers destroy "vermin" so as to allow game to increase, why should the voles not increase also, which are to a greater extent the natural food of owls, kestrels, stoats, and weasels than young game are? It seems to me that the word "outbreak" is confounded with the word "plague." An "outbreak" may be checked by natural enemies, but when the numbers of voles have increased to such an extent as to become a "plague," such as the one in question, no human efforts will stamp it out. We have voles at all times on our hills, which, in ordinary seasons, do no appreciable harm. It is only when the destruction caused by the voles is so evident as to be taken notice of that the term "plague" may be applied to them. At this stage it cannot be stayed. The conclusion of the Committee may be summed up in the following words: "Farmers have suffered much damage from a vole plague, and the Committee have reluctantly been led to the conclusion that they are unable to recommend any specific method of dealing with, or putting an end to, the present outbreak."

This was already the experience of farmers themselves, and the Committee spent a lot of money in coming to their own conclusion. The above conclusion of the Committee reminds me of a remark by Lord Rosebery, made in the course of a speech delivered at a luncheon on the occasion of a sale of Shorthorns at Dalmeny in September 1897. "Agriculture," said his lordship, "in my lifetime has always been subject to two permanent conditions: one is depression, the other is a Royal Commission; and there is this difference between the two, and this only, that whereas both conditions are permanent, we know the results of depression, but we have never seen any results of a Royal Commission."

Farmers will agree with Lord Rosebery. We know the result of the vole plague, but we know of no result

arising from the labours of the Departmental Committee.

After recording the numbers of voles killed on several farms by tenants and their employees, the Committee remark that "there can be no doubt that simultaneous and combined action of this sort on the part of owners and occupiers, aided by timely and judicious burning in the *earlier stages of the outbreak*, is the most effective method of staying the ravages of the plague."

Burning in my opinion is useless, or almost so. This operation can only be carried out in early spring during very dry weather, and its object is to destroy the worthless, withered grass of the previous season, so as to allow the new growth to be more quickly available for pasture, otherwise the sheep would get little benefit from it until the new growth was so far advanced as to appear above the useless overgrowth of the previous season. It would only be in the event of the outbreak being in its earlier stage at this *early season* that burning could be resorted to for the purpose of destroying the voles, and what would be the result? When the shepherd commences to burn a piece of infested ground, he would with a match set fire to a rough part of the withered grass, and then, lighting wisps of the same material, would draw these along the ground in as straight a line as possible across the piece of grass−land he wishes to burn down. The straight line of fire so lighted travels, even when the weather is calm, at a rate of, I should say, a foot in a second or two. During this short time the voles, seeing the fire approach, would take shelter in their holes below ground till the danger was past, when out they would pop again, little the worse for their experience. When burning during wind, the fire travels at a much greater speed, and consequently with less danger to the voles.

When shepherds "moorburn" for the purpose of allowing the tender young growth to be sooner reached by sheep, the fire frequently "runs away" from them, and they cannot stop it till it has consumed a much larger extent of ground than they intended.

If the earlier stage of the outbreak is noticed later on in the season when the grass is at, or nearly at, its full growth, it would not burn, and even if it did, when tried the cure would be as bad as the disease. Farmers would, even if they attained their object, be "robbing Peter to pay Paul": if they destroyed the voles they would also destroy their crop of hay, on which their cattle and sheep depend for food during winter.

When the committee recommend "simultaneous and combined action," I presume they mean this to apply to the farmer and farm hands on each separate holding. It would be scarcely practicable for tenants and servants to form themselves *en masse* into a great combination and go "stumping" the country in all directions, killing each other's voles, as other work would fall considerably in arrear. The number of hands employed depends on the size of the farm and the extent of arable land upon it. On farms lying "inbye," and where cropping is carried out, more hands are required than on led farms situated on the higher uplands where there is little or no crop. Though my ground lies low, I do not plough any of it; and using it all for grazing purposes, I employ few hands. If the destruction of voles depends upon the tenant and servants employed in each farm by itself, let us see what measure of success might be expected. I will take my own case as an example. I have only eight men in regular employment, besides four occupying houses on the ground as tenants, who might be employed on an emergency; that is twelve all told. I leave out housekeepers and children of school age; the former have their household duties to attend to, and the latter would have to reckon with the School Board, unless there was an outbreak in the holiday season. Now if these twelve men were to traverse the hills for a week at a time,− when the ground carries its ordinary stock of voles, or even when at the moment destruction becomes visible, the right time to stamp it out,− I do not think they would kill twelve voles each with spades. If each man had a dog perhaps the "bag" might reach that number. If the "beasties" were the size of lions and tigers, nay, even of elephants, and the men were good shots armed with the most improved type of sporting rifle, the "bag" might reach a more respectable size in the course of six working days; but what could they do against creatures the size of mice, darting at the sound of a footstep like a streak of lightning into their burrows, hidden by rough pasture? Of course these remarks apply to the time when the number of voles is comparatively limited, and then, I admit, is the only time that the plague could be stayed, either by human or "natural" enemies.

When the plague comes to its height I confess that the case is different. The voles have increased to millions, and are so crowded on the ground that men and dogs may kill as many as they like, but what does this avail? It may mitigate the plague, but only to an inappreciable extent, and the destruction of the ground will go on by those surviving the foray. It was reported in the newspapers that one shepherd killed 32,000 on the farm on which he was employed; but what were these few thousands compared to the millions he did not destroy? He did not save

the grass, and the sheep stock suffered all the same.

As an instance of the frequency in the breeding of these creatures and the consequent rapidity of their increase, a witness before the committee testified that he had killed pregnant females still suckling young. I will go further and say, when I kept coloured mice for feeding my reptiles I have seen one mother have a second litter of young before her previous one had left the nest.

To cure the plague many absurd suggestions were made,− such as galloping cavalry over the ground, the use of steam, noxious fumes, &c.,−the absurdity of which was amusing. One evening, on riding my tricycle along the road, I nearly immolated one which ran across in front of my wheels. Had it been a longtailed field−mouse instead of a short−tailed vole its tail would have gone undoubtedly. I thought from this that tricycles might be tried with good effect, but on going out next day to repeat my experiment I did not see any on the road, and did not publish my supposed cure. It may be that I did not carry the cure far enough by trying it on hill ground, but the hills were rough, and I feared I might " buckle " the wheels of my cycle.

Perhaps poison might be the best remedy, but the questions arise, How can it be administered? and how much would it cost? One writer suggested that pellets of a mixture of meal and phosphorus should be dropped into "*every* mouse's hole." Would they eat this mixture so long as the supply of their natural food lasted, and were not actually in a state of starvation owing to the last blade of grass having been devoured? I doubt it. Poison was tried with very partial success, and that on restricted areas only. Rice, saturated with a solution of strychnine, and coloured red to ensure it from being used for cooking purposes,—sent from abroad for experimental purposes, −was the form of poison used; but, besides the danger to other animal life, its success was so slight that it was given up as practically useless over such an immense tract of open country. I have had the curiosity to try and find out, by actual experiment and calculation, the expense, and how much time would be consumed by using poison pellets.

## Experiment with poison.

During the plague I am quite of opinion that there was a hole made by voles in every six inches square over the whole ground—certainly over a very great part of it. But in my calculation I have allowed one hole to every square of eighteen inches, which is equal to four on every square yard; and I believe I am keeping within the mark, as in many places the holes were separated from each other by a space of about a couple of inches only.

My ground is 2700 acres in extent, including 92 acres of woods. These woods are almost entirely composed of spruce fir, and the trees are so close together that no grass or cover of any kind grows below them. Voles infested the woods, but to a very limited extent compared to the open ground, and therefore I deduct the woods, which leaves 2608 acres of hill and other grass land more particularly overrun with them.

To make my calculation as trustworthy as possible, I measured out a piece of ground into square yards representing part of an acre. I went through the pantomime of pretending to drop a pellet into the four holes on each square yard within reach of my long arms, and found I could do two at a time, one with the right hand and one with the left hand. For this it would take thirty−five men in a row to work along one side of a square acre, and, timing myself by my watch, it would require half−an−hour to drop the poison on one acre, without taking into account many surreptitious rests and an occasional smoke. As the work would be of a very back−breaking nature, no men here, I am sure, would undertake it for less than 4s per day, which is the wage paid to haymakers.

I weighed out 1 lb. of oatmeal and made it into pellets of such a size as I considered necessary for each hole, and found they amounted to 262. Oatmeal is sold in this district by the boll, or bag of twenty stones, and each bag costs on an average about 30s. I was not sure as to how much phosphorus would be required to poison a vole, but I allowed one grain to each pellet. Phosphorus is 6s. per lb. The number of holes brought out seems enormous, but it does not follow that there were 50,490,880 voles, as one animal would make a great many; but in making my calculation I followed out the directions given by the writer referred to—to drop a pellet into "every mouse−hole." Upon the above basis I bring out the following result:−

| | |
|---|---|
| 1. *Wages.* | |
| Allowing that 35 men would put 19,360 pellets into an acre in half−an−hour, 35 men will put 50,490,880 pellets into 2608 acres in 130 days, which at 4s. per day of 10 hours is | £910 0 0 |
| 2. *Meal.* | |
| To make the pellets 688 bags of meal would be required, which at 30s. a bag is | 1032 0 0 |
| 3. *Poison.* | |
| 50,490,880 grains of phosphorus, or just about 7212½ lb. (7000 grains to the lb.), at 6s. per lb., is | 2163 15 0 |
| Total | £4105 15 0 |

The cure would even be worse than the disease, so I fear no practicable remedy for vole plagues has yet been discovered.

## Change in the face of rooks.

A supposed new discovery was brought before the vole plague committee regarding a change which has recently been noticed in the bills of many rooks. Instead of the base of the bill or face being bare of feathers, it has of late years become like that of the carrion crow, which is clothed with black bristly feathers. This change is attributed to the carnivorous habits in which rooks have indulged for generations back. At one time the food of rooks consisted almost entirely of grain, grubs, worms, and other insects, and many of these insects being injurious to crops, the rooks were most useful to farmers, any loss from the grain eaten being repaid by the destruction of hosts of noxious insects; but now they devour flesh, eggs of game, &c., as badly as the corbie, and the consequence is that gamekeepers—who formerly did not molest them—have classed them among vermin, and do all they can to extirpate them.

It will be a sad day for farmers if they ever are killed out, for not only will their crops suffer from grub, wireworm, &c., but the voles will have a better chance of increasing, and so become plagues more frequently than hitherto.

Rooks destroyed immense numbers of voles, both old and young, especially the latter, by scraping the nests out of the ground and devouring their contents. During the last vole plague hillsides were sometimes black with rooks engaged in this work.

Several of these birds with hairy faces were shot at Castle O'er in the month of March 1898. They were of a much stouter build than rooks, and were smaller, being in weight between the rook and the jackdaw, and altogether resembling the latter bird in everything except colour. As they were killed before the breeding season, no suspicion of their being young birds of that year could be entertained. I sent one to the editor of 'The Field' for inspection, but the reply to my inquiries was that it was an undoubted rook that had not cast the young face feathers of the previous year. Still, considering the number seen of late years and brought to notice, and the changed habits of these birds, I am rather inclined towards the theory of evolution.

## Rook with deformed beak.

I once saw a rook with an abnormally developed beak. It was sitting on a thorn tree, and at a distance I thought the bird had some strange object in its mouth, so I approached nearer, and with the aid of a telescope I found that the supposed foreign body was the bird's own beak, which was very large, and was shaped almost exactly like that of a toucan.

The first time afterwards I met my brother−in−law, Mr Wilson, I mentioned the matter to him, and in a few days the following appeared in the local newspaper:−

"*Rava Avis.*− A gentleman while angling last week in the Esk, near Castle O'er, was surprised by the appearance of a very strange−looking bird perched upon a tree within a short distance of him.

"Being a keen ornithologist, he was induced to make a closer inspection of it, when it proved to be one of the toucan tribe. It was nearly as large as a common carrion−crow, of a dingy black colour mottled here and there with grey and black, and displayed that enormous development of beak which characterises the species. As this bird seldom if ever breeds in Scotland, we are inclined to think it must have made its escape from some public or private collection. The gentleman being unfortunately unprovided with firearms, was unable to secure the singular stranger, but we trust some one else may be lucky enough to do so."

I had not far to seek for the person who supplied the "copy" for the above to the local editor. The contributor, Mr Wilson, was never happier than when telling a good story or having a joke at some one's expense. His jokes, practical or otherwise, were always harmless, and gave offence to few; in fact, most people were rather pleased to pose as a target for them. He was a general and popular favourite.

## Stoats.

I remember when out shooting with Mr Wilson when a lad, that he shot a stoat, and he asked me to cut off its tail and put it in my sister's workbox, −this was before they were married. I possessed a large gardener's knife of which I was very proud, and with it I cut off the beast's tail. In doing so I at the same time cut into the gland which contains the awfully smelly material which these creatures, like the skunk, discharge when pursued by their enemies. The odour is simply sickening, and I promptly threw down the tail, and after cleaning my knife as well as I could, put it in my pocket. On my way home I was sensible of the same odour all the way, and thought it was so penetrating that it was still lingering in my nostrils; but when I arrived at home I was shunned by everybody, and I then discovered that it was my favourite knife which was the cause. The piece of dress in which my pocket was had to be burned, and I put my knife outside a window−sill for a fortnight, and afterwards up a cottage chimney where peats were burned, but the odour still remained about the hinge, I presume, and I was obliged to part with it to one whose olfactory nerves were less delicate than mine.

When salmon−spearing was winked at by the authorities, and was indulged in by any one, I was one of a party, of which were some ladies, on a spearing expedition in a pool at the side of which were many rocks. We were accompanied by some fox−hounds, who started a stoat from among the rocks. The brute immediately ejected its defensive and offensive matter, and the surrounding ground was so tainted that we were obliged to beat a hasty retreat.

## Weasels.

I am not sure if weasels are as well provided with the same material as stoats. They have it in some measure, as their odour is also offensive, but I never had the courage to make a very close examination. They are bold little animals, and I once saw one attack my pointer dog, who was cowardly enough to turn tail and run to me for safety, closely pursued by the weasel, who had, I have no doubt, young ones in the immediate neighbourhood.

I once heard a squealing noise at the side of the garden hedge; on going to ascertain the cause I found a weasel killing a rat. When the weasel saw me it ran to its hole in a piece of rockwork, but so soon as it entered it turned round and looked out of the hole as if trying to make up its mind to return to the rat. As it appeared to be so disappointed at being disturbed, and faced me so boldly, I despatched the rat, which was already half−dead. I lifted it by the tail and laid it on the rockwork about two feet from the hole, but without letting go my hold, when the weasel actually left its shelter, and seizing the rat by the head, backed up to its hole again, pulling along the rat till it got wedged between two stones. Nothing daunted, the weasel still continued to pull, and I, lifting the rat over the obstruction, allowed the weasel to drag from my hand its legitimate prey, and I have no doubt it devoured it at its leisure.

## Caterpillar plague.

Almost the very same farms which suffered from the voles were ravaged by other two plagues− viz., caterpillars of the antler moth, an interval of eight years taking place between each.

The first outbreak occurred in June 1885. My attention was drawn to it by seeing immense flocks of starlings passing the house during two hours each evening. They flew due south in continuous streams, the time chosen being invariably between the hours of 6 and 8 P.m., each flock consisting of from one hundred to several hundreds, and their combined numbers must have amounted to many thousands. The flocks followed each other in close succession at intervals of only a few minutes, and generally kept well overhead; but one flock in particular flew a few feet only above the bed of the river. It consisted of so many birds that the stream stretched for a length of above a quarter of a mile, with a breadth apparently of ten or twelve yards. Upon looking from the window I could easily judge of the length of this flock, because when its head reached a certain pool in the river its tail was at another.

I could not understand the reason for such a wonderful migration of starlings. It took place too soon in the season, and the number was so great that I could not believe so many were bred in the whole of Scotland, and the track chosen was one I had never seen used before.

After this supposed migration had gone on for several days, I was informed that there was an enormous quantity of caterpillars on the hills at the head of the parish. I at once associated the presence of the birds with the caterpillars, but still could not think why these flocks were nightly leaving the plague behind to be succeeded next day by other flocks equally numerous, nor where the latter could all come from. The explanation of this was given to me by my shepherds, who told me that the birds who were seen passing every evening returned again in the early morning.

This reminded me of the armies of soldiers one sees in a theatre. The audience are supposed to imagine that a "march past" consists of hundreds of men, whereas a score or so suffice to represent a whole army. They march out at one door and come in at another, and so it was with the starlings.

Notwithstanding that so many thousands left the ground every evening, Mr Beattie, who lived on the infected ground, told me as many apparently remained behind roosting on the trees and in the shrubbery round Cassock House, where he used to go sometimes to keep a friend company during the night when he was sitting up during a serious illness of his wife. If they opened the front door of the house in the early morning, the starlings roosting on the neighbouring trees were disturbed, and my friend said the noise of their chattering, and that made by their wings when rising, was quite startling.

I never could discover where those who left at night and returned in the morning went to roost, or why they did go away leaving so many behind, unless it was that there was not room enough on the trees. At the same time my friend told me they roosted on the ground in the meadows as well as on the trees and shrubbery round the house.

The migrants flew due south, and must have travelled a long way. I would have learned where their roosting−place was if it had been within a distance of many miles.

One may ask, Was there a sufficient number of caterpillars to serve as food for so many starlings? and I answer, Yes. The caterpillars marched in armies straight ahead, and the consequence was that when they encountered "sheep−drains"− which are open drains about eighteen inches deep and eighteen inches wide at the top− they tumbled into them in such numbers that their dead bodies dammed up the water, and they might have been taken out in barrow−loads. The wheels of vehicles, when an army was encountered crossing the highway, became quite wet and filthy through crushing them to death.

One curious thing was the state of the roads during the plague. When driving along the highway in the infected district of the parish, I could not think what the surfaceman had been up to. It seemed to me that instead of putting down "metal" in the usual way, the man had taken it out of his barrow in spadefuls and scattered it thinly all over the surface of the road. On making inquiry I was informed this was the work of the starlings, who had dug up the stones with their beaks, possibly either in the search for grit small enough to swallow or for pupæ of the moth.

The starlings were attracted, to this plague in the same mysterious way as the buzzards and short−eared owls were to the voles,− and who can tell what agency was at work? It can scarcely be attributed to eyesight or scent, which we are told are the two senses which lead vultures from long distances to a dead carcass in hot climates.

Starlings breed in very restricted numbers in the outlying district infested by caterpillars. Very few indeed breed within a radius of several miles from it, and therefore it is wonderful where the countless thousands came from. In the absence of old ruins, cliffs, or suitable rocks, they require to satisfy themselves, as breeding−places, with a very few isolated hollow trees, or at one time the thatched roofs of cottages, but of which there is only one now left in the parish of Eskdalemuir− viz., Allangillfoot, on my own ground.

As an example of the avidity with which these birds will seize upon any suitable breeding−place offered to them, I may state that, in order to encourage them to breed near my house, I made twenty−five boxes and hung them upon the surrounding trees. Within a week every box was occupied by its pair. One box which was blown down by the wind I fastened against the wall of the house, and on the evening of the same day a pair had taken possession of it. Unfortunately I had made the entrance−holes of these boxes larger than necessary, and I regret that this oversight on my part was taken advantage of by a brown owl ( *Strix aluco*), which had a nest of young ones close to the house. Many a time I have seen it land upon the perch of a starling box, insert its foot, and pulling out a young starling carry it off to its nest. My mind was divided between destroying the owl, and by doing so risk another plague of voles, or allowing it to kill the starlings at the risk of another plague of caterpillars. As the starlings were the more numerous I decided in favour of the owl, and allowed her to follow out the bent of her instinct.

Apropos of this owl's nest, I may say that when the young had flown, but before they had travelled far from the precincts of their cradle, a family party from the house invaded the thicket where they were. We were accompanied by the household cat,− at least one of ten household cats. The moment the old birds perceived pussy one of them made a dive on to its back and flew off with both its hands full of fur. With a yell the cat darted towards the house, and prudently gave a wide berth to that thicket for many a long day. Proud of their achievement, both the old birds became very aggressive to us. They made so many swoops close to our faces that we had to put our arms up in front of them to preserve our eyes from their repeated attacks. We became so alarmed for the safety of the younger children that we, like the cat, considered "discretion the better part of valour," and retreated to the house.

The second plague of caterpillars began so lately as 1893, and the result was the same as that of 1885. They consumed every blade of grass on their march, and the destruction caused by them was quite as bad as that caused by the voles, if not worse. Fortunately it did not last very long, as the caterpillars in the course of time entered the chrysalis stage of life, when they cease feeding.

There was a difference, however, in connection with these two plagues. The first was stamped out by the starlings, whose own breeding−season was over, so that both young and old had leisure to attend the feast and enjoy it thoroughly; and this accounted for the enormous numbers drawn to the district. They, unlike the vermin, had not "been wellnigh extirpated before the outbreak took place." The second outbreak took place at an earlier season, when the starlings were engaged with family affairs of their own, and few were to be seen on the hills. The phenomenal crowds were absent, with the result that the latter plague was more widespread, and the destruction caused was much greater than the first one.

## Plague of wood pigeons.

I think it was during the terrible winter of 1860−61 that there was an invasion of wood−pigeons round Edinburgh. The winter was a very severe one, and it was presumed—why, I do not know—that they, like the roughlegged buzzards, came from Norway: possibly an abnormally cold winter in that country also suggested the idea. Be that as it may, the fields out the Queensferry Road looked almost blue at a distance, instead of green, owing to the enormous number of birds.

The windows of my bedroom looked out on the country—alas! country no longer—lying between the town and the river Forth, and so soon as daylight appeared I was kept awake by the noise of firearms, which were used by every man and boy who could beg, borrow, or steal a gun.

The poor birds were miserably thin, and any number could be purchased in the poulterers' shops for a penny each, but notwithstanding their state of emaciation, pigeon−pie was the standing dish at all the dinner−parties and ball−suppers of the period.

One gentleman who lived in Gilmore Place, in town, told me that the pigeons ate up every green blade in his garden except leeks.

## Plague of wasps.

A few years ago we had a plague of wasps, which was pretty well spread through all the county of Dumfries, as well as others both in England and Scotland. They swarmed everywhere, inside and outside houses, and outdoor labour was carried on under great discomfort, and in not a few cases to the danger of life. Very many people were stung, and in some cases which I heard of, the poison caused serious illness to those whose blood was not in a good state, and who were stung on the neck. I never saw so many wasps' nests, both arboreal and terrestrial; they were to be found everywhere, and in a large heap of garden rubbish they had so many nests that it was not safe to go near the place where it lay.

It is well known that wasps construct their nests of paper of their own manufacture. They choose wood principally to form the pulp with which the nests are made; but I have seen a small nest in a gooseberry bush, the material for which had been procured from pieces of newspaper which I had fastened to threads to scare the sparrows from the seed−beds. In this case they had found paper ready−made to hand, and it had evidently not required the usual mastication and other preparation, because the printing was clearly visible on the nest.

## Wasps eating bridge.

A very curious circumstance took place during this plague. Eighteen months before the invasion I had renewed all the "top−hamper" of a long wooden bridge across the river, and owing to the effects of weather the woodwork had become quite dark in colour. One day, when I went to fish the pool across the top of which the bridge stretched, I was much surprised to see that the woodwork had taken on again the new appearance it had the day the carpenter had finished his work, and I could not imagine why he had come a year and a half after it had been erected, to re−plane the bridge without orders from me. On proceeding to the bridge I found thousands of wasps peeling off and carrying away the whole weather−beaten surface of the wood, and this had given the bridge the appearance of having been newly "dressed up." I could distinctly hear the sound of the wasps' mandibles chipping off the wood, and the only places which retained the dark colour were the knots: these were too hard for them!

## Woods and forests.

There is a question which I have frequently heard discussed, and that is, What effect would the fencing−in of mountain land, especially on the sites of ancient forests such as that of Ettrick, have on the face of nature, with special reference to the growth of deciduous and other native trees and shrubs? Ettrick Forest, as every one knows, was the favourite hunting−ground of our former kings and queens at a time when, judging from the vast number and varied kinds of game to which it afforded shelter, it must have been very extensive and dense.

Should some of these early monarchs rise from their graves and set out from Holyrood some fine morning now, intent on a day or two's sport on their former hunting−ground, their surprise would be great when they found a vast extent of the country almost entirely denuded of trees, and to learn that those which they did see were for the most part planted by the hand of man. They might share the feelings of the Southerner who was invited by a friend to enjoy the pleasures of deer−stalking in the Highlands. A "gillie" was told off to guide the gentleman to the "forest." After tramping for miles over a country covered with little else than rocks and heather, he became fatigued, and sitting down on a stone asked his guide when they would reach the forest. The gillie replied, "Ye're in the forest the noo." "In the forest," remarked the gentleman; "I see no trees." "Trees," retorted the gillie; "wha ever heard o' trees in a forest?" He only then learned the distinction between a forest such as that of Epping and a Highland deer−forest.

If I was asked by a friend for my opinion as to whether it was probable that seeds deposited in the soil from trees which existed in these ancient forests, now disappeared, would still spring up if the ground was fenced in and protected from cattle and sheep, I would unhesitatingly reply that they would not, even if any still remained in the soil.

I presume the reason for these forests having ceased to exist was the introduction and steady increase of sheep farms. For a few years after such farms were instituted, seeds from various kinds of trees would vegetate, to be at once cropped by sheep and cattle, aided by hares and rabbits, also increasing from the absence of their natural enemies, which have disappeared along with the trees, and if any seeds exist now they are at too great a depth to spring up even if they still retained their vitality.

We have heard of the seeds of wheat and pease found in mummy pits coming to life, though they may be thousands of years old when the elements necessary for their growth are afforded them, but what proof is there of this? I fear it is only a popular belief; but if such seeds would still spring up, it may be that they retain their vitality much longer than the seeds of forest trees.

I find that in my own woods thousands of young mountain−ash, planes, limes, and birch spring up each year, and that the birches alone survive the seedling stage. The places where these spring up are protected from cattle and sheep, but not from rabbits,− hares are so scarce that they are of little account. The birches survive, as they evidently contain some principle noxious to rabbits; and I have proof that the failure of the mountain−ash, planes, and limes is not owing to climatic influences, but must be attributed to the rabbits.

One of my sons, when a small boy, had the bright idea that he might increase his pocket−money by becoming an amateur nursery−gardener and selling young trees, without taking into account professional opposition. He transplanted a great number of mountainash, plane, and lime seedlings from the woods, and put them in wooden boxes. These boxes were placed behind the garden wall exposed to the north, and were forgotten when he left home for school. They were subjected to all changes of weather,−wind, rain, drought, and frost,−and the soil in which they grew was completely root−bound. Here they remained—or at least those which survived such an ordeal—for two or three years, when I happened to notice them. I took them from the boxes, and tearing their roots asunder, planted them out. It was some time before they recovered from such rough usage, both by me and the weather, but now they are growing well. Not one of those of the main stock from which these were taken survived the seedling stage, though birches of the same year are now ten or twelve feet high. All the other kinds were cropped by rabbits.

If ground were fenced in in proximity to existing plantations, and hained from cattle and sheep *as well as* from hares and rabbits, there is no doubt trees would spring up to a distance from these plantations within the influence of wind−borne seeds; but no seeds, the fruit of ancient forests, would spring up now, even supposing any remain in the soil.

I have seen many plants of self−sown pine−trees growing among the box−edging of the garden, also one on the open hill at the side of the high road, and one on the top of a stone−and−lime pillar supporting a footbridge. This proves these trees would grow from self−sown seed also, if protected, but owing to their small size and their foliage being finer than the hardwoods, they are not so frequently observed as the latter in the seedling stage. A peach stone, which had merely been thrown down on the lawn here, vegetated. I transplanted it into a pot and it became a large tree, though useless for fruit. I remember my father bringing home from the Highlands a number of self−sown pine−trees about one foot high. He picked them up during a fishing excursion,−where, I do not recollect, but he mentioned the place at the time, and said they were to be found in great numbers. Those he brought home were planted out in some of the woods here, and though their identity has been lost, I have no doubt they still survive.

I remember entering into conversation with a wood merchant on a railway journey, who told me that the timber of trees reared in a nursery, and that of self−sown trees, was of such a different quality that he could tell the difference between the two classes at any age of their growth. I do not remember now which was of the better quality, but probably the self−sown timber carried off the palm.

The late Lord Napier and Ettrick was not only a well−known authority on woods and forests, but a practical wood forester himself, pruning and thinning with his own hand. The judicious thinning and healthy appearance of the trees in the policies at Thirlestane testify to Lord Napier's judgment and personal supervision.

In order to have an opinion which would be of so much value, and also to elicit information as to the Duke of Buccleuch's experiment at Bowhill, the particulars of which I was sure Lord Napier would have,− especially whether this experiment had failed altogether, or was only a partial success, both reports having reached me,− I wrote him asking his opinion regarding these subjects. He courteously replied, and I now quote his letter, from which it will be seen that our opinions coincide.

THIRLESTANE, SELKIRK,
*Aug.* 11/97.

"The subject which you have brought under my notice is one on which I have often reflected. My opinion coincides with your own. I am under the impression that over far the greater part of our mountain−pasture grounds the sources of forest−life are exterminated, and that the ground might be fenced in for years or generations, and yet nothing would grow upon it spontaneously.

"The ancient stock and seeds are dead, and the thick sod of grass prevents the seeds, deposited by birds or wafted occasionally from a distance, from springing up. This is the rule over the area of our naked hills, but there are exceptions.

"There are some places where patches of the old natural woods survive, and around the borders of such patches, if protected from the sheep and ground−game, some seeds falling incessantly from the old trees would take root and spring up,−such as birch, ash, rowantree, alder, and the native willow. Artificial plantations would produce the same results. I could show examples of such reproductions. All these trees are eaten more or less by hares and rabbits, but the birch is only barked and nibbled in the severest winters. It often escapes attack for years, and in some instances escapes injury until it has attained such a stature as to defy injury. I think that the alder also survives the rabbit more than some others; the ash and the mountain−ash are almost always barked and destroyed. *Why* the birch occupies this exceptional position I cannot tell. I can only suppose that the taste of the bark is repugnant to the rabbit, or that the quality is injurious. The same may be said of the rhododendron: it is very rarely touched by the rabbit, while the laurels and thujas are always devoured unless carefully protected.

"I find the lime not quite so much injured as the maples and the sycamores, but it is still very precarious: in most instances it goes sooner or later. The late Duke of Buccleuch fenced in several hundred acres of hill−land to the west of Bowhill, still called the 'Hained ground,' and protected it from sheep and cattle, but not from hares and rabbits. That ground was not *quite* bare. I believe there were some slight remains of the Old Forest near hand, and it lay along the border of

plantations both of natural and exotic trees. The result has been a slow but progressive expansion of natural copsewood, chiefly composed of the rowan−tree, but with many ashes and birches intermixed. No doubt thousands of plants have been barked and destroyed, but a sufficient number have survived to compose a very picturesque expanse of forest mountain−ground. In this case the experiment, though most interesting and valuable, does not solve the question as to whether the open bare pasture soil, remote from existing woods, would have developed the same results. I think it would not.

"Dr Farquharson, the minister of Selkirk, who is an accomplished botanist, has written a little essay on the Duke's experiment at the 'Hained ground' which might interest you. If you will drive over to Thirlestane it will give me great pleasure to show it to you, and to show you one or two examples of the natural reproduction of native trees in the vicinity of lingering remains of the Old Forest. The best example is on the steep bank of a river where the soil had in some measure been laid bare by the action of water, and afforded an open bed for the reception of seed from adjacent trees. I think the trees on the Duke's 'Hained ground' grew from wind−borne seeds, not from latent seeds in the soil. *That* place may be justly called a 'partial success.'−Believe me," &c.

That letter is a valuable and interesting one, and is itself quite an essay on forests ancient and modern. I accepted Lord Napier's kind invitation, and he drove me to see the vestige of the Old Forest mentioned in his letter, and which was nearest at hand. It is situated on the side of a hill overlooking Rankelburn, just past Cacrabank, and is a bosket entirely formed of alders. The parent trees have the stamp of old age upon them, and bear traces of having weathered many a winter storm. Numbers have succumbed, but a good many remain, and among them, as well as around the patch, are numerous young trees which it is to be hoped may survive in their turn, and on coming to maturity may be the means of propagating their species down to many generations, and so afford future students of arboriculture the pleasure of beholding one of the few remains of Ettrick Forest. It is worthy of remark that these young trees had sprung up upon bare soil, and had probably grown so quickly that they had smothered any grass which had grown there, thus escaping from sheep; whereas, if any did spring up on the "thick sod" mentioned by Lord Napier and Ettrick, these would be destroyed by sheep when grazing. Many a time I have seen this bosket of alders when on fishing excursions, but have never before looked upon it with other feelings than its utility for hiding a cycle from tramps. Poor old Ettrick Forest! Has your glory so far departed that instead of sheltering noble game for the sport of monarchs, the only use found for you now is as a hiding−place for the modern "bike"! It was in this patch that my son, when recovering his cycle, saw the hedgehog devouring a frog, before mentioned. I was up till now ignorant of its historical interest.

Upon Castle O'er and neighbouring grounds there are several examples of natural wood in isolated patches, consisting for the most part of hawthorn, hazel, and birch, but with the exception of the latter these have sadly diminished in extent within my memory. Some are of hawthorn trees only, some of hazel only, though others are principally of hazel, with a few hawthorns intermixed; or again, of hazel, hawthorn, and blackthorn. Those of hazel alone or hawthorn alone are disappearing at a much quicker rate than the others. Those consisting mostly of birch flourish better, owing probably to the fact of their being of a younger generation, or from their noxious quality saving them from hares and rabbits. Every winter several of the hawthorns are laid low, and some of the clumps which numbered perhaps a hundred trees in my youth now consist of no more than from ten to forty.

Another vestige of Ettrick Forest, in the shape of a solitary hawthorn tree, calls up reminiscences of my early youth. Before railways were *invented* in the south of Scotland, my father, on the rising of the Parliament House, from necessity drove by road from Edinburgh to Castle O'er—a journey of a couple of days. As children we had many landmarks on the way, each of which became more interesting as we approached the end of our journey. One of these, which we called "the tree in the middle of the road," was, I think, that which caused us the greatest pleasure to look forward to. This thorn grew on a long declivity, and appeared, when approached from the top, as if it were really in the centre of the road. This was not the case, however, because when the road was originally made it bifurcated at the tree, and vehicles might have passed it on either side. However, in time, and probably to save the expense of keeping up a double piece of road surface, only one fork was used: the other was left to nature, though at a distance this little fraud was not visible. When railways came into fashion, carriages drawn by

living horses were abandoned, and those drawn by the "steam horse" were utilised for the journey instead. For many years after that time I saw the tree at intervals when visiting in its vicinity, and always viewed it with affectionate interest, as it never failed to evoke youthful memories. A few years ago, however, on revisiting the spot, I was horrified to find that " *the* tree in the middle of the road" was gone, and a youthful scion of the same family had usurped its ancient site. As this youngster was carefully fenced round by Lord Napier, I suspected the tree had some greater and more intelligent significance to him than it had to us as children, who looked upon it as a curiosity only. Upon asking Lord Napier if its presence in such a strange spot had any historical interest, his lordship told me that it was supposed to be, and most probably was, from its surroundings, the thorn whose soliloquy over the decadence of the old Forest is so graphically portrayed by Sir Walter Scott in his introduction to the second canto of "Marmion." From the following lines of the introduction−

> "'Here, in my shade,' methinks he'd say,
> 'The mighty stag at noon−tide lay
> The wolf I've seen, a fiercer game,
> (The neighbouring dingle bears his name,)
> With lurching step around me prowl;'"

—I think the identity of the tree is as well established as it possibly can be, and that no neighbouring valley can lay claim to the "wolf tree," by which name it was known before its destruction by the hand of a vandal. It was the only thorn of any size in the valley, and the only one likely to attract the attention of Sir Walter Scott, and be termed by him "yon lonely thorn" ; and two places with the prefix "wolf" attached to their names are in close proximity−viz., Wolfhope and Wolfcleuch. The tree grows on the farm of Berrybush.

Scotch firs, as well as pasture land, seem to be liable to a plague of caterpillars. There are ninety−two acres of woods on Castle O'er and Crurie, nearly all planted by my father. When the trees attained a height of about four or five feet, these woods carried a great number of game of all sorts, and were favourite shooting−grounds. They were planted principally with larch, Scotch fir, and spruce. Disease killed out the whole of the larches, and the Scotch firs have nearly disappeared also− at least their number is very small compared to the spruces. The caterpillars, which were much larger than those of the antler moth,− even larger than those of the cabbage butterfly, though of much the same colour,− attacked the Scotch firs only, and, strange to say, confined their ravages to the oldest needles, leaving the young tender shoots at the points of the branches intact, which is, I suppose, an exception to the rule of such pests. I well remember that when sportsmen entered the woods in search of game the skirt pockets of their coats were filled with caterpillars from brushing through the trees, and a disagreeable emptying process had to be gone through on emerging from each plantation. The Scotch firs are few on these woods now: I cannot remember whether they succumbed to the one year's plague, and I cannot recall to mind any other. I think they survived it, and possibly the more rapid growth of the spruce overwhelmed them out of existence.

What a pity it is that some proprietors neglect thinning their plantations in a judicious manner, and at the right stage of their growth. In some sheltered lands in the low country, trees may be planted wider apart than in places lying at a greater elevation, and more exposed to high winds. Those planted thinly take a greater number of years' growth before they begin to touch each other, and thus lowland proprietors are saved much attention and expense until this time arrives; whereas in a high and stormy district such as Eskdalemuir, trees must at first be planted thickly, so as each may shelter its neighbour. Under such circumstances the trees rapidly begin to touch each other, and thinning must take place at an earlier stage of the plantation's life, and must be carried on annually until the trees come to maturity. I think it was owing to the great expense incurred by the necessity of early and continuous thinning, and the great number of trees which required to come under the axe, as well as the uselessness of these thinnings, that prevented my father from giving such attention to the woods on Castle O'er as they required.

As previously stated, my father planted nearly all the woods on his land. He displayed much judgment in laying them out. They were formed principally in deep dells on the sides of hills, and on steep scaurs by the river side. From their position they look well from the *outside* , as the tops and sides of the trees, exposed to air and light, have remained green; but enter a wood and one finds oneself in semi−darkness, and when the eye becomes

accustomed to the obscurity nothing green can be seen, −nothing but a wilderness of brown trunks standing close together and covered with dead branches, which prevent even a view of the green tops. The branches of a tree are supposed to extend outwards as far as the roots do, and a spruce fir, having plenty of room, is a handsome tree, forming, when well grown, a beautiful green pyramid with its lower branches almost touching the ground: unthinned, they are an eyesore. The outside rows of trees are pretty firmly attached to the soil, as the roots, on the outer side of the tree at least, extend to a considerable distance, forming as it were supporting stays; but when once the wind breaks down this barrier, it enters the plantation and sweeps down all under its influence, the roots here extending a short distance only from the foot of each. Such a "blow−down" has an unfortunate effect on the landscape, as those which fall allow the dead trunks and branches of those standing to become visible, and reveal the fact that the beautiful appearance of the woods is really a fraud. Even the fall of a single tree on one of the steep scaurs exposes the one in front of which it grew, and it forms an unseemly brown patch. In some places where timber has been cut for fencing and other farm uses, the remaining trees have had more room to extend their roots. When one of the latter is blown down, it tears up a large plate of soil attached to its roots. Where the soil is shallow on the top of "till" this plate is very thin, and I have seen trees lying on the ground with the plate, naturally on edge, rising up in the air to a height of about twelve or fourteen feet, with a thickness of from eight to ten inches only.

A curious incident happened as a sequel to a heavy storm some years ago. Two trees growing side by side were blown down, and my men lopped all the branches from the useful timber, leaving the thinner part and the green branches of the top. They had no saw with them to cut through the waste wood, and when they returned in the morning they were astonished to see both trees "standing on their ain feet." A south wind blew them down, and a sudden change of wind to the north during the night, aided by the large plates of soil and roots acting as a counterpoise, had blown them up again. They stood thus for two years, a curiosity to visitors, who were amused to see the two bare poles, each having a tuft of green branches on their tops. Another storm laid them low once more, and I did not think it worth the trouble to raise them again and load them with stones. Had I done so, they might have been standing yet. They were objects of curiosity certainly, but not handsome ones. They became "more useful than ornamental" when sawn into paling bars and utilised for fencing purposes.

I cannot close my notes about woods and forests without telling a story in connection with some other trees. A nurseryman with whom my father had many transactions had imported a quantity of seed from a great variety of pines growing in different parts of the world. With the view of testing their hardiness in different parts of Scotland, he asked my father if he would assist him in his experiment by purchasing some young trees and planting them out in the variable climate of the Dumfriesshire highlands. My father readily acquiesced, and a catalogue was produced, from which he selected a sufficient number of trees to line both sides of an avenue above 200 yards long. The price of these trees was quoted in the catalogue at 6d. each. When the account was rendered, my father was amazed to find they were charged at the price of 10s. 6d. each. He informed the nurseryman− whose explanation was that the price quoted in the catalogue was a printer's error− that he refused to pay the larger price, and would not even be at the trouble and expense of digging them up and returning them to Edinburgh; but that the vendor might send men to do the work if he chose. This was never done, and the trees remained *in situ*, a compromise having been agreed to between the parties to the transaction.

The experiment was a failure, as the trees gradually died without attaining any size with the exception of two. These still exist, I cannot say grow, as they are stunted and unhealthy, evidently from the effects of an unsuitable climate. I do not know of which species they are, but they have much the appearance of Scotch firs, though the needles are longer and coarser.

I have been reading Sir Herbert Maxwell's 'Memories of the Months,' in which he recounts how the larch fir was introduced into Scotland, at Dunkeld, and this brings to my memory how this tree originally came to my own district. Four young plants were sent in flower−pots to Shaw, in the parish of Hutton. The Grahams of Shaw and the Bells of Crurie being relatives, two of the trees were sent as a present to Crurie. There they grew apace, and reached a very large size. I have a vague remembrance of seeing both, but I distinctly remember one. The first became decayed, and, I think, was blown down by wind; the other showing signs of decay also, was felled, I think, in the year 1845, and converted into furniture, consisting of the following articles: a hall table of massive build, the top of which is a single slab 7 feet 7 inches long, 1 foot 11½ inches wide, and 1¼ inch thick; a smaller hall table; four hall chairs with solid backs; a large chest of drawers; a writing−table with four drawers down each

side; and a high and wide glazed partition, with panels three feet up, dividing the hall into two parts.

These were only some of the articles made of the timber, and altogether the tree must have contained very many cubic feet. This furniture is still in the house, and the grain of the wood shows that it was of splendid quality. I regret that no measurements of the tree were kept.

## Forts and their connecting trenches in Eskdalemuir.

The parish of Eskdalemuir is rich in antiquarian remains, especially those of forts and their connecting trenches.

Dr Christison, in his work 'Early Fortifications in Scotland,' states that there are forty−one forts in the Eskdale district. Of these there are twenty in the parish of Eskdalemuir alone. This number may not appear great when we consider the extent of the parish, which is about twelve miles in extreme length and ten miles in extreme width, with an area of 43,518 acres; but when we know that every one of them dominates the valleys only, and that none is more than a few hundred yards from the two rivers, Black and White Esks, or their tributaries, we must allow that they are comparatively thickly planted.

It is scarcely necessary for me to describe the appearance or give particulars of each of these forts: they are of the same type, round or oval in shape, and defended by one or more lines of deep trenches, the soil from which has been thrown up, either on one or both sides, so as to form mounds or ramparts, and so add to the difficulty of attack from, the outside. These ramparts were probably still further strengthened by stockades, and all combined would offer a strong defence against an enemy armed with the primitive weapons in use at the time these forts were occupied.

The principal one in the parish is that of Castle O'er, which is of great size and strength; and judging from the vast amount of labour expended on its fortifications,− all the principal trenches being excavated for some feet through solid rock,− it is evident that such a work was not in the nature of a temporary encampment: everything indicates that it must have served as a stronghold for its inhabitants during a very long period.

I am strengthened in this opinion when I consider not only the extent of defensive works in the immediate vicinity of the fort itself, but the extensive network of connecting trenches formed all over the lands of Castle O'er and Crurie, which I shall describe presently. But before proceeding farther, I wish to make some remarks regarding the name of this fort.

The name Castle O'er is, comparatively speaking, a modern one, its ancient name being Overbie,− "bie" signifying, I understand, a castle, fort, or other stronghold, with its prefix "over"; and it was always, till recent years, recognised as the farthest north of the three principal forts in the district −viz., Overbie, Middlebie, and Netherbie, or the upper or over, the middle, and nether forts or castles.

It must be admitted, I think, that these ancient British forts existed long prior to the Roman invasion, and my opinion is that the names− which are not Latin names− refer to British forts, and not to Roman camps.

I am not certain, but I understand that the earthwork at Netherbie was originally British, afterwards occupied by the Romans; and if this is the case, then I contend that it was the British Netherbie: also, that Birrenswark, and not Birrens, was the Middlebie of old; and further, that Castle O'er, or Over Castle, is the modernised name of Overbie.

When my father acquired the lands of Castle O'er they, as well as the dwelling−house, were known under the name of Yetbyre; but not liking this name,− associating it, I have no doubt, in his own mind as having some connection with a gate and a cow−house, he re−christened both lands and house "Castle O'er," from the fort of that name.

If I were to offer an opinion at all on this change of name, I would say it was scarcely a good one, as I am told that Yetbyre signifies the "chief's stronghold," and I consider this designation a more archaic and interesting one than the modern name Castle O'er.

The first place where I find Castle O'er mentioned is in Timothy Pont's Atlas, dated 1661, though he spells it in his usual quaint spelling, Castleowyrn.

Christopher Irvine, in his book 'Historiæ Scoticæ Nomenclatura,' dated 1682, describes its position minutely, and spells it Castle−Orwin.

General Roy, by order of the Society of Antiquaries of London, somewhere about the year 1747, made a survey of many British forts and Roman camps in Scotland. Among others figured in his great work, 'Military Antiquities of the Romans in Great Britain,' is Castle O'er. He describes it as the supposed Uxellum of the Romans, but this is mere conjecture, and I myself prefer to look at the fort as a more ancient landmark of the country where it is situated than any of the camps left by the Romans.

Sir Walter Scott, in the " Lay of the Last Minstrel," speaks of it as Castle−Ower,−

"Wide lay his lands round Oakwood tower,
And wide round haunted Castle−Ower."

I think I have shown from the above references that Overbie has been known, and its position described, for at least 243 years, and it was not till 149 years after the date of Pont's Atlas that the Rev. Dr Brown, parish minister of Eskdalemuir, in the 'New Statistical Account of Scotland,' says−

"In my former account I mentioned Castle O'er, or Overbie, as a supposed Roman camp communicating with Middlebie and Netherbie. I am now convinced that the true Roman camp of Overbie is on the farm of Raeburnfoot, about a mile above the church. I stumbled upon it accidentally in summer 1810, and am inclined to believe that I have been fortunate enough to discover the true Roman station at the head of Eskdale."

Were he still alive I would like to ask the worthy gentleman what grounds he had for *jumping* to such a conclusion, and what authority he could produce for calling Overbie a Roman camp at all. There is no evidence in existence that it was Roman, and Dr Brown is the sole authority for some archaeologists of the present day referring to Raeburnfoot camp as Overbie.

In a note added to his remarks, Dr Brown refers to a letter from John Maxwell, Esq. of Broomholm, dated 15th April 1796, in which the writer says: "Roads of communication made after the Roman manner have been completely traced between Netherbie and Middlebie, and between Netherbie and Overbie" −*i.e.*, Castle O'er at that time.

If this road, made after the *Roman manner*, was *completely traced* to my Overbie, I am afraid it could not now be lifted *en bloc* and laid down on a new line to suit Dr Brown's Overbie at Raeburnfoot.

No Roman road is known to exist, at the present day, by any of the inhabitants of either Westerkirkthe neighbouring parish through which it would naturally run− or Eskdalemuir ; and I am sure if it was ever made it could easily be traced in a pastoral country, a very large extent of which is still undisturbed by agriculture.

An " Old Antiquary," in a recent issue of our local newspaper, in describing quite a number of Roman roads known by him in the parish of Westerkirk, describes exactly those trenches, of the "Catrail" type, which connect the British forts, and which abound all over the district.

Feeling rather piqued in my vanity that an attempt was being made to filch the name of my prehistoric fort and locate it at Raeburnfoot, I spoke to the late Dr Macdonald, F.S.A., on the subject, and his answer to me was: "They may cart your camp away, but they cannot cart away its name; it has been known as Overbie from time immemorial."

This opinion, expressed by such an eminent archaeologist, quite consoled me.

Recent excavations in the rectilineal earthwork at Raeburnfoot have failed to prove that it was occupied by either British or Romans for any length of time; and Dr Macdonald, whilst admitting that the very few relics found on it pointed to a Roman occupation, was of opinion that it was merely a temporary entrenchment thrown up for the security of some punitive force sent out (from Birrens?) to quell the tribesmen,− it might have been for a night, or it might have been for a month.

From all this I am glad to think that the name of Overbie, as applied to Castle O'er, still "holds the fort" on its own ground.

As I before stated, the fort is of considerable size, and is situated on the top of a hill 884 feet above sea level and 296 feet above the dwelling−house, and so near it as to be reached by an easy climb of a quarter of an hour.

I will not attempt to describe the fort, with all its scarps, counterscarps, aggers, berms, &c., as a military expert or a student of archaeology would do, but as a plain observer. The fort and trenches have been fully described, with maps, by Dr Christison in his work before referred to.

It is composed of what I will call an inner stronghold, defended by deep trenches, on the inner side of which had been strong stone walls, now, alas! entirely destroyed: the outer sides of the trenches are mounds or ramparts, formed, as usual, with the soil excavated from the trenches. This stronghold occupies the whole top of the hill, and measures, roughly speaking, 510 feet long and 350 feet wide, whilst the size of the whole fort, with its immediately surrounding trenches, is close on 900 feet long by 570 feet wide,− these measurements being, I understand, of unusual dimensions for a fort of this type.

As no excavations had ever been made with a view to discover any relics left by the original occupants of the fort, or of a subsequent occupation by the Romans, as suggested by General Roy, I employed men for some time

digging at every point where I thought anything might be found, but entirely without result, if I except one coin, a beam of charred wood about seven feet long, and the skeletons of a cow and a calf, buried five feet beneath the bottom of one of the trenches, and covered up with large stones. I caused sections to be cut through the trenches to ascertain their original depth and conformation: some of this work was done under the supervision of Dr Christison, F.S.A., and Mr Barbour, architect, Dumfries.

We found that the trenches, as they appear now, are nearly eight feet deep and thirty−five feet wide between the tops of the two ramparts. On removing the soil which had in the course of ages been washed down from the sides and tops of these ramparts, we found it was nearly four feet deep, and for about that depth the trench was cut through rock, with a width of two feet at the bottom just wide enough for a man to walk along comfortably. Allowing for the "wash−down" from the ramparts, the trenches must have originally been thirteen or fourteen feet deep.

The finding of the coin above referred to was rather curious. It was turned up at the first place where we commenced excavating, viz., the principal entrance gate, and I thought we had only "to dig, to find"; but the coin proved to be the only relic. I submitted it to Dr Anderson, Antiquarian Museum, Edinburgh, for his opinion. He said it was so defaced that he could scarcely express an opinion, but that from its size and general appearance he thought it might be of a period between the reigns of Charles I. and William and Mary. It would be interesting to know how this coin came there.

What surprises me in regard to this important fort is the absence of a rubbish−heap or "kitchen midden." I have searched in vain for it− both by excavation and by probing with an iron rod− every eminence within such a radius, outside its principal trenches, as one might expect to find such a deposit, but invariably the pick or rod encountered solid rock. I cannot conceive that the place was inhabited for the many long years indicated by the great labour bestowed upon its formation without the occupants having chosen some spot to deposit their rubbish.

Having failed to find a "heap," I thought, as the ground at one side of the fort is very steep down to a burn, this place might have been used as a "shoot," but trenches cut at different points across the steep hillside revealed nothing. The ground being generally of a rocky nature, the soil is very shallow, and the bones of animals used as food would not be buried deep enough to preserve them from the destructive effects of the weather.

The fort−dwellers would probably not be rich in pottery, and took care not to break much of what they did possess: their fuel would consist probably entirely of wood and peat, and the ashes of such material would long ago become incorporated with the soil, and hence the absence at the present day of any vestiges of human occupation, of a domestic nature at least.

It may not be generally known that there is only one antimony mine in Great Britain. It is situated on the farm of Glendinning, the property of Sir Frederick Johnstone of Westerhall, and is about 4½ miles, as the crow flies, from Castle O'er. The mine was sunk more than a century ago, but being worked at a loss, it was eventually closed.

As it was thought that the miners of these days had passed over the most valuable lodes, Sir F. Johnstone had it reopened some years ago, and worked it for some time; but owing to the absence of a railway to convey the ore to the smelting−works, it was again closed.

When I visited the place some two or three years after the removal of the manager's iron house, I was quite astonished to see, in the bog in front of its site, a most remarkable collection of empty pots, bottles, and tins, which had contained many of the delicacies such as are supplied by Fortnum & Mason, or some other well−known purveyor. There must have been scores upon scores of them, of all shapes and forms, and they were quickly disappearing into the marsh, partly by their own weight and partly by a great mass of decaying bog−plants falling down upon them. The tins will soon rust away, but I have frequently thought since what a grand "find" the pots and bottles will prove to a searcher for kitchen—middens say some 2000 years hence.

Besides the trenches immediately surrounding the main fort, which are palpably for defensive purposes, there are others starting from these defences and radiating over the greater part of the lands of Castle O'er and Crurie, the use of which is not so obvious, unless they were used solely as a means of communication between the forts.

I had all my life noticed parts of these trenches here and there, and when out on the hills with my gun paid little heed to them further than that they had evidently something to do with the forts, and made splendid shelter when stalking an old blackcock.

No record or systematic inspection of these trenches had been made till the month of April 1896, when I heard

it was the intention of the members of the Dumfries and Galloway Natural History and Antiquarian Society to hold a field meeting in the parish for the purpose of inspecting the camp at Raeburnfoot and Castle O'er fort; and as I thought I would like to show the visitors as many things of interest as I could, I set to work to trace out some of these trenches.

At the date of the meeting− 30th May 1896− the numbers which I had found were not great; but the few I had traced encouraged me to go on, and becoming enthusiastic over my discovery, I set to work with a will all through the summer, and the result astonished me very much.

Owing to my intimate knowledge of the ground, I was able to lay down on the Ordnance map in red ink the result of each day's work as accurately as possible without an actual survey. On running a wheelometer over the lines so laid down, I found they extended to the astonishing length of about thirteen miles, and that considerably within an area of 2700 acres.

Of the twenty forts in Eskdalemuir, eight are situated on Castle O'er and Crurie. Two of these are rather outlying from the others, and I have failed to connect them with the other six, whose connection with each other is complete: at whatever part of the ground one enters a trench and walks along it, either to the right or to the left, he will find his way into one of the five minor forts, or into the main fort, as he chooses.

They are all of the same type as the earthworks defending the forts, but are not so deep, and in many places− e.g., when running through peat mosses or bog ground− they are entirely filled up. These breaks are one of the difficulties in tracing them, but during the course of my work I noticed that, where the trench had run, the vegetation along its line was of a different kind, or at least appeared of a different colour, from that of the surrounding moss or bog: on bog ground a growth of rushes very frequently reveals the line of the trench. In such places a sheeps' footpath is almost invariably a good guide, as a searcher will discover that the sheep have found out, and have chosen for their road through the soft ground, the hard top of one or other of the mounds, and by following these indications across the marsh the trench will again be found at the other side, stretching away along the harder ground beyond.

Another difficulty in tracing them arises where they run along the steep side of a lea brae, or where loose stones abound: the continual spurring of sheeps' feet on the hill−side of the trench has rumbled down earth and stones into it, and has gradually filled it up.

These breaks in the continuity of the trenches greatly added to my labour, and I am sure that in trying to find them, and then tracing them out, I walked twice thirteen miles.

One trench on the ground deserves special mention. It is widely known by the name of the "Deil's Jingle," −probably "dingle," a hollow between two hills or mounds. It is supposed to run across country all the way from the Solway Firth to the North Sea, and I quite conceive that there may be some truth in this supposition, as it runs through my own ground of Yards and Crurie for close on five miles, and one of my men, in whom I have full reliance, traced it two miles farther north, from the march dyke between Crurie and Rennelburn. It runs about due north and south for over a mile, when it inclines to the north−east; then with a sharp bend it again runs north straight towards the parish of Ettrick in Selkirkshire. I am strongly of opinion that it would be found to join that well−known work the "Catrail," which passes through Ettrick close to Tushielaw.

There is much difference of opinion as to what these trenches were used for, but as this is a controversial matter I need not enter into it here. My own opinion is that the Castle O'er group, at least, were used as "hollow ways," along which the fort dwellers could move to and fro the different forts without being seen by their enemies,− though it is difficult to understand why, if used for roads, two of them are formed up and down exceedingly steep scaurs, the ascending or even descending of which would entail severe physical exertion on any one using them, whereas, by a detour of a few hundred yards, an easier way could have been found.

About half a mile to the north of Castle O'er house is another work of the same formation as the minor forts: it is marked on the Ordnance map as a fort, though from its position it is badly adapted for defensive purposes.

Differing in position from the others, it lies in a hollow on a piece of flat ground close to the river bank,− so close that the river has reduced it from its original round form to that of a semicircle; and it is commanded on its west side by a semicircle of very steep ground, which must have rendered it subject to easy attack from that direction.

Mr Francis Lynn, F.S.A., Galashiels, who has devoted many years of his life to the exploration of forts and trenches in the south of Scotland and north of England, tells me that it is unique in his experience, both as to its

undefended position and to this peculiarity − that its floor is raised higher than the ground outside the inner trench. He suggests that it may have been used as an arena for athletic sports, the spectators looking on from the surrounding slopes.

I was more inclined to accept the opinion of Mr Barbour, that it might have been the cemetery of the main fort, especially as one of the trenches leads directly from one to the other. On making excavations, we found that the subsoil of the work is blue clay; upon this clay logs of wood have evidently been laid to form a floor. The logs themselves have decayed away, but the bark remains, and I scarcely think that layers of bark alone had been used, as it would have been too thin and yielding for the purpose. On the top of this wooden floor is a superior one formed with rough stones, laid with their flat side down, and at the present day about eighteen inches of peat have accumulated on the top of all.

On a space forty feet in diameter, in the centre of the work, we came upon a heap of rough stones eighteen inches thick; and below this, resting upon a layer of charred wood mixed with the clay, was a great quantity of minute fragments of bones, which had evidently been subjected to the action of fire.

If these bones were human, I hoped that Mr Barbour's suggestion that this was the cemetery or "crematorium" of the main fort might be sustained,—though it was not quite obvious why a cemetery, or an arena for athletic games, should require for their protection strong and wide−apart earthworks. However, on submitting specimens of the bones to Professor Struthers, Royal College of Surgeons, Edinburgh, for his opinion, he said that, without being able to declare that they were not human, he inclined to think they were those of some of the lower animals.

I fear, therefore, in the face of such an opinion, the crematorium theory must be abandoned, and the question still remains, What was it?

Besides these forts and trenches in the parish there is the rectilineal camp at Raeburn, before referred to, which was explored by the Dumfriesshire and Galloway Natural History and Antiquarian Society, and fully described at a meeting held on 20th December 1897; and there is another of the same form, still unexplored, within which is situated the graveyard of Watcarrick chapel. The parish church stands within one of the forts of round form; and another, much destroyed by agriculture, may be seen in a field close by.

Then there are the two stone circles on the farm of Cote known under the names of the "Girdle Stanes" and the "Loupin' Stanes," both of which are fully described, with plans, by Dr Christison in a paper read by him at a meeting of the Society of Antiquaries of Scotland in 1897. They are laid down in the Ordnance maps as "Druidical Circles," but the word Druidical is now withdrawn from the new edition of the maps, as there is no evidence that the Druids had any connection with them, and they are now shown as "stone circles."

The Loupin' Stanes are so called because it is said that *at one time* the young men of the parish used to "loup" or jump from the top of one to the other of the only two stones remaining erect. As these are eight feet apart, I am afraid the feat was not often accomplished, and the only record I have had of these games is that one man broke his leg in the attempt.

There is one of these stone circles in the neighbouring parish of Hutton and Corrie which has never yet been recorded, and I think it is well that I should here do so. I heard of it incidentally from one of the sappers engaged in revising the old Ordnance Survey maps. I went at once to inspect it, and found it to be a good example of such remains. It is situated close to a path leading from Whitcastles to Cowburn, and is, I should say, about two or three hundred yards east from a stream named in the Ordnance Survey maps "Beath's Burn," but called the Boss burn by the natives. It consists to−day of nine large stones, all prostrate, but from the irregular and, at parts, wide spacing, I think others may have been removed: one certainly has been, as indicated by the hollow in the ground where it had lain.

I made minute measurements of the circle and individual stones, but of the latter will only give the sizes of the two largest. These lie directly opposite to each other, in a line due north and south, the one to the north being the larger, and it measures 7 ft. 9 in. long by 5 ft. 5 in. by 3 ft. 2 in. ; the one to the south is 7 ft. 3 in. long by 3 ft. 5 in. by 2 ft. 4 in.; the others run from 7 ft. 4 in. to 4 ft. 6 in. in length. The diameter of the circle from north to south is 141 ft. 6 in., and from east to west 180 ft.

The next thing of interest in the parish is the Martyr's Tomb, the following inscription on which tells its own tale:−

"Here lyes Andr. Hislop, Martyr, shot dead upon this place by Sir James Johnston of Westerhall, and John Graham of Claverhouse for adhering to the Word of God Christ's Kingly government in his house and ye

covenanted work of reformation agst tyranny, perjury and prelacy, May 12th 1685 re: 12.11. halt passenger, one word with thee or two, why I ly here would'st thou truly know, by wicked hands, hands cruel and unjust without all law my life from me they thrust, and being dead they left me on this spot and for burial this same place I got, truths friends in Eskdale. now triumph then let viz. the faithful for my seal they got 1702."

This tomb is situated on the farm of Craikhaugh.

On a flat holm at the junction of the Black and White Esks, on Castle O'er ground, is the site of an ancient town, the foundations of many of the houses being still seen. Tradition has it that here was held an annual fair, at which the marriage ceremony by "hand−fasting" was gone through. Any pair who were hand−fasted one year, and who did not suit each other, might return the next, when each could be attached to a new spouse. The natives believe that there is a bushel of marriage rings buried somewhere on the site, but this has not yet been found.

Another object of interest is "King Shaw's Grave," which, though not actually in the parish, is within 300 yards of the march dyke. It is situated on a place called Airdswood Moss, and can still be seen *in situ*. In the centre of this moss stood, in ancient times, a large tumulus, but in 1828, stones being required to build said march dyke, the tumulus was used as a quarry, and after 150 cartloads had been removed, a cist containing a human skeleton was discovered. A thigh bone was "commandeered" to serve as an ornament (?) for the dining−room mantelpiece, but on the morning after a convivial party had taken place the bone had disappeared, and it was strongly suspected that the "funny man" of the party had carried away the femur in his pocket by way of a joke.

The tradition handed down regarding this cist is that a great battle was fought on the Moss between the Scots and Picts. The Scots were victorious, and Shaw, King of the Picts, when fleeing from the field of strife, was drowned in a deep and rocky pool, where the Black and White Esks join, still called the "King Pool."

I think I have now exhausted my list of the principal objects of antiquarian interest in the parish and its near neighbourhood; and when writing my remarks upon forts and trenches, I have often thought that if one of the fort−dwellers could rise from his grave; an hour's conversation with him would go far to enlighten our minds regarding these prehistoric remains, and dispel an enormous mass of theory, conjecture, and suggestion published on such subjects by many writers.

We should never forget Edie Ochiltree's remark to Jonathan Oldbuck, when the latter was pointing out to his friend Mr Lovel the fortifications of the "Kaim of Kinprunes "−" Prætorian here, Prætorian there, I mind the bigging o't."

THE END.

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## Addendum—Scots vocabulary

This section didn't appear in the original book, but is included for the benefit of readers who may be unfamiliar with some of the terms used. Many thanks to Andrew McGleish, who wrote it.

| | | | |
|---|---|---|---|
| a' richt | alright | aff | off |
| a'hint | behind | ain | own |
| airms | arms | alane | alone |
| anent | about | awfu | awful |
| bauldy | slaphead | bigging | building |
| bogled | scared by ghosts | brae | hillside |
| bubbly−jock | turkey | burn | stream, brook |
| canny | gentle, quiet | chawed | chewed |
| coorse | coarse | corbie | crow, pace French "corbiere" |
| cratur | creature | Deil | Devil |
| didna | didn't | dinna | don't |
| doon | down | doots | doubts |
| draigled | bedraggled(?) | drouthy | dry |
| dyke | stone wall | ee | eye |
| een | eyes | et | ate |
| fricht | fright (note ich in the middle of a word is pronounced the same as ch in loch and generally is equivalent of English "igh" as in "it's a braw bricht moonlicht nicht then nicht, ye ken.") | | |
| gangin' | going | gied | gave |
| gulled | fooled | hae | have |
| haill | whole | hame | home |
| haudin' | holding | heids | heads |
| intae | into | ken | know |
| kenned | known | lee | lie (fib) |
| lug | ear | ma | my |
| mair | more | maister | master |
| mebbie | maybe | micht | might |
| no' | not | noo | now |
| ony | any | o't | of it |
| ower | over, too | paidled | paddled |
| patter | spiel, talk | peety | pity |
| pits | puts | poother | powder |
| press | cupboard (note that Bell does not use quotes for this, perhaps indicating that he believed this to be an English rather than Scots | | |

| | | | |
|---|---|---|---|
| | word) | | |
| puggy | monkey (later used as slang term for a "one armed bandit" machine) | | |
| sae | so | screed | screech |
| sic | such | sma' | small |
| tae | to | tak' | take |
| thae | those | thole(d) | bear, endure |
| thraws | convulses(?) | twa | two |
| unco | strange (adj.), Very (adv.] | wasna | wasn't |
| wha | who | whae | who |
| wi' | with | winna | won't, will not |
| Ye'll | You will | yin | one |
| yir | your | | |