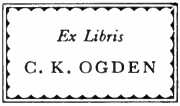
LONDON BIRDS AND OTHER SKETCHES



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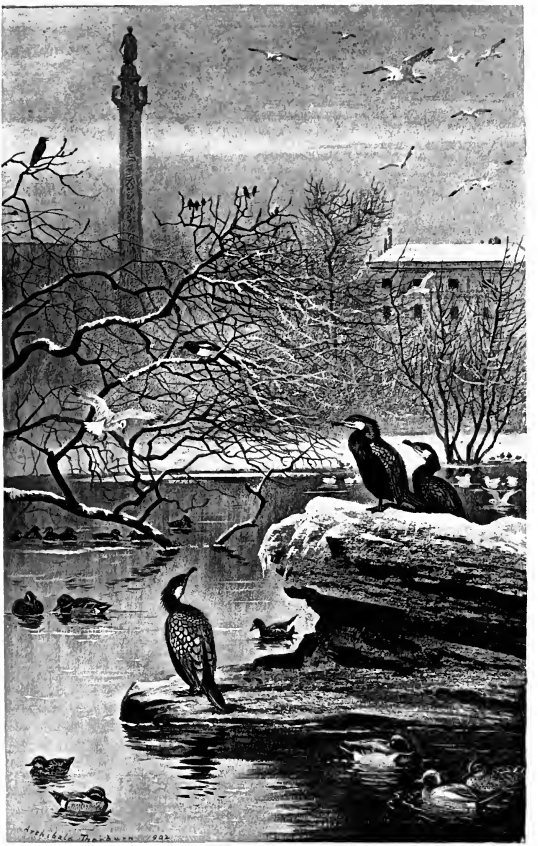

WINTER IN ST JAMES'S PARK

LONDON EDWARD ARNOLD 1902

London Birds

And other Sketches

BY

T. DIGBY PIGOTT
C.B., M.B.O.U.

Naturam expellas furcâ tamen usque recurret
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NEW EDITION
REVISED AND ENLARGED

LONDON
EDWARD ARNOLD
1902

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TO MY WIFE

PREFACE

As a man gets on in life, and his responsibilities, and with them his anxieties, increase—as, except in the case of the favoured few, they must do until he is far enough down the hill to shift some of them on to younger and stronger shoulders—nothing is more to be dreaded than the narrowing effects of long habit. If he has nothing to carry his thoughts out, they will centre on himself and his real or imaginary troubles.

It is not work so much as worry that breaks a man down.

In *Endymion*, when the hero's father found money difficulties gathering round him, and his political hopes failed at what had seemed the very moment of realisation, 'he found refuge,' writes the author, 'in suicide, as many do, from want of imagination.'

The power which could convey Lord Beaconsfield himself, at the time of a crushing defeat, back to the clipped yew hedges and formal terraces of the Bradenham of his boyhood, and enable him there to forget himself in the hopes and fears of beings of his own creation, is a gift of the gods to the few. The best substitute, for less gifted mortals, is the possession of a Hobby. It does not matter much what it is —railway-ticket collecting may do as well for some people as astronomy for others—if only strong enough, when called

upon, to jump the ring-fence which hedges the owner in with his own immediate personal concerns.

This little book has no pretence to be anything more than a collection of notes made, at different times and in varying surroundings, from the back of a favourite Hobby—one that has this special recommendation, that, when once mounted, it is to the most beautiful spots that it oftenest carries the rider: to 'thick grove and tangled stream'; to moor, meadow, forest, and marsh; to sea-cliffs haunted by myriads of sea-fowl; to island-studded lakes and lonely mountains.

If by any lucky chance anything in it should be the means of awakening in a young reader a first interest in bird or insect, it will not be until his hair is silvering that he will realise the extent of his debt to the writer.

It is suggestive that Pitt, when Premier of a Government in a minority in the House of Commons, and—as his private correspondence shows—worried about his mother's money-matters, bought Holwood 'because he had bird-nested there as a boy.'

The chapters on London Birds have, since the publication of the second edition, been revised and considerably enlarged by the addition of letters addressed at intervals to *The Times*, and two new chapters are added. In one of these, on the 'Haunts of the Shearwater,' the greater part of which was published as an article in *Blackwood's Magazine*, entitled 'A Poor Relation of the Albatross,' now reprinted with the permission of the proprietors, another letter to *The Times* has been embodied, describing the two Skelligs.

The chapters on the Farnes and Shetland Isles, the Norfolk Broads, a Dutch nesting-place of the Avocet, and the concluding chapter on Bird Life, are reprinted, also by permission, very kindly given, from the *Contemporary Review*.

The frontispiece is from a sketch by Mr. Archibald Thorburn of the Cormorant's rock, a winter scene in St. James's Park. The other full-page pictures are from photographs of birds' nests taken and kindly lent by Mr. H. C. Monro, C.B., Miss Ethel Monro, and Lieut.-Colonel W. H. Duthie.

The Hands of the Aye-Aye are from a picture by the late Mr. Wolf, published in the *Proceedings of the Royal Zoological Society.*

T. D. P.

London, *Oct.* 1902.

CONTENTS

CHAPTER VIII

CHAPTER IX

CHAPTER X

CHAPTER XI

LIST OF ILLUSTRATIONS

CHAPTER I

LONDON BIRDS

'Tis always morning somewhere, and above
The awakening continents, from shore to shore,
Somewhere the birds are singing evermore.'—LONGFELLOW.

WE are so accustomed to associate birds—'the smiles of creation'—with all that is wild and fresh, and pleasant, and unlike a great town, that to speak of the birds of London sounds rather like talking nonsense. It is, however, one great advantage which an ornithologist has over most other lovers of natural history, that there are few places in which he cannot find something in his own particular line to interest him, unless it is in countries where Robins and Tomtits have been too long marketable delicacies, and where, as in some parts of the Continent, woods and plantations are dying off in consequence—lands that have slaughtered the innocents, 'smitten with worms.' Longfellow's simile is much too good to be given up merely because, as commentators tell us, the King who died on his throne as he made a speech to the people, was not the Herod who killed the babes of Bethlehem and added Childermas Day to the Calendar, but a nephew and namesake only.

London is no exception to the rule. Indeed, in some respects we are unusually favoured. To begin with, there are, of course, the splendid collections, dead and alive, in the British Museum and Zoological Gardens. There are the bird-stuffers' windows, into which a good proportion of the curious birds shot in the kingdom are sure to find their way. There are Leadenhall Market and the game-dealers' shops, with constantly changing supplies all through the year; and, in hard weather, there are the wild-fowl hawkers about the streets, with great bunches of Stints, Curlews and Guillemots, doing duty as Snipe and Widgeon, and Mergansers, 'ancient and fish-like' enough to be smelt across the street, with their tell-tale saw beaks broken off to make them Mallard.

But leaving these out of the question, there are the genuine wild birds of London; and it may, perhaps, be a surprise to some readers to learn how many of these there are. A notebook of those seen by one person in the course of not more than a year in the immediate neighbourhood of Hyde Park, all sufficiently near to be identified without difficulty, included more than twenty species—representatives of five of the six great natural orders into which birds are divided.

The exception was the class of the 'birds of prey,' the Raptores—'low-foreheaded tyrants'—the first until lately in scientific arrangements, but now dethroned.

Wild birds of prey are not very common in London, but, though it is not every one who is fortunate enough to see them, members of both branches of

the family, night fliers and day fliers, are occasionally to be seen.

There was a report in the summer of 1891 that an Eagle had been seen over the East-end of London, and again, during a severe frost in February 1895, that a pair, at a considerable height, but not too far off for fairly certain recognition, were observed working in circles westward over Westminster.

Neither rumour was confirmed; but the first is all the more likely to have been true, as a day or so before a big bird of the kind, which, from the description given, must have been an Eagle, was seen, heading northwards, by two gentlemen fishing in the Stour, at Chartham, a few miles above Canterbury. It was probably a young 'whitetailed,' which, in a first trek south had succeeded in running the gauntlet of Norfolk gamekeepers, and following the line of the coast, after the manner of its kind, had turned up the estuary of the Thames.

London, improbable as it may seem, is, geographically, a place where occasional appearances of an Eagle might naturally be looked for.

Dr. Edward Hamilton, who published in the *Zoologist* in 1879 a carefully compiled paper on 'The Birds of London, Past and Present, Resident and Casual,'[1] numbering in all nearly a hundred, says that 'in 1859 a Kite was observed flying over Piccadilly not above one hundred yards high,' and mentions as 'casual

[1] A list of the birds noticed in London, based on Dr. Hamilton's paper, is printed as an appendix.

visitors' the Peregrine Falcon, Kestrel, and Sparrow-Hawk.

Kites were once upon a time protected City scavengers, as also were Ravens. The Bohemian traveller Schascheck, who visited England in the fifteenth century, wrote, on his return, that nowhere in the course of his travels had he seen the bird in such numbers as round London Bridge. On the 13th of May 1898, a Kestrel flew slowly over Portman Square in the direction of the Highgate Woods, casting a passing glance on the enclosure as it crossed.

A large Owl—a grave and reverend representative of the night fliers—was apprehended by the police-constable on duty a year or two ago in the Repository of the Public Record Office, and after inquiry discharged with a caution, unfortunately before the species had been determined. Another has since been recorded in the newspapers as having taken up its quarters in a tree in the grounds of Guy's Hospital. In this case, too, the species was unnamed. But both 'tawny' and 'barn' owls are fairly common in Kensington Gardens.

We hear in these days much of the struggle for existence which is going on everywhere in Nature, and of adaptations in the forms of animals to the conditions under which they have to carry on the fight. There is not a clearer or more beautiful instance of the kind than the wing of a common Brown Owl.

The bird has to hunt close for its prey in the dark. If it cut the air with the noisy flight of a Partridge

or Wood Pigeon it would soon starve, for every one of the timid little creatures which are its natural food would take good care to keep out of sight till the danger was past; and so—as an oar is muffled to deaden the splash—Providence has softened to something like a loose fringe of down the front of the quill. This makes the Owl's flight, as every one who has watched a Barn Owl 'mousing' knows, perfectly silent.

Of the 'Passeres,'—the enormous order into which are jumbled all which cannot be classed as birds of prey or poultry, and which, as a rule, neither climb, nor wade, nor swim—we have a very respectable party constantly in London. Not less than seventeen or eighteen appear in the list of birds seen within the year referred to at the beginning of the chapter, and this does not of course nearly exhaust the number of common visitors.

First come the Thrushes—the most timid, perhaps, of all; but, by one of the apparent contradictions with which all classifications abound, nearly related to the Shrikes, which are the connecting-link between the Passeres and the birds of prey, and, in their own degree, scarcely less tyrants than the Eagles themselves. Song-thrushes are fairly common in Kensington Gardens and St. James's Park, where they nest regularly, and sing beautifully at times; though, as a rule, they are very shy. During the middle of the day they manage, to a great extent, to keep out of sight; and it is not often, when many people are about, that they

show themselves in any considerable numbers. But when the gates are first open, and the early morning dew is on the grass, one may see them, four or five at a time—stamping to start the worms, then hopping for a yard or two, and standing still to listen, with their heads on one side, and their bright eyes sparkling with attention.

Blackbirds, too, are common, though less so than Thrushes, and also nest in St. James's Park. They are, probably, largely migratory, as they are more plentiful at some times of the year than at others.

Fieldfares and Redwings are to be seen occasionally in cold weather; but London can offer no great supply of berries to attract them, and their visits are short.

But though, by right of their voices no less than the notch in their beaks, the Thrushes claim the place of honour, easily first among London birds, by numbers as well as impudence, are the Sparrows. Poking about in every gutter, and dusting themselves almost under the horses' feet with all the amusing self-possession of street urchins, they take care not to be overlooked.

But for one quiet house in a corner, the Zoological gardens might be the happy hunting-ground of good Sparrows. Dainties are to be had for the stealing all over the place, and even the lions and bears and eagles are too sleepy and well-fed to resent any amount of petty larcenies. It is a melancholy thing, though, to see the end when it does come. The snakes are fed one afternoon in the week, and five or six tailless

Sparrows are a dainty meal. Unlike the rabbits and guinea-pigs, who will nibble and sniff at a python's nose, they seem too wide-awake to doubt their fate for a moment, and crouch together in a corner, the picture of dejection—till, if the snakes are hungry, there is a sudden flutter, and the miserable party scuttle over to another corner one short in numbers, and one may see a little bunch of feathers, at all sorts of impossible angles, peeping out from a coil of scales. The stroke is almost quicker than the eye can follow.

London Sparrows evidently look upon Corinthian capitals as designed for their especial convenience in the nesting season; and Bishop Stanley tells of one pair which had the impertinence to build in the mouth of the lion on Northumberland House, long ago departed to the limbo of forgotten landmarks where Copenhagen and the 'big' Duke on the Arch have since joined him. When the Duke's statue was taken down for removal to Aldershot, in 1884, it was found that more than one bird—like Gavroche in the plaster elephant of the Place de la Bastille—had set up house inside. There was a Sparrow's nest with a newly hatched young bird and several eggs in the right arm; and, in the elbow of the left, a nestful of young Starlings almost fledged.

The front door of both establishments was a hole in one of the hands.

We are told that the highest development of the race of birds carrying with it precedence by right divine, is reached in the order 'Passeres,' the family of

the Sparrows. In London, at least, they are not prevented by undue modesty from asserting their rights. A gentleman was feeding with bread-crumbs a Wood Pigeon in St. James's Park. One of the bird's feathers, an under tail-covert, which was ruffled and out of place, caught the eye of a Sparrow. The Sparrow flew down, seized it in its beak, and pulled its best. The feather did not yield at once, and the Pigeon walked off with offended dignity. The Sparrow followed, still holding on; and, in the end, flew off triumphant with the trophy to its nest. 'Well! if that don't take the cake for cheek,' was the comment of a passing labourer. 'I 'm——!' Expressive silence completed the sentence, With the sentiment, if not with its expression, few will be inclined to disagree.

With all its ragged untidiness, few things are grander in suggestion than a Sparrow's nest on Westminster Abbey or St. Paul's. It carries one back to the days when the author of the eighty-fourth Psalm watched the birds building in the niches of Solomon's temple—or, more probably, looked back on with the eye of memory only from exile by the waters of Babylon—and wrote, in words which have still all the freshness of three thousand years ago, 'The Sparrow hath found an house, and the Swallow a nest for herself, where she may lay her young; even thine altars, O Lord of Hosts, my King, and my God.' The commonest Sparrows in the Holy Land—*Passer Syriacus*—though not actually the same, are almost identical with our own House Sparrows.

In spite of overshadowing soot, there is a considerable variety to be noticed in the plumage of London Sparrows. One spotted with white and another of unusually light tint, very much the colour of a dormouse, have for more than a year escaped the cats at the foot of the steps by the Duke of York's column. Another, a cock bird, with a tail of almost pure white, had, in the spring of 1892, his headquarters just inside the rails of the Green Park, near Devonshire House, and since then more or less speckled birds have become common in the parks.

Of the Buntings, the only two which figured in the lists of birds seen within the year were a cock Yellow-hammer, picked up dead in the Green Park, apparently starved to death, and another seen in St. James's Square. The latter was unluckily very tame, and paid dearly for a meal in the gutter, only just managing to flutter on to Lord Derby's house, much the worse for a cut from a cabman's whip.

In March and April 1890, the 'ill-betiding croak' of the Raven was a familiar sound to West-end Londoners; a fine fellow, who, judged by his tameness and by the fact that several wing feathers were missing, was probably an escaped captive, having for some weeks settled in Kensington Gardens, where Carrion Crows are fairly common and not afraid to make free with the Ducks' eggs. Grey-backed Crows, too, are occasionally to be seen. One was reported as 'stalking about the beach at low tide at Chelsea' in the *Saturday Review* of March 1st, 1902.

Starlings build in numbers in the hollow trees; and, with a few grey-headed Jackdaws, and poor ill-used Rooks, make themselves generally at home among the sheep, and are as talkative and merry as in the reed beds on the Norfolk broads.

Londoners cannot all have the opportunity of seeing for themselves the most characteristic sight of the Fen countries in autumn—the manœuvres of the great armies of Starlings which towards sunset collect at chosen places from far and near to gossip and roost in the reed-beds. But the evening assemblies of these pre-eminently sociable birds, in the little cover on the peninsula in St. James's Park, are well worth watching, though we cannot hope to rival the thirty solid acres of starlings recorded in Stevenson's *Birds of Norfolk*, or the great country flocks whose rhythmical movements have often been a subject of remark.

Apart from such comparisons, the numbers which, during the autumn and winter months, true to the appointed hour, from 3.45 to 4.15 P.M., arrive in the park in packs, some from one point of the compass, some from another, others, to all appearance, dropping straight down from the sky, are, the surroundings considered, scarcely less astonishing, nor are their perfectly concerted flights and incessant merry chatter less beautiful and interesting to watch.

An attempt was made one November evening, with the help of the late keeper Reiley, to form some idea of the numbers coming in to roost on the peninsula. Anything like an exact count was impossible, but an

estimate of a thousand would have been rather under than over the mark.

A charge of smallshot, fired at random into any one of several trees within easy shot of the spot at which the observers stood, could scarcely have failed to bring down ten or a dozen birds, and this some time before all had settled in for the night, and when the upper boughs of one of the largest trees to the south of the ornamental water was peopled so thickly as to look in the distance in the fading light as if clothed with a fresh crop of leaves.

Two very interesting papers on 'The Rooks and Rookeries of London,' the one by Dr. Hamilton, the other by Professor Alfred Newton, are to be found in the *Zoologist*. The tale told is a sad one, and the conclusion drawn seems only too probable: 'The Rooks and Rookeries so pleasant to old Londoners are gradually diminishing and disappearing, and the London Rook to our grandchildren will be a bird of the past.'

In the spring of 1893 there seemed good reason for hoping that the Rooks had decreed that nesting was again to be allowed in Kensington Gardens. The rookery there had in its palmy days contained a hundred nests or more; and as lately as 1878 or 1879 from thirty to forty were commonly to be counted. But the wholesale felling of ancestral elms a few years ago was a slight which could not be passed over, and since then—until 1892, when one pair built obscurely in the south-west corner—not a Rook bred in the

gardens. In the following year there were eleven nests, and any fine evening in March as the sun set behind the palace as many couples might be seen indulging in their usual games in the air before settling in for the night.

The tribal laws which regulate the family affairs of Rooks are stringent and rigidly enforced; and, though an inexperienced pair may every now and then be foolish enough to fancy themselves free to build outside the bounds prescribed, it is commonly only to learn to their cost that, with birds, laws are made to be obeyed. The numbers of the new colony, the abandonment of the last year's nest in the corner, and the bold occupation of the old site, seemed proofs presumptive that the return of the exiles had been with the sanction of constituted authority. But this apparently was not the case, and the revived colony was again the next year deserted.

There seems too much reason to fear that Kensington Gardens has lost for ever one of its greatest interests, and that the colony at Gray's Inn is destined to be the only considerable survival of the great rookeries once common in the middle of London.

In 1899 a Jackdaw and a Magpie, who had for some weeks been keeping company, took possession of and repaired an old nest on the top of a tall thorn-tree in St. James's Park. When visited one morning in March the Magpie was sitting within a foot or two of the nest, which was of the ordinary Magpie build, protected from above by a substantial umbrella of

MAGPIE'S NEST

sticks, and, as he flew away with a low chuckle, the Jackdaw—apparently, from the attention paid to her, the hen bird—looked out from within to see what was the matter.

The species are closely allied, both being members of the great family of the 'Corvidæ.' But if the union had, as at one time seemed possible, been blessed with offspring, it would, so far as could be learnt, have been a first record of a hybrid between the two, and Londoners might next have expected to see the marriage of Cock Robin and Jenny Wren translated for their benefit from nursery rhyme to natural history. No eggs, however, were laid, and after amusing themselves by playing at housekeeping for several weeks, the birds tired of the game, and parted to carry on their evil practices as egg-stealers separately.

Curiously enough, on the publication of a letter in *The Times* telling the story, a communication was received by the writer from a country clergyman, who had been interested in watching precisely the same thing in his own neighbourhood. There, too, as he afterwards wrote, no practical results followed.

A more successful and even more interesting 'mixed marriage' was noticed in the same park two years later, when a Ruddy Sheldrake paired with an Egyptian Goose and reared two young ones.

Classifications, essential as they are for scientific study, are at best human inventions, and necessarily more or less arbitrary. There are no hard and fast lines in Nature. The Sheldrake and Egyptian Goose

stand on opposite sides, both very near the border-line which ornithologists have drawn to cut off Ducks from Geese.

Charles St. John wrote many years ago:—'Instead of the waddle of the Mallard, the Sheldrake walks about with a light active step and erect carriage, more resembling that of the Wild Goose than any other bird'; and, lately, Professor Newton has suggested that the family of which the Egyptian Goose is, perhaps, the best-known member 'should be referred rather to the *anatine* than to the *anserine* section of the Anatidae.' But for the present they are 'duck' and 'goose.'

It is with Wild Fowl as with other untutored native races. The touch of the white man's civilisation is apt to demoralise. Hybrids in the natural state are, comparatively speaking, rare. In captivity the difficulty is to keep the species true.

One of the two young birds, a Gander-Drake, in 1892 mated at a year old with a maternal aunt. But Nature, though in her dealings with species she occasionally admits halves and halves, has a rooted objection to more complicated fractions; and six eggs, which were in due course laid and sat upon, were all addled.

A Hawfinch—a bird which is probably commoner than is generally supposed, as it is its habit to keep as much as possible out of sight—was picked up in St. James's Park on the 28th January 1890. It was a hen in good condition. About the same time the following year, and in the same place, a Mountain Finch was found, a visitor from the North, uncommon

in most parts of England, excepting during unusually severe winters. The bird, a male, was in fine plumage, and, judging by the brightness of its fawn colours and whites, could not have been long in London.

Chaffinches are not uncommon. A pair were to be seen more than once in April, a year or two ago, very busy collecting moss for a nest, between Victoria Gate and the fountains; and two rather dingy little Blue-Tits were at the same time carefully investigating the trees close by, evidently with the same views. Cole-Tits, too, occasionally show themselves in the Gardens. Both the Cole-Tits and Blue-Tits, the latter in considerable quantities, have been caught in Russell Square. Greenfinches and Redpolls have also been noticed there.

House-Martins in plenty, and with them Swallows, and more rarely Swifts and the little brown Sand-Martins, play on the ornamental waters. The House-Martins build in several parts of London. There were nests—the marks were still to be seen until the last house-painting—two of them in St. James's Street, over Boss's, the gunmaker's shop, two more in Porchester Place, and three on a blank wall in Upper Seymour Street. 'Where they most breed and haunt, the air is delicate,' and their mud-houses are a compliment to our improved drainage.

Every one knows that it is unlucky to disturb a Swallow's nest, but the reason why may not be so generally known. Old women in Norfolk say that when the birds gather in thousands, as they do in many

places before they leave us for the south, and sit in long rows on the church roof, they settle who shall die before they come again. Any one who has offended them during the summer may expect to have his name at least brought forward then for consideration.

Wheatears are occasionally to be seen. Two small parties lately settled in London for a few weeks in August—one in Hyde Park, the other in the Regent's Park. They are very inquisitive little fellows; and, though they will whisk off their pretty white tails before one gets very near them, they cannot go far without stopping for another good stare. They are trapped in numbers in parts of England and France, in little holes cut in the turf, and commanded by common brick-falls. No bait is required, as they cannot resist the temptation to hop in to explore, and their next appearance in public is probably in vine leaves.

The Kingfisher is, perhaps, the last bird one would expect to see in London. Two have been caught at different times in the grounds of the Museum facing Great Russell Street, and a pair, not long ago, made themselves at home for some time near the ponds in Regent's Park. Others have been noticed more than once of late years on the St. James's Park water.

When in 1703 the Duke of Buckingham obtained a long lease of the grounds in which now stands the Royal Palace to which he bequeathed his name, he found 'under the windows . . . a little wilderness full of blackbirds and nightingales.'

The country round London is still a favourite haunt of the last-named bird:

> 'The light-winged Dryad of the trees,
> Singing of summer with full-throated ease.'

They have been known very lately to breed in Battersea Park, and every now and then one finds his way into the one or other of the more central parks. They are curiously capricious in their choice of localities for settlement. It is a real Irish grievance —though no attempt has yet been made to redress it by Act of Parliament—that though to all appearance the country in parts, with its green copses and soft climate, is just what should suit them, they are never heard in Ireland. The cock Nightingales usually land in England eight or ten days before the hens. They sing their best when in expectation only of the happiness to follow them, and are said to be valuable as cage singing-birds only if caught as bachelors. It is touching to hear, on the authority of bird-catchers, who know what they are talking about, that a cock caught after he has paired is useless, and will probably mope till he dies.

A Nightingale in splendid voice gave a few years ago a series of early recitals in Kensington Gardens. In the heat of the day, when there were too many perambulators about, he kept out of sight, 'in shadiest covert hid,' but before breakfast sang without any attempt at concealment, morning after morning, on the same almond-tree, not very far from the Prince Consort's Memorial.

His song, poor fellow, was all the more impassioned, because the lady he sang for in all probability existed only in his dreams; or, if they had really met and engaged themselves in the warm winter among the olive groves of the South, thought herself absolved from the engagement, and free to console herself with a less audacious mate in a quieter home beside some Kentish lane, when she heard her lover could wish her to follow him to shameless London.

Alphonse Karr, in his *Voyage autour de mon Jardin*, complains of the misrepresentations which have resulted from slavish imitation of the classics by modern writers. Why, he asks, because poets writing in softer climates spoke truly enough of May as 'the month of roses,' should every French poet think it necessary to do the same, forgetting that what is true in Greece or Italy is not necessarily true in France, and that, as a matter of fact, roses do not blossom there in any very great profusion before June?

Nightingales have even more just cause to protest. Philomela—as all of us know who are not too far removed from school-days to remember anything of our Ovids—was a Greek girl compromised in an affair of a marriage with a 'deceased wife's sister.' Her position, which was trying enough from the first, became unbearable when it was found out that the first wife was not really 'deceased' at all, but only put out of sight by the husband, who had cut out her tongue. Both sisters had cause enough for complaint, and because poor Philomela did complain and was changed

in pity into a Nightingale, and the poets sang her sorrows, therefore the Nightingale must be sad, and always posing as a love-lorn maiden.

> 'The melancholy Philomel,
> Who, perched all night alone in shady grove,
> Tunes her soft voice to sad complaining love,
> Making her life one great harmonious woe.'

Milton, the Londoner, steeped as he was in the classics, as a matter of course follows suit, and for him the Nightingale is necessarily—

> 'Most musical, most melancholy.'

But even Shakespeare, of whom we might have hoped better things, could not altogether free himself; and once, in his writings—though certainly only to put the word into the mouth of Valentine, the love-sick Gentleman of Verona—we find the inevitable

> 'Nightingale's complaining note.'

By the bye, if nothing to do with Milton and Shakespeare had come down to us but their poetry, we should not have had any great difficulty in arriving at a fairly true idea of the sort of lives the two men lived, by merely comparing the manner in which each refers to birds.

Take, for instance—and there are plenty of other passages at least as much to the point—such little touches, fresh from Nature, as—

> 'Far from her nest the Lapwing cries "away,"
> My heart prays for him, though my tongue do curse,'

in the *Comedy of Errors*. Or in *Much Ado about Nothing*—

> 'Look, where Beatrice like a Lapwing runs
> Close to the ground to hear our conference.'

Or—

> 'Like an eagle in a dove-cote, I
> Fluttered your Volscians in Corioli.'

One hears the clatter of the wings, as the startled pigeons break out all round.

Contrast these with any of Milton's allusions to birds. 'Birds of Jove' driving before them 'birds of gayest plume,'—'ravenous fowls' hurrying to a field of battle, or—

> 'Vultures on Imaus bred
> Disfledging from a region scarce of prey
> To gorge the flesh of lambs,' etc.

It is not necessary to multiply instances. In almost any page of the writings of either that one opens, the contrast forces itself into notice. The magic wand is the same, but the hands that hold it are very different. Shakespeare touches us, and we crouch with him and hear the Night-jar rattle and the Shrew Mice whistle in the fern in the deer park as we hold our breath to listen for the keepers; or we stroll along the track of old Aikman Street, across the unenclosed commons of Buckinghamshire, and take Plovers' eggs with a rollicking and not over-respectable company of players on the tramp from Stratford and London; or loll in the shade on a bank where the wild thyme grows, and listen to the birds and bees overhead in the branches of the

oak-trees of Grendon Wood. It is fresh Nature everywhere.

Milton takes the wand and the country changes to the town. We smell the leather of dusty piles of learned volumes, and stand half afraid in the presence of the man who could see in the gloom to report for a Parliament of Devils, and look without flinching at

> 'The living throne, the sapphire blaze,
> Where angels tremble as they gaze,'

but never, even before his blindness, could have had an eye for a bird.

But to return to the Nightingale's song. It is a libel to call it sad. As a matter of fact, it's the exact reverse. There are in it, of course, none of the blood-stirring notes of war and crime to be heard in the cry of the Eagle, nor does it, like the wail of the seabird on the hungry shore, carry with it suggestions of Robinson Crusoe adventure; but it is peaceful, self-sufficing, and perfectly happy—home affections and domestic joy set to music. Perhaps to some of us, with boys to start in life, even the curious croak, almost like a frog's, which a Nightingale gives every now and then when the young birds are leaving the nest, but only then, may not altogether destroy the truth of the rendering.

This is old Isaac Walton's opinion: 'He that at midnight, when the very labourer sleeps securely, should hear, as I have very often, the clear airs, the sweet descants, the natural rising and falling, the doubling, and redoubling of her voice, might well be lifted above earth and say, "Lord, what music hast

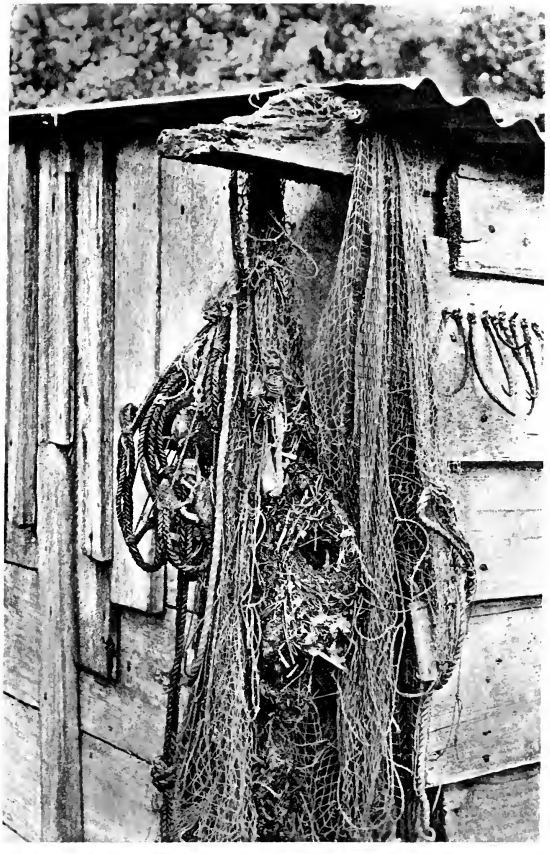
Thou provided for the saints in Heaven, when Thou affordest bad men such music on earth?"'

The beginning of the singing of the Nightingale was, in old Persian calendars, the date for the festival in honour of the return of warm weather.

Another night-singing warbler to be found at times in London—a pair were seen not long ago in the meadow between the powder magazine and ranger's house in Hyde Park—is the Sedge Warbler, a pretty little bird, not unlike a Nightingale, with a white line above the eye. 'The Sedgebird,' writes Gilbert White, 'sings most part of the night: its notes are hurrying, but not unpleasing, and imitative of several birds, as the Sparrow, Swallow, and Skylark. When it happens to be silent in the night, by throwing a stone or clod into the bushes where it sits you immediately set it a-singing; or in other words, though it slumbers sometimes, yet as soon as it is awakened it resumes its song.' Another pair lately settled for some little time beside the water in Regent's Park. For six or seven years there has been a Flycatcher's nest in Rotten Row.

The Wren, which, as his name, Regulus, the little king, denotes, has been from earliest times a bird of consideration, is fairly common with us.

It was a Wren who shared with Prometheus the honour of bringing fire from heaven, and more than once since the family has distinguished itself by taking an independent line in public affairs. In the religious disturbances of Charles II.'s time, the Wrens were on



A WREN'S NEST

[LONDON: EDWARD ARNOLD, 1902.

the side of the Protestants, and once, 'by dancing and pecking on the drums as the enemy approached,' saved the lives of a party who would otherwise certainly have been surprised sleeping, and cut to pieces 'by the Popish Irish.'

'For this reason,' says Aubrey, who tells the tale in his *Miscellanies*, 'the wild Irish mortally hate these birds, to this day calling them Devil's Servants, and killing them whenever they catch them.'

The sympathy of the Lapwings seems to have been as strongly on the other side. They were for the High Church party, and made themselves hated for generations in the lowlands of Scotland as much as were the Wrens in Ireland, by disturbing the devotions of the Covenanters, and meanly betraying them again and again to the Duke of York and Commissioner Middleton's men, by shrieking on every possible occasion over the lonely meeting-places on the hillsides.

But there is a grievance against the Wrens of a date much earlier than the times of the Merry Monarch. The first Christian martyr was on the point of escaping when a Wren—whether maliciously or by an unlucky accident is not recorded—began to sing, and woke one of the soldiers who formed his guard. It has been the fashion from very early times in Ireland, in Wales, and in many parts of England, to avenge the stoning of St. Stephen by stoning on his day, the 26th December, the poor little descendants of the birds who contributed to his murder.

The Irish 'Wren boys' and Manx fishermen, when

they have succeeded in killing a Wren, carry the body round from house to house demanding drink or its equivalent in money.

There is a rather uncomfortable ring in the last line of the verses in which, according to a newspaper correspondent, it is the custom for the 'Wren boys' to make their request—

> 'The wran, the wran, the king of all birds,
> On St. Stephen's Day was cotched in the furze:
> Though his body is little his family's great,
> So, plaze, kind lady, you'll give us a thrate (treat).
>
> And if you dhraw it of the best,
> We hope in Heaven your sowl may rest;
> But if you dhraw it of the small,
> It won't agree wid the wran boys at all.'

Feathers of a St. Stephen's day Wren are a certain charm against death by shipwreck.

The golden-crested Wren has occasionally, but not often, been seen on the peninsula in St. James's Park.

A few Robins, and a Lark, seen on two consecutive days in Hyde Park and the Green Park, complete the list of the Sparrow family in the year's notes on which this chapter is based, though there is no doubt that, with a little longer observation, a great many others might have been added. A Night-jar, for instance, attended one of the evening performances of Buffalo Bill, hawking about for some time near the seats of the other spectators, at the end of May 1892.

The 'Climbers' are not well represented, the only one that was noted during the year being a single vagabond Cuckoo, who found his way into Hyde Park on the

8th of May, and left in the direction of Park Lane. Painful as it is to say unkind things of those we cannot help liking and wish to respect, it is unhappily quite impossible to deny that the Cuckoo is out of all measure a disreputable bird. She begins life by murdering her foster brothers and sisters, whom she is pretty sure to shuffle one by one on to her hollow back and pitch out of the nest before she is ready to leave it herself. She grows up—the charge is proved beyond all question—to think as lightly of marriage vows as she does of a mother's duties. Excepting that they have two toes in front and two behind—the distinguishing feature of the class—the Cuckoos have little or nothing in common with the 'Climbers' proper; but a visit from one of them would be just enough to give us a claim to the Woodpeckers as a London family, even if none of the true Woodpeckers were ever to be seen. Stories are still occasionally told of the little spotted Woodpecker, and more frequently of the commoner Green Woodpecker, having been seen in Kensington Gardens. Probably, at one time, both may not have been uncommon there, but their visits are now comparatively rare. A Green Woodpecker was heard and seen in Hyde Park in November 1885.

The birds of the Old World, as well as the 'two-legged creatures without feathers,' are left behind by their more go-ahead American cousins.

There is a Californian Woodpecker which is not content with making holes in trees, after the manner of its kind on this side of the Atlantic, but corks them

when made. There is a specimen of its work in the British Museum—a piece of the bark of a tree with round holes in it neatly stopped with acorns. It is not easy to say what the precise object of the bird in corking his holes may be, unless it is that he has stalled calves—grubs not quite at their best when first found—fattening in pens for future use.

Woodpeckers generally seem to be birds of an inquiring turn of mind. Among the curiosities of the Leyden Museum is the top of a telegraph post of hard teak, brought from Sumatra, with four or five deep holes drilled round the support of the wire by a little black-and-white fellow with a red cap, almost identical with our own London 'Spotted Woodpecker.'

His object in drilling the holes was, no doubt, to solve the mystery of the music of the wires, which seems as great a puzzle to four-legged creatures as it is to birds and children; for in parts of Norway much mischief is done to the telegraphs by bears, which, on the principle that 'where there is smoke there is fire,' take for granted that where there is a 'hum' there must be a bee, and roll away the rocks piled up to keep the posts in their places to get at the hidden honey.

CHAPTER II

LONDON BIRDS (*continued*)

'The deep mellow crush of the Wood Pigeon's note
Made music that sweetened the calm.'—CAMPBELL.

PERHAPS the most remarkable feature of recent London ornithology has been the increase in the number of Wood Pigeons. As lately as 1868, a rumour that 'the deep mellow crush of the Wood Pigeon's note' had been heard in the trees of the old rookery, since cut down, was enough to draw more than one visitor interested in such matters to Kensington Gardens. The birds (it seemed probable, though uncertain, that they were a pair) were very shy, and confined themselves when the gates were open to the tree-tops, where they were more often to be heard than seen. Since then they have, until the last two years, steadily increased, and are often tame enough to take bread from the hand.

In 1883, so far as could be judged, three or four pairs nested in St. James's Park. In 1893 it was a common thing to see fifty or sixty together, and the whole number of the settlement, leaving out of the count the birds which had taken up their residence in the Green

and Hyde Parks, and in Kensington Gardens, would probably have been under-estimated at 200.

During the last few years they have been scarcely so plentiful as in 1892 and in 1893, owing possibly to the rather too assiduous attention during the nesting season of a couple of Magpies, turned out not long ago.

When acorns ripen in the country the greater part of the Wood Pigeons disappear from the parks, and, if the winter is open, are seldom to be seen again in anything like their summer numbers until the spring. But a sharp frost, more especially if accompanied by a heavy fall of snow, commonly brings them back to London quarters, where food is plentiful and guns are forbidden.

In the autumn of 1900, the Wood Pigeons in St. James's Park were fewer by far than they had been in the same months for many years past. The comparatively few birds that did come in were later in coming than usual, and their numbers, though appreciably increased, were in the following spring still below the average.

An even more marked reduction was noticed in other places to which it is the habit of Pigeons to gather, often in vast numbers, for food. In parts, at least, of the beech and oak districts of Gloucestershire, though conditions were apparently exceptionally inviting, the immigrant autumn flocks were said to be 'barely one-tenth' of the usual numbers. Reports from Oxfordshire were scarcely less remarkable.

So far as could be learnt, from inquiries made in different quarters, there was no reason to think that there had been any general diminution in the stock. But the birds wandered less than usual because—and in this lies the interest of the story—the crop of beech masts and acorns, and presumably of other wild fruits and edible seeds, was almost everywhere throughout the country abnormally heavy. They found, for once in a way, food enough to satisfy them at their doors, and, in spite of long-established custom, were glad to stay at home instead of facing the dangers and discomforts of travel. Their action is another small proof, if any is needed, that, however influenced by 'meteorological conditions' and other causes, the main motive-power of all migration is need for food.

It was because there was 'no corn in the land' of Canaan that Jacob and his family went down to Egypt.

The fame of the London Wood Pigeons has crossed the Atlantic. An application was received at the Office of Works a few years ago for some pairs of the 'Great Russian Wood Doves' from St. James's Park, for acclimatisation experiment in the United States.

In our complex civilisation dangers to life and health crop up in such unexpected quarters that it is difficult to say where safety lies. Perhaps, though, the last of our London neighbours whom we should be inclined to suspect of dangerous proclivities would be the masterless Pigeons, which swarm in all directions.

But a man may smile and be a villain, and birds are, apparently, no more to be trusted than men.

A lady lately took for a few months a house in Chester Square. The drains were duly inspected and pronounced faultless, and she took possession with every prospect of a pleasant season. It was not to be. A cloud of mystery hung over the house. Servants were disturbed by midnight rappings and awaked at daybreak by uncanny whisperings; and one after another complained of feeling ill, and gave warning.

When at last the lady herself had given way to the universal languor, and had, by doctor's advice, left town to seek fresh roses in country air, it was found that there was an unnoticed hole in the outer wall of the house, through which Pigeons had found their way in and out, and that the spaces between flooring and rafters were a big dovecote, evidently of several years' standing. There were living young birds snug in nests on guano beds under the floors, and dead birds in various stages of decay. Fourteen nests were found in the wall of one bedroom.

The origin of London tame Pigeons is lost in the mists of antiquity. Dean Gregory in a paper on the subject, published in one of the church parish magazines, traces the colonies on St. Paul's Cathedral—of which there are two, one at the east, the other at the west end, which keep carefully apart, and it is said seldom or never intermarry—to the fourteenth century, when they were already well established. Among other authorities for this he quotes Robert de Braybrooke, Bishop of London, who, in 1385, when Wycliffe had scarcely been dead a year, and Geoffrey Chaucer,

the Commissioner of Customs for the Port of London, had only lately written *The Assembly of Foules*, wrote 'there are those who, instigated by a malignant spirit, are busy to injure more than to profit, and throw from a distance and hurl stones, arrows, and various kinds of darts at the crows, pigeons, and other kinds of birds building their nests and sitting on the walls and openings of the church, and in doing so break the glass windows and stone images of the said church.'

There is a legend that a hole was once neatly drilled in a window, and a bullet embedded in a book-case, within a few feet of the head of a high dignitary of Her late Majesty's Civil Service, by a sporting young gentleman, who took a flying shot with a saloon pistol at a Pigeon in the quadrangle of Somerset House.

The Wood Pigeons are probably the only wild species of the *Gallinaceæ*—the 'Poultry' order to which most of our gamebirds belong—common in London; but not long ago there was one very fine fellow to be seen in St. James's Park who deserves special mention. He was a cross between a cock Pheasant and a common Hen, and had very nearly the head and neck of his father, with a half-dock tail; and could fly, if occasion required it, like a genuine rocketer.

In the next order, the 'Waders,' we have Moorhens and Coots in plenty. In St. James's Park they are tame, and will scramble with the Ducks for bread from the bridge; but their habits are more natural in the Long Water. There one may watch them paddling

about, jerking their tails or prying about shyly for what they can find on the grass outside the little cover by the water's edge. It is impossible to help believing that a Moorhen has an eye for natural beauties, and chooses the overhanging bough or fallen tree by the water for her nest for picturesqueness quite as much as for convenience.

More than one Moorhen has been picked up on the premises of the Public Record Office, in Chancery Lane. It is not necessary to look far for the explanation, as the sky overhead is spider-webbed with telegraph wires running in every direction.

It is interesting to notice how soon resident birds learn the danger of the wires. When a line was first put up for a few miles along the coast from Cromer, Patridges, and small birds—Larks particularly—were constantly picked up more or less mutilated; but, before the wires had been up many months, it was a rare thing to find a wounded bird.

Herons occasionally fly over London; but it is not likely that they often alight. Like most aboriginal tribes, they are gradually dwindling away before the progress of civilisation; and our grandchildren, if they wish to see them wild, may have to go to the Dutch ditches or the unreclaimable swamps of America.

According to Michelet, whose delightful little book, *L'Oiseau*, all bird-lovers should read, the Heron knows he is the degenerate representative of a dethroned race of kings, and mopes in solitude, dreaming of the days of his glory, when his ancestors, the giant Waders

who left their footmarks in the secondary rocks, fought with great lizards and flying dragons, ages before a single mammal had appeared upon the earth. Among the birds of which there are very early traces are some of the Heron tribe, which must have been of enormous size. There are three-toed footprints in the red sandstone of the Connecticut[1] which are said to 'measure eighteen inches in length and nearly thirteen in breadth, and to indicate, by their distance apart in a straight line, a stride of six feet.'

'They tell,' says Hugh Miller, 'of a time far removed into the by-past eternity, when great birds frequented by myriads the shores of a nameless lake, to wade in the shallows in quest of its mail-covered fishes of the ancient type, or long extinct molluscs, while reptiles, equally gigantic, and of still stranger proportions, haunted the neighbouring swamps; and when the same sun that shone on the tall moving forms beside the waters, and threw their long shadows across the red sands, lighted up the glades of deep forests, all of whose fantastic productions—tree, bush, and herb—have, even in their very species, long since passed away.' There is no place in which the birds might be supposed to feel the change of times more than here. The Thames-side in old days must have been a paradise for long-legged birds; and even chaos itself and the modern world could be scarcely more unlike than the

[1] The celebrated Connecticut '*Moulds*' are now believed 'to have been made by certain extinct, in many respects, bird-like reptiles.'—*The Elements of Ornithology*.—Mivart.

country round the little village of the Trinobantes, and the miles of brick and smoke two old Herns looked down upon, who flapped over London from the Essex marshes one day in August last.

It is told in a curious old book, called *Christ's Tears over Jerusalem*, published in 1613, that at the time of the Plague of London, 'the vulgar meniality concluded that the sickness was like to encrease because a Hernshaw sate (for a whole afternoon together) on the top of St. Peter's Church in Cornehill.' But, adds the writer, 'this is naught els but cleanly coined lies.' There is a beautiful Heronry not many miles from London, well worth a visit, in Wanstead Park, the property of the City Corporation.

The ventriloquism of many birds, especially of the Heron and wild fowl tribes, is very strange. In the swampy districts of Finland, one may hear a party of Cranes apparently within easy shot, and with difficulty make them out almost invisible specks in the sky. Another morning, or very likely the same day—the projection of the voice seems to be independent of the state of the atmosphere—one hears what sounds a very distant cry, and is startled on looking up to see half a dozen great birds streaming along, not a hundred yards overhead.

The power, which is no doubt responsible for the legends common all over Europe, of spectral packs of hounds hunting the souls of the lost, is by no means confined to the high-flying birds. It is as impossible to tell from its cry where a Corncrake in a hay-field

really may be as it is to guess the exact whereabouts of a passing flock of Geese.

About thirty years ago a Jack Snipe was picked up by Lord Lansdowne, then a Junior Lord of the Treasury, at the foot of a lamp-post at the corner of the Treasury Garden, in the Horse Guards Parade. The poor little bird had shared the fate of the many thousands, which every year at the seasons of migration are attracted, like moths to a candle, by the light-houses, and dash their lives out against the lantern glasses. The beak and one of the wings were broken.

Some years later, in January 1894, when Mr. Gladstone's Home Rule Bill was under discussion, another Jack Snipe was picked up, this time on the premises of the Bank of England. The watchman was going his night round at about eleven, when the bird fluttered to the ground beside him. It had evidently flown against the telegraph wires, as the upper mandible was nearly cut through at the base, but was otherwise uninjured, though a breast-bone, which felt through the feathers like the back of a knife, told a tale of frozen marshes and scant provisions.

The latitudes, in sympathy with the times of Parliamentary session, were just then out of joint. The mercury, according to the readings reported in the newspapers, stood higher within the Arctic Circle than on the Riviera. A slice from the North Pole had apparently drifted south to Middlesex; and the ornamental water in St. James's Park—with flapping Cormorants, Herons, Pochards, Widgeon, Swans, Ducks,

and noisy Geese, 'many in sorts,' crowding round the one black opening in the snow-covered ice—had been, until the yellow fog came on to bring it, without possibility of mistake, home to London, a presentment in miniature of a winter scene in Finland. Half-starved Larks and Finches in unusual numbers hung about disconsolately, and Black-headed Gulls by scores, and in lesser numbers Herring Gulls, came in from the river, with the punctuality of beggars to the convent gate, for the daily dole of fish served out by their almoner from the keeper's lodge.

The Jack Snipe has been expressly developed for the education of small-boy sportsmen, and is a beautiful illustration of the adaptation of means to ends. Unlike its larger cousin the 'common Snipe,' it may be shot at day after day, and two or three times a day, without taking offence, and leaving the wet corner by the brook to which it has taken a fancy.

It has never been known to breed in England, and, until Mr. Wooley discovered it in Lapland, its nesting-place was as much a mystery as is still the nesting-place of the Knot and one or two other familiar birds.

A common Snipe was picked up alive in Trafalgar Square in December 1898. It too had probably flown against a telegraph wire, and was for the moment stunned; but seemed very little the worse for the accident. It was turned out with a clipped wing in the park, and very shortly afterwards was to be seen contentedly boring in the mud at the edge of the ornamental water.

There are probably men living still who have shot Snipe where Belgrave Square now stands. It is said that a very little time ago it was not uncommon to flush one in Hyde Park, between Victoria Gate and the Marble Arch; but the improvements of the last few years have probably banished them, at least till the days of Lord Macaulay's New Zealander. One reads occasionally of Woodcock picked up in the streets. A case of the kind was not long ago recorded in the *Field*. The poor bird had shared a common fate, and had broken his wing against a telegraph wire in flying over at night.

Letters in the newspapers told also of a Woodcock having flown by Buckingham Palace in the direction of Hyde Park at midday on the 21st October, 1884. In May of the same year a Dunlin and, not long after, a Sandpiper were seen feeding by the Serpentine.

Passing on to the sixth and last order, the webfooted, the ornamental waters in the parks are so well stocked with the different breeds of Ducks, that it is impossible to say to what extent they are frequented by genuine wildfowl. There is no doubt, though, that the number of occasional visitants is considerable; and, of those who are permanently quartered on the Serpentine, many fly strongly, and are, to all intents and purposes, wild birds.

Unlike most of us, their hours in London and the country are much the same. Flighting-time—just as the last remains of the blurred red and blue which

gives its peculiar picturesqueness to sunset in a big town is fading in the fog—is their favourite exercise time; and one may stand on the Serpentine bridge almost any autumn evening, and listen to Mallard and Widgeon whistling overhead, till, with a very small stretch of imagination, the Long Water becomes a tidal harbour, and the distant roar of Oxford Street changes into the break of the sea outside the sandhills.

In St. James's Park alone, besides eight or nine sorts of Geese—four of them English: Brent, Bean, White-fronted, and Bernicle—there are, or were, very lately, not less than nineteen or twenty distinct species of Ducks, with five or six crosses, including one beautiful one between the exquisite little Carolina and red-headed Pochard. About two-thirds are British, ranging in rarity from the Widgeon and Pochards—which still swarm in winter in the ponds and runlets in many parts of the coast—to the castaneous Ducks and delicately-pencilled Gadwall, one of the shiest and rarest of our English waterfowl.

The list includes, besides those already mentioned, Mallard, common Teal, and Garganeys, Shovellers, Pintails, the common Shelducks which breed in the rabbit-holes among the sand-hills by the sea, and the rarer 'Ruddy' species, the tufted; and, perhaps most generally attractive of all, two or three Golden-eyes, with their brilliant blue-black and white plumage, and the eye, like a little drop of liquid gold, which gives them their name. They and the tufted and red-headed Pochards are the life of the party, and are

scarcely still for a moment together. It is amusing, in a general scramble for bread from the bridge, to watch them diving under the ruck, and popping up to snatch a crust from the very mouth of some sleepy fellow twice their own size, hunted in turn by half a dozen others as wide-awake as themselves.

Birds are many of them gifted with the lively imagination which can keep a child happily amused for an hour at a time with a cork on a bit of string for a dog, or 'pretenting to be mother.'

A year or two ago one of the Bernicle Geese in St. James's Park—no doubt with a history behind her and not improbably with a shot in the ovary to remind her of some 'hair-breadth 'scape' on a frozen marsh in bygone days—made a nest, and, without laying an egg, sat the regulation number of weeks on nothing more suggestive of goslings than the down from her own breast with which she had carefully lined it.

The next year, a second nest was made in the same spot, but this time the Providence which makes the woman, to whom such family delights had seemed impossible, to keep house and be a joyful mother of children, stepped in in the person of the keeper with a clutch of Ducks' eggs, which were safely hatched. For some reason or other the ducklings did not thrive —perhaps because the old maid was too fussily anxious and gave them no peace, or, perhaps (as the keeper who watched them believed to be the case), because her sharp note jarred on ears which nature had designed for a mother's call in another key, frightening the poor

little 'boarded out' babies and making them restless—and before long the foster parents again were childless.

A couple of hundred years ago no one, with any pretence to education, would have been foolish enough to expect anything but failure in such an experiment as the park-keeper's; Barnicles—'fowles like to wylde ghees which growen wonderly vpon trees'—being, as every one knew, the exception that proved the rule that birds are hatched from eggs.

The belief that the Bernicle Goose grew from the 'pedunculated cirripede' that bears its name (*Lepas anatifera*) lingered perhaps the longer because it was good for the Monks of Holy Isle and other northern monasteries. 'Men of relegyon' we are told in one of Caxton's priceless volumes, 'eet Barnacles vpon fastynge days bycause they ben not engendered with flesche.'

Hudibras made a slip in his natural history when he said that

> 'Bernicles turn *Soland Geese*
> In th' Islands of the Orcades!'

The Swans, of which there were a short time ago two kinds, black and white, in St. James's Park, have now been banished to the remoter waters of Regent's Park—a long series of evil doings having culminated in the deliberate murder by the old male 'Mute Swan,' of a lately introduced Pelican.

The old Turk could afford to despise Ducks and Geese. But a white bird of almost his own size, with a preposterous beak, was a brother too near the throne to be borne with, and to be bow-stringed at once.

The first black Swans which were imported from Australia could not at all understand the complication of the seasons which a change of hemispheres involved; and at Carshalton, one brood of little ones was hatched when snow was on the ground, unhappily only to survive in a handsome glass case. They have accommodated themselves to circumstances better now, and some fine broods have been brought up safely in St. James's Park. The Cygnets in the down are very like young white Swans.

A single Tern, noticed one blustering day a few winters ago, and a Storm Petrel, 'Mother Carey's Chicken,' reported to have been picked up alive in Kensington Gardens in December 1886, introduce the 'Longwings,' the poetical family of the Albatross and Frigate-bird. Unluckily, the Tern was some distance off, and the species could not be identified with perfect certainty; but Gulls of more than one species have during the last few years become regular visitors. The first considerable arrival noticed by the writer was a party who paid a well-timed visit to the Serpentine in 1869, when Mr. Sykes's 'Sea-birds Preservation Bill' was under discussion. The birds stayed some time, and were watched with pleasure by hundreds.

What Campbell wrote of the wildflowers is doubly true of the birds associated with the scenes of childhood. They can 'wake forgotten affections,' and 'waft us to summers' and winters 'of old'; and probably more than one old Londoner may have felt something not unlike a touch of home-sickness, and

found his gas-dried eyes a little more moist than usual as he looked at their white breasts glancing in the sunshine.

For some years after the visit of the deputation of 1869 it was only on rare occasions that shy parties of ten or twelve of the birds found their way up the Thames to London. Now, on almost any windy morning, except during the nesting season, Thomson's winter vision of the 'storm-tossed Orcades'—'infinite wings!'—may (substituting only the rumbling of Westminster for the music of the breakers) be seen in reality without going further than the bridge which leads from the Mall to Birdcage Walk.

But, many as are its attractions, the ornamental water has for Sea Gulls one great drawback—the want of a quiet sandbank for a nap. Fearless as they are on the wing, they are too highly strung to acquire readily the *sangfroid* with which our park Wood Pigeons—in the country the most unapproachable of birds—jerk their heads and pick up crumbs under the wheels of perambulators, and doze contentedly, stolid and immovable as Swede turnips in a frost, within a yard or two of crowded paths. It is tiresome for a bird, as much at home gathering slugs behind an inland plough as when fishing for sand-eels and shrimps, to find himself obliged to spend the whole day on the wing or water; and so, rather than give up London, our visitors seem to have made up their minds to satisfy themselves whether a small foot, with only three webbed toes and no claws to speak of, is an in-

superable bar to perching on trees. London naturalists are thus having a pleasant chance offered them of studying evolution in one of its simpler forms—the adaptation of life to altered conditions.

In December 1898 it was the writer's good fortune to witness what must have been a very early experiment. Three or four Gulls sat on the top branches of the tallest tree, on the peninsula opposite the India Office, fairly steadily, but every now and then, as a gust of wind swayed their perches, shooting up one wing perpendicularly to right the balance. Ten or a dozen more hovered over them, dropping as far as the tree-top, with both wings lifted till the tips almost touched behind them, and rising again and again to make another attempt as they missed their hold. Twice as many more, perhaps, hung round in a circle, almost motionless, watching the practice with evident interest.

Our great-grandchildren, if all goes well, may number in their lists of British Gulls a new variety—*Larus ridibundus, var. Londinensis*—differentiated from the 'Scoulton Pie' of our times by a clasping hind toe.

Herr Heinrich Gätke, in the book in which he has recorded the results of fifty years' experience of birds in Heligoland, has devoted a chapter, which has attracted much attention, to the meteorological conditions which influence migration.

Londoners interested in such matters have lately had opportunities of studying 'the prescience of storms' displayed by birds, of which Herr Gätke gives proofs,

without going further than the 'ornithological observatory' in St. James's Park.

The comings and goings of the Sea Gulls were, when they first began to arrive in any considerable numbers, in close relation to weather changes, and, almost invariably, preceded them.

The arrival of the first considerable party, noticed in October 1895, which included two or three Herring Gulls in full adult plumage, was immediately followed by an unusually early winter, which covered the east end of the ornamental water with a coating of ice.

Ten days or so later a second and much larger party arrived. There was nothing in the appearance of the weather at the time to account for their coming; but next morning all were riding, closely packed in the lee of the peninsula, with heads to a heavy wind, and the telegraphic weather reports spoke of a 'stormy' sea on the east coast.

Again, one morning a few weeks later, a large, newly-arrived party were to be seen on the water. The weather was mild and still; but before half the night was over light sleepers were awakened by rattling window-frames and the howls of half a gale of wind among the chimney-stacks.

Science has made giant strides since the days of Augustus; but in our knowledge of the springs of action in birds we are not yet very much farther forward than we were when Virgil told in immortal verse the weather signs to be read in the flight of Coots and Cormorants, and, looking about for an

explanation within the possibilities of nature, foreshadowed the invention of modern barometers.

> 'But with the changeful temper of the skies,
> As rains condense or sunshine rarefies,
> So turn the species in their altered minds,
> Composed by calms and discomposed by winds.'

The study of birds being a little too heavily laden, at best, with Latin, the quotation is borrowed from Dryden's translation.

Ninety-nine out of every hundred of the Gulls which find their way up the Thames to London are of the little 'brown-headed' species (*Larus ridibundus*).

Unlike the fashionable world in their judgment of the season at which a residence in London is to be desired, and leaving town just when houses in the West-end are most in demand, they hold views of their own, too, in other matters. Their brightest clothing is reserved exclusively for home use in the country.

The dull greys in which the birds scramble for fish at the keeper's lodge in St. James's Park are scarcely more like the brilliantly contrasted brown-black velvets, whites, and lavenders in which the same birds a few weeks later hover over 'sitting' mates than are the surroundings of the ornamental water to the woods which fringe Scoulton Mere—the best-known, perhaps, and one of the most important English breeding-places of the species.

The 'Mere' which lies inland some twenty-five miles or so from the nearest point of the Norfolk coast, is a shallow lake measuring nearly two miles round. It is

in summer, for the greater part of its length and breadth, so choked with weeds that rowing is a work of difficulty, and as seen in June sunshine was, in sheltered corners, white with snowdrifts of water crow-foot in full blossom, gemmed with myriads of little turquoise dragon-flies.

The outline of the Mere is roughly suggestive of the footmark of a clumsily-booted giant, the centre of the sole from beneath the instep forward being nearly filled by 'the Hearth,' a low island of half a mile in length. The island, where not, as in parts, wooded, is covered with a rank growth of green marsh plants, spotted with ragged-robins, and breaks into flame here and there with flowering broom and wild iris.

It is on 'the Hearth' that the Gulls have from time immemorial collected in spring to breed.

One of the many mysteries which naturalists have yet to explain is the attachment of birds to particular spots, to the neglect of other spots to all appearance in every way as attractive.

It was, as every one knows, St. Cuthbert who—to put an end to unseemly bickerings which disturbed the holy calm of his meditations—allotted, once for all, to the Guillemots and other sea-fowl of the Farne Islands their several breeding-grounds. Unfortunately no record has been preserved of the origin of a law, as rigidly observed, which confines the Brown-headed Gulls of Scoulton to one little corner of one only of the several islands in the Mere—a patch of little more than an acre where the nests (which are on the ground and

roughly built of faded fronds of rushes and grasses) look very inconveniently crowded together, often touching. Possibly, in the absence of saintly commands limiting the crofts, the secret of the charm may be found in the scent of ancestral guano, which on the Hearth, as elsewhere under like conditions, is apparent even to unsympathetic nostrils.

For the first few hundred yards of the row, which usually begins at the end of the Mere furthest from the nests, there is little to give a visitor any idea of the treat in store for him. A few Wild Ducks show themselves cautiously, and an occasional Coot or Moorhen shunts himself out of the line of the boat, jerking himself laboriously through the tangled weed to save the exertion of rising—type of the 'lazy people' who 'take most trouble.' But, as the breeding-ground is neared, the number of Gulls in the air increases at every stroke of the oars, until, opposite the nests, the sky is clouded with wings, and the cries of the frightened birds, which before had seemed only the peaceful, low-toned murmur of a distant rookery, rises in volume and pitch to a sharp, almost deafening hum, as of an angry swarm of gigantic bees. It is impossible in words to convey any adequate idea of the beauty and fascination of the scene. Thousands of excited birds are on the wing together, crossing and recrossing, swooping almost down to the boat, at one moment showing white against a dark background of wood, and the next, as they soar clear of the line of the tree-tops, black in sharp-cut silhouette against the sky.

The settling down of the birds, with wings stretched backwards and held motionless till the points seem tied behind them, is, if possible, even more beautiful than their rise.

The 'Pies,' as they are locally called, are traditionally due at Scoulton on the 7th of March, and usually arrive about that date. They are said to come in at first at a great height, and to soar round the Mere for a day or two before settling in earnest. Commonly before the end of July the last lingerer has disappeared, and a Gull is rarely to be seen again about the place until the following spring.

Although the eggs, as compared with those of the Guillemot and many other birds, are in colour and shape as a rule very uniform, the varieties to be found occasionally—more particularly towards the end of the season—are endless, ranging, through shades of spotted green and brown, from faint Cambridge blue to the colour of a ripening plum.

The track of the Sea Gulls, which runs east and west over Dover House, is becoming as clearly marked and well known as are the great aerial highways which have their crossings over Heligoland or in the passes of the Pyrenees, and, as it becomes more and more wing-beaten, rarer birds, falling in line with the more regular passengers, may be expected to find their way in increasing numbers to London.

The arrival on two recent occasions of what were believed to be Eagles in London has been already mentioned. Soon afterwards a careful observer, who

had had the opportunity of making close acquaintance with the bird in one of the chief of its native strongholds — Iceland — reported that he had seen what he was satisfied was a Glaucus Gull soaring in circles over the ornamental water. The bird was not apparently quite satisfied with what it saw, and, without alighting, sailed off while he watched it in the direction of the east coast. Its return has since been watched for, but though more than once a solitary Gull, which may not improbably have been the same bird, has been noticed, it has always as yet been too far off to be identified with certainty.

The Glaucus—nowhere in the British Isles a very common bird—is a large Northern Herring Gull, with white primaries in place of the black feathers which tip the wings of its common cousin, and is easily recognised. It is the 'Burgomeister' of Dutch whalers, owing its title to the respect it exacts, in scrambles for blubber, from the common herd.

The pinioned Herring Gulls, which act as decoy ducks for their freer brethren, breed regularly in St. James's Park, and an attempt has lately been made, with some prospect of success, to start a breeding colony of the little 'Brown-headed' on the south-west corner of the peninsula.

On the 30th May 1888 a Cormorant in full breeding plumage—white patches on cheek and thigh—appeared unexpectedly on the water in St. James's Park. He was first noticed by the keeper at half-past eight in the morning, and was tame and hungry enough to

accept a couple of herrings for breakfast. A bird of the same species, no doubt the same, was seen a few days later on the Serpentine, and again flying over Lord's Cricket Ground in a northerly direction. 'The bird,' wrote Sir Ralph Payne-Galway, who recorded its last appearance in the *Times*, 'flew fairly low, but owing, I presume, to Mr. Bonnor having just put a ball into the pavilion, it escaped notice as far as I could judge, though it is true I heard one gentleman remark, "There goes a wild Duck."' The Cormorants permanently quartered in St. James's Park, whose 'short and simple annals' have been followed with kindly interest by more than one reader of the *Times*, were brought from the Megstone Rock, the most northerly of the group of the outer Farne Islands, in the same year a few weeks later.

Neither their appetites nor their digestions suffered by the change from the bracing air of Northumberland, and a day or two after their arrival one of the party, at the time barely two-thirds grown, after swallowing a couple of haddocks, bolted a full-sized rat, just killed and dropped accidentally near it, and at once opened its beak to ask for more. They showed no signs of breeding until 1892, when a pair, then in their fifth year, took possession of a nest which had been prepared for them, and one egg was laid.

Under natural conditions a Cormorant's egg is strong-shelled and so thickly coated with lime as to look often less like a real egg than a carelessly-cut model in chalk. The egg laid by the captive in 1892 was thin-shelled,

CORMORANTS' NESTS ON THE MEGSTONE ROCK

LONDON: EDWARD ARNOLD. 1902.

and so brittle that it broke under the weight of the bird.

The keeper, gathering from this that more tonic food was needed, the next year, when feeding the birds, powdered the fish with pounded shells. The experiment proved successful, and late in the season two satisfactory eggs were laid, one of which was hatched about the end of the first week of September, some two or three months behind the usual hatching-time of the species.

The nestling was devotedly tended by both parents, who fed it regularly from their own crops with half-digested fish, and so closely brooded it that it was seldom possible to see it without disturbing them; until, when little more than half-grown, it was deliberately driven by them from the nest, and was found by the keeper at some distance in such a draggled and pitiable condition that—as the only chance of saving its life—he took it to the engine-house fire and fed it by hand. A gentleman who happened at the moment to be passing through the park was an eye-witness to the act of eviction. It is an everyday story, and in the commonness of such incidents and in their inhumanity their special interest lies. It is a well-known and very general habit of many birds—notably of birds of prey which need wide and undisturbed hunting-ground—as soon as their young are of an age to face the responsibilities of life, to drive them off to find homes and maintenance on their own account.

The time had perhaps come at which, according to

the traditions of the great Megstone colony of Cormorants, the ninety or more nests on the rock must be cleared; and the pinioned exiles in St. James's Park, driven by blind hereditary impulse, did to their helpless, late-born nestling as their kindred on the distant Northumberland coast were not improbably doing at the very same time to hundreds of well-grown birds of the year, hatched weeks before the little Londoner.

Instinct may seem at times to approach reason very closely, but there is a gulf fixed between the two which pure science has not yet found the way to bridge.

Penguins, according to Captain Borchgrevinck of the *Southern Cross*, turn their young adrift in an even more brutally cold-blooded way. When the old birds think they have put up long enough with the almost intolerable nuisance of having to pick out their babies from the ruck of thousands on the 'triangular promentory' of Cape Adare, and cram them from their own crops—like Hop-o'-my-thumb's parents—they go out for a walk some fine morning and never come home again. The forsaken young ones grow thinner and thinner for a few days, until, when accumulated blubber is exhausted, and starvation stares them in the face, they realise the position and brace themselves for the effort to go to sea and work for their own living.

The next year marked a step in advance in the education of the St. James's Park Cormorant. Instinctively conscious that she was not a Great Auk or Puffin, with maternal longings to be satisfied with an annual brood of one, the poor bird did her best to respond to

the calls of her nature. But, having been taken from the nest in infancy, and cut off ever since from female society of her kind, she had to find out for herself by slow processes of experiment many things which, under happier circumstances, she would without effort on her part have been taught by example. A single egg was laid, and hatched off in May. The nest had not been empty many days before the parent birds began extensive repairs and alterations, and when at last Parliament rose and members and others whose movements are dependent on theirs escaped to fresher air, the Cormorant was 'left sitting' on her heap of white-washed sticks, her mate usually beside her, with tail cocked to the angle of a saucepan handle, in the ungraceful attitude peculiar to birds of her kind on the nest.

Another single bird—a second brood—was hatched in the last week of August, unfortunately to live only eight or ten days; and in the following October the bird was, for the third time in the season, again sitting, this time on a nest trimmed and enlarged with fronds of sedge and sticks to something like the height and symmetry of the seaweed columns of the Cormorant colony on the Megstone Rock, where the sitting bird first saw the light.

The lesson of the second disappointment—the egg was addled—was not lost, and, before the next spring, the Cormorant had realised that there is a more convenient manner of hatching a family of three than by as many successive separate sittings.

A promising young Cormorant, hatched in the spring of 1894, was, in the following January, drowned beneath the ice under the eyes of the keeper, who was powerless to help him.

Since 1894 the birds have not uniformly prospered in their nesting arrangements. A single nestling was hatched in the first week of August 1895, but only to disappear a few days later in circumstances suspiciously suggestive of cannibalism. An attempt to hatch a second brood was unsuccessful.

Unamiable and evil-smelling as his best friends must admit him to be, the Cormorant has a claim on science which has not perhaps yet received quite the recognition it deserves. We are told by the learned that the birds of our day are the lineal representatives of reptiles of far bygone times. The pedigree never seems less impossible than in the presence of the little black, sprawling, slimy, and to all appearance four-legged creature which comes out of a Cormorant's egg when the shell is cracked from within.

Some Guillemots and Puffins were brought at the same time as the Cormorants, but, owing to the difficulty in procuring natural food, did not live long.

Of the last family of all, the Shortwings—the connecting-link between birds and fishes—we have at times plenty of a single species, the little Grebe, 'Dabchicks,' lively little fellows, the quickest and best, perhaps, of our English divers, as much at home at the bottom as above the water. Of late years they have not been coming in such flocks as formerly, but in 1870

there were at times as many as one hundred of them at once on the Round Pond. They came and went unaccountably, and within a few days the place was alive with them and deserted again. As a rule, though, there were ten or a dozen at least to be seen feeding tolerably near the edge. They were then common, too, on the other waters in the parks. For the last few years six or seven pairs have bred regularly in St. James's Park. They commonly arrive late in March or early in April, and disappear with their families before the end of October. A nest built in 1887, in an exposed place, was, after it was finished, cut from its original moorings by the builders and towed a yard or two to a more secluded corner under an overhanging bush. Unluckily the second lashings were not so strong as they should have been, and a fresh breeze springing up, the raft was wrecked, and the four eggs it carried went to the bottom. In a gale which occurred on the 8th of March 1893, a Dabchick's nest, which had been made fast to the dipping boughs of a black poplar facing the India Office, broke from its moorings and drifted into the open. The hen bird, who was sitting at the time of the accident, stuck bravely to her eggs, and in a twelve days' voyage, during which her mate had been seldom out of her sight, crossed and recrossed from the peninsula to the mainland, and sailed in and out among the flag clumps for nearly a hundred yards in a southerly direction along the east shore of the lake. Her constancy was rewarded, and on the 20th of the month, she floated

safe in port with two newly-hatched balls of down on her back, within a yard or two of the spot where her raft was first built.

These are days of disillusions. The 'bird of calm' which in Halcyon days

'Sat brooding on the charmèd wave,'

may have been after all only a Dabchick on a poet's pond.

After a sudden sharp frost in March, the year before, a Dabchick—a genuinely wild bird in good plumage—was found in a shallow puddle in the bed of the ornamental water, which had been run dry for cleaning, with one foot caught in the ice. Other birds have lately been teaching Londoners that there is a pleasant as well as a painful side to the often-repeated truth that there is no solitude more complete than that of a crowded town.

In January 1896, a Great-crested Grebe alighted and remained for some time on the ornamental water. The Great-crested Grebe (*Podiceps cristatus*) is one of the few comparatively rare birds which have made some return for the trouble taken by owners of land and water to protect them by becoming rather more common than once they were. It is in other respects an exceptionally interesting bird.

Many birds during the breeding season put on, sometimes only for a few weeks, a smarter dress than they usually wear. As a rule it is the male only that wears 'the nuptial plumage.' The Grebes are among the com-

paratively few exceptions known. The tippet of the Crested Grebe is donned alike by bride and bridegroom, the only difference, if any, being that the lady's tippet is, perhaps, a little smaller.

The poor bird has never come again. The reason why may not impossibly be read in the following note cut from the *Surrey Mirror*, a few days after its disappearance. 'A rare species of the bird tribe (the Crested Grebe) was shot in the lake, at Gatton Park, on Monday, by the head keeper.' Keepers, as a rule, are excellent fellows. But, with honourable exceptions, they are worse enemies to rare birds than all the bird-nesting boys in the Kingdom put together.

In 1902 a pair of Great-crested Grebes safely hatched off three young birds on one of the ponds in Richmond Park. They had made an attempt to rear a family in the same place the year before, but had been driven from their sanctuary by an incursion of red deer.

On the 16th May 1887, a Puffin, taking an unfortunate short-cut to the breeding-ground, flew into a bedroom window of No. 45 Brook Street, Grosvenor Square, a house which a few months before had been tenanted by the President of the British Ornithologists' Union, the late Lord Lilford.

Four years earlier, in the spring of 1883, after a spell of windy weather, another of the 'Brevipennes' was caught alive in Russell Square. Why he came there, unless to prove his title to his name, 'the foolish Guillemot,' it is not easy to say. It is a common thing to pick such birds up by twos and threes dead on the

beach almost anywhere along the coast if it has been blowing hard on shore for any length of time.

One of the chief breeding-places of the Guillemot in the British Isles is on the coast of Yorkshire. So many of the old local industries which once gave a special charm of its own to rural life in England have one by one withered under the blighting influence of the smoke of modern factory chimneys, that it is refreshing to find that there is one place at least outside St. Kilda where the most picturesque industry of all—cliff-climbing for sea-birds' eggs—still survives in full vigour.

It is agreeable, too, to be assured that, in spite of the enormous number of eggs gathered to meet an increasing demand from towns, farmhouses, and cottages for a coveted delicacy, there is no apparent decrease in the number of birds, which have of late years, if there is any difference, been more plentiful than ever.

The chalk, which on the Norfolk coast bears the weight of the forest beds and contorted drifts of the cliffs of Sheringham and Cromer, emancipates itself farther north, and at Flamborough and Bempton presents to the sea a precipitous front of white, unbroken excepting by an occasional 'pocket' of red soil from above, or in sheltered slopes by patches of flowery turf.

The cracks and ledges of the mouldering cloisters, and the buttresses, dungeons, and round towers of the giants' castles, into which centuries of storms from the

north-east have sculptured the chalk, are the breeding-places of countless thousands of Guillemots, and, in lesser numbers, of Razorbills, Puffins, and Kittiwakes. For six or seven miles north of the Danes' Dyke the cliffs are systematically 'worked' by parties of climbers, who hire the right to climb from the occupiers of the land above for from ten to twelve shillings a year for each field, and make considerable sums during the season. Their work commonly begins about the second week of May, and with a 'slack' in the middle, during which comparatively few eggs are laid, lasts until towards the end of July. The eggs are found most plentifully in windy weather, and especially when the moon is waxing and near the full. There are usually four partners in each gang—a 'climber' and three 'hawlers,' who share profits equally. Their outfit consists of two ropes, one of which hangs loose from an iron stake to serve as the climber's guiding and signalling line.

Two grooved iron wheels of 6-inch or 7-inch diameter, supported on iron pegs, are driven into the ground, the one at the extreme edge of the cliff, the other a little farther up; and over these the second and more important 'carrying rope' is run to lessen friction and avoid the risk of cutting.

A broad padded leather belt is worn by the hawler sitting farthest from the cliff, who breaks the strain as the climber hangs below by running the rope round his own back at the waist as he pays it out.

At the end of the carrying rope are two broad loops

of hemp and leather, into which, like breeches, the climber puts his legs. There are straps to keep the breeches in their place in case of accident.

Thus secured, with a bag over each shoulder, tied together behind to prevent inconvenient swaying which might crack the eggs, and provided with a stick with a miniature landing-net at one end and a flat iron scoop at the other, he is lowered down, steadying himself when he can with his feet, stopping here and there to gather eggs, swinging himself like a pendulum sideways from ledge to ledge, and signalling to his companions above by a code of jerks as he wishes to go up or down or to lengthen or shorten the guiding rope. It is a 'dreadful trade,' but fascinating to watch from the calm security of a grassy bank on the top of the cliff. The eggs of no European bird vary in colour to anything like the same extent as those of the Guillemot.

Of the five hundred or six hundred piled up for division into four baskets at the end of a lovely day, which it had been the writer's good fortune to idle away in the company of a climbing-party towards the end of May in 1893, no two were at all alike in details of colour and marking. Among sixty of them carried home, there are green eggs of almost every possible shade, from an unspotted, almost white, to old-fashioned green-baize blotched with ink, and blues ranging from a faded Cambridge to something very little short of the Oxford colour. There is a lavender streaked with pink, another of uniform finely-grained mahogany

brown, like a dark Kestrel's egg, and others with spots or vermicelli patterns of cinnamons, pale buffs, browns, and purples on ground of as many tints.

But—and it is to this that the eggs of the Guillemot owe their special interest—endless as are the varieties of colour of the species, there is little or no variety in the colouring of the eggs of individuals, and it is thus possible to identify birds, and to say with something like certainty that the same pairs occupy the same exact spots year after year. An egg of peculiar marking and colour may be taken one day. If it is early in the season there is every probability that ten days or a fortnight later, and again and again in following years, another egg to match may be found on the same ledge; climbers say, 'within half an inch' of the same position. Every one of the millions of old Guillemots which gather in early summer from north, south, east, and west to the great breeding-places has her own appropriated small corner.

From their painted eggs we may argue fairly conclusively that the Swallow which has this year occupied the old nest under the eaves, and the Nightingale and Willow Wren which have built among the grasses and wildflowers in the favourite corner outside the wood, are the very birds which we saw and heard in the same places last year. The 'homing' instinct is a law of nature to which birds and men alike are subject. Guillemots and Razorbills, which, excepting in the form of the beak, are very much like them, are the commonest of the black and white birds which, on

almost any voyage—northward more particularly—one is sure to see sitting about in parties on the water, scarcely taking the trouble to lift themselves or do more than dive for a few moments as the steamer splashes by.

With the misguided Willock of Russell Square this chapter comes to a fit end, leaving us—such is the magic of every branch of natural history—under a sky clear from the pollutions of London dirt and London smoke.

CHAPTER III

LONDON INSECTS

'Come take up your hats, and away let us haste
To the Butterfly's ball and the Grasshopper's feast;
The Trumpeter Gadfly has summoned the crew,
And the revels are now only waiting for you.'—ROSCOE.

IN Alphonse Karr's little book already quoted there are two chapters with very suggestive, if not very elegant, headings, 'Sur le dos' and 'Sur le ventre'—lying on the grass, and looking first down in the strong light into thickets of thyme, and moss forests of miniature palms, and tree ferns, to watch the important doings of insects which live there, and then turning over, and looking with shaded eyes through the gaps in the branches of the larger trees and floating gossamer threads at the clouds and clear depths of sky beyond.

It may depend on the turn of one's mind whether, used independently, the telescope or microscope sets one thinking most, but together they must make the least imaginative of us feel what a very little space it is after all that man, with all his many inventions, occupies in creation.

'Vast chain of being! which from God began.
Natures ethereal, human—angel, man,
Beast, bird, fish, insect. What no eye can see,
No glass can reach. From infinite to thee,
From thee to nothing.'

'Glasses' have much improved since Pope wrote these lines one hundred and fifty years or so ago, but have brought us as yet no nearer an upward or downward vanishing-point of possible life.

Each increase of power of the telescope has, on the contrary, only revealed fresh worlds beyond, and in the microscope only brought us nearer something like ocular demonstration that there is truth in the homely lines which tell that

> 'Little fleas have lesser fleas upon their backs to bite 'em,
> And those fleas have other fleas, and so ad infinitum.'

In whichever direction we look it is the same. More knowledge of nature means more consciousness of life all round us.

If the exploring voyage of the *Challenger* has proved any one thing more clearly than another, it is that the old idea that ocean life ceased at a certain depth has no foundation in fact.

There is one link in the chain of life, and only one, which Londoners have ample means of studying in the open air—the order of 'Insects.' Beasts, to live naturally, require solitude and room to wander and breed. Birds scarcely less. But for many of the most interesting of the insects a single leaf is an estate, and a park or garden in a square means space unbounded; and so, as might be expected, they swarm in all directions in London as thickly as anywhere else.

Perhaps, indeed, there is no place in the world in which with good eyes and a little patience such a curious collection of miscellaneous living insects from

every part of the world might be made as in the neighbourhood of the London Docks. They come, whether we will or not, as stowaways from every port with which our ships trade—from every part, that is, of the habitable world.

It was only a few years ago—as late as 1877—that the help of the three Estates of the Realm was called in to prevent an invasion of a small yellow and black-striped beetle, scarcely bigger than a Ladybird. An Act of Parliament was passed, two Orders at least, with pains and penalties, were issued in the Queen's name, and something over 10,000 broad sheets printed and circulated broadcast throughout the country, giving coloured pictures of the miscreant, life-sized and magnified, in every stage of its existence, and announcing in colonial English and large print that 'the country around the town of Ontario, Canada,' was 'swarming with the Colorado Beetle,' and that the Canadian Minister had reported that not only did it 'move by flying and by navigating, so to speak, smooth water, but also travelled on common vehicles, railway-carriages and platforms'—most alarming of all—'and on decks of vessels, etc., especially during the months of August and September.'

Solomon on his flying carpet, with his royal escort of Hoopoes, would be a scarcely more startling party to meet than a company of Potato Bugs crossing the Atlantic on a railway platform.

There is a tradition that an insect even more hateful, the Common Bug, was unknown in England before the

Great Fire, and that it was first imported with the fir wood brought over wholesale to rebuild the city.

It is impossible now to say how far the story may or may not be founded on fact; but as most of the timber used in building before 1660 was most likely native-grown, there is nothing improbable in it. The passage in Matthew's Bible, published a hundred years before the fire, which gives as the promise of the 91st Psalm that we shall 'not be afraid of the bugs by night,' cannot be quoted as any proof that they were known then, as it is only in later days that the application of the word has been limited to the particular 'terror by night' which now monopolises it. But if there is any truth whatever in the story it ought to make all of us who are fond of a potato, Irishmen in particular, very grateful to the authorities whose energetic action—not taken until Germany had already been successfully invaded—has so far succeeded in keeping the Colorado Beetle from landing in any force on the coasts of England or Ireland.

'Insects'—creatures made in sections,—*Insectæ* ('Entomology,' the science of the study of Insects, is a compound of the same word in a Greek dress), stand about a quarter of the way up the great ladder of intelligent life which has man on the highest rung which we can see clearly now, and its foot on the uncertain ground—'that low department of the organic world from which the two great branches rise and diverge,' where creatures without heads or nerves or apparent consciousness, but holding by patent con-

ferred by learned men, who have spent their lives in studying them, brevet rank as animals, mix in undistinguishable confusion with so-called vegetables which move and act as thinking beings.

They are the lowest class of the third great natural order, the *Articulata*, the jointed animals which have their supports answering to a skeleton outside, not like boned animals, inside the soft fleshy parts.

Below the Insects stands the whole order of the *Radiata*—star-fishes, etc., which, made in rays running out from a centre like the spokes of a wheel from the axle, give the order its name—coral makers, animal flowers and jellies, and tiny revolving wheels and balls.

Below, or side by side with, the Insects, according to the point of view from which we may prefer to look at them, stand Crabs and Lobsters and Worms, and above them, Spiders.

Above these stands, with its many subdivisions, the order of the Molluscs. Soft-bodied boneless creatures, with a perfect system of circulation of blood, such as it is, colourless stuff. Never 'articulated' or jointed like the class below, with endless varieties, from the Slugs and Snails which give London gardeners opportunities enough of studying the family in its humblest members up to the Cuttlefish and the Nautilus—

'The sea-born sailor of a shell canoe.'

Higher still comes the noblest order of the Backbones running through all its grades—Fish, Reptiles, Birds, and Beasts, till actual knowledge is brought to a full stop for the present at Man.

With the help of Mr. William Dunbar and the editor of the London Postal Directory it might be possible to make out a list of the human families inhabiting London and their occupations. But to do the same for its Insects would be quite impossible. The outside which any prudent man would attempt within the limits of a chapter, is to mention one here and there—enough to show that, as with the Birds, we have typical representatives in London of all the principal natural groups.

But even this is less simple than it seems, for at starting we find ourselves face to face with questions which have vexed naturalists from the days of Aristotle, 2000 years or so ago; and probably from much earlier times, for Solomon wrote of creeping things, and Moses certainly had made some study of them. What are to be called 'true insects'? and is there any one way in which they fall more naturally than another into groups?

The decision at which the learned have now arrived, with something like one mind, as to the answer to the first question—What shall an insect be?—is that *true insects* shall not, as was once held, be all such articulated (outside cased and jointed) animals as may be cut into sections—an arrangement which lumped up Crabs and Lobsters with Gnats and Butterflies—but *such articulated creatures only, with or without wings, as may, at one time at least of their existence, consist of exactly thirteen segments, and may in the perfect state find themselves masters of six legs, no more and no less.*

When one is told that this short definition covers

almost everything in England—in the known world, indeed—which we should be likely in common talk to speak of as *an insect*, with the exception of Spiders and Centipedes, and as Swift describes it—

'That curious creature men call a woodlouse,'

('Slate beast' is its name in the Highlands),

'Which rolls itself up in itself for a house,'

one scarcely knows whether one ought to feel most astonished at the wonderful likeness in unlikeness running everywhere through Nature, which makes such generalisations possible, or at the labour which a conclusion of the kind represents.

Why should every Butterfly, Beetle, Moth, Fly, or Flea wherever found—north, south, east, or west—be built up of just thirteen segments, and have just six legs? And how many centuries of quiet work of patient, observant men—living and dying, many of them, absorbed in the one favourite study—has it taken to find out with something like certainty that such, improbable as it sounds, is the case?

To the second question all sorts of answers have been given at different times, each seeming satisfactory at the moment, but most of them to be written only on sand and washed away by the rising tide of fuller knowledge.

There are at least three ways in which the six-legged insects may be grouped. One natural division is according to their manner of feeding—some suck, others chew or munch.

The first are spoken of in scientific books as '*Haustellate*,' the last as '*Mandibulate*,' but as this arrangement only gives two classes, it is not of much use. Another way of dividing them is according to the changes which they pass through before reaching the perfect state.

Moths and Butterflies, and the many other insects which, before they can fly, are at one time Caterpillars, or Grubs of some kind, and at another Chrysalises—each stage to all appearance quite unlike the others—are classed as undergoing 'complete metamorphosis,' and are called *Metabola*.

Others, such as Earwigs, Green Flies, and Cockroaches, which pass through less startling changes, are classed as undergoing either 'incomplete' or 'no metamorphosis'—*Hemimetabola* or *Ametabola*.

The difference between the three classes thus divided seems very wide, but is, in reality, less than it appears at first sight. It lies mainly in the difference in the stage of growth at which the insect is born or hatched.

The 'unchanging,' or only 'partially changing,' insects leave the egg in more or less advanced stages of development, and reach the perfect state rather by gradual growth than by any sudden alterations of form; while those described as undergoing 'complete metamorphosis' are first hatched in such an imperfect form that, after eating and growing for a time, they are practically sent back again to the egg. In this second torpid egg-stage the soft fleshy parts are hardened, and wings and other high organs developed,

of which there were no traces when the insect left the first egg. When this is done the chrysalis skin is cracked and thrown aside as useless, like the eggshell of a Chicken. The difference between insects undergoing 'no metamorphosis' and those undergoing 'partial metamorphosis' is merely in the stage of advancement in which the egg is left. Both leave it in a more developed condition than the classes of insects undergoing 'complete metamorphosis.'

But as this arrangement, though a little further reaching than the first, gives only three classes, and these with no very clear lines between them, it is not of much more value. For all practical purposes the only possible classification of insects yet worked out is according to the nature of their wings. 'Those Hexapod insects,' writes Professor Owen—still the greatest authority perhaps on all such matters—'which are devoid of wings are called *Aptera*; those with two wings only are the *Diptera*. All the rest have four wings. The *Lepidoptera* have four scaly wings; 'the *Hymenoptera* have four veined wings, crossing each other when at rest; the *Hemiptera* have one pair of wings partially thickened, and called hemelytra; the *Orthoptera* have one pair of wings wholly thickened, the other folded lengthwise; the *Coleoptera* have one pair wholly and much thickened, called elytra, and the other pair folded crosswise; the *Neuroptera* have four reticulated wings; the *Strepsiptera* have one pair of wings rudimental and curled up. In the *Aphaniptera*'—which, by the bye, are not an order by

themselves, but only a class of the so-called wingless order—'both pairs are rudimental and functionless as wings. Of these orders the first five are *haustellate*; the next four are *mandibulate*. The Aptera are *ametabolian*; the Hemiptera and Orthoptera are *hemimetabolian*; the remaining orders are *metabolian*.'

'These characters,' Professor Owen adds, 'briefly and succinctly express the highest generalisations, as yet reached, relative to the Hexapod Insecta.'

But here, as in every attempt of the kind, the more perfect the work, the more one is made to feel that classification, absolutely necessary as it is as a step towards progressive knowledge, is at best a purely human invention, and that there is no such thing as a hard-and-fast line anywhere in Nature, where all is gradual. We can find out without much difficulty—when the gas-lamps are lighted—they are human institutions, but it would puzzle the wisest of us to say exactly when it is that the 'crimson streak' on the Serpentine 'grows into the great sun.' No wings, two wings, and four wings are, we can see, the general characteristics of large classes, but at what precise spot the separating lines are to be drawn on paper must be, to a great extent, a matter of fancy. They may be, in most cases, moved up or down without its mattering very much. As already mentioned, among the wingless insects is a class—the *Aphaniptera*—which has 'scales representing rudimentary wings.' Most of the 'two wings' have a rudimentary second pair, known as 'balancers,' behind their more perfect

first wings, and a whole order taking rank among the four wings—the *Strepsiptera*—have nothing better to show, as front wings, than the miserable little 'screwed up' apologies which give the order its name.

Unfortunately, however much we may have cause to lament the scarcity of the more showy Butterflies in London, we cannot complain of any want of specimens of the first great order of insects, the 'wingless.' There are three classes of the order, all most objectionable, and the less said about any of them, perhaps, the better. The class, already referred to, which, having little scales to mark where wings should be, connects the order with the flying insects, is certainly not the worst.

Its most familiar species is the Flea. Bad as it is, with its 'double lancet mouth,' in one respect the Flea ranks high in the moral scale.

The infant members of colonies of Bees and Ants are, as we all know, fed by their elders. But it is never the actual mother who does the work. With few if any known exceptions, Fleas and Earwigs are the only common English insects which feed their own young themselves, and of the two the smaller is perhaps the more deserving of praise, for she, on her foraging raids, risks her life in a way which an Earwig never needs to do. There are only two allusions in the Bible to Fleas. Both are in David's appeals to Saul, and are suggestive, not of any evil-doing, but only of the miserable hunted life, without a moment's peace and quiet, which the poor things lead. A small maiden

whose sleep had been disturbed one night by the devouring attentions of one of the family, pleaded for its life, when caught in the morning by a ruthless nurserymaid: 'Would you kill God's little flea?' But even with this much to be said in its favour, the Flea is an unsavoury subject to write about.

Of the other prominent division of the wingless insects, one individual has immortalised himself—the 'ugly, creepin' wonner' which Burns once saw in church, 'struntin ower gauze and lace,' to

> 'The vera tapmost, tow'rin' height
> O' Miss's bonnet.'

But with this solitary exception, the family,

> 'Detested, shunn'd by saunt an' sinner,'

is unmentionable, and, in spite even of Mosquitoes and Gnats, it is a relief to pass on to the next order—the 'two wings.'

Any Londoner who likes may find ample material for a history of one typical family of the two wings—the 'Daddy Longlegs'—without any greater physical exertion than an occasional stroll into any of the parks in the late summer. Once there, he will not have occasion to move his chair many yards. They are, especially in warm sunshiny days, when there has been a little rain to soften the upper soil, to be seen in thousands, ladies and gentlemen, and are in many ways satisfactory insects.

To begin with, they are of a reasonable size, sufficiently large to show, without turning one's eyes inside

out, with any very powerful lens, the curious rudimentary wings, like two sticks with a knob at the end of each, already referred to as a characteristic of the whole order of 'two wings.' The cutting of the sections is very clear, as is the plated cuirass on the back overlapping the breast-plate, both divided very distinctly into segments which need no glass to count.

They have no smell, which is a consideration, and in spite of the alarming varnished spike which the female carries conspicuously at her tail, they have no sting.

Towards evening there is no difficulty in finding out the use of the terrible-looking instrument.

It is an egg-placer, which can be opened and shut at will, like a Heron's beak. The portly-looking mothers-to-be may then be seen by dozens waddling along the grass, or lifting themselves clumsily for a yard or two at a time with flight very different from the maiden dance of the morning. When they come to a suitable place, usually where the grass is thin and a little patch of bare earth is just visible between the blades, they set themselves on end, and either pirouette round and round for a few moments, or make crowbars of themselves, and thump till the spike is far enough into the ground to satisfy them that the cargo of eggs to be slipped through it will be safe. If a little bit of dirt finds its way between the mandibles of the tail-beak of a Daddy, or, to be more correct, Mammy, Longlegs—the males end abruptly without any spike—or if anything else happens to prevent them from shutting comfortably,

she will reach out one of the hind pair of her six long legs and clear the opening out, and deliberately, in the most comical manner, grasp the points with her foot and pinch and shake them into place again.

The female, when the eggs are laid, is a miserable-looking 'shotten herring,' back and front plates almost meeting, and probably does not live very long afterwards. Certainly towards dusk one may see hundreds of males under the trees in Kensington Gardens, but has often to look some time before finding a single female.

The larvæ of Daddy Longlegs feed on the roots of grass; they are hatched underground, unlike the Gnats, also 'two winged,' which are, as every one knows, hatched on water.

The duty in life of vast numbers of the families of two-winged insects, as, indeed, of most other insects, is to clear away what is most offensive in dead matter, and the way in which they have been fitted for the work is beyond measure marvellous.

Speaking of the Maggots—the larvæ of the common Blow-fly—Professor Owen, lecturing in the theatre of the Royal College of Surgeons—neither the man nor the place for random statements—said: 'Insignificant indeed do these larvæ seem to be in the scale of nature. Yet Linnæus used no exaggeration when he said that three flesh flies would devour the carcass of a horse as quickly as would a lion. The assimilative power is so great in the Meat Maggot that it will increase its own weight 200 times in twenty-four hours.'

It is not easy to say which is most astounding, the self-reproductive powers and quick growth of many of the commonest insects, or their powers of consumption.

It was a Locust who told Mahomet that his tribe were the army of Allah, and that had it pleased Him to fix the number of their eggs at a hundred instead of at ninety-nine apiece, the earth and all that was in it would have been consumed.

It is not necessary to look beyond our London flower-boxes—green and bright with blossoms one day, and a week later little better than dry skeletons, or with every leaf riddled as if it had been a target for snipe-shot practice—to find proof enough that Moths might boast as much.

A few years ago a couple of homely-looking brown Moths, the common Cabbage (*Mamestra brassicæ*), found their way into a conservatory, the ornament of a London house. The owner was weak enough to be flattered with the thought that the Moths had chosen the place as the best imitation of the country they could find in London, and with some sort of foolish idea that their presence added to the rural charms of the fern banks, in a fit of mistaken tenderness (perhaps of vanity) they were left undisturbed, and made themselves at home for a day or two.

It was the husbandman warming the snake in his bosom; Sinbad the sailor giving a lift to the poor old man of the sea; Eve coquetting with the serpent—and the result was in its own degree as disastrous. The

next year one or two more of the same kind were seen, and the freshness of the country began to leave the conservatory. The following year it was from bad to worse. Human efforts could not stop the mischief, and no little birds were there to come to the rescue; and in spite of a hecatomb to Dagon—some hundred Caterpillars, all alike, pale underneath, with dark olive-green pencilled backs, thrown into the aquarium for the fishes to fatten upon—pet geraniums were demolished, and some twenty feet of rich rank tradescantia, a plant despised in the country, but very precious to London gardeners for its succulent greenness, which can defy even smoke and dirt, stripped almost to bare stalks. Something over two-thirds of the entire length of a Caterpillar is a disproportioned stomach which the owner must work night and day to fill, nipping away for dear life at whatever green thing comes within reach of his ugly vertical jaws.

The rapid growth of Caterpillars would be incredible if we had not proof. A healthy man takes perhaps thirty years to reach his full growth in height and breadth, and when he has done so weighs probably some twenty times as much as he did when he was born. A Caterpillar will increase its weight proportionately 500 times as much in thirty days. It is difficult to realise what such figures mean; we can get a clearer notion by reversing them. Fancy a baby born of ordinary size growing at such a pace as to weigh when a month old as much as six or seven big elephants together! For the father of a family the idea is too appalling to joke about,

but it is no more than would be actually the case if the human animal grew at the rate a well-fed Caterpillar will grow in one summer month. Mr. Newport has given from actual observation the weights of the larva of the Privet Hawk Moth—the large, smooth, green Caterpillar, with pink stripes on the side and a horn at the tail—at different ages. On leaving the egg, its weight is not more than about one-eightieth of a grain. When full grown, thirty-two days later, it weighs from 120 to 140 grains. Take only the lowest weight, 120 grains, it is very nearly 10,000 times as great as the weight on leaving the egg! Apply this to a baby of say ten lbs.—a good big child, but nothing extraordinary—and we have a very simple sum: 10 lbs. × 10,000 = 100,000 lbs., something over 40 tons. And all in one month! The weight of Jumbo when he left England was estimated at something like seven tons.

But we have strayed from the two-wings to the fairy-land of insects, the country of the *Lepidoptera*—Butterflies and Moths.

A glorious Red Admiral was sunning himself outside Buckingham Palace on the 17th September 1883, shaking the creases out of a very perfect uniform—black, white, and scarlet—evidently just out of the packing-case. But we have not often, at least in the central parks or squares, any great number of the brighter-coloured Butterflies, though in London, as elsewhere, the common White Cabbage Butterflies are plentiful. We have become, happily, as a nation, much more tender-hearted than we were in the days of bull-

baiting and cock-fighting, and are setting our minds in earnest now against cruelty of every kind. But without necessarily going quite so far as Christopher North, who argued that to give up fox-hunting would be to rob the poor fox of all that made life worth living, the healthy tingle in every limb as he pulls himself together for a start as the hounds are thrown in,—the mad excitement of the first mile's spin across the open, with the pack at his tail—the fun of fooling the huntsman, and telling the vixen at home all about it over a good fat hen in the evening:—without going quite so far as this, the man must have forgotten his own boyish delights who can see without any pleasure half a dozen ragged little shouting urchins from the slums of Westminster tumbling over one another in St. James's Park in wild pursuit of a White Butterfly, probably very well able to take care of itself till it meets a Whitethroat or Cock Sparrow.

It is rather interesting to notice that such Butterflies as there are in London keep to the tops of the trees, more than one often sees them do in quieter country places.

We have a great many Moths of different kinds in London. Judging by the numbers which will hurt one's feelings by flying into the candle as one sits by an open window on a warm night, or finding their way between the globe and chimney of the lamp, where it is impossible to leave them to scorch, as well as by the varieties to be occasionally met with in the parks and streets in the daytime, and by the much too apparent

marks of Caterpillars' work everywhere, it ought to be possible to make a large collection.[1] But, as nearly all are night-fliers, there is not much chance of doing this in the daytime only, and the powers that be are wisely stern in their refusal to create the precedent which the official abhors as Nature does a vacuum, by lending a key of Kensington Gardens or granting leave to outstay the closing hour; and so the privilege of 'treacleing' trees in the only really satisfactory hunting-fields in town is confined to palace footmen, policemen, and, perhaps, the First Commissioner of Public Works. Less favoured mortals are turned out of the garden with as little hope of appeal as Adam and Eve, and if tempted to cast one longing, lingering look behind, it is only to see

'The gate
With dreadful faces thronged,'

capped with the blue helmets of the Metropolitan police.

We have, unfortunately, a great many more specimens than we care for of one class of Moth—the little *tineæ*, the common Cloth Moth. It is too small almost to be seen except in a good light, but possesses a power, which an electric eel might envy, of galvanising the portliest and most precise of good ladiesmaids or

[1] Among the insects caught actually in London by the winner of a prize for Natural History given at a public school were the Leopard, Goat, Ermine, Bufftip, Peppered, 'Willow Beauty,' and 'Brindled Beauty' Moths, and the Small Tortoiseshell, Peacock, and three sorts of white Butterflies. The rare Alder Moth was caught within an easy walk of Hyde Park Corner, on Wimbledon Common.

housekeepers into spasmodic jumps and flings, by showing itself near a sable cloak or blanket cupboard.

The typical London Moth is the Vapourer. It is in more ways than one exceptionally interesting. In the first place, unlike most of its kind, which bury their chrysalises and hide themselves until after dusk, the Vapourer is to be seen in all its stages without going out of the way to look for it. The Caterpillar, which is very pretty and curious, has slashes of pink or red, and yellow pointed tufts of hair sticking up at regular intervals along its back, and longer tufts of darker hair, one perpendicular on its tail, the other two like whiskers, horizontal, one on each side, close by the head. It is to be found on the underside of the broad leaves on the branches of the plane-trees which hang over the paths in St. James's Park—often with two or three successive outgrown skins, complete with hairs and tufts, on the same leaf with the living Caterpillar. A little later, the same broad leaves are to be seen carrying untidy webs containing a small hairy chrysalis. The perfect Moth—the male, that is—flies in broad daylight, and, as if specially designed for the consolation of country-born Londoners sentenced for any reason to spend an August in London, is to be seen then in numbers plunging about in front of the shop windows in the hottest sunshine, looking—in spite of its beautiful feathery antennæ—less like an insect than a withered yellow beech leaf caught by an eddy of wind.

But the obliging way it shows itself is by no means the only thing which makes the Vapourer specially

interesting. It is closely allied to—some naturalists class it with—a family which is of more apparent value to man than all other families of Moths and Butterflies together. It is a silk-spinner, and, in common with many of the family—most notably the Silkworm Moth—the female is practically wingless. It is curious, but not of any great importance to any of us, to know that the female of the Vapourer Moth seldom goes far from the web in which it lay as a chrysalis, and often never even strays outside it. But the same characteristic in the Silkworm is of very great importance. For if the female Silkworm Moth had perfect wings, and were free, as other ladies of the kind are, to come and go and mate and lay her eggs wherever fancy led her, instead of living and dying content with her own mulberry-tree, silk cultivation on any large scale would be impossible. A silk dress would be as rare a treasure as Lady Brassey's feather cloak, and the thousands now employed in the various silk industries would have to look elsewhere for a livelihood.

They are agreeable Moths, too, because they do not waste too long in the chrysalis state—often not more than three weeks; and a boy may bring home a Caterpillar with some hope of really seeing it fly before he has forgotten its existence.

Thus much of the attractions of the Vapourer all of us can see for ourselves by simply keeping our eyes open as we walk under the trees. There is one more point of special interest which most of us must be content to take on trust, but it should be mentioned, if

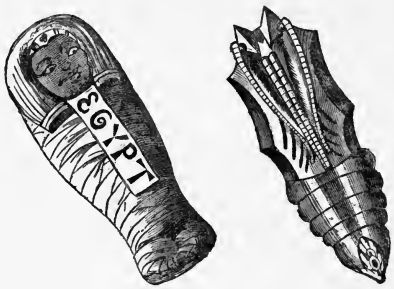
only to show that for any that have eyes and skill for such things, there are ready at hand in the wild nature of London materials for the deepest as well as the lighter studies of Natural History.

Anatomists who have studied the changes of insects (excepting only the resurrection of the dead, of which, as shown by the inscriptions in the Catacombs, they have been from earliest Christian times the emblem, there is nothing in the whole range of creation so mysterious) have proved that, with very few exceptions, there is a steady growth of all that we should call the higher powers, from the egg, through the caterpillar and chrysalis, to the perfect insect. The continuous advance, for instance, from the caterpillar to the higher intelligence of the Butterfly, as marked by the fuller development of the nerves in the region of the brain, may be seen very clearly in a beautiful series of ten microscopic sketches, by Mr. George Newport, of the nervous system of the caterpillar and chrysalis of the Tortoiseshell Butterfly, republished in Professor Duncan's book on the transformations of insects, in which any one interested in the subject may find the results of much deep research in a very attractive form.

The female of the Vapourer Moth, and some other wingless females, are among the very few exceptions as yet known to this general rule of continuous development. She, when she leaves the pupa state, is said to be actually a less highly-organised creature than she was as a caterpillar.

The likeness of the chrysalis to a baby girl, *pupa*,

which is the origin of the scientific name, is lost in the long clothes of modern England; but the sketches given below show sufficiently what is meant. The one is a magnified chrysalis—not, perhaps, that in which the likeness to a child in swaddling-clothes is strongest—taken from a sketch reproduced in Professor Duncan's book from one by Réaumur, who was as eminent as a naturalist as in other branches of science, and kept insects in his gardens to observe their habits and



changes—the forerunner by a hundred and fifty years or more of Sir John Lubbock and his fellows.

The sketch at the side of the chrysalis is 'Nurse Gladstone's Baby,' borrowed from *Punch's* cartoon of the 25th August 1883.

The name for a Caterpillar—*larva*, a mask—is intended, of course, to suggest the idea of the perfect insect disguised for a time in a form very unlike its own.

If Mr. Worth, or whoever else may be the high-priest of the day, should wish for a new combination of grey and brown velvet for a lady's winter dress, with tippets and sleeve-trimmings of fur in two colours, light and dark—the whole relieved, if his copy is to be exact (Nature registers no copyrights in her designs), by a bow of white satin below each shoulder—he will find a model ready dressed, dark gloves reaching to the elbow and all complete, if he looks through a low-power magnifying-glass at a Gamma Moth—the 'Silver Y' is its other name—which must be as common in Paris as it is in London.

With all due admiration for the present energetic management of the parks and gardens, one cannot help feeling a little low at times on seeing the wholesale clearance—necessary, no doubt, but none the less sad—that is being made of all the shabby old trees.

> 'Like flies that haunt a wound, or deer, or men,
> Or almost all that is—hurting the hurt.'

Caterpillars and small boring things of all sorts attack, as a rule, only failing trees; and no ten of the young trees can, in this generation, be of half as much interest for an insect-hunter as one of the old worm-eaten fellows cut down to make room for them. All are, however, not yet gone, and there is still in Kensington Gardens at least one tree remaining, a balsam poplar, riddled, like the rock of Gibraltar, with tunnels running in every direction.

The engineers who first drove them were probably the larvæ of Goat Moths, but the lower galleries, to the

level at least of an ordinary man's nose, have been long surrendered to Earwigs and Woodlice. The French naturalist, Lyonet, who dissected a Goat Moth caterpillar, counted as many as 4061 distinct muscles, of which 228 were in the head. One could have formed a pretty fair idea without any such detailed information, of the muscular power necessary in the forequarters to enable a Grub to work his way through solid timber as easily as if it were so much cheese; and the figures are chiefly interesting, as an instance of the laborious minuteness of the work of many entomologists. 'In the human subject,' add Messrs. Kirby and Spence, from whom the figures are taken at second hand, 'only 529 have been counted, so that this minute animal has 3532 muscles more than the "lord of creation."' The smell of a Goat Moth is an instance of the power of association to sweeten the disagreeables of life. Judged on its own merits it is very nasty indeed, but it may be charged with recollections making a whiff as welcome as the scent of mignonette, which now meets us pleasantly at every turn in the park. Such amiable day-dreams are, though, if too freely indulged in, liable to a rude awakening. It is not an unheard-of thing for ladies who have been carried back for a long summer afternoon to scenes of childhood, to find, on packing up their sketches, that the source of the fœtid smell in the oak wood, in which the charm had lain, was not, as they had fondly believed it, a wood-witch fungus, but a dead rabbit unnoticed in the fern beside them.

A Caterpillar in a solid tree, asking no better food or bed than the wood, might not unreasonably flatter himself that he was safe from all attack; but if he were to do so he would be very much mistaken.

In the forests of Madagascar, where wood-eating larvæ are found in great numbers, there is a little creature—the Aye-Aye, which seems to have been created, or, if we prefer the phrase, 'developed,' for the express purpose of keeping them down.

It is in general appearance something between a squirrel and a monkey, and has unusually perfect cutting teeth, eyes, and ears—the last 'very large, naked, and directed forwards,' specially fitting it for the kind of life it leads.

To hunt for its food comfortably on the trees it requires to have free use of its hands, and to enable it to do this it has had a clasping thumb given to its hind feet, with which it can hold on to a bough as a monkey does; and, strangest of all, to make its equipment for the life it leads quite perfect, the second finger of the hand, instead of being shaped like all the others, is 'slender and long, resembling a piece of bent wire.'

'One finger on each hand,' writes Professor Owen, who published in the *Transactions of the Royal Society* in 1863 a very complete anatomical description of the Aye-Aye, 'has been ordained to grow in length but not in thickness with the other digits. It remains slender as a probe, and is provided at the end with a small pad, and hook-like claw.'

The specimen dissected was kept alive for some little time by Dr. Sandwith, then Colonial Secretary in the Mauritius, and an extremely interesting letter from him is published with Professor Owen's paper. He describes the animal tapping the surface of the worm-eaten boughs put into his cage, 'with ears bent forward and nose close to the bark,' and poking his slender finger every now and then into the worm-holes 'as a surgeon would probe,' and when he had made up his mind where to begin, rapidly tearing off the bark, cutting into the wood, and 'daintily picking the Grub out of its bed with the slender finger and conveying the luscious morsel to his mouth.' A sketch of the hands of the Aye-Aye, taken by permission from one of the pictures of the living animals drawn by Mr. Wolf for the Royal Zoological Society, is given as vignette at the end of the chapter. One of the dainty dishes of the Romans is said to have been made of wood-eating Caterpillars.

Though the Grubs in Kensington Gardens have nothing to fear from Aye-Ayes or human epicures, they have enemies at least as formidable in the very next order of Insects which we come to after leaving the Moths and Butterflies.

Of the *Hymenoptera*, one of the most important divisions consists of the Ichneumons and other flies like them, which lay their eggs in the bodies of living Caterpillars.

More than one of the Ichneumon-flies is armed with a long, sharp, springy, 'ovi-positor,' as it is called,

which it either actually bores into trees or pokes through cracks till it finds the soft body of an unsuspecting Caterpillar, into which an egg is slipped, to hatch in good time and eat its unwilling foster-mother. There are numberless varieties of the kind, many of which are believed only to lay their eggs in particular larvæ. The poor old Daddy Longlegs have the questionable honour of an Ichneumon-fly, which seems to confine its attention mainly, if not entirely, to them. 'It is impossible,' writes Mr. Wood in his little book on *Common British Moths*, 'to detect a stung Caterpillar till it has ceased feeding, and not always easy to detect it even at that time. Often the Caterpillar changes into a chrysalis without betraying any signs of the mortal injury it has sustained, but when the time arrives for the appearance of the insect, the disappointed collector finds that instead of the Moth the Ichneumon-fly occupies the box.' It is satisfactory to know, on the authority of Professor Duncan, that a poetic justice occasionally reaches some, at least, of the murderers. Sometimes the springy ovipositor, when pressed against the tree, glances from it, and shoots the egg into the last place the mother had intended—her own body—and she flies off to become a living presentment of Milton's image of Sin at Hell's gate, with her children gnawing night and day at her vitals.

Marvels of contrivance meet us at every turn of the page in Natural History.

Knowing the ordinary conditions of feeding-life of

almost every kind, one would have supposed it impossible that an animal should live for many days with another creature of comparatively large size living and eating in its tissues, without dying of blood-poisoning, or whatever else may be its equivalent in an insect.

But this danger is avoided by a most strange peculiarity of construction which is found in the larvæ of such parasitical Flies and of Bees. If any one wishes to know how it is that a beehive is sweet, in spite of the crowds of hungry Grubs crammed into it, or why the juices of a Caterpillar attacked by an Ichneumon are not fatally tainted, he may read a reason in No. XVIII.[1] of Professor Owen's *Lectures on Invertebrate Anatomy*.

In England, if a Caterpillar or Grub escapes the ordinary diseases to which insects, like all of us, are liable, and is lucky enough to be overlooked by birds, beasts, and other insects, it may, so far as we know, be pretty sure in good time of beginning life again as a Butterfly, or whatever else it may be intended to become.

But in other countries there is another danger to be met. In the Insect-house in the Zoological Gardens is a case containing what looks like stalks of coarse, irregularly-grown grass, with heavy clumped roots. They are specimens of the larvæ of the New Zealand Swift Moth—the so-called 'vegetating Caterpillar,' which, as the note in the case explains, is liable to the attacks of a fungus (*Sphæria Robertii*) which attaches

[1] See Appendix C.

itself to it and sucks out the juices till the substance of the larva becomes changed to something very like pure vegetable matter. In this state it is eaten as a delicacy by the Maoris. Something of very much the same kind is found also in Ceylon, where the grub of the Coffee-eating Cockchafer is attacked in the same way by another fungus, which commonly grows an inch or two above the ground and has a yellowish tip. 'The grub,' writes a planter who has dug up and examined many of the poor creatures on the lawn in front of his bungalow, 'is to be found an inch or two below the surface, always in the position sketched,[1] the head upwards and body bent as if in suffering.'

The cherry-tree which Baron Munchausen saw growing out of the stag's head is intelligible. The Baron had himself, for want of shot, fired at it with a charge of cherry stones a few years before. St. Hubert's Stag, which carried a cross between its horns, was miraculous. But what is the explanation of hundreds of Cockchafer grubs being found spiked, always between the eyes and never in any other part of the body, by a living sword? Does the seed of the fungus stick to the head and root from the outside, or does the grub try to swallow it and fail?

If Bacon could have seen a specimen of the fungus blade shooting from the forehead of the grub, he might have left us another chapter of *The Wisdom of the Ancients* on Minerva springing into life from the head of Jove.

[1] The sketch referred to is printed as a tail-piece to Chapter IV.

Gall-flies—which are to vegetables what Ichneumon-flies are to insect life, and much more attractive—belong to the same order. They are of many sorts, and lay their eggs on leaves and young shoots of trees, etc., which burst out at the touch into excrescences of many different kinds, some hard and round like woody marbles, others soft and spongy, others brilliantly-coloured hairy tufts, which become the home of the grub when hatched, stored with all the provisions it will require.

The egg-laying wand of every Gall-fly has the magical power of Aladdin's wonderful lamp, and can make a furnished palace spring into existence just when it is wanted.

London vegetation does not seem to be generally attractive to them; but, though they are not by any means so conspicuous in their varieties as in almost any field in the country, Galls of many kinds are to be found in our parks and gardens.

It was at one time commonly held that great events might be foretold with certainty by the initiated by cutting open galls and seeing what sort of creatures they contained.

The most familiar and pleasantest of the *Hymenoptera* are Ants and Bees, of neither of which we have any want in London.

Honey Bees, chiefly the Ligurian kind, which are said to be better tempered than the common hardier Black Bees, are kept by several people in the heart of the town, and if fed occasionally in the winter, do

fairly well. But besides stray members of such hives, we have a fair share of the two hundred and fifty or more wild sorts known in England, and may watch them at our leisure, of every degree of size and activity, from clumsy 'bumblers,' which seem never quite sure how to use their wings, and well content if they can blunder home somehow without banging themselves against a tree, to spiritual little Bees which hang for a minute or two at a time, like humming-birds, to all appearance motionless over a flower, to vanish with a saucy whisk and appear again the next moment as still as before over another flower.

On a Saturday morning in July 1885, an assistant in Messrs. Mappin and Webb's shop, while crossing the pavement in Regent Street, found himself suddenly covered from head to waist by a swarm of Bees. Fortunately he had presence of mind and kept still until, with the help of sympathetic bystanders, coat and hat were taken off, when, as suddenly as it had come, the swarm rose and left him with no hurt more serious than a couple of stings on the neck.

Shakespeare, not very appropriately, puts into the mouth of Henry the Fifth of England, the usurper's son, his description of the Bees which teach—

'The act of order to a peopled kingdom':

the story of their merchants, magistrates, soldiers, 'civil citizens,' 'poor mechanic porters,' and 'officers of sorts,' all looking up to their heaven-appointed sovereign—

'Who, busied in his majesties, surveys
The singing masons building roofs of gold.'

The arguments drawn from them for 'the divine right of kings' might have fallen more consistently from the lips of his namesake, Henry the Fifth of France, who chose to live and die in exile at Frohsdorf —'the shore the tide was to reach at the appointed time,' which never came—rather than give up his white flag and be a king by compromise.

CHAPTER IV

LONDON INSECTS (*continued*)

'The insect youth is on the wing,
Eager to taste the honied spring,
And float amid the liquid noon.'—GRAY.

THE Bees have led us too far from London to allow a return to the Ants, which Sir John Lubbock has made his own peculiar property, and we come to the next order, the *Hemiptera*. If there were any neat Greek word meaning 'hotch-potch,' or, better still, 'confession of failure,' either would be quite as appropriate a name. The order—like the 'Passeres' among the Birds—is the receptacle for the thousands of little creatures which cannot clearly be brought under any other of the accepted orders, and contains, as might be expected, what seems to unscientific people a most incongruous lot. The different classes of the order have very little more in common than that, as a rule, they have sucking beaks (Bugs are *Hemiptera*), and do not undergo what is called 'complete metamorphosis,' that is to say, do not sleep away part of their existence as helpless chrysalises. The name, which of course means 'half wings,' is, as already explained, intended to convey the idea of an insect having one of its two

pairs of wings partly thickened. The order is thus a half-way house between the transparent wings of Bees and Dragon-flies, and the thick upper shields of the Beetles and Grasshoppers; and this is the characteristic of many of its members.

But, as if to break the heart of the beginner, who may have flattered himself that he had at last mastered the first secrets of the entomologist's trade, we find that there are whole families of insects belonging to the order which are wingless. All the known 'ocean insects,' for instance, are classified as *Hemiptera*.

There are several of them—the naturalists of the *Challenger* added to the number—insects not unlike the Gerris, the little slim long-legged Carnivora which are to be seen racing dryshod over the runs in trout-streams, but they have not a wing of any kind among them!

One of the specimens of the order which flourishes much too well in London is the *Aphis*, the common Green-fly. It is an especial plague of town conservatories, probably because our plants, having other difficulties to fight with from which their happier fellows are free in the fresher air of the country, have seldom strength of growth enough to make head against such enemies. The flies seem to come by magic. Two or three appear one day, and a week or two later, if no strong measure is taken, every young shoot is covered thickly.

The explanation is that the Green-fly is among the most rapid breeders yet known, possibly the most rapid, and, strange to say, is both 'oviparous' and 'viviparous.'

That is to say, some of the females give birth to living young; others, born usually later in the season, lay eggs. A single egg laid before the cold sets in survives the winter frosts, and the first warm day in spring or early summer an Aphis is hatched, and almost instantly has a family of a hundred females born alive, each of which, without an unnecessary loss of a day, follows her mother's example. The grand-daughters do the same, till ten generations have been born alive. The result, supposing all to live, is $1 \times 100 \times 100$, etc., etc., until in the tenth, not the last generation of the year, the family numbers 1,000,000,000,000,000,000, a quintillion: the figures are Professor Owen's.[1] Then, and this is strangest of all, comes the eleventh generation. When vegetation is rank in spring and summer, the generations of Green-fly, which have to make hay while the sun shines, cannot spare time for such a slow process as being hatched from eggs. That can wait till there is a use for it, and later in the year the use comes. The Aphis is not hardy enough to survive a sharp winter, and so the eleventh generation of the season—the whole story sounds too like a fairy tale—the eleventh generation is born 'oviparous.'

When their turn comes to have families, instead of giving birth to living babies they lay eggs, some of which are sure to hatch next spring, and thus save from extinction the race which are the milch cows of the Ants.

We can see our way more clearly again when we

[1] *Invertebrate Anatomy*, Lecture XVIII.

leave the quagmire of the *Hemiptera* and come to the *Orthoptera* and *Coleoptera* — Grasshoppers, etc., and Beetles.

One can, when one meets with it, recognise an insect with thick sheaths (κολεός) as upper wings covering a lighter transparent pair, and can understand that there is a difference between those which have their under wings crossed and those which fold them straight like a fan—straight wings,—and is all the better prepared to admit the necessity for separating the two orders, when one is told that there are even more important differences in their earlier stages, the true cross-winged Beetles being, like Butterflies, subject, as a rule, to complete the *Orthoptera*, only to partial metamorphosis.

Unless they have all vanished in the last clearance of trees, there are very good specimens to be seen in Kensington Gardens of the curious symmetrical workings of a small tree-destroying Beetle named, from the mischief it can do, *Scolytus destructor*. The female forces herself under the rough outer bark of elms and eats her way through the soft tissue between it and the hard wood, dropping her eggs, at regular intervals, to the right and left as she goes.

Each grub as it is hatched begins working on its own account, and guided by some unaccountable instinct, or perhaps by the position in which the egg is laid, drives a shaft of its own outwards from the centre passage bored by the mother, in a line parallel to that of the brother or sister next to it. The result is a grooved pattern to be seen when, as is sure to follow,

the bark comes away, not unlike the clean-picked backbone of a sole, excepting that as the grub grows and needs a wider passage as he travels, the diverging ribs are thickest at the end farthest from the spine.

The 'Type-writing Beetle,' so named from a fancied likeness of its irregular workings to letters, which does much harm in the pine woods on the Continent, is very much like the *destructor*, but devotes itself to firs instead of elms. The ravages of the Type-writing Beetle have at times been as serious as plagues of Locusts. In the Harz forests alone, according to Kirby and Spence, these Beetles—for delivery from which, by the bye, there was a special prayer in the old German liturgies—killed in one visitation as many as a million and a half of fir-trees.

In another year, it was said, the mines must have been closed, and the country for the time ruined; but happily, just before it was too late, the Beetles took it into their heads to migrate 'in swarms like bees' into other parts, where they were probably no more welcome.

But compared with the much smaller insect, the Phylloxera, a comparatively recent importation from America, the Type-writing Beetle is a harmless creature. A French writer, basing his calculations on official statistics, lately estimated the damage done by these tiny creatures in French vineyards only, during the thirteen years from 1875 to 1888, at something like four hundred million pounds sterling.

Before saying good-bye to the poor old sick elms in Kensington Gardens, it may be worth mentioning one

other point of melancholy interest in connection with them, though it has nothing to do with insects. Many of them, where the bark has been pulled off by mischievous boys, will be seen to be veined under the bark for several feet above the roots with a curious narrow, flat, dry growth of dark colour, not thicker than paper, but very tough, and clinging so closely as to require a knife to separate it from the wood.

'The growth,' writes Sir William Thiselton-Dyer, to whom a slip was sent for submission to the learned authorities at Kew, 'belongs to an obscure set of organisms known as *Rhizomorpha*. They are not fully-developed vegetable structures, but are really the mycelial portions of large fungi grown under peculiar conditions. In process of time,' he adds, 'the structure would develop on the exterior of the tree as a large *Polyporus*, a sort of woody fungus. The existence of such a growth under the bark is the tree's death-warrant.'

When one sees the chain of destruction spreading in every direction through the insect world, as everywhere else, the less one thinks of the 'Mystery of Pain' —the subject of one of Canon Kingsley's best sermons in Westminster Abbey—the better for one's peace of mind. But it is some relief to know, even at the cost of loss of faith in the infallibility of an idol, that microscopic anatomy shows that Shakespeare was altogether wrong when he said that

> 'The poor Beetle that we tread on
> In corporal sufferance feels a pang as great
> As when a giant dies.'

If it were the case, no Londoner possessing ordinary feelings and a tame Hedgehog would be able to sleep a wink for thought of the wholesale tortures of which his kitchen would be every night the scene. The services of the Hedgehog in keeping within bounds the rather disgusting flabby *Orthoptera* — familiarly known to cooks and housemaids as 'Black-beetles,' but not in the true sense of the word 'Beetles' at all— cannot, sentiment notwithstanding, be spoken of too highly.

As a matter of fact, Beetles have extraordinary tenacity of life, and apparently very little sense of pain. A good little boy, who combined with a passion for collecting insects a tender heart—the two qualities are apt to clash at times, but a boy may be taught to study Nature and make collections without any promiscuous killing—caught and brought home in triumph one day a big Beetle, the catch of his season. It was consigned to a poison bottle, strong enough to have exterminated a family of Butterflies, and taken out in due course dead. But as after a time there was a suspicion of something like galvanic movement in one leg, to make assurance doubly sure, it was put into boiling water, and when all possibility of latent life was past, pinned for the cabinet. Some days afterwards the Beetle was met deliberately walking down the front stairs, carrying with it the pin, which it had drawn from the cork for itself, with as much *sangfroid* as if it had been a smart gentleman strolling down St. James's Street with a gold-headed cane under his arm. Had

the lady who first met it had nerve to stay to look, she would probably have seen a malicious grin on the terrible insect's face, as it chuckled at the thought of the mental torture with which it was to repay its captor.

If Beetles have antiquarians among them as well as type-writers, the learned may some day speculate on the origin of the cairn of stones and brickbats under which the wing-cases, thorax, legs, and all else that was mortal in their champion—the direct descendant of the Beetle-god worshipped in ancient Egypt—slept at last.

Though use has already been made to an extent almost unjustifiable of leave most kindly given by Professor Owen to pilfer from his works, as this is a chapter on Natural History in London, one more passage must be borrowed, because, coming as it does towards the end of the brilliant passage with which he sums up the teaching of his lectures on the 'Generation of Insects,' it shows how much, if only one knew how to do it, is to be done with London materials.

'Metropolitan duties,' he says, 'shut out much of the field of Nature; but still she may be found and studied everywhere. I first learned to appreciate the true nature and relations of the nominally various and distinct metamorphosis of insects by watching and pondering over the development of a Cockroach.'

There are only two more of the orders named to which our claim as Londoners has to be made good: the 'nerved wings' and 'screw wings.'

The latter are microscopic insects which live during part of their lives as parasites on Bees. As we have plenty of Bees we have probably also plenty of the insects which live upon them. But as without very good eyes and very good glasses, and time and patience to use them, we are not very likely to find any 'screw wings,' it is not necessary to say much about them here. Their chief point of interest is that, exactly reversing the arrangements of the 'two-winged' order, their upper instead of their lower pair of wings are shrivelled up and apparently useless. The last remaining order—the 'nerved winged'—is of far more general interest, and contains in the Dragon-flies examples of the most perfect development of powers of flight known, compared with which the wings of a bird are clumsy contrivances.

The bodies of men and other terrestrial animals are comparatively solid masses. Weight is no disadvantage to them. If anything, it is an advantage, as it helps them to force their way through the obstacles which they meet in their comings and goings on the dull earth, and so every available corner of the trunk is packed as tightly as possible.

But with creatures which are to have the power of lifting themselves from the ground the case is different. What they most require is lightness, and so the hollows of the bones, which in men and quadrupeds are used as bottles and casks for holding marrow and other liquids which are wanted to oil the joints and keep the machinery in working order, are in most birds

turned into dry chambers filled with hot air, lighter, of course, than the cooler air outside, into which the bird has to rise.

But, even with this beautiful contrivance for lightening it, the solid inside frame of bones on which beasts, and birds, and fishes are built is a dead weight to lift; and so in insects, in which the power of flight is carried to a far higher perfection than even in the Swallow or Frigate-bird, different arrangements are made. The heavy skeleton is dispensed with altogether, and instead of it the supports for the body are given by a light, stiff outside skin only; and, instead of having their fluid parts aired as in beasts by little lungs in the middle of the body, they suck in the air through openings, not confined as in men and beasts to mouth and nose, but dotted about the body in many parts, varying in different insects—back, sides, head, and tail—into tubes (*tracheæ* they are called) which run backwards and forwards in every direction through trunk and limbs.

The four powerful, wide-spreading wings of the Dragon-fly, 'the Eagle among insects,' look as if made of the thinnest goldbeater's skin stretched on wire, stiff at the base and front edges of the wing, spreading out into the finest network. Through almost every thread of the lace, and everywhere else through its body, breath passes, so that the Dragon-fly, as one sees it hawking in the fields or over the ponds, is a whiff of living air, imprisoned in a cage of muscle with gripping claws, and a head all eyes and jaw. No wonder with such an outfit, and power to fly backwards and sideways as

easily as straight forward, it can kill right and left, and laugh at such poor fliers as the Swallows.

Primitive man having

> 'Learnt of the little Nautilus to sail,
> Spread the thin oar, and catch the driving gale,'

it has been reserved, we are now told, for this generation to be taught that all such clumsy contrivances as screws and paddles may be dispensed with if builders will only apply to ships the principle of propulsion which young Dragon-flies have known for thousands of years; from times long before there was a man in the world, for there are traces of Dragon-flies in the rocks of very early dates.

In *The Times* of the 17th October 1883 was an account of the trial trip of a new German ship driven by hydraulic reaction on the Elbe, near Dresden.

'Noiselessly and without any oscillation,' wrote the Berlin correspondent, 'did the large vessel—large as compared with the steam-craft plying on that part of the river—after the simple turning of a lever by the captain on the bridge, commence its trial-trip, stemming the current and keeping an even course under the picturesque right bank of the river. The only noise audible was that of the rushing of the water from the tubes, fixed a little above the level of the river, and nearly amidships, on both sides of the vessel. Another turn of the lever, and the action was reversed. The vessel comes to a dead stop in less than her own length.'

The larvæ of the Dragon-flies shoot themselves

along in just the same way by squirting through tubes. The principle—which had already been applied in the British Navy in the *Waterwitch*—is exactly that of the German invention, and is destined, according to Admiral von Henck, 'to modify, or even supersede, the present ship engines.' The only difference is a trifling one in the application. The valves, instead of being 'amidship,' and 'above the water' as in the vessel, are in the insect placed at the stern and used under water.

Dragon-flies of several kinds are occasionally, though not very often, to be seen in London, but we have plenty of other representatives of the 'nerve winged' order. A very pretty one, with antennæ much longer than itself, is to be seen in quantities any warm day in August or September, running about on the flat wooden railing of the bridge across the water in St. James's Park. It is what fly-fishermen know as the 'Cinnamon,' one of the Caddis-flies—the family which, in the grub state, live in the water and build themselves quaintly ornamented houses, which they carry about with them. The nerves of the wings of the Cinnamon-fly are almost hidden by brown feathers, but it is still one of the *Neuroptera*. There are plenty of the *Ephemera*, too, of which the May-fly is one. May-flies in the perfect state have no visible mouth, and no one yet has been able to discover that they take food or nourishment of any kind, unless it is sucked in with the air through their breathing-tubes.

One of the many things which naturalists have yet to learn is the explanation of the appearance of thousands of the same fly at almost the same moment. Not a May-fly is to be seen for months, and then, no one can tell why, all at once the trout are leaping at them in every direction.

This is even more remarkable on some of the German rivers, where on a warm evening swarms of a large, light-coloured *Ephemera* come out suddenly, till they look like a thick mist on the water. Straw fires are lit on the banks, and next morning basketfuls of yellow-bodied flies, with white wings singed, are swept up for the poultry. Why is it, too, that probably within five minutes of one another, all the Bats in a neighbourhood wake and come out?

The habit is to be noticed in London as well as anywhere. There was until a year or two ago at least one tree in Kensington Gardens—an old hollow oak, between the refreshment-room and the gardener's cottage—the home of a considerable colony of Bats. A note was made of the exact hour at which the long silent procession left the hole one evening in August. The next day, within four minutes of the same time—the time was carefully taken—seventeen Bats crawled up, and with the same regular intervals took headers into the dusk, to appear again as if they had started from another quarter altogether, careering about over the tops of the trees, doing the best they could to prevent too great an increase of humbler London night fliers.

The part which insects and kindred small creatures

have played and still play in the creation and support of the world as we now live in it has been a theme for many pleasant writers. Whole island groups, described by sailors who have seen them as heavens on earth, owe their beginnings to the work of the little Coral Polyps, who are responsible too, in all probability, for the present varied coast-lines of large tracts of continents. There are families of plants, some of rare beauty, which we are told would disappear entirely but for the busy Bees which, forcing themselves in and out in search of the honey baits placed there to tempt them, carry the fertilising dust to the seed-vessels, which must otherwise have dropped useless.

But the chapters which are to tell of the influence of insects on social and political history have yet to be written. With justice done to the subject they should be very interesting. Flies, Lice, and Locusts did, as we all know, a good deal to help Moses in his struggle for Hebrew independence; and Wasps and Hornets, when Jordan had been crossed, fought on the side of Israel, 'forerunners of the host.' Pyrrhus, at the height of his successes, raised a siege because he could not stand the Mosquitoes, which made his camp unbearable.

> 'If "ifs" and "ans" were pots and pans,
> There 'd be no work for tinkers' hands.'

A great many things might have been told differently in Roman history—though it is not easy just now to say exactly how—if Pyrrhus and his Greeks had added

to their more brilliant qualities the patient obstinacy which made Sir Henry Lawrence's band hold out in Lucknow till Havelock came, in spite even of 'infinite torture of flies.'

Difference of race may be at the bottom of much that is to be seen north of the Tweed and across St. George's Channel; but making all allowance for this, the legacies of conquest will not be lost sight of altogether. And Scotland was once, as completely as Ireland ever was, a conquered country, and with every prospect of remaining so, until a Spider came to the rescue, and by cheering the Bruce as he lay with broken spirits—six times beaten—to make a last attempt which was to succeed, drove out the English and delayed the Union for three hundred years, until all reasonable excuse for soreness was forgotten.

To look further still afield and take a wider view. It is a simple matter of history that the danger faced on the field of Tours did more than anything else to startle Europe, which had lain for a long time half-stunned and stupefied by the fall of Rome, into life again. And surely not even the modern sceptics, who throw doubt on the Dun Cow, and try to explain away Lady Godiva's ride through Coventry, would wish us to give up the sure belief that we should never have heard of the Saracens but for that other Spider which stood ready at Allah's command to throw his web, at a critical moment, over the hole in the cave in which Mahomet crouched for his life on the great day of the Hegira—the day which is to every Mussulman, good,

bad, or indifferent (some five or six times as many, according to Mr. Bosworth Smith's estimate, as the entire population of the British Isles), what the year of our Lord is to Christendom. Then there would have been no Mahometan invasion to give Charles Martel the opportunity to put his mark on his century, and clear the way for Charlemagne to found the second Western Empire.

When Mahomet's Spider shook himself that morning and thought he would try to catch a fly for his breakfast, he turned the entire course of mediæval and modern history, smashed the great Persian Empire, burned the library of Alexandria, and, among other things—but we are following him on to dangerous ground, and had better stop before quite over head and ears,—laid the first stone of the fabric of the temporal power of the popes. The chain of cause and effect all through is unbroken, and is spun with the Spider's thread.

It is an aid to faith to know that the little creatures which worked such miracles are not mere insects, but form, with Scorpions and some other smaller things (including Cheese Mites), a distinct class, which is by common consent placed above the true Insects.

The reasons for the higher place given to these bloodthirsty little creatures are that, both in head and breathing contrivances, they are more fully developed, and that, unlike most insects which are born in a shape quite unlike their fathers and mothers, and only reach the perfect form after a series of metamorphoses,

young Spiders leave the egg scarcely less like their parents than a human baby is to a grown man or woman.

The female Spider is almost always larger and stronger than her husband, and is prepared at any moment to dine upon him if he comes too rashly near her.

The etiquette of the court of the Medes and Persians of Esther's day, which made it death to the Queen who approached the King without a summons, unless he held out his golden sceptre, is exactly reversed by the Spiders.

The terrible lady sits in state in the middle of her web, and, if willing to receive her lord, lets him know it by raising the front pair of her eight legs in token of acceptance. He, unless very young and foolish, knowing her temper well enough and what she is capable of when in a passion, first introduces himself by cautiously shaking the web at a safe distance. If rash or inexperienced enough to go within reach of her jaws without receiving the sign of acceptance, he is not likely to have a chance of repeating the indiscretion.

The insect world is enchanted land, and in it we are apt to wander on as forgetful of time and space as was Rip Van Winkle in the Sleepy Hollow. But one must stop somewhere, and having strayed over the border to the Spiders, it will be wise to rest there without wandering farther.

The subject of one of Artemus Ward's lectures as published in his advertisements was 'The Babes in the

Wood.' After an hour's talk on every other conceivable subject he apologised for digression, and said that he had every reason to believe that the babes in the wood were 'very nice young people,' but he did not think he had anything else to say about them. It is difficult to help feeling a little uncomfortably suspicious of being guilty of something very like a feeble imitation of his style, on coming to the end of a chapter on 'London Insects' which gives no list and mentions scarcely a dozen of them. But it is a charm of Natural History in all its branches that nothing that is of human interest can be altogether strange to it. The students of 'God's great second volume,' even in the lowest forms, are franked to wander where they will through playgrounds to which the Yellowstone Park is nothing, and, grey hairs notwithstanding, while there, are schoolboys still.

CHAPTER V

THE BIRDS OF THE OUTER FARNES

'Thy tower, proud Bamborough, marked they there
King Ida's castle huge and square
From its tall rock look grimly down,
And on the swelling ocean frown.'—SCOTT.

MILLIONS of years ago, when the earth was still cooling and shrinking, and its crust every now and then wrinkling, like the scum on a saucepan of boiled milk not long taken off the fire, a great bubble rose from the depths and burst where Northumberland and Durham now lie. The explosion was felt from shore to shore on the mainland, as it now exists, and far out into the North Sea, and has left, among other memorials of its violence, the headland of once molten rock which has carried for centuries the magnificent pile of Bamborough Castle and the group of volcanic islands on which it looks down.

The Castle, after standing sieges innumerable and playing an important part in the turbulent politics of the Border, like Charles V. retiring to a monastery, has passed to a charitable trust. The fire-scarred basalt rocks from which its walls rise are in spring

and summer pink and white with tufts of thrift and campion, and spotted at all sorts of corners with patches of another white, poetical only in the tale it tells of the domestic happiness of Jackdaws and Starlings beyond the reach of boys' fingers.

The Farne Islands, on which the Castle looks down, have a long history, too, of their own, scarcely second in interest to that of Lindisfarne or Iona itself. It was to the Farne, the principal island which gives to the group its name (one derivation makes it the 'Place of Rest') that St. Cuthbert retired. It was here that he taught the Eider Duck the lesson of tameness during the breeding season which she still remembers, though the Drake, in common with most birds, has long since forgotten it; and here that Egfrid, King of Northumbria, and his nobles found the saint, and on their bended knees, 'with tears and entreaties,' offered him the Bishopric of Hexham. It was on a rock on the Farnes that the *Forfarshire* went to pieces, and it is in the churchyard under the Castle on the mainland opposite that Grace Darling and her father sleep.

But for those whose calling obliges them to live more in the workaday present than in the past, the chief charm of the Farne Islands is that they are one of the principal breeding-places of sea-birds on the English coast, and easily accessible from London. With the help of the Great Northern night express, a sleeping-carriage, and fine weather, it is not difficult, at a pinch, to see all that is best worth seeing, and store one's memory with pictures not likely soon

to fade, without being away from Pall Mall more than a day.

The best time to visit the islands is usually about the last week of May or first week of June, to see eggs; or, to see the young birds, three weeks or a month later. It was not until the 14th of June that we were able to make the trip, but owing to the lateness of the season we found ourselves early enough to see the eggs in perfection, scarcely any of the birds having hatched off.

When we had arrived at Bamborough the afternoon before, the weather had not been encouraging. It was blowing a quarter of a gale, with heavy thundershowers; but in the evening the sky had cleared a little and the sun found its way through the clouds, to set in a wild confusion of banked reds, yellows, and purples. We woke to find the morning bright, and by the time we had breakfasted and found our way to North Sunderland, three miles off, where a boat was awaiting us, the wind had died away, and the only fault, if any fault could be found with the day, was that there was scarcely breeze enough for sailing.

Our object being to see as much as we could of the birds, and opportunities uncertain, as threatening clouds manœuvred still on the horizon, we steered at once for the outer islands, the chief nesting-places, leaving a mile or two to the left the inner group, which are well worth a special visit:—Farne, with its chapels and its 'churn,' a rock-bridged cleft, through which at half-tide, when the wind is blowing heavily from the north, the sea is said to spout in columns ninety feet high, a

statement the truth of which we were happily unable to test for ourselves; the two 'Wide-opens'; the 'Scar Cars'; and four or five others with names as uncouth, curruptions most of them of Anglo-Saxon[1] descriptive titles.

Terns and Gulls had been from the time we started hovering round us singly or in twos and threes, and an occasional Guillemot or Puffin had dived out of the way of the boat or risen with trailing splash, and the sharp quick beat which is characteristic of the flight of short-winged birds; but it was not until we had been afloat for an hour or so, and were nearing the Brownsman, our first landing-place, with the Crumstone and Fang on our right, that we had any taste of what was to come.

The whitewashed tops of the black basaltic rocks which faced us shone in the sunshine, and through a glass we could see they were lined, without a gap, with motionless figures, looking in the distance like an army of dwarfs, in black, with white facings, drawn up in review order to receive us. As we pulled into a little bay, hidden from us until we rounded a corner by the Gun Rock, we found ourselves the centre of a startled screaming multitude of Puffins, Gulls, and Terns, and a few minutes later ran the boat aground, and landed on the slippery rocks.

In early times the knowledge that the birds which

[1] A table, giving in parallel columns the names in the forms in which they appear in records stretching back seven or eight hundred years at least, will be found, with much interesting information on other matters, in a monograph on the Farne Islands by Mr. George Tate, published in 1857 by the Berwickshire Naturalists' Society.

took sanctuary on the islands were under the miraculous protection of St. Cuthbert was security enough for them and their eggs. 'Beatus etenim Cuthbertus,' wrote Reginald of Coldingham in the reign of King Stephen, 'talem eis pacis quietudinem præbuit, quod nullus hactenus hominum eam impune temerare præsumpsit.'

Once on a time an unlucky monk—Leving, servant of Elric the hermit, uncle of Bernard, sacrist of Durham—in a moment of weakness, when his holy master was away, yielding to his lower appetite, killed a Duck and ate it, scattering the bones and feathers over the cliff. When, fifteen days later, Elric came back he found bones, feathers, beak, and toes neatly rolled up into a parcel—'cunctis in unum convolutis'—and laid inside the chapel door, 'the very sea,' says the devout historian,[1] who had the tale first-hand from the repentant monk, 'not having presumed to make itself participator in the crime by swallowing them up.' Leving was flogged, and for many years—though there are records of Puffins and other 'wyelfoyle' sent from the brethren on the Farnes as delicacies for high-day feasts at Durham— St. Cuthbert's peace was probably unbroken.

But saints in these freethinking days have lost something of their power, and need at times, to enforce obedience to their commands, the help of the secular

[1] 'Reginaldi Monachi Dunelmensis libellus de Admirandis Beati Cuthberti virtutibus,' cap xxvii. (Published by the Surtees Society in 1835.)

arm, and a year or so ago it somehow or other came to pass that the birds found themselves practically unprotected in any way. The nests were at the mercy of any one who cared to land, and were robbed so recklessly that the extinction of the colonies was threatened. The danger was happily met by the public spirit of a party of philornithic gentlemen who, with Mr. Hugh Barclay, of Colney Hall, Norfolk, at their head, leapt into the breach and obtained a lease of both groups of the Farnes. They placed at their own cost watchers on the chief islands, giving leave to land to those only who promised in writing to conform to the rules of their association, one of which was that without special permission not a single egg should for a time be taken.

What most forcibly impresses a visitor on landing, after he has recovered a little from his astonishment at the number of birds still remaining, and their tameness, and his ears are becoming more accustomed to the Babel of cries all round him, is perhaps the regular and orderly manner in which the nesting-grounds are divided among the different species, and the honourable manner in which the arrangements agreed upon are carried out. According to Reginald, it was St. Cuthbert himself who mapped the islands out for them.

The first colony we invaded consisted entirely of the Lesser Black-backed and Herring Gulls. These two species (the Black-backs were by far the more numerous, perhaps in the proportion of eight or ten to one) share between them the flat table-land of the island,

which is patched with a thick growth of bladder campion and another plant, with a succulent stalk and white blossom, but is for the most part bare rock, split into steps, with little but lichen growing on it. The nests, which are placed without any attempt at concealment, are all on the ground, and are at best a few stalks of grass or campion arranged like a saucer, but in many instances the eggs are laid without even this provision being made for them. They were as thick on the bare rock as in the cover. One or two nests had in them young birds in speckled down, just hatched; but nearly all had two or three eggs in, varying often much in colour.

The eggs of the two allied species breeding together can be distinguished only by marking the nests as the birds rise. It is a peculiarity of the Gulls generally that eggs are often laid after the birds have begun to sit, and it is a common thing to find eggs fresh and hard set in the same nest.

But the most curious sight on the Brownsman Island was the adjoining colony of the Guillemots. These, so far as we saw then, were entirely confined to the tops of the Pinnacle Rocks, which had first attracted our notice. Stray birds, we were told, occasionally breed in other parts of the island; but we saw no eggs elsewhere. The Pinnacles are three or four precipitous columns of black basalt, inaccessible except by ladders, separated from the mainland of the island and from each other by narrow chasms running sheer down to the sea. The tops are flat, and as we stood on the edge of the rocky

THE PINACLES, FARNE ISLANDS.

LONDON: EDWARD ARNOLD, 1902.

cliff, opposite and on a level with them, we saw at a distance of only a few yards masses of Guillemots, most of them, so far as we could see, sitting, or rather, it seemed, standing, on an egg, and wedged together as closely as sheep in a pen.

A few had the white lines round the eyes—like spectacles—which is the distinguishing mark of the rarer 'ringed' or 'bridled' variety; but almost all were the common bird well known, in winter especially, on every part of the coast. It would be impossible to form any estimate of the number we looked down upon; but, in spite of the attraction of a shoal of small fry of some kind a mile or so out, which was the centre of interest to an excited white and grey cloud of birds, and must have thinned considerably the party at home, there could not have been less than several thousands on the rocks. A field-glass carried us into the middle of the crowd, and we could see all they were doing, and almost fancy we could hear what they were saying and read their characters. Some of the matrons—probably it was not their first experience of the breeding-season—looked intensely bored. They reached out first one wing then another, gaped, got up for a moment and stretched themselves, and yawned again, with ludicrously human expression, conscious evidently of what society expected from them, and submitting to its restraints, but heartily sick of the whole concern, and longing for the time they might be free again to follow herrings and sprats at their own sweet will, without haunting visions of a chilling egg.

Others seemed entirely absorbed in their eggs. There was one bird in particular which we watched for some time, the proud possessor of a brilliant green, strongly-marked egg—as usual, to all appearance quite out of proportion to her own size—which she arranged and rearranged under her, trying with beak and wing to tuck the sharp end between her legs, but never quite satisfied that it was covered as it should be. But for the wonderful provision for its safety in the shape of the Guillemot's egg (a round flat-sided wedge, which makes it, when pushed, turn round on the point, instead of rolling, as eggs of the usual form if placed on a bare rock would do), most of those we saw would probably have been dashed to pieces long before.

It was an old belief[1] that the eggs of such cliff-haunting birds when first laid were coated with a natural glue which, hardening at once, fixed them to the rock.

As is commonly the case with basaltic rocks, the precipitous faces of the Pinnacles and the cliffs opposite are lined with cracks running across and up and down, and broken into steps and shelves, accessible only to birds or the boldest trained climbers. These, with the exception of a few of the larger upper ledges, which go with the tops of the Pinnacles, and are part of the family estates of the Guillemots, are tenanted by Kittiwakes. Their nests, which are also of grasses or dry seaweed,

[1] 'Locus nempe, (ut dixi) cæmento albo incrustatur, ovumque cum nascitur lentâ et viscosâ madet humiditate quâ cito concrescente, tanquam ferrumine quodam substrato saxo agglutinatur.'—Harvey, *De Generatione Animaliorum.*

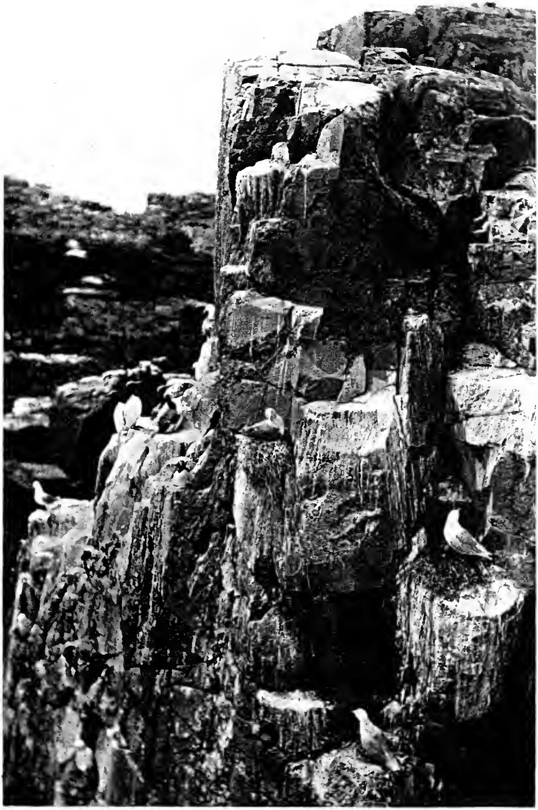
and occupy all the most tempting corners, are much more carefully and substantially built than those of the larger and noisier cousins on the table-land of the island; and the bird, as she sits snugly—'coiled up,' perhaps, best describes the favourite attitude—on her eggs, with her white breast exposed and head turned over her shoulder, the yellow beak half hidden in the pale blue feathers of her back, or raised only for a moment as her mate sails up with the last bit of gossip from the outside world, looks the perfection of peace and comfort, the greatest contrast imaginable to the uncomfortable Babel of the Guillemots, a few feet above her. The eggs, like those of most sea-birds, vary much, but are, perhaps, proportionately shorter and thicker than those of most Gulls, and have usually a ground colour of greyish green. Four or five eggs is not an uncommon number for a Kittiwake to sit upon; but none of the nests into which we were able to look had more than three in it.

As we passed a clump of campion on our way back to the boat, we all but trod on an Eider Duck, who was sitting on a couple of eggs. She rose slowly and heavily, with a flight like a Greyhen's, and lit a few hundred yards out to sea, where she was at once joined by her handsome mate, who had been concealed on guard not far off among the rocks of the bay. The Drake—unlike the Duck, which, when nesting, entirely changes her habits, and becomes, as we saw for ourselves, as tame as an Aylesbury, allowing herself to be almost touched before she rises—never loses his

habitual wariness. He is seldom far from the Duck, but, excepting as she leaves her nest, when he is pretty sure to join her, manages to keep well out of sight. They are very common on the islands. We saw a great many nests, several thickly padded with down, but—perhaps because the Black-backed Gulls are bad neighbours, as sucked egg-shells here and there too plainly showed—none had larger clutches than four or five. One forgiving Duck was sitting on two eggs, one of which was a Gull's.

The Eider Duck, when frightened, usually, as she rises, spatters her eggs with a yellow oil, which has a strong, sickly, musky smell. The young birds are taken by their mothers to the sea almost immediately they are hatched; but we were lucky enough, later in the day, on another island, to find, under a piece of stranded wreck, four tiny brown-black Ducklings. They were not many minutes out of the shell, and looked, in their soft bed of down, which exactly matched their own colour, the perfection of baby comfort. One of the watchers had noticed eggs in the nest an hour before we found the little birds.

From the Brownsman we crossed to the South Wawmses, which, with its sister island, the North Wawmses, from which it is separated by a narrow channel, is the headquarters of the Puffins. We landed in a shingly creek, and as we climbed the rocks, which are here rather a bank than a cliff, we were met by a string of startled Puffins, which came with quick arrowy flight straight at us, passing out to sea within



KITTIWAKES AT HOME, FARNE ISLANDS

a foot or two of us. The rocky foundation of both Wawmses is covered in parts with a dry light peat, which is honeycombed in every direction with burrows, most of them containing one very dirty white egg, protected in many cases by the parent bird, which, when we put our hands in, fought with foot and bill, biting sometimes hard enough to break the skin and draw blood. We drew one or two birds out of their holes. They fought to the last, and when we let them go, more than one waddled back to her treasure, with an indignant shake and look which said very plainly, 'I 've taught that fellow a lesson he won't forget in a hurry.'

There is something irresistibly comic in a Puffin on his native soil. With his little round body poised straight on end on turned-out toes, and impossibly coloured beak, which does not seem really to belong to the face at all, and his grave earnest expression, the bird looks like nothing so much as a child with a false nose on, dressed in his father's coat, playing at being grown up. They are on another ground very interesting birds. With comparatively few exceptions, when birds build in holes, where colouring is unnecessary for purposes of concealment — Kingfishers, Woodpeckers, and Petrels, for instance—they lay white eggs. When they lay on the ground in the open the eggs are coloured, often in such close imitation of their surroundings that one may pass within a foot or two without noticing them. We saw on the Farne Islands Terns' eggs among the stones, and Ringed Plovers' eggs

on the sand, so exactly matching the ground that, though we looked closely, with the certainty that eggs were near us, it took some time to find them.

We cannot tell how many thousand generations back it was that the ancestors of the Puffins of our day came to the conclusion that burrows were the best places for the family to breed in, but, in the matter of egg-painting, they are still apparently in a transitional stage. The eggs, when not too dirty to show their natural colour, are almost white; but at the thick end there are usually faint spots, just sufficient to show that, though the painter's art has been long neglected, the brushes are there, and the internal colour-box has still a little paint in it, and might, if a change of tastes at some far future time required it, be filled again.

While we were amusing ourselves with the Puffins on the Wawmses, a fresh breeze had sprung up, and as soon as we had finished luncheon we hoisted a sail, and after landing again for a minute on the Brownsman, which we had first visited, to look for a nest of the Rock Pipit, which is rare in more southerly parts, but breeds here plentifully in the grass tufts in the cracks of the rocks, sailed across the Sound to the Wide-opens, which we had passed without landing in the morning. The Wide-opens—once 'Weddums,' the 'Ragers'—had in early days a very bad reputation. It was to them that St. Cuthbert banished the devils which, when he first came to Farne, had annoyed him very much, and after his death became again so bold that they took no trouble to conceal themselves, and

were a constant anxiety to the monks on the neighbouring island.

We were received ourselves with screams as we landed, but of a note less alarming than those which, night after night, kept the good saint's successors awake. The sunshine was broken by clouds of Terns, perhaps the most exquisitely graceful forms of bird-life; and, as we looked to our feet to avoid treading on their eggs, which lay thickly strewn on the ground, little black shadows with forked tails and wings crossed and recrossed, circling backwards and forwards on the sand.

Four kinds of Terns—the 'Common' and the 'Arctic,' from which it is scarcely distinguishable; the 'Roseate,' and larger, black-billed, 'Sandwich' Tern—breed in numbers on the Wide-opens. We had met with a few stray eggs of the Common or Arctic species—without catching the bird on the nest, it is quite impossible to say to which of the two an egg belongs—on the other islands; but they were nothing compared with the numbers we now saw. It was the eggs of the Sandwich Tern which we wished more particularly to see. They are very large for the size of the bird, and unusually boldly marked. Though there is no difficulty in recognising them at a glance, they vary infinitely, no two being painted exactly alike. We found them collected together (probably to the number of several hundreds) among the sand and shingle-heaps on the higher grounds, usually two or three in a nest. The Sandwich Tern is said to be much more easily frightened than either the Common or Arctic, and,

if harassed during the breeding season, changes its nesting-place, often quite deserting an island. A few years ago the bird was much more plentiful than it now is on the Farne group; but happily the colony on the Wide-opens shows as yet no sign of early extinction.

Within a few hundred yards of us was the House Island, with its historic buildings; but a fine day, with surroundings such as ours had been since we started in the morning, slips by very quickly. The Megstone Rocks lay a mile or two off, and we could not miss them. If we were to catch the night express at Belford, either dinner or the ruins must be sacrificed, and to have hesitated in our choice would have been an insult to the keen air of Northumberland.

The Megstones are bare volcanic rocks, with no vegetation on them but the seaweeds below high-water mark and an occasional patch of lichen. The chief rock is a breeding-place of Cormorants, no other birds apparently venturing near it. A ship had a few weeks before our visit been wrecked on the rock. The solitude had been for some time disturbed, and we were warned not to expect to see much; but as we neared the rock we saw heads on snake-like necks stretched up here and there, and, as we watched our opportunity to spring from the boat, a black cloud of Cormorants rose together within a few feet of us.

Of the many allusions to birds to be found in Milton's poems, there is scarcely one which is not more suggestive of the study than of the open air. But there is

an exception. The idea that Satan when he first broke into Paradise, and wished to look round him unobserved, got on to the Tree of Life, and there 'sat like a Cormorant devising death,' must have been taken first-hand from Nature, stored up, perhaps, for future use in the days when the poet, on leaving Cambridge, with eyes not yet 'with dim suffusion veiled,' made his voyage to the Continent. There is something diabolical in the pitiless cold glitter of the green eye over the long hooked beak, from which the most slippery fish, once seized, has no chance of escape, and the distinctly sulphureous smell of its haunts is in keeping with the look of the bird.

The Cormorant has for some wise reason (perhaps to help its rapid digestion, or perhaps to neutralise to some extent the smell of stinking fish—if the latter is the intention the work is very poorly done) been gifted with an extraordinary power of secreting lime. The entire surface of the Megstones for some distance round the nests—of which we counted ninety-three, almost all with eggs in—looked as if it had been freshly white-washed. The eggs are long and narrow, without much difference between the two ends, and if held up to the light and looked at from the inside through a hole are beautiful, many of them being as green as an emerald, or as the eye of the bird itself. But seen from the outside they look like eggs which a boy has begun to cut out of a lump of chalk, and left only half finished, irregular blotches of rough lime sticking out on many of them.

The nests are round, and built of dry seaweed. They are about two feet across, or a few inches more, and many of them not much less in height, and built with great regularity, looking almost as if they were lengths cut from a black marble column, slightly cupped at the tops, and, curiously enough, stood out most of them from the whitewashed platforms unspotted.

The only other sign of life which we saw on the Megstones did not detract from its lonely wildness. It was a long-legged, thin, wild-looking Black Beetle, which had been sunning itself on the hot rock nearest the highest point. It rushed towards us, as if to attack, at a great pace, and before we could catch or identify it, threw itself over a precipice and escaped into a crack at the bottom.

The wind was fair for the shore, and as the water lapped our bows the Megstone Rocks settled down fast, lower and lower, into the sea behind us. The turrets and battlements of Bamborough Castle, which seen on end recalls the Normandy St. Michael's Mount, separated themselves one by one from the block, and sooner than we could have wished, we were landed safely a mile or so from the village on a natural jetty of rock, at the end of which we had watched the evening before an Eider Drake addressing, with much gesticulation, a party of Ducks. A few hours later we were comfortably asleep, rushing through the night to London.

Of all the poor creatures whose fate it was to be strangled or battered to death by Hercules, there was

only one who made a really good stand-up fight, and at one time seemed to be fairly beating him. He was Antæus, the son of the Earth.

Every time that he fell and touched his mother—we should say, 'ran down to the country'—he came up again with fighting-powers renewed. It was not till Hercules found out his secret and held him up, never letting him fall—we should say, 'stopped his Saturdays till Mondays out of town,'—that he quite broke him down. It is a myth in which the wisdom of the ancients has written for our admonition, on whom the ends of the world have come, the lesson that the best cure for a tired head and irritable nerves is the touch of Mother Nature—to escape from the rattle of cabs and omnibuses, and the everlasting cry of 'extra specials,' and lose oneself, if only for a day, among the wild creation.

Nowhere in the languid days of early summer—the breeding season of the sea-birds—can the tonic be drunk in a pleasanter or more invigorating draught, than on the rocks and islands of the Outer Farnes.

CHAPTER VI

THE SHETLANDS IN THE BIRDS' NESTING SEASON

'. . . The living clouds on clouds arise,
Infinite wings! till all the plume dark air
And rude resounding shore are one wild cry.'—THOMSON.

THERE is a story of a little boy who used to feel sick when he sat in a carriage with his back to the horses. So long as he was small enough to sit on his mother's knee, or as a third on the front seat without crushing his sister's frock and making her a figure, his weakness did not much signify. But when he grew too big for this, his mother told him he must try to be a man, and get over it. He wished to please her; and, having a fairy godmother who helped him when she saw he was trying in earnest, succeeded so well, that soon he had learned to travel backwards as no other boy before or since has done. Often he would shut his eyes and spin back at first for hundreds, and then, as he grew more accustomed to it, thousands of years, until one very hot steaming day as it seemed to him—though at home it was cold enough for a fire in the schoolroom—as he skirted, with boots very wet with red mud, a wood of overgrown mares' tales, he nearly trod on a Pterodactyl, which he had not noticed in a reed-bed till he was close

by it. It snapped at him as it rose at his feet, and frightened him. After that, excepting in his mother's carriage, and sometimes in the train, he would not go backwards any more, but began to go forward instead, and when he went to school was soon head of his form.

The feelings of the little boy in the story when in his backward journeys he found himself with Mesozoic surroundings, must have differed in degree only from our own when, with the din of London scarcely out of our ears, and recollections of flowers and uniforms and ladies' dresses on the Foreign Office stairs fresh in our minds, we found ourselves on a remote promontory in Shetland face to face with living examples of life, under circumstances which almost everywhere else in the British Islands have long since passed away.

The green of the turf at our feet was broken with patches of thrift and pink campion, and starred in all directions with dwarfed blue squills in full blossom. On the opposite side of the Sound, to our left as we looked southwards, a mile or so off, lay the Island of Mousa, with its almost perfect Broch in full view. To our right lay a little land-locked bay, a perfect anchorage for a Viking's boats, with deep water still as a pond, though a stiff breeze was blowing, and both open sea and Sound were white with breakers. On the narrowest point of the isthmus were the ruins of a second Broch commanding the promontory and bay; and on the mainland opposite, within twenty yards, stood a crofter's homestead, built with stones from the

Broch, not many degrees removed from the bee-hive huts, of which the outlines, and in more than one case the stone foundation walls, clustering round the castle, were still to be seen.

We leant against a corn tub with a roughly chipped disk of stone for lid, which might have passed muster in a museum as a relic of prehistoric days, and chatted with a kindly old lady, wearing 'revlins,' the most primitive form of shoe known, made of untanned cow-hide with the hair on, fitted to the foot while 'green,' to the use of which, writes Professor Mitchell, 'John Elder referred in his famous letters to Henry VIII. of England (1542-43), when he wished to show the extent of barbarism of the "Wilde Scotes."'

We had surprised her by expressing a wish to see a quern in working order, and she took us through a gate, swinging on a stone socket, into an outhouse to see one belonging to her uncle and herself. The door was so low and the walls so thick that we had to stoop almost to 'all fours' to get in; and having done so, found ourselves in the dark until our hostess had found her stick—a precious possession where there is no native-grown wood—and opened the shutter by knocking off a sod which covered the only window, a slit in the turf roof. The sun at the moment being clouded, and the light, even when the shutter was down, not very brilliant, our friend left us to fetch a lamp. We were quite prepared to see her return with a Shetland 'Collie'—the double iron pan with

pointed spouts like a jug (the one to carry the melted blubber and wick, the other to catch the drip) which, until whale oil gave way to paraffin, was the common lamp of the country—and were almost disappointed when, instead, she brought a contrivance of scarcely less primitive design, not unlike a battered tin teapot with a twist of unspun wool in the spout for wick. In spite of the cloud of smoke it threw up, and the rather troublesome attentions of a small calf which had been shut up in the room to keep it from its mother, we were able, by the light it gave, to examine, underneath the wooden tray on legs, fastened to the wall, on which the grindstones were fixed, the simple but very effective contrivance[1] for regulating the coarseness of the meal to be ground.

We felt as we crept back into the open air much as we might have done if, on crawling down the rocks outside to look for the nests of the Black Guillemots which swarmed on the lower ledges, we had turned a corner and come upon a Great Auk sitting on her egg.

Perhaps the sense of far-backness was all the stronger upon us because, since we had left London, a veil had been dropped between us and our past existence. The weather as we left Aberdeen had been perfection, with

[1] A full description of the mechanism of a quern, with illustrations, with much other interesting information with regard to the survival in Shetland of implements, etc., of patterns of very early date, will be found in the Rhind Lectures, delivered in 1876 and 1878, by Dr. A. Mitchell, Professor of Ancient History to the Royal Scottish Academy, quoted above, published in 1880, under the title 'The Past in the Present.'

just enough air stirring to freshen the colours of the sea, and carry the smoke of the funnel clear of the deck. The sun set 'smilingly forsworn,' at twenty-five minutes to nine, and as the long twilight, which brought home to us that we were getting northward, set in, Sheerwaters—which in their habits are the owls of the sea, living for the most part in their holes on shore by day, and coming out at dusk—shot past us, one or two at a time, with quick gliding flight, on their way to their feeding-grounds, the long sharp wings closing at each stroke backwards, until the birds seemed to have forked tails like Swallows.

Perhaps if our experience of local weather signs had been larger we might have seen a warning of what was before us in the curiously angular shape of the sun as it dipped; but ignorance was bliss, and we 'turned in,' happy in what we thought the certain prospect of a quick and pleasant voyage, and woke to find ourselves anchored for five-and-twenty hours in a dripping fog, somewhere near, but no one could say how far from, Kirkwall Bay.

The interest of our trip lay more in the present than the past, our object in coming so far having been not so much to look for antiquities as to see the birds, which in the summer gather by myriads to breed on the rocks and islands of the Shetlands. Some which are common here nest in few, if any, other places in the British Isles. When we started we had indulged in dreams of visits to Fair Island, and perhaps to Foula, which lie, the one—reported to be more beautiful than

any island in either Orkney or Shetland—half-way between the two groups; the other—the wildest and most precipitous in either—in the open Atlantic, some twenty miles or so to the west of the Mainland of Shetland.

But twelve days, or at most a fortnight, was all that we could conveniently spare, and of these three had already gone before we set foot on shore in Lerwick on Sunday evening.

It is only in very calm days that a landing can be effected on either Fair Island or Foula, and as the weather, which for the fortnight before our arrival had been unusually warm and still for the time of year, had broken, and the 'Beltane Ree,' of which before leaving home we had read with some misgivings in Dr. Edmondston's *Glossary of Shetland Words*, as 'a track of stormy weather common in the Islands about Whitsuntide,' was to all appearance upon us, we were obliged to give up all notions of anything more ambitious than a visit to one or two of the more easily accessible of the chief breeding-places, and to the castle of Mousa, which we were especially anxious to see.

The welcome breeze which had blown away the fog had, since it first sprang up on Whitsunday, been steadily freshening, and by Monday morning, when we started for Noss, an island lying outside Bressay, half a gale was blowing.

It was some little time before we succeeded in getting a boat to carry us over the Sound, but at last one was found, and by eleven o'clock we were landed on the

other side, with luncheon in our pockets and clothes comparatively dry. A pleasant walk of three or four miles leads from the landing-place to the point of Bressay, opposite the shepherd's house in Noss, where there is a ferry between the two islands; and half-way across, as we sauntered along, interested by such un-Londonish sights as women harnessed to harrows, or carrying heavy loads of peat from the hills in straw baskets hanging from their shoulders, knitting as they went, we were delighted at seeing for the first time, near a freshwater lake, a party of Richardson's Skuas—the birds which more than any others were responsible for bringing us over land and sea eight hundred miles and more from London. We knew that they bred regularly in Mousa, some fifteen miles to the south, and on some of the more northerly islands, but had not expected to find them in Bressay or Noss; and the first sight of their long, thin, sharp-cut, angular wings, and the two unmistakable long pin feathers springing from the middle of the tail, and the powerful, graceful flight of the birds as they circled round, playfully chasing one another, or lit on the water to rise again the next moment, had the charm of a welcome surprise.

Noss is separated from the larger island by a narrow cut. The channel is not many yards wide, but in certain states of wind and tide cannot be crossed without danger. We had been warned in Lerwick, that with the wind blowing as it had done for some thirty hours, it was not unlikely that we might find the ferry too rough to cross. But this time fortune favoured us,

and though the sea close by to the north was white and thundered ominously, we got over without any difficulty.

From the landing-place, where the shepherd's cottage, the only one on the island, stands on level ground not many feet above the sea, the land in Noss rises westward, steepening at first gently, then more and more rapidly, until, at the split-sugar-loaf-shaped point of the 'Noup,' the short flowery turf ends abruptly in a precipice.

Not far from the highest point is one of the many little inlets known locally as Geos, Voes, or Wicks, according to their size and shape, which give much of its picturesqueness to the coast scenery of the Shetlands; and from the promontory at the farther side we were able to get a good view of one side of the sea face, which seems to be built up of thin horizontal layers of sandstones and conglomerates, alternately hard and soft, which, weathering with curious regularity, have given the precipice in parts very much the appearance of a gigantic bookcase, on every shelf of which, as we saw it, were tightly packed masses of sea-birds, of every shade of white, black, and grey.

We had been told that to do justice to the Noup of Noss, it should be seen from the sea. It may be so. But if the view from below is more impressive than that on which we looked down from the summit, it must be one of extraordinary grandeur.

The waves were rolling in, and breaking into foam on the rocks 600 feet below us. Puffins, Guillemots, and

Shags shot in and out by thousands. Gulls in numbers incalculable sailed round and round or hung motionless in the wind—so near some of them that, without any need for glasses, we could see the ruffling of each little feather, and the expression of eyes turned on us—and faded in perspective as we looked down into a living milky way of birds.

To make the picture complete, a Peregrine Falcon, monarch—in the absence of the White-tailed Eagles, which have usually an eyrie either on Noss or Bressay—of all he surveyed, looking, far up in the blue, scarcely bigger than a fly, screamed in notes, which rung out clearly above all other sounds, defiance to the world at large.

Nothing that ever has been or ever will be written of such scenes will make the reader see them with his own eyes for the first time, or for that matter for the hundredth, without a sense of almost dazing amazement at the numbers in which the birds collect.

A couple of hundred yards or so from the south-west of the Noup lies the 'Holm,' a corner of the main island, cut off by a chasm, through which the sea runs. The Holm some years ago was connected with Noss by a rope bridge, put up by a reckless cragsman who lost his life on returning after the work was completed. It is now inaccessible, and was, when we saw it, crowded with nests of the Lesser Black-backed and Herring Gulls, which here, as elsewhere, breed socially together.

In the remoter islands something of the old spirit of the Norseman, who believed that the only safe road to

Valhalla was across a bloody battlefield, still survives in the idea that the most honourable deathbed for a Shetlander is 'on the Banks'; but on the more comfortable Mainland, so far as we could learn, there is very little cliff-climbing done now by any but adventurous boys; and, excepting when, as hundreds are misguided enough to do, the birds tempt fate by laying on the flat, they may most of them reckon on bringing up their families without human interference.

As we stood by the Holm, continuous flocks of small Gulls, either Kittiwakes or common Gulls—'Sea Mews'—the two are in appearance so much alike, that unless very close indeed it is impossible to say which is which—flew over us, all in the same direction, coming from the north-west. Every bird, in all many hundreds, had a bunch of something in its mouth. We tried to find out what the attractive morsels were, but all our efforts to make one of them drop his load were useless, and we could only guess from the general appearance and size (very likely wrongly) that they were parcels of sand-eels or sand-worms.

From the Holm we strolled over to the lower ground, where in the morning we had noticed more than one anxious pair of Richardson's Skuas, and were absorbed for the rest of the afternoon in watching them. The Skuas, of which there are four kinds classed as British, are the connecting-link between the Gulls and Hawks. The Richardson or Arctic Skua is the commonest. It is a slender bird with a body scarcely bigger than a Pigeon, but with a powerful cutting beak, and great

powers of flight and courage. They live, like all their tribes, almost entirely by robbing larger Gulls, and fly at birds three times their own weight and size as fearlessly as a Sparrowhawk flies at a Lark.

As we lay on the side of the hill, looking down on the hollows which are their favourite breeding-places (they make no nest), a Skua, for no other reason apparently than that our continued presence too near its eggs had put it out of temper, dashed savagely at a Gull which looked nearly big enough to swallow it, and struck it now from above and now from below with a crack which sounded as if the blow had been given with a riding-whip. The poor bird attacked made one or two attempts to get back to the two eggs in a nest on the grass beneath us, from which just before we had driven it, which was all it wished to do, but in the end had to give it up as a bad job, and flew off with a protesting wail.

There is nothing in Nature more beautiful than the 'heaven-taught art' with which most birds which breed on the ground in the open lead away from their eggs and young. The Oyster-catcher (perhaps because he feels that it is hopeless for a bird dressed in staring shepherd's plaid, with red legs and beak, to hope to conceal himself) loses his head completely, and betrays his nest by shrieking despairingly over it the moment it is approached. But he is only the exception which proves the rule. We saw in one place, within a yard or two of our feet, what looked like a sand-coloured mouse, crawling slowly and stealthily close to the

ground, down a little hollow, following the indentations of the ground where the sand, which had drifted between tussocks of grass, exactly matched its colour. It was a Little Ringed Plover, afraid, if it rose as shyly as at any other time it would have done, of betraying four pointed eggs, evidently hard set, arranged, points inward as a Maltese cross, in a saucerful of little scraps of sandstone and speckled granite, carefully chosen to match their colouring.

But for the knowledge that almost all birds, if their nests are disturbed at all early in the season, lay again,[1] the prick of conscience, without which an egg which the bird has been at so much pains to conceal cannot be taken, would be too dear a price to pay, even for the pleasure and interest of a collection, with the refreshing recollections it can awake of 'thick groves and tangled streams' hunted in boyish days, and island-dotted lakes, moors and marshes, and sea-beaten headlands, since visited in intervals of sterner occupations.

Most Sea Gulls, certainly the Herring and Lesser Black-backs, whose eggs are largely collected for food wherever they are at all common and easily got at, have very considerable powers of egg-production at will, though the ordinary 'clutch' when undisturbed is seldom more than three or at most four. The only difficulty seems to be with the colouring material, which is apt to run short, and the more eggs are taken,

[1] A remarkable instance of the perseverance with which a bird will at times cling to the spot selected for a nest is recorded in Appendix B.

the paler, as a rule, becomes the ground colour and the less clear the markings.

It is a fairly safe assumption that an egg unusually strongly marked or highly coloured is one of the first of the season which the bird has laid, and it is not an uncommon thing, at least with Gulls, to see the pitch of colour in a nest containing one or more of such swart eggs brought down to the average by an unusually pale egg or two in the same nest.

The Scoutie Ailen, as the Richardson's Skua is called in Shetland, carries the ordinary arts of deception to as great perfection as any bird. It can limp like a Partridge, and drop as if shot from the sky, and lie on its side feebly flapping one wing. But if the stories told by the shepherds are true, and certainly our own experiences strongly confirmed them, the bird is not content with such tame devices as these.

In Flaubert's wonderful book *Salammbô*, when Hamilcar learns that, as a last hope for the city, a sacrifice of first-born to Moloch has been decreed, he hides the little Hannibal in dirty clothes in the slaves' quarters, and struggles with the priests, who tear from his arms a jewelled and scented slave-boy.

The Scoutie, with the true spirit of the noble Carthaginian slave-owner, when hard pressed, deliberately leads on to the nest of the Gulls it despises, and then goes through an elaborate pantomime of distress. Again and again we made sure that at last we were to see the true Skua's eggs, and as often found ourselves looking at the nest of some common Gull.

But, before returning to Lerwick, we were to be treated to an even more amusing specimen of the cynical humour of the Scoutie. One of our party had for some time watched a bird, which evidently had eggs close by, and at last, when its suspicions seemed to be lulled to sleep, saw it light on a rough spot not very far off. There it stopped in ostentatious concealment, every now and then cautiously lifting its head and peering over the grass in his direction. He marked the spot and walked straight up to it; this time pretty sure that he had got what he wanted. When he was almost there the Scoutie rose with a derisive chuckle from a Black-backed Gull's nest, where, as he had been slow in coming, she had whiled away the time by sucking one of the eggs.

But for Skuas, as for prouder potentates, 'there is no armour against fate.' We brought home, as a remembrance of an enjoyable day, the tail of one which had bowed to higher power and been eaten by a Hawk.

The Great Skua, which is three times the size of Richardson's, breeds still on one or two of the northern islands, and on Foula, but is every year becoming scarcer. We did not see it ourselves in the Shetlands, but in the autumn, a year or two before, had fine opportunities of studying its habits, and realising the appropriateness of its scientific name, *Lestris catarrhactes*—the pirate who makes his descents with the dash of a waterfall—when, in company with three yachts and humbler sea-fowl innumerable, one of these

magnificent birds was driven by stress of weather outside to run for shelter to Loch Broom.

The day after our visit to Noss, when on the point of No-Ness, fifteen miles or so south, we were taken to see a perforated rock, like a double arch of a submerged cathedral, which for many years had been the nesting-place of a pair of the Great Black-backed Gulls, worse tyrants, if possible, than even the Skua. The Great Black-back is a solitary bird, bearing, 'like the Turk, no brother near his throne,' dreaded and shunned by other birds, whose eggs and young he destroys.

Macaulay, minister of Ardnamurchan, and historian of St. Kilda, a great-uncle of the historian of the larger neighbouring islands, writing in 1758, says:—

'It is hardly possible to express the hatred with which the otherwise good-natured St. Kildans pursue these Gulls. If one happens to mention them, it throws their whole blood into a ferment. If caught, they outvie one another in torturing this imp of hell to death. Such is the emphatical language in which they express action so grateful to their vindictive spirit. They pluck out his eyes, sew his wings together, and send him adrift. . . . They extract the meat out of the shell of his egg and leave that quite empty in the nest. The Gull sits upon it till she pines away.'

From the cliff where we lay down to watch them we could see three little birds—offspring of the feathered Cain—just out of the egg, lying on the short heather which covered the top of the rock, while the parent birds, whose consciences, perhaps, made cowards of them, hung near enough to watch us, but far enough off to have been well out of gunshot if we had had any murderous designs, which was not the case.

On the following morning, with a spanking breeze behind us, we sailed across to Mousa. The castle, which stands only a few yards from the shore, on the west side of the island, is probably the oldest building in the British Islands in anything like a complete state, and is of almost startling interest.

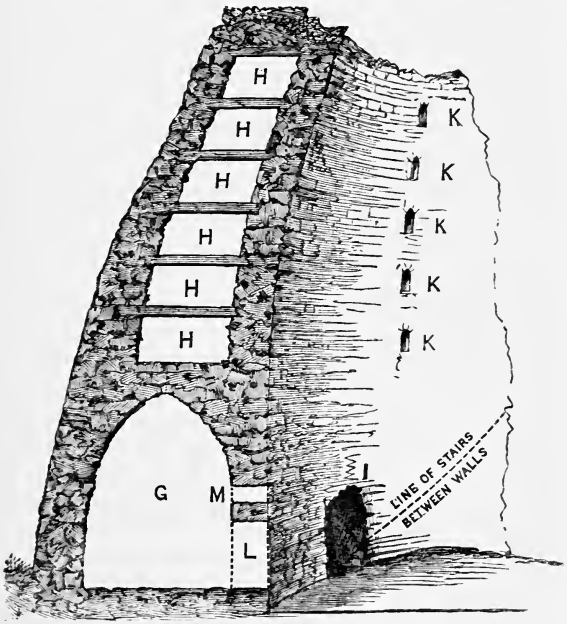
Ruins of squat round towers, known as 'brochs,' built of stone without mortar—the connecting-link, according to Sir Walter Scott, between a fox's lair in a cairn and a human habitation—of which nothing is known, excepting, perhaps, that when the Vikings made their first descents a thousand years or more ago they found them standing and took possession of them—are scattered plentifully on the cliffs of the mainlands and islands of the north of Scotland.

The Broch of Mousa is the only one in existence which still stands, in all essential particulars, as in all probability it stood when originally occupied. It is a circle of stone wall about 40 feet high shaped like a chess castle with the battlemented top cut off. The outside diameter is about 50 feet at the base and 38 or 40 feet at the top. It is bearded on the outside with a venerable growth of grey lichen, and tapers gradually from the bottom, until, within a few feet of the top, it slightly widens again, so that the actual top almost imperceptibly overhangs.

It is not easy, without going into too much detail, to give an intelligible description of a building so completely at variance with every modern idea; but the very rough sketches given on the following two pages—

the one a ground-plan, the other a section—may make it easier to understand the internal arrangements.

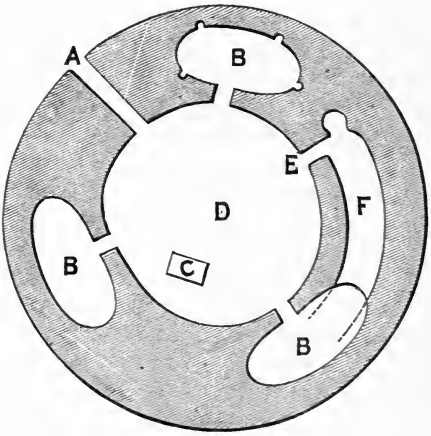
On the ground floor are three roomy domed



THE BROCH OF MOUSA—SECTION

chambers (marked in the ground-plan B, and in the section G), built in the ordinary style of beehive-houses, with stones overlapping inwards to a point. The

chamber that we examined, which was, we were told, a fair type of all, was 14 feet long, 5 feet 6 inches wide, and in the middle over 9 feet high. It was entered from the court, in which was a square well or tank (C), by a low door (L), little more than 3 feet high, and less than 2½ wide, and ventilated, not lighted,



THE BROCH OF MOUSA—GROUND-PLAN

by a small square window (M) immediately over the door. On one side of the chamber there was a long narrow projecting stone shelf a foot or two from the ground, and built into the thickness of the walls were four or five neatly-shaped 'ambries,' or store cupboards.

If the fair mother of Harold of Orkney, a second

Helen of Troy, who, in the days of King Stephen, was carried off to Mousa by Harold Erland, was a lady of as much taste as beauty, she may, with the help of a few gay-coloured bullock skins as sofa covers and curtains to keep off the draughts, have made herself very comfortable as things went in those days during the long siege which the castle stood before her marrage with the turbulent lover who had compromised her.

The wall to the height of the top of the chamber dome is (excepting the chamber spaces) a solid heap of stone, between 15 and 16 feet thick. A little above the level of the tops of the chamber domes the wall divides, and thence to the top of the castle is built double in two concentric circles. In the hollow between the two walls a staircase (F), or rough stone path, not unlike the paved gradient by which the horses reach the stables over the coach-houses of Marlborough House, entered from the court by a door (E and I), leads up to the top of the castle, and six horizontal galleries (H) run round the building, lighted by holes opening inwards (K). Each gallery ends abruptly a few feet from the stairs, and all are so arranged that no one could reach the top of the tower without stooping and exposing himself to a knock on the head from an unseen enemy at each successive stage. The only break in the outside wall is at (A) the entrance to the courtyard.

Unless, as is not impossible, the walls have been nipped by settlements, the Picts, or whoever else they may have been who first designed the castle and bur-

rowed their dwellings in the green slope behind it, must have been a race much smaller than the better-fed man of the twentieth century. It was only at some risk of being set fast, like a too keen fox-terrier in a rabbit's hole, that a pair of shoulders of not much more than average breadth could be pushed a little way through some of the most roomy of the galleries.

They, poor people, and the Norsemen who robbed and exterminated them, have their successors now in the Rock Pigeons, who have made a dovecote of the castle, and the Falcons who prey upon them. In the enclosed court lay the clean-picked bones and feathers of a Pigeon killed a day or two before our visit, and just inside the entrance to the staircase, in a hollow under a stone, a naked nestling lay dead beside a cold egg, in which was another young bird, which when the mother left the nest to return no more must have been within an hour or two of hatching. In the corner of one of the chambers crouched a pair of young birds almost ready to fly. As we climbed the stairs a second pair, full grown but still uneducated, fluttered before us; and as we came out on the top of the tower, a Peregrine poised himself for a moment, and circling once or twice without any visible movement of the wing, sailed off magnificently to the north-west, probably to join his mate on the Noup of Noss.

There is a herd of Shetland ponies on Mousa. They are kept for breeding purposes only, and lead a life as free as the mustangs of Mayne Reid's stories. All the mares, with a single exception, had, when we saw them,

foals beside them, and were kept well in hand by their shaggy lord and master, who, when he thought we had looked long enough, gave the order to move off, and when one mare lingered behind the rest with a tiny foal not many days old, which skipped about like a lamb, and looked scarcely bigger, he cantered down and at once drove her up. The stallions' place as they move is last in the herd. The standard height for a Shetland pony is 40 inches, and the present value of a fairly good one not taller, from £15 to £20. Many of them, poor little creatures, leave their island to spend the rest of their lives in coal-mines; but there has lately been a considerable demand from America, and many now go there.

On leaving the castle we made a circuit to the south-east, gathering a few common eggs for cooking, and crossing a beautiful bay of shining sand composed entirely of powdered shells of every shade of white, pink, yellow, and blue.

The cliffs here are very irregular. In places little caves, running in some way, have been bored by the waves and loose rocks; and as we walked near the edge, from underneath our feet came uncanny sounds —whisperings of young Starlings and underground rumblings and boomings of the sea, as if Trolls and imprisoned giants still lingered on the island.

Once a Lark rose close by us from a nest so well concealed that we looked without finding it, until, as if by magic, four Kingcups—the wide-opened orange mouths of as many little birds just hatched—with

chins touching, and necks stretched out till they looked a single stalk, shot up from the short heather and burst into full blossom at our feet. A few yards further on we picked up a baby Lapwing, which was doing its best to hide under a tussock of grass. The shepherds say that young Ringed Plovers are even more wide-awake, and that a chick just out of the egg, when hard pressed, will grasp a dead leaf between its legs, and, rolling on to its back, lie completely hidden under it until the danger is past. But it was getting late and the wind was against us, and pleasantly as another hour or two might have been passed on Mousa, we were obliged to tear ourselves away. It was not until we had tacked six times that we found ourselves on shore again at Sandwick, in time and with appetites for an excellent dinner.

The teeming bird-life of the Shetlands is confined, during the breeding-season, mainly to the coast-line. In the drive of five-and-twenty miles from Lerwick to Sumburgh, the last half of which we took the morning after our visit to Mousa, and in our walks across the island to and from Scalloway, we were struck with the comparative scarceness of birds when out of sight of the sea.

Wherever there were buildings, the ubiquitous House Sparrow was, of course, to be seen, but not in anything like the numbers it is usually found elsewhere; and once, not far from Sandwick, we certainly thought we saw a pair of Tree Sparrows. But a treeless island is scarcely the place to look for a bird so named, and as

we afterwards failed to find any mention of it in Dr. Saxby's *Birds of Shetland*, and were too modest to suppose that it had been reserved for us, in a week's visit, to make an addition to his list, we were obliged to conclude that, to our eyes, more accustomed to the smoky colour tones of London, the clean head feathers of a spick and span House Sparrow in wedding garments had seemed the chocolate cap of the smaller and rarer bird.

The small birds we noticed oftenest inland were Mountain Linnets or 'Twites,' which, though scarce farther south, here take the place of the common Linnet, which is seldom or never seen in Shetland. The two birds are very much alike, the only points of difference of any importance being that the beak, which in the common Linnet is a blue-black, is yellow in the Twite, and that the pink, which is a conspicuous feature in the summer plumage of most of the family, instead of appearing, as it does in the Linnet, on the head and breast, shows itself less strongly in the Twite on the back near the tail.

Every now and then what we took to be a Raven flew over, high up, or a Plover rose and wheeled round us, the hen-bird waiting, as in Shakespeare's day, till 'far from her nest,' to cry 'away,' and trying to mislead us by doubling signs of anxiety, probably, as we walked away from her treasures.

We noticed a few Larks and Pipits, and occasionally a pair of Wheatears, who, like other visitors from the south, evidently appreciate the softness of Shetland

wool, and were usually to be seen busily collecting it for a nest hidden in some snug corner under a rock not far off.

The value of Shetland wool in eyes other than those of breeding birds varies with the colour, the shade most highly prized being a cinnamon brown, known as Murad, not unlike the colour of the back of a ruddy Sheldrake—for which as much as half-a-crown a pound is often given before it is spun.

We felt a little as Moses must have felt on Pisgah, when, on reaching the top of the last hill before dropping down to Sumburgh, we saw across the Roost the outlines of Fair Island, looking, in the clear shining after the rain, not half its real distance, and tantalisingly near.

Calm though the water had looked from the top of the hill, it was too rough to allow us, as we had hoped, to explore 'the Head' from the sea, or to attempt anything with a small boat in the open.

But between Sumburgh and the towering precipice of Fitful Head, at the entrance of Queendale Bay, there are two islands well worth a visit. By the kindness of the owner, Mr. Bruce of Sumburgh, a boat had been sent for us overland on a cart to a sheltered corner, and after a row of half an hour, during which we were objects of great interest to a party of seals, who popped up their heads and lifted themselves breast high to stare at us, we managed to reach them with clothes comparatively dry.

We had expected to find on the Lady Holm a fine

show of Gulls' eggs and one or two nests at least of the Eider Duck, of which a few pairs commonly breed there. But, unfortunately, we were a day too late, a boatload of boys having, as we afterwards learned, effected a landing the night before, and made a clean sweep of every egg that could be carried off. Parties of Gulls stood in disconsolate attitudes by empty nests in every direction, and Oyster-catchers and smaller waders rose piping in a half-hearted manner to tell the tale that they had nothing left to lose.

The only birds which seemed thoroughly contented and happy were the Black Guillemots, whose nests are very hard to find, and often, when found, as hard to get at. They rode peacefully at anchor in parties of ten or a dozen in every little bay, rising and falling with the swell of the water, one or other, every now and then, rousing himself just enough to lift a carmine leg to scratch the back of his head, or peck at some little fish or other tempting morsel which happened to float within easy reach.

But the interest of the islands is not dependent only on birds' nests. On the smaller of the two are still to be seen the traces of a little chapel, probably, like many others in sites as lonely and picturesque, first built as a retiring-place by some long-forgotten Culdee who has left behind him the only record of a saintly life in the name—'Cross Holm'—which the rock still bears. The beauty of the larger 'Lady Holm'—on the west side a heap of huge bare boulders, tossed up by the Atlantic rollers, which in winter gales half sweep

the island; on the other side a level sward of sea-pinks—would alone have paid us well for our splashed jackets. But Lady Holm has a special interest of quite another kind.

The Shetland Islands seem, in the days when the world was being fitted up for human habitation, to have been used by Nature as an experimenting ground, and raised and submerged and raised again, heated and allowed to cool on no intelligible principle, scoured with ice, sometimes this way, sometimes that, until, as it now exists, it is hopeless for any but the most specialised of specialists to pretend to understand anything of the general geology of the group.

But a few things seem to come out fairly clearly. One of these is that once upon a time the promontory of Fitful Head must have been much bigger than it is now, and that, during this time, it was violently cracked, and that through the crack melted rock from very far below boiled up to the surface and hardened there.

Lady Holm seems to be a part of the original promontory as it existed at the time of the crack, which held its own when Queendale Bay was scooped out. The line of the intruded rock which crosses Fitful Head, if prolonged, runs through it, and accordingly we find a little island built up, in two clearly divided and nearly equal halves, of widely differing rocks. The wild western side is granite, and the gentle, richly-flowered eastern slopes are sandstone.

Three or four miles from Lerwick the south road

divides; one branch zigzags along the coast towards Fitful Head, the other strikes across the island to Scalloway. On our return from Sumburgh we left the carriage at the parting of the ways, and sending it on to Lerwick with our baggage, walked across to Scalloway. The road undulates between hills covered with peat. Though it is in a way picturesque, there is nothing very striking to be seen, until, on the top of the last rise, the little port, with its beautiful land-locked harbour, lakes, and ruin, with the grand outlines of the hills of Foula in the distance, comes suddenly into view. The castle, which is unroofed, is of the common Highland sixteenth-century type — a tall, square building, with high-pitched gables, oriel windows, and round corner turrets. There is a coat-of-arms over the doorway, and conspicuous on the highest point of the western gable the iron ring from which tradition says that the founder, Patrick Stuart, of infamous memory, was in the habit of hanging neighbours who disagreed with him as to the fair price for their estates.

It is not difficult, without any greater mental effort than is involved in looking up the index references in the published Registers of the Privy Council of Scotland, to draw for oneself a fairly distinct picture of the man and his times.

Patrick was a grandson of James v. Robert Stuart, his father, had been Prior of Holyrood, but exchanged his priory with Adam Bothwell, the first Protestant Bishop of the See, for the bishopric or temporalities of Orkney.

The union of Robert Stuart's father and mother—the latter a young lady of high degree, who afterwards married a Bruce—had not been blessed by clergy; and perhaps on this account the new bishop seems to have considered himself absolved from any oppressive obligations to the Church. He persuaded the king to make the bishopric an earldom, and at once set to work in his own fashion to increase his estates in Orkney and Shetland. If Church matters were managed now in Scotland as they were then, the opponents of State churches might be pretty sure of a majority when next they raise the question of Disestablishment.

Robert, the father, had chastised with whips: Patrick, the son, was to chastise with scorpions. In the Council Registers of the last few years of the sixteenth, and first few years of the seventeenth centuries are entered constant complaints from poor Orkney men and Zetlanders of oppression, such as had never before been 'hard of in ony reformed cuntrey subject to ane christiane prince.'

Earl Patrick steals Sir Andrew Balfour's sheep, cows, butter, and seed corn, and 'refts from him and his puir tennentes, twenty-nine whales, which, at grite charges and expenses,' they had driven on shore on Sir Andrew's own land. He besieges and takes away Sir Patrick Bellenden '(he being 72, in a wand bed), and delivers his hous to Keipers, and all because he would not despone his londs to him,' and so on until 'no man of rent or purse might enjoy his property without his speciale favour, and that same dear bought,

filchit and forgit, faults being so devisit against many of them that they were compellit by imprisonment and small rewaird to resign their heritable titles to him . . . gif not life and all besides.'

It is not difficult to understand why, after most entries of the kind, we read, 'Wanting probation the earl is assoilzied,' as at least ten times in a single volume of the Register appear such entries as the following:—

'*Sederunt*, Cancellarius, Orknay, Thesaurius, collector, etc.'

'*Sederunt*, presente Rege, Lennox, cancellarius, Angus, Orkney, Mar, etc.'

But Lord Orkney trod once too often on the toes of his royal cousin, and in 1613 Lord Carew,[1] writing to give his dear friend, Sir Thomas Roe, ambassador to the Great Mogul, the last gossip of the London season —that Sir Moyle Finch is dead, leaving the richest widow in England; that Lord Berkeley and Lord Fitzwalter have married the two pretty daughters of Sir M. Stanhope; that a ship fitted with provisions for nine months (the forerunner by two hundred years of Sir John Franklin's ill-fated expedition) is just starting to find a North-West Passage; and that there is much talk at Court of the 'rising fortune at Court of a young gentleman "of good parts"'; a Mr. Villiers, etc., is able to fill a corner in his letter with the news that 'the Erle of Orkeney in Scotland is beheaded and his lands and honnour escheated to the Kinge.'

[1] *Letters of Lord Carew.* Published by the Camden Society.

As we left behind us the beautiful scene of so many iniquities, a Raven, big and hoarse enough to have been a survivor from Patrick's day, when Ravens' food was cheap in Scalloway, flew close over us, croaking an appropriate good-bye.

It was a farewell to the Shetlands, as well as to the castle.

On reaching Lerwick we found at the quay a steamer which was to sail that night with a cargo of fish and cattle, direct for Aberdeen, and as the weather was still broken, and there was little more that we could see, we put our things on board at once, and three days later had crossed the Forth Bridge, the first day it was opened for general traffic, and were in London again.

For those of us, especially, whose place in the procession of the generations happens just now to be among the workshops on the table-land of middle life, it is wholesome to be reminded every now and then that time is a created thing, and life possible without its limitations.

It is a pleasant reminder of the kind to look back on a holiday-trip into which the impressions of twelve months seem to have been crowded, and to know that while one has been away from home the sun has only risen and set on as many days.

CHAPTER VII

THE LAST ENGLISH HOME OF THE BEARDED TIT

'When Ducks by scores travers'd the Fens,
Coots, Didappers, Rails, Water-hens.'
'*Antiquarian Hall*,' *The Fen-Man*.

In the memoir of the Geological Survey of the country round Cromer is a rough sketch-map of the outline of the north-west corner of Europe as in all probability it existed at the Newer Pliocene period, in the far-off days when the primitive vegetation and monstrous creatures of a still earlier world were slowly giving place to plants and animals of 'more of the recent' types.

A great river, since dwindled to the insignificant Rhine, with its mushroom castles and ruins, swept through fir woods and swamps to an estuary hemmed in to the westward by a coast-line unbroken, excepting here and there by a tributary stream, to John o' Groat's, rolling down in its sluggish current stumps of trees and bones of elephants and bears and beavers, to be washed long ages afterwards from the 'Forest Beds' of Sheringham and Runton.

The swamps through which the old estuary once cut its way lie buried now in places a hundred feet and

more deep beneath Norfolk turnip-fields and pheasant coverts.

The fens of the Great Level, which, before Dutch drainers and dyke-builders had reclaimed the second Holland, were perhaps their nearest counterpart in the England of human times, are scarcely less things of the past. The marsh devils, which, until St. Bartholomew interfered and drove them off with a cat-o'-nine-tails, held open court there, and, as Matthew of Paris tells in his Greater Chronicle, came out in troops to maltreat the few hardy Christian settlers who, like St. Guthlac, as penance for past wild lives, sought holy retirement there—dragging them, bound, from their cells, and ducking them mercilessly in the black mud, 'cœnosis in laticibus atræ paludis'—now cower invisible in the ditches, or sneak out as agues, to be ignominiously exorcised with quinine. Hares and Partridges have taken the place of Spoonbills and Bitterns, and Ruffs and Reeves; and, where a few years ago Wild Geese swam, ponderous Shire cart-colts gallop, scarcely leaving in summer a hoof-mark on solid ground.

The old order almost everywhere has changed and given place to new. But there is a corner left—the district of the Broads of Norfolk—where one may still see with natural eyes what the world in those parts must have looked like in days before the chalk dam which connected England once with the mainland was —happily for Englishmen of these days—broken through, snapped by a sudden earthquake, or slowly

mined by countless generations of boring shellfish, until it gave way under the weight of the accumulating waters of the estuary, choked to the north by advancing ice, or tilted westward by some submarine upheaval. There, with a very small stretch of imagination, one may still hear mastodons crashing through the reed-beds, and British hippopotami splashing and blowing in the pools; and, as every now and then an incautious footstep breaks through the raft-like upper crust of soil, and imprisoned gases bubble up, one may, without any stretch of imagination, smell the foul stenches of Pliocene days.

The climate in those days, geologists tell us, judging by the fossil plants of the time, must—before the country was wrapped in ice—have been much what it is in Norfolk now. 'If the various sections of the upper fresh-water beds are examined, we find,' writes Mr. Clement Reid, who surveyed the country round Cromer, where the Forest Beds are most exposed, 'that all appear to have been formed in large shallow lakes like the present Broads, or in sluggish streams connected with them.'

Three considerable rivers, the Bure, the Waveney, and the Yare, after meandering through level meadows and marshes—none of the three, according to Sir John Hawkshaw's estimate, with a fall of more than two inches in the mile—join and meet the full strength of the tide in Breydon Water.

The outflow is checked, and the volume of the streams, finding no other way to dispose of itself, has

spread out into side-waters and back-waters, wherever the law of levels, the only law to which it owns allegiance, has admitted a right of way.

The result is a triangle of some fifteen or twenty thousand acres or more in which, as in the abyss through which Satan winged his way in search of the newly-created world,

> 'Where hot, cold, moist, and dry, four champions fierce,
> Strove for the mast'ry,'

land and water hold divided empire. In places the water seems at the first glance to be carrying all before it. Broad sheets (some of them a hundred acres or more) spread almost unbroken surfaces over unfathomable depths of mud. But the encircling rings of rushes, dwarf alders, and other multitudinous marsh plants, creep in insidiously, each generation growing rank and dying to make soil on which the next may find a footing for another step inwards.

The water revenges the encroachment by flooding the land wherever it finds a chance, and undermining when it cannot overflow, till it is impossible to say where the one begins and the other ends. One walks almost dry-shod across what had seemed a dangerous pool, and the next moment sinks over one's fishing-stockings in what anywhere else would have been dry land. The confusion of ideas as to the relative solidity of earth and water which results from an hour or two spent in exploring a soft 'Broad' marsh is not lessened as one sees the huge brown sail of a 'Wherry'—the craft which is said to go closer to the wind than any

other afloat—moving straight up to one, to pass by at eight or nine miles an hour, sailing to all appearance on dry ground. The navigable channels are most of them natural cuttings in the dead level of the marsh, invisible at a very few yards' distance.

The name of the long pole, which is one of the most important parts of the equipment of the Norfolk wherry—the 'Quant'—is, by the bye, a memorial of the days of Roman occupation. It was with a quant, spelt a little differently in Virgil's day, that Sergestus in the immortal boat-race tried to shove off his galley when he had cut his corner too finely and run aground; and with a quant that Charon ferried his passengers across the Styx:

'Ipse ratem conto subigit velisque ministrat.'

The entire district is unlike anything else in England, and, apart from its power of recalling the past, has an exceptional interest of its own for naturalists. It is the paradise of shy creatures of all sorts, birds especially, which love mud, or water, or reeds, and has been the last settled English home of more than one rare species. Their number, in spite of the keener interest taken of late years by landowners in bird preservation, steadily decreases.

The Avocet, with its spindle shanks and beak turned up like a shoemaker's awl, which not very long ago bred so freely in the salt marshes that 'poor people made puddings and pancakes' with their eggs, is now the rarest accidental visitor. The Bittern, compara-

tively lately a regular breeder there, no longer 'guards his nest' among the sedges and reeds; and Ruffs and Reeves are as rare as they once were common. But there is one little bird which, driven from every other part of England, has made the Broads his own peculiar property, and himself thoroughly at home there. Hardy and modest in his wants, the Bearded Tit has been essentially a home-staying bird. His ancestors seem to have elected, generations ago, that, whatever the advantage of a winter in Algeria, the disadvantages were greater, and that, on the whole, it was better to face the evils that they knew than fly to others that they knew not of.

The 'developments' of the family ever since the decision was made have been in a direction to fit them for a quiet life among the reed-beds. Other birds, smaller even than they, whose forefathers were of a different opinion, have wings now so perfected that, when soft animal food fails in England, they think nothing of a flight of a few hundred miles to a sunnier spot where fat insects may still be found.

The Bearded Tit, with his little round wings and the heavy canvas of his long tail, cannot do what they can. But he can do what they cannot, and make the most of what is to be got in the way of food at home.

In the swampy grounds from which his reed-beds grow are quantities of very small snails. Some early ancestor, feeling the pinch of hunger, ventured experimentally to pick one up and ate it, and finding out the sustaining qualities of the rich inside meat, brought up

his young ones to eat them too, and make light of the aches which a sharp-edged hard shell swallowed whole must have caused in a delicately-coated stomach.

They, in their turn, brought up their young on the same Spartan system, and now—unlike other Tits, which have most, if not all, of them tender insides, suitable enough for digesting soft insects, but unfit to do justice to anything harder than a seed well steeped in gastric juice—the Bearded Tit finds himself the possessor of an honest, sturdy gizzard, which can grind up, without the least inconvenience to the owner, any number of the shells of the snails which are its chief delicacy. As many as twenty little snail-shells have been taken from the crop of one Bearded Tit.

We wonder now why good people should have been so much alarmed as once they were at the doctrines of 'development.' It is the teaching of the Parable of the Talents extended from the spiritual to the physical world—powers neglected or abused withdrawn, others well used increased.

The shape and colour of the Bearded Tit are as specially adapted as is its stomach to the peculiarities of its surroundings.

Visitors to the Broads in midsummer who may have caught glimpses of the bird, showing itself for a minute or two at a time, a conspicuous object against the green of the young rushes, may find it difficult to realise that the Bearded Tit is, when invisibility is of most importance to it, protected by colour and form scarcely less perfectly for all practical purposes than are leaf-insects,

or stick-caterpillars, or the wonderful creatures described by Professor Drummond in his *Tropical Africa*.

But such is the case. The eggs are laid about the middle or end of April, when the tall reeds, among which the nest is built an inch or two from the ground, are ripe for cutting.

The prevailing tints of the entire district—land, water, and sky—are then the cinnamons, straw-colours, and pale blue-greys, miraculously reproduced in the feathers of the bird, which might pass for the emancipated spirit of the dead reeds of last summer. The long tail, with its pointed end, hangs down as its owner comes in sight for a moment to look about him, the counterfeit presentment of a faded frond of the stalk he grips, one foot below the other.

The Hoopoes, as the legend goes, wear their crown of feathers in memory of the day when their ancestors saw King Solomon almost fainting under a sudden burst of noonday sunshine, and sheltered his royal head with a parasol of overlapping wings.

It may be as a mark of approval of the manliness with which he faces winter on the Broad, when Snipe and other birds have been driven off by the cold, that the Bearded Tit now wears the long silky black moustache—his own peculiar adornment—which hangs from each side of the beak.

As in the nobler species, the moustache is noticed only in the males. There is a prolongation of the cheek feathers of the female also, but not the same contrast of colours.

For all ordinary winters the Bearded Tit is well provided. But, unhappily, the winter of 1890—the longest on record since the days of Lorna Doone—was not an ordinary one.

Fifty-nine days of consecutive, almost sunless, frost were recorded in London, and in parts of the Broads the weather was even more severe. The snails for weeks and months were glued fast to the ground or rush-stalks—tantalisingly in sight for much of the time, as there was no great quantity of snow, but as much out of reach of a small beak as flies in amber. The birds when most in need of a warming meat-diet were driven to depend almost entirely on such dry ship-biscuits as the seeds of reeds, without even water, excepting here and there in the running streams, to wash it down, and suffered terribly in consequence.

It was on one of the bright mornings towards the end of April 1891, when, in spite of a wind still nailed in the east, a warm sun, and such spring sounds as the call of the Nuthatch, a pair of which had from daybreak been carrying on a lively conversation over an unfinished nest in a box in the garden, encouraged the hope that the return of the glacial epoch might not after all be so near as for the last six months had seemed probable, we found ourselves, after an early breakfast and drive of fourteen miles, landing from a boat on the edge of a marsh skirting a Broad. The marsh is strictly preserved, and on it, as lately as the summer before, Bearded Tits were plentiful. We had

come in the full expectation of seeing both birds and nests, and were, if anything, rather encouraged than otherwise when the keeper—in the pessimistic tone common to men of his order when conscious that there is an unusually good head of game in front of the guns—told us that, though there was a nice lot of reeds uncut, he 'doubted' we should not find any Tits, as to the best of his belief there was not one of them left in the place.

But before an enjoyable day was over his words had acquired a different meaning. We tramped the marsh, which teamed with other bird-life, backwards and forwards. Twice we flushed a Mallard from a nest well filled with eggs. One nest, with a clutch of ten, was downed almost as thickly as an Eider Duck's, with a well-trampled path like a miniature sheep-walk leading from it to the water's edge. From behind a stook of reed-sheafs we watched for ten minutes a pair of Teal playing together—unobserved, as they supposed—in a rushy pond close by.

Shovellers, with fantastic colouring and great flat beaks out of all proportion to the size of the bird, rose more than once within a few yards of us, and, after circling once or twice, pitched again not far off.

Tired-looking Swallows sat disconsolately in parties of five or six on bushes, or rose to skim over the water in a half-hearted way, and light again.

A pair of Redshanks crossed once or twice, flying in line, one just behind the other, whistling loudly as they flew. Cuckoos called, and overhead Snipe poised

themselves, drumming and bleating, and dropped like stones as they neared the ground. In the nest of one of them we saw a beautiful instance of 'protective colouring,' the marvel of which never loses its freshness.

The keeper the day before our visit had found the nest, and for our benefit had marked the spot. It was in a line between two bushes, within half a dozen yards of one which stood alone and unmistakable on flat ground, with nothing on it bigger than a few short sprits which could hide the nest. As we neared the spot, the bird, to show there could be no mistake in the mark, rose close by us.

For more than a quarter of a hour we looked—three pairs of eyes, one pair the keeper's—crossing and re-crossing every foot of the ground, and were giving up the search as hopeless, thinking that a Crow perhaps had hunted the marsh in the early morning before us, when in the middle of a tussock of sprits at our feet we saw a Maltese cross of very green eggs, mottled irregularly with brownish red, exactly imitating the bed of deep moss from which the sprits grew.

The colour of Snipes' and many other eggs is very volatile, and no one who has only seen them 'blown' in a cabinet can quite realise their beauty when seen in the nest, fresh-laid and untouched.

At intervals of our tramp on shore we took the boat, rowing across corners of the Broad, or pushing our way through ditches or narrow twisting channels. We saw Coots' nests in plenty, and one unfinished nest of the

Great-crested Grebe—a Dabchick's nest on a larger scale. A floating mass of weeds, fished up, wringing wet, from the bottom of the water, looks a hopeless nest for a bird to hatch her eggs in; but, like a damp haystack, it generates very considerable heat.

'In a Grebe's nest,' writes Mr. Southwell in the third volume of Stevenson's *Birds of Norfolk*, 'in which were three eggs and a newly-hatched young one, the thermometer rose to 73°, showing that the nest, so far from being the cold and uncomfortable structure by some supposed, was a real hotbed. On inserting the thermometer into a beautifully neat and dry Coot's nest, which the bird had just left, I found the temperature to be 61°. The day was wet and cheerless, and the maximum reading of the thermometer in the shade was 58°.'

We saw through our glasses several Crested Grebes playing on the Broad. Oddly enough, the common Little Grebe—the 'Dabchick'—is less plentiful in Norfolk than it is in St. James's Park, where as many as five or six pairs, all wild birds, commonly nest every year.

For six or seven pleasant hours we hunted marsh and Broad with eyes and ears open. But not once did we catch sight of a feather, nor once hear the silvery 'ping' of the note of the Bearded Tit.

It was, of course, one corner only of a wide district over the whole of which the bird has been well known that we had explored. There are other Broads and marshes where local circumstances may have tempered

the killing wind. There, while we looked for them in vain, busy parents may have been working hard from morning till night to cater for the wants of hungry families safely hidden in daily thickening growths of bog-flowers and grasses, and another year the deserted reed-beds we visited may be re-peopled.

But as we drove home the conviction forced itself more and more strongly upon us, that from one at least of its most favoured haunts the Bearded Tit had disappeared, and that it was not improbable that very soon—perhaps before the year was over—naturalists might be telling the sad story of the extinction of one more English bird. Happily our gloomy forebodings have not yet been fulfilled, and the Bearded Tit is again one of the chief ornaments of the reed-beds of the Norfolk Broads.

CHAPTER VIII

ST. KILDA FROM WITHOUT

'Where the waters never rest,
Where a fledgy sea-bird choir
Soars for ever.'—KEATS.

'MOTHER,' said a little boy, whose knowledge of life was mainly confined to South Kensington, at the end of a glowing description of Eden before the fall:

'A happy rural seat of varied hue,'

—'Mother, I suppose it is all built over now?'

The little fellow's remark fairly represents the state of mind of the average country-bred Londoner towards the end of June. This world by then seems all bricks and mortar; and if in her better moments the uneasy soul does ever try to look beyond present crowded streets, and expatiate in a world to come, the chances are that, even if the attendant body is not first knocked down by a passing hansom cab, she is met and frightened back to earth by bewildering thoughts of the myriads of past generations of every shade from ivory to ebony who have lived and passed on somewhere.

At such times it is wholesome to remember, even if with little hope of ever seeing it, that there is still in

British waters one island at least where the population never increases, where the post comes in only once or twice a year, and where the conditions of human existence are much as they were a hundred if not a thousand years ago.

The hills and valleys which give so much of its picturesqueness to the north-west of Scotland do not end at the coast-line, but are continued, as soundings show, under the sea some eighty or a hundred miles beyond the Hebrides. At the extreme western edge of this underwater mountainous tract — which contains, perhaps, the best fishing-grounds in Europe—just before the bottom settles down to ocean depths in the open Atlantic, is a small oval bank of shallow water, from which rises abruptly, like the peaks of a submerged mountain, a little cluster of precipitous islands.

Until a year or two ago, when summer excursion steamers began to visit it more regularly, St. Kilda, or, as the natives still prefer to call it, Hirta, the chief and only inhabited island of the group, was comparatively unknown.

Every now and then it emerged for nine days from its obscurity, when a corked bottle or toy ship, carrying a message on which life or death depended, was washed ashore somewhere on the opposite coast, announcing, as in 1877, that an Austrian ship had been lost on the rocks, and that, with the extra mouths of the rescued crew to be filled, provisions could not hold out long; or, as in 1885, that a storm had swept the island and destroyed the crops. Once in its history

St. Kilda has been honoured with a Parliamentary Debate to itself.

In 1869, when the first Sea-bird Preservation Bill was under discussion, the Duke of Northumberland rose in his place in the House of Lords to move the addition of a clause: 'The operation of this Act shall not extend to the Island of St. Kilda.'

The amendment was opposed by a second Duke, who, in advance of his times, argued that where there was no policeman to enforce an Act it was unnecessary to enact that it was not to be enforced. A third Duke replied (no legislator of humbler degree took part in the debate), and—the House very properly hesitating to give its sanction to the shocking morals propounded by the noble objector—the clause was accepted without a division, and has since been embodied in subsequent Acts. Parliament has been before now likened to the elephant's trunk—which can pick up a pin or uproot a forest tree. But it would be difficult to find another instance in which the wants of a population of less than eighty[1] all told have been provided for by special legislation.

There is a tradition that the sixty or seventy miles over which the Atlantic now rolls, between St. Kilda and the nearest point of the Hebrides, was once bridged

[1] The population of St. Kilda, as shown in the Census returns, was:—

	MALES.	FEMALES.	TOTAL.
In 1861 . .	33	45	78
1871 . .	27	44	71
1881 . .	33	44	77
1891 . .	32	39	71
1901 . .	38	39	77

by an isthmus, across which the hounds of a great huntress, 'The Greatly-Savage, Soft-skinned, Red-haired Muiream,' ran deer from Conagher to the Butt of Lewis.

The lady—whose fame Captain Thomas, R.N., in an interesting paper published in the *Proceedings of the Society of Antiquaries of Scotland*, traces in the legends of both islands—like Samson in the Temple of Dagon, met her end in a way that did no discredit to her reputation, 'the dead which she slew at her death being more than they which she slew in her life.'

Her husband, the king's fisherman, was out in his boat, and had just caught a sturgeon, when a party of marauding Irish set upon him, stole his fish, and, on his mildly protesting, belaboured him with it within an inch of his life.

No one who has not seen such a club brought into active play is likely quite to realise what a formidable weapon a big fish in the hands of an angry man can be; nor, having seen it, as it was once the writer's fortune to do, is likely soon to forget the sight.

We were driving from the Baltic port of Abo, through pine woods and boulder-strewn mosses, cut up by streams and white lakes, and dotted here and there with cultivated patches and the log huts commonly used in Finland for smoke-drying the crops, to a fishing-ground a hundred miles or so inland. A couple of hours of daylight had been wasted in an unsuccessful attempt to stalk some Cranes, which had flown over us with necks, not bent backwards between the shoulders,

as a Heron carries its neck, but stretched stiffly forwards. We had marked the birds down in an oat-field, a few hundred yards off the road, where, in spite of all our efforts to outwit them, the eyes of four sentries, who stood on duty, straight as gateposts, while the others fed, had proved too sharp for us.

The daylight had almost gone as, with several stages of the road to be driven still before us, we pulled up for fresh horses in the courtyard of a change-house, standing between lake and forest. The day's work was over. There was a noisy gathering of men and women and children in the yard, and the competition for the honour of driving us the next stage was keen.

A hulking fellow, in a sheepskin coat, in the quarrelsome stage of drunkenness, took possession of the box-seat of our carriage, and, refusing to give way, was seized by two or three others and violently ejected. As he rolled on the ground swearing, a boy, merrily singing at the top of his voice, jumped up and slashed the ponies. The picture which we looked back upon, as we started at a gallop, followed by the baggage-cart, driven by a laughing girl, is as fresh in the memory now as the day it was painted.

The sun had just set. Wreaths of mist were creeping up from the lake to the fir-trees which were massed in purple against a sky of transparent green and orange. In the middle of the inn-yard raged our friend, driving all before him as he hit right and left with a big salmon, snatched dripping from a pickling-tub, gripped with both hands by the tail.

Formidable enough as is a salmon as a club, it is nothing to a sturgeon, with its chains of diamond-shaped pyramids of outside bone—the last survivor, in European waters, of the mail-clad Ganoids which struggled for existence among the crocodiles and flying monsters of a primitive world, and no wonder Muiream's poor husband, when carried into his master's presence to tell his story, was more dead than alive.

But he had not to wait long for his revenge.

The same night the lady crossed alone in a boat to Ireland, and, surprising the camp, killed the king's son and a hundred of his warriors, before her passion was stilled for ever by a stone dropped on to her head from above, as she stood, like Fitz-James, with her back to a rock, defying the whole host of the Irish.

A curiously-shaped chambered beehive-hut, which has puzzled more than one antiquary, and a spring in St. Kilda, are still known as the 'Dairy,' and 'Well of the Amazon.'

The Soft-skinned Muiream is not the only peppery lady whose name holds a prominent place in the annals of St. Kilda.

In these days of woman's rights and newspapers, it is not easy to realise that little more than one hundred and fifty years ago it could have been possible for a man, in a conspicuous public position, to deport a troublesome wife, and keep her in banishment for years, without apparently any inconvenient consequences to himself.

But this is what Lord Grange, one of the most

distinguished lawyers of his day in Scotland, with the help of his infamous boon companion, the Lord Lovat, who, after Culloden, atoned for many abominations on Tower Hill, actually did.

Lady Grange had, by her own admission, a tongue in her head. 'There is no person,' she pathetically writes, 'but has his faults,' and, until adversity had broken her spirits, was not, perhaps, disposed to be as blind as a well-trained eighteenth-century wife was expected to be to a husband's irregularities. They had agreed to separate; and she had taken lodgings in Edinburgh. What followed is best told in her own words, written,[1] 'with a bad pin,' from St. Kilda, on the 20th January 1738, to a cousin who, though she could scarcely then have known it, was, at the moment, Lord Advocate for Scotland.

'I lodged in Margaret M'Lean house and a little before twelve at night Mrs. M'Lean being on the plot opened the door and there rush'd in to my room some servants of Lovats and his couson Roderick Macleod he is a writter to the Signet they threw me down upon the floor in a Barbarous manner I cri'd murther murther then they stopp'd my mouth I puled out the cloth and told Rod: Macleod I knew him their hard rude hands bleed and abassed my face all below my eyes they dung out some of my teeth and toere the cloth of my head and toere out some of my hair I wrestled and defend'd my self with my hands then

[1] The letter from which the extracts are taken is published at length in the *Proceedings of the Society of Antiquaries of Scotland.*

Rod: order'd to tye down my hands and cover my face most pityfully there was no skin left on my face with a cloath and stopp'd my mouth again they had wrestl'd so long with me that it was all that I could breath, then they carry'd me down stairs as a corps at the stair-foot they had a Chair and Alexander Foster of Carsboony in the Chair who took me on his knee I made all the struggel I could but he held me fast in his arms. My mouth being stopped I could not cry. All the linens about me were covered with blood.'

A Writer to the Signet had been one of the party who carried her off, and it was in the house of an advocate, 'a little beyond Lithgow,' that Lady Grange was first hidden. Thence a little later, without knowing where she was going, or what was to become of her,—at one time imprisoned in 'a low room all the windows nailed up with thick boards and no light in the room . . . . left all aloan and two doors locked on me,' at another time taken 'naked' from bed 'by force and put upon a horse where I fainted dead away'—she was carried to Huskre, a little island oft Skye. The poor lady must finish her own story:—

'On the 14 of Jun: John Macleod and his Brother Normand came with their galley to the Huskre for me they were very rud and hurt me sore. Oh alas much have I suffer'd often my skin mead black and blew, they took me to St. Kilda. John Macleod is call'd Stewart of the Island he left me in a few days, no body lives in it but the poor natives it is a viled neasty stinking poor Isle. I was in great miserie in the

Husker but I 'm ten times worse and worse here.' And yet she writes earlier in her long letter 'He was my idol! He told me he loved me two years or he gott me and we lived twenty five years together few or non I thought so happy!!'

Lady Grange seems to have been about eight or nine years in St. Kilda before she was allowed to return, and then only to die soon afterwards in banishment scarcely less complete, in Skye.

In many ways the solitary little group is of exceptional interest.

Antiquarians and students of men and manners may find subject for congenial speculation in the doubtful origin of the inhabitants and their four-horned sheep, and the identity of their patron saint, unnamed in any calendar, and may read a curious illustration of the almost infinite gullibility of humanity in the story of the impostor Roderick—begun by Martin and finished by Macaulay—who, towards the end of the seventeenth century, for six years or more ruled supreme in the island, robbing the men wholesale, and debauching the women in the name of St. John the Baptist and the Virgin Mary.

Advanced politicians may study, in a pure democracy, the working of a code of game-laws as absolute and perhaps more rigidly enforced than in the most aristocratic country in Europe, even the minister, who, until his retirement ten or twelve years ago, was powerful enough to put a stop to whistling in the island, and to decree the observance of two Sabbaths weekly, being as

dependent for his Gannets and Fulmars on the good-will of privileged families as any country parson on the squire for a brace of Pheasants.

For doctors to investigate there is the cnatan-na-gall—the feverish epidemic cold, in some of its symptoms very like influenza—supposed to be peculiar to the island, described again and again for more than two hundred years: laughed at by travellers from Dr. Johnson downwards, but none the less believed by the natives to follow almost invariably the arrival of strangers.

A more terrible mystery, still unexplained, is the 'eight-day sickness,' the infantile lock-jaw, which for many years carried off more than half the children born in St. Kilda, commonly, as the name given to the disease implies, on the eighth day after birth.

The late Miss MacLeod, of Dunvegan, the good spirit of St. Kilda, thinking that unscientific nursing might be the true explanation, sent over a trained nurse. Great things were hoped from her services, and Mr. Connell, who soon after visited the island, wrote on his return that things 'looked as if a rift in the cloud had really made its appearance, and that the high rate of infant mortality was to be a thing of the past.' Recent returns, sad to say, have not justified the hope. In the first six months of 1891 three babies were born. Two of them died of the 'eight-day sickness.' During the ten years 1891-1900, four children died not more than fifteen days old. Of these two died on the eighth day of lock-jaw.

But many as are the other interests touched, it is for

ornithologists that St. Kilda reserves its chief fascination. In no other spot in British waters, not even excepting the marvellous Noup of Noss in Shetland, do sea-birds of many kinds congregate in anything like the same numbers. It is the last recorded haunt of the Great Auk, and the breeding-place of ninety-nine at least of every hundred Fulmars that nest within the limits of the British Isles.

The Fulmar, which is the chief source of the islanders' wealth, supplying—to quote an old writer—'oil for the lamp, down for the bed, the most salubrious food, and the most efficacious ointment, and possessing a thousand other virtues,' is a typical representative of its class, the Tubinarides, which—varying in size from 'Mother Carey's Chickens,' with bodies less than a Sparrow's, to the great wandering Albatross, with a stretch of wings of sixteen or seventeen feet,—are all formed on the same general lines, fitting them for a life spent almost entirely on the wing. The most marked characteristics of the family, next to the great development of wing muscles, are the nostrils, which, instead of being, as in most other birds, mere slits in the beak, take the form of prominent open tubes, through which the air—a free current of which is, it is easy to understand, essential for long untiring flight—passes to the inner air-vessels unchecked. In some of the tribes the tube-openings are at the side of the beak, ending, as in the case of the great white Albatross, with the upward curl of a cavalry officer's moustache. In others, the tubes run straight out like pistol barrels, single or double, resting and

ending abruptly on the upper part of the beak. What is given to the wing is taken from legs. A Fulmar in confinement, even if it can be induced to feed, commonly dies almost at once of cramp in the thighs.

When poor Lady Grange called St. Kilda a 'stinking' isle, she used the word probably in a more literal sense than that attached to it in the ordinary schoolboy's vocabulary. The Fulmar is a living keg of strong, musty, scented oil, the smell of which is said to pervade the whole island and everything in and about it. The eggs, which in shape and colour are not unlike large, finely-grained, and very white and thin-shelled hen's eggs, retain the smell for years, strongly enough, when a drawer is opened containing one of them, to scent the entire room.

Three years running, with the special object of seeing the gathering of the Fulmars, we had perseveringly planned expeditions to St. Kilda. In 1889, inquiries, which failed in the end, as the locality is not popular with shipowners, were made for a steamer to take a party of congenial spirits for a few weeks' exploration. The next year—a humbler programme—berths had been engaged in the earliest tourist boat. But as for two days before the time fixed for sailing a gale had been blowing, it seemed useless to rush off to Oban with the almost certainty of getting no farther. The third attempt was to be the lucky one, and everything looked well. The census was to be taken at the end of June, the height of the breeding season, and one of Her Majesty's ships, with a spare cabin, was told off for the trip.

On a lovely still evening—an eighth or tenth consecutive day of dead calm, after a night and day journey without a break—we left the train at Strome Ferry.

There was not a ripple in the land-locked bay where the two steamers—the one bound for the Skye ports, the other for Stornoway—lay with steam up, and as we moved out we could not have wished for fairer promise.

But alas!—

> 'Not seldom evening in the west,
> Sinks smilingly forsworn.'

There was an unnatural oiliness in the calm of the sea, and, as we cleared the successive headlands, and came more into open water, the masts began to sway slowly and steadily backwards and forwards, far out on each side. The cordage creaked and strained with the monotonous regularity of the snore of a heavy sleeper, and we were aware of an ominous groundswell, the reflex of tremendous waves somewhere. The surprise was less, but not the disappointment, when, on steaming into Stornoway Harbour late on Saturday night, the first news which greeted us was that the storm cone was hoisted.

Our ship, the *Jackal*, was timed to start about eight on Sunday evening, and by luncheon-time we were on board.

The afternoon slipped pleasantly by, spent chiefly in watching one of the sights—familiar enough to those who occupy themselves on the great waters, but ever new to a landsman—which help one to realise the meaning of the extraordinary powers of reproduction

with which fish are gifted. A shoal of small fry of some kind had found its way in, and was moving about the harbour with the usual escort, coming every now and then within a few yards of the ship's sides.

Great fish glistening like silver, doubling in loops (heads and tails almost touching), were in the air together, six or seven at a time, mixing in wild confusion, and changing elements with screaming Gulls, Gannets, and Terns, which dropped like stones into the sea, while a Black Guillemot, keeping well clear of the ruck, dived in and out, his carmine legs flashing, and popped up time after time with a little fish in his beak, till the wonder was how he could possibly swallow another. In the height of the excitement a porpoise, puffing and wheezing like an asthmatic old gentleman in a hurry to catch a train, bustled up, passing within ten yards of us, to join the fun.

In the Ninth Report of the Fishery Board for Scotland, presented to Parliament in 1891, is a Report on the Comparative Fecundity of Fishes, by Dr. Wemyss Fulton, which gives some figures which make it easier to understand how it is that, with so many enemies to contend with, any little fish live to grow up.

A single ling, which seems to be the most prolific of the many kinds reported upon, can, it has been proved, produce from 20,000,000 to 30,000,000 eggs in one season.

With such a record to head the list, such paltry clutches as 47,466 for a herring, and 806,459 for a haddock, seem too insignificant to be worth mentioning.

It was once calculated by Mr. James Wilson, the ornithologist, that the Solan Geese breeding in the colonies of St. Kilda alone must devour every year something like 214,000,000 fish.

At eight o'clock on Sunday night the cone was still up; but as there was still but little wind, the anchor was weighed and we steamed out, only to meet a white fog, which crept in from the Atlantic and drove us back to anchor again for another four-and-twenty hours.

At last, on Monday evening, the Butt of Lewis was rounded, and the ship's course shaped for St. Kilda. Eighteen hours later the anchor was dropped again in smooth water, this time in Loch Roag, a land-locked harbour to the north-west of Lewis, half a mile from a miniature Stonehenge which crowned a neighbouring slope. We had been within fifteen miles of our destination, and had been forced by a freshening gale to put back and run for shelter, and were not sorry when we reached it. All the crockery in the ship was not broken, for an excellent luncheon, with all necessary plates and glasses, was soon ready for us.

For the rest of the day it blew and rained, and next morning was blowing still, with no sign of a change for the better in the weather, and, as time was limited, we could only bow to superior force, accept a defeat, and drive the fifteen miles to Stornoway, passing halfway across a lonely lake with a little island, on which a pair of Great Black-backed Gulls had made their solitary nest.

A rumour soon after found its way southwards, through the *Oban Times*, brought by the passengers on board the *Hebridean*, which effected a landing not many days after our unsuccessful attempt, that since the St. Kildians had then last held communication with the outer world, two strange birds, 'like Razor-bills, but twice the size'—a fair rough description of the Great Auk—had been seen by more than one of the islanders. Stories to much the same purport have, during the last eight or ten years, come from the coast of Norway.

There is nothing impossible in the idea that the bird may be still in existence somewhere, and nothing more probable than that, in such case, one may sooner or later find its way to St. Kilda, where it was once common.

Martin, writing in 1697, mentions it first in the list of sea-fowl visiting the island—'the stateliest as well as the largest of the sea-fowl here. He comes,' he writes, 'without regard to any wind, appears the first of May and goes away about the middle of June.' Sixty years later its visits were becoming less regular, but it was still a familiar bird. Macaulay, who visited St. Kilda in 1758, as missionary from the Society for Propagating Christian Knowledge, which, as he tells in his preface, took 'a peculiar concern in the people of that Island,' says that he had not himself, during his stay, 'an opportunity of knowing it.' The St. Kildians do not, he adds, 'receive an annual visit from this strange bird as from all the rest on the list and many more. It keeps at a distance from them, they know not where, for a course of years. From what land or ocean it

makes its uncertain voyages to them is a mystery of nature.'

There is something dramatically appropriate in what, until rumour gives way to something more definite, must be considered the last appearance of the Great Auk. The story is told by the authors of the *Fauna of the Outer Hebrides*, on the authority of Mr. Henry Evans of Jura, who learnt it from old men who had known the chief actors in the tragedy.

In the month of June, in or about 1840, three men from St. Kilda landed on a neighbouring rock, the Stack-au-Armine. Half-way up the Stack they found a strange bird.

'Prophet-like that lone one stood'

—the last of his race. One of the three men caught it by the neck, while the others tied its legs. For three days it was kept alive, but on the fourth day a storm sprang up, and it was sentenced to die as a witch. Solitary, and misunderstood, the bird fought hard to save a species from extinction, biting nearly through the ropes that tied it, and was not killed until it had been 'beaten for an hour with two large stones.' An Auk's egg was sold by auction in Stevens's Rooms, in 1888, for £225. It would be curious to see what Lauchlan Mackinnon, who, if living still, would be little over ninety, could now get for such a captive, well advertised for sale, alive.

Most of the early writers mention, as a characteristic of the 'Gair Fowl,' a 'hatching spot—a bare spot,' that

is, writes Martin, 'from which the feathers have fallen off with the heat in hatching.' The peculiarity is noticed in its Gaelic name, 'An Gerrabhal,' translated by Mr. A. Carmichael 'the strong, stout bird, with the spot.'

The presence of 'the spot' on the breast of the Great Auk is the more worth noting, as a story told by earlier travellers of a nearly allied bird, one of the Great Penguins of the Southern Hemisphere, but not, perhaps, very generally believed, has lately been found to be true.

The bird has between its legs a fold of bare skin and muscle, hidden under the breast feathers, forming what is practically a perfect pouch, in which it can, and, as proved by the officers of the *Challenger* Expedition, actually does, carry its egg.

The town of Stornoway, when we reached it, was astir with men and girls busy with preparations for a start southwards by a special steamer, to sail in the small hours next morning.

The fishing, just over, had been another instance of the 'glorious uncertainty' which adds half its zest to idle sport, but is a terrible fact to be reckoned with by those whose provision for wives and families is dependent on their earnings.

The Barra herrings, which, for some reason which no one seems quite able to explain, fetch higher prices in the foreign markets — Russian especially — than any others, had failed entirely. The fish landed at Castle

Bay were little more than a third of the average catch of the last eight years, and less than a quarter of the catch of 1885. In Stornoway, only a few miles to the northwards, the take was almost unprecedented.

A thousand girls, imported by the curers from Yarmouth, Grimsby, and other southern ports, engaged for the season at 16s. a week—fish, or no fish—with a free passage from and to their homes, were busily employed for weeks cleaning the fish, and though the work was over before our return, the air within a circle of half a mile of the town was still heavy with the faint oily smell of herrings.

Our steamer, which carried also its full contingent of fishermen and girls, sailed at midnight. By noon the following day, after a bath and breakfast at Strome, we were rocking along the Highland line, pitching and tossing in a manner which would scarcely have imperilled the reputation of the *Jackal* as the liveliest sea-boat in Her Majesty's Navy.

The hills and woods in the soft monotonous green of early summer looked smaller, but scarcely less beautiful, than in the reds and golds of autumn more familiar to southerners. Brown-headed Gulls flew peacefully over the lochs, and every now and then a Heron lifted a long stiff neck from a reed-bed without troubling himself to rise. Once as we rounded a corner we came suddenly upon two fine stags within a hundred yards of the wire fence which shut off the line. They lifted their heads for a moment in perfect unconcern, and before we were out of sight were browsing again; the

pale-coloured patch near the tail which, more or less distinctly marked, is a characteristic of most of the deer tribe, showing conspicuously as they stood with backs towards us in the sunshine.

In most of the more genuinely wild species, the patch round the tail is more clearly marked than in the red deer, and, if the conclusions of Mr. Wallace are correct, plays an important part in the preservation, at least of the more gregarious families, serving as a mark of identification by others of the same species, and as a signal of alarm when one of the herd scents danger.

The scud of the rabbit serves, we are told by naturalists, in part at least, the same purpose. It is inconspicuous so long as its owner is quietly feeding in the dusk, but the moment he is frightened and starts post-haste for his hole, it is waved as a white danger flag for the benefit of the many who are pretty sure to be feeding near.

Altruism—clumsy and un-English as the new-fangled word sounds, it fills a gap in the language—is, at least throughout the lower orders of creation, the law of Nature. The individual must suffer for the benefit of the species. The white tail of the rabbit is an allegory. Its owner affords a clear shot in the dusk that his brothers may be warned of the danger before it is too late.

Of deer and of rabbits it is true, as of men, that 'None liveth to himself, and none dieth to himself.'

It was tantalising after three years' planning to have

been brought at last within fifteen miles of the Holy Land of one's longings and then to be turned back. But, happily for most of us, in this world of light and shade, the minor trials of life, at least, commonly bring with them the element of compensation which

> 'Gives even affliction a grace,
> And reconciles man to his lot.'

To return to London without having caught a glimpse of the Peak of Conagher was a disappointment. But perhaps on the whole it was well.

As one gets on in life the pleasant illusions of youth which survive become fewer, and it is something to have spared even one of them.

If the wind had slept for another day, or if it had awakened in any other quarter, St. Kilda would probably have been now for us a hilly island, inconveniently situated; disfigured by unromantic cottages with corrugated iron roofs; with a population a little spoilt by the visits of excursion steamers; with birds on the cliffs more plentiful even than we had pictured them, but with very little else to distinguish it from many another island more easily to be got at.

But the wind roused itself to blow freshly from the south-east, the one quarter to which the bay and landing-place are hopelessly exposed, and St. Kilda is still the Garden of the Hesperides of boyish dreams —the inaccessible, enchanted island where the reckless fowler let go his rope as he gathered eggs in the recess into which he had swung himself under the overhanging rock half-way down the cliff, and nerved

himself to spring six feet over eternity and catch it as it swung loose in the wind; where the father, when he saw the rope, on which he hung below his boy, chafing against the sharp edge of the rock above, and no longer strong enough to carry both, drew his knife and cut his own weight off to save his boy; where the miracle of feeding the Israelites in the desert, and Elijah by the Brook Cherith, is still every year renewed, and the meat of the people brought on the wings of birds, at the ordering of the God of Nature, who teaches 'the Stork in the heaven to know her appointed times,' and Fulmars and Gannets, as well as 'the Turtle, the Crane, and the Swallow, to observe the time of their coming.'

CHAPTER IX

IN DUTCH WATER MEADOWS

'Where the pent ocean, rising o'er the pile,
Sees an amphibious world beneath him smile.
The slow canal, the yellow blossomed vale,
The willow tufted bank, the gliding sail.'—GOLDSMITH.

IN these materialistic days it is at the bidding of the poet only that the shadow of the sundial moves backwards. If the more glaring the improbabilities in the face of which the miracle is performed, the greater the genius of the worker, among the greatest of the poets and poems of recent days must be Goldsmith and his *Deserted Village*. Sweet Auburn, with its garden-flowers growing wild, and Bitterns returning to nest in spots where once villagers had danced and talked local politics, is as real to most of us as Charing Cross, though we know well enough that as 'wealth accumulates,' trim gardens, instead of running to waste, push out in every direction. It is the Bittern which is giving place to man, and not man to the Bittern; and if we want to see anything of these and other Waders which only a generation ago were common in England, we must turn our backs on home, and look to countries

where unreclaimed land is, in proportion to population, greater than it is with us.

Slowly or quickly, the same process of extermination is going on everywhere. The Dodo and Great Auk have disappeared. The Ground Parrot, the Kiwi, and the Bison are disappearing. The northern half of Texel, not long since the chief of European breeding-stations for long-legged birds, is drained and ploughed, and is Eerland—'Eggland' no longer in anything but name.

But places are still, under good guidance, to be found where the shadow seems to have stood still, and where —as in Prospero's Isle—the air in spring and early summer is 'full of noises, sounds, and sweet airs,' as if all the electric bells and flutes in the world had taken flight together, and where the intruding listener's ears are all but boxed with the wings of indignant Peewits and Redshanks. It was in such a spot that we once found ourselves on the 3rd of June.

We had crossed by Rotterdam and spent an afternoon in the Museum at Leyden, inspecting, under the guidance of Dr. Jentinck, the Director, some of the most precious of the treasures there. A Duck and other birds believed to be unique, or almost unique, examples of extinct species; the Pigmy Hippopotamus from St. Paul's River; the Banded Bush Buck, unknown until Herr Bütekoffer lately brought it from Liberia, excepting from two imperfect skins—one of them made up into a native African hunting-bag—from which had been evolved and fairly accurately

figured an undiscovered antelope;[1] the rare Flat-nosed, Two-horned Rhinoceros; a Great Auk in good preservation; a huge and almost perfect Epiornis egg, bought from a Frenchman for a thousand guilders—in our money about £80—something less than a third of the price paid not long ago for an Auk's egg sold by auction at Stevens's rooms.

After a five-o'clock *table d'hôte*, with a *menu* to remind us that we had crossed the Channel, a *water souchet* of Perch with resplendent fins, served with boiled parsley, Chicken with *compôte de fruits*, etc., we had made the most of the remaining hours of daylight by driving out beside canals and ditches glorified by a golden sunset, and through copses ringing with the songs of Ictarine Warblers and Nightingales, to see a Stork's nest, the pride of a neighbouring village. It was on a cartwheel on a high pole in a meadow, near the church, carefully fenced in. Both birds were at home. As we came up, the female, who was 'sitting,' lifted her head for a minute, and, coming to the conclusion that we were harmless, settled down again. Her mate rose and sailed slowly round the meadow, to return again very soon, and when we drove off stood on one leg, a feathered St. Simeon Stylites on his column, sharp cut in purple shadow above the trees, beside the low-spired tower, against the evening sky.

[1] A figure of the Banded Bush Buck, with horns and hoofs judiciously hidden by foliage, as neither of the skins had heads or legs, was published in 1841 in the *Zoologia Typica*, by Louis Fraser, naturalist to the Niger Expedition.

Storks are becoming much less common in Holland than they were a few years ago, and though occasionally we saw a stray bird or pair, this, and one other of which a passing glimpse was caught from the train, were the only nests we saw.

We had steamed next day in a spanking breeze from Helder, the Portsmouth of Holland, across the Dutch Solent, through a fleet of Texel trawlers, which lifted at one moment their heavy bows clean out of the water, and the next moment dipped until half hidden in clouds of spray. We had spent a quiet night in the cleanest and sleepiest of little inns, and—after an early breakfast in a room looking out on a miniature square paved with bricks on edge, in deep shade, excepting where dotted with the few specks of almost tropical sunshine which found their way through the foliage of twenty-nine closely planted lime-trees in full leaf, resonant with the notes of Warblers and Starlings—had been driven with a pair of fresh horses for some miles along the top of a wall like the back of a knife, on the one hand the sea, on the other, apparently at lower level, ditches and meadows. From the top of the wall we had dropped down suddenly to an inland country, to be reminded that the sea was not twenty yards off, as every now and then the sails of a fishing-boat showed over the green banks which we skirted.

For another mile or two we had jolted along a cart-track, till, our coachman having lost his way, we were brought to a full stop by a ditch and rail. At last we had succeeded in finding and introducing ourselves to

the agent, who, with the kindness almost invariably shown by the Dutch to strangers, had given us leave to wander at will over the land under his charge.

It was a 'polder,' a wide tract comparatively lately reclaimed, intersected in every direction by ditches at right angles; in some parts dry and cultivated, in others, on the seaside especially, still in a half swampy state.

It was here, where the deep green of the grass was in some places broken with sandy strips and muddy inlets, and in others bright with thrift and white and yellow blossoms of different kinds, that the birds and nests of which we were in search were most plentiful. The air was filled and the marsh and meadows alive with noisy Redshanks and fairy-like Terns, the 'Common' and the 'Lesser.' Oyster-catchers, affected with the usual low spirits of their race, lolled about in disconsolate attitudes, or rose with a melancholy piping as we came too near them; and, where the grass gave place to pale-coloured mud, Kentish Plovers, elsewhere rare, looking more like little balls of living sand than birds, trundled themselves at a great pace out of our way along the water's margin.

For these and many others, any of which would elsewhere have been worth a special pilgrimage to see, we had no eyes to spare.

We were in one of the chief of the few remaining summer-homes in Western Europe of the Avocet, once common, now practically extinct in England.

One of the last of our old-established colonies was at Salthouse, on the Norfolk coast, and was, according to

tradition, destroyed in the first half of the last century for the sake of the birds' feathers, which were in request at the time for making artificial flies.

No one who has only seen an Avocet stuffed can form any idea of the grace of outline and motion of the living bird, nor of the bewildering permutations and combinations of its zebra stripes of black and white.

For half a moment, as it settles, the bird is still, and you see two distinct horseshoes of jet on a snowball. Before the roughest sketch is possible the position of the restless wings shifts and the horseshoes meet and open into a double heart, one inside the other. It rises, breast towards you, and you see a bird, pure white excepting at the wing-tips, which look as if dipped in ink. It turns sharply off, with the everlasting 'Kiew! kiew!' and you seem to be looking, not at a bird, but an overgrown 'Bath-white' Butterfly.

At last you have had one quiet before you long enough to be satisfied at least that the tail is black, and are hurriedly scratching a sketch accordingly, when the black flies up on the tips of the wing and the bird is off, turning towards you a tail of the purest white.

They were very plentiful, and wonderfully tame. We must have seen something like fifty on the one corner of the polder, to which they seemed mainly to confine themselves, and where we found both eggs and young birds.

As we lay for luncheon on our macintoshes spread

on a patch of thrift, not far from the water's edge, the old birds played and fed close by us, swinging sideways, their slender turned-up beaks—like strips of bent whalebone—splashing visibly at times with the strokes, and ran bent forward through the water, sometimes breast-high, with a quick, jerky, and rather laboured step, the position of the body and action suggestive of a long-legged, paddling child in a great hurry to get a shrimping-net on shore.

The neck, as the bird ran or fed, was commonly drawn backwards with a curve like the droop of the dewlap of a cow. The young birds, of which we caught two in different stages of growth, mimic their mother's steps as they run, and could be identified by this even without the fascinating little baby *nez retroussé* which makes mistake impossible. One, a little striped puff-ball, which could not have been many hours out of the egg when we found it, feigned desperate illness rather too well, and was all but pocketed as past all hope of recovery, but when left alone, unobserved as it supposed, on the grass for a few minutes, rose quietly, and after creeping slowly through the stalks for a foot or two, reached a sandy 'grip,' when it set off running at a pace miraculous for so small a creature.

The legs of the old birds are bare for some inches above the joint, which is very prominent, and are of a silvery grey, not many shades removed from Cambridge blue, and are more slender than in the pretty picture in Lord Lilford's book.

In flight the legs are tucked tightly under the tail, of

which, when the bird is in the air, they seem a part. The body is exceptionally flat, so much so that an Avocet flying looks as if it could have no stomach.

In spite of their slender make they are courageous, and if offended fly at more stoutly-built birds. A couple of days later, on another marsh, we watched for ten minutes or more one of them vociferously attacking a Brown-headed Gull, who—perhaps because it had been sucking eggs, and conscience had made a coward of it—was evidently very anxious to shake off its pursuer. The Avocet circled upwards like a Falcon, and swooped with a scream again and again at the Gull from above, never, so far as we could make out, actually striking it, as the scarcely heavier Richardson's Skua would have done if offended, but swerving sharply to the right or left when within a foot or so of its enemy.

Not far from the flowery slope on which, 'at ease, reclined in rustic state,' we sat to lunch and meditate, was a ditch rather wider than some—one of the arteries of the polder. The mud of successive cleanings had been thrown out on the side nearest to us, and had dried into a bank a little above the general level. It was what in old days was known in the Fens and Broads as a 'hill'—a gathering-place of Ruffs, birds which once, like Avocets, were common in England, and are now scarcely less rare.

More than once we counted nineteen or twenty of these curious birds together on the hill, and many others constantly came and went. Much has been written of the fights of Ruffs, which—unlike most, if

not all, the rest of their class—do not pair, but are, like Pheasants and Barndoor Fowls, polygamous.

But, perhaps because questions of precedence had already been settled, or perhaps because it was not until towards the afternoon of a hot day that we found them in any numbers, we saw nothing ourselves to justify their distinctive epithet, *Pugnax*.

Every now and then one of the party rose, bowed, and pointed his beak at a neighbour, who acknowledged the compliment in the same manner. The two, to borrow a phrase from *Punch*, 'flashed their linen,' ruffling their frills to make them show to the greatest advantage, bowed a second time, and settled quietly down again. There was occasionally a little momentary excitement, as another of the privileged circle dropped in, looking as he flew with ruff closed like a little Pouter Pigeon, but nothing like quarrelling. Everything was done with quiet decorum, and the general effect was more that of a select club window in St. James's Street on a June afternoon than of a duelling-ground.

No European bird, probably, varies in colour to anything like the same extent as the Ruff. Of the many we saw no two were nearly alike in plumage. One that we watched from close by with a glass was noted as having a chestnut ruff with a black face. Another had an almost pure white ruff and chestnut back. A third had a white ruff, broadly tipped with black, and a back of the sandy dun of a Little Ringed Plover. A fourth had a ruff of black and white in

diamonds, like a shepherd's plaid. Two were, or appeared to us to be, ruffs and all, whole coloured, the one a neat uniform slate grey, the other cinnamon. Another, a great beauty, had a ruff of the darkest glittering purple shot with blue. The eggs of the Reeve are smaller and more highly polished than those of the Redshank, which they generally resemble, and are commonly more richly and uniformly spotted. The age at which the Ruff in a wild state justifies his name and dons his Elizabethan collar, is a little doubtful; but there is not much doubt that it is not until he is at least two years old.

Our attention had been so much occupied with the larger and more obtrusive birds, that we had not much time left for the little birds. But among many which elsewhere would have been remarkable were a pair of Blue-headed Wagtails, with breasts of vivid yellow, and a third Wagtail almost pure white. The last was in company with a female of the ordinary 'pied' species, of which it was probably an accidental albino variety. We saw it twice at an interval of an hour or two, at the same spot, beside a ditch, where it probably had a nest.

To the south of our polder lay a narrow tract of sand-hills which, seen through the shimmering heat from the dead level of the old sea-bottom, looked like a distant mountain-range. It was a pleasant change, after having been scolded for hours in shrill tones in every key, to climb the first ridge and drop into

another world. Excepting when, every now and then, birds, singly or in pairs, passed overhead, the noisy tribes of the flat lands and ditches were left behind, and not a sound was to be heard louder than the gentle rattle of the dry bent as it moved in the breeze, the trill of one or other of the little Warblers, which in summer-time are commoner, perhaps, in Holland than anywhere, or the song of a distant Lark in a sky the faint blue of which blended perfectly with the pale browns and yellows of sand and bleached grasses.

As we sat among the sand-hills enjoying the calm, three Hares, smaller and darker than our own Lowland Hares, followed a few minutes later by a fourth, passed within ten yards without noticing us.

Our first day in Texel was past and gone, a pleasant recollection only. A second and a third, as pleasant, followed, to fly as fast.

In a slushy water-meadow, eight or nine miles from our first hunting-ground, we stood in the middle of colonies of the Black and Common Terns, which bred in sociable company with Godwits and Black-headed Gulls.

We had wondered at the courage of the slender Avocets when man or bird approached their nests. They were cowards compared with the little Black Terns, which, as we stooped beside their eggs, dashed at us with the recklessness of Skuas.

They are beautiful birds as seen from below, with slate-grey wings and bodies of shining black, shorter

and smaller, but proportionally stouter than their fork-tailed cousins, the Common Tern.

The nest of the Godwits, of which we found more than one, unlike those of the Avocet, which lays its eggs in a bare hollow of trampled turf, were thickly lined with dry grasses.

The birds themselves—'which, by the bye, were once,' writes Sir Thomas Browne,[1] 'accounted the daintiest dish in England, and, I think, for the bigness, of the biggest price'—with their long beaks, were conspicuous and unmistakable at almost any distance, in their bright summer dress of brownish red and white. The female, as with the Hawk, is the larger bird.

In the deep blue water of an irregular natural pool, in striking contrast to the formal artificial ditches of the drained lands, we counted at one time ten separate species of water-birds together, and not unfrequently had five or six kinds in the field of the glass at one time. Nearer home we crawled through copses hedged with tall green reeds, to watch the Ictarine Warblers, seldom seen in England, but here common. The capricious Nightingale, plentiful almost everywhere on the mainland opposite, is, we were assured, almost, if not quite, unknown in Texel.

It is always interesting to trace in everyday life survivals of old ideas and customs underlying modern thoughts and habits. It is not often that the old and the new are to be found in such grotesque conjunction

[1] On 'Norfolk Birds,' vol. iii. of Works.—Bell.

as in the head-dress of the well-to-do Dutch farmer's wife of to-day. But when family jewels and old lace come into collision with fashion, Greek meets Greek, and neither gives way in a hurry.

The picturesque polished silver head-plates under the pretty cap of fine lace or blue silk gauze, and gold face-ornaments which may have formed part of the 'Ladies' Subscription Fund' towards the cost of flooding the country for the relief of besieged Leyden, or have been buried for safe keeping in the days of 'the Spanish Fury,' are still to be commonly seen in Sunday wear, but scarcely ever now without a vulgar parody of a Paris bonnet of a year ago, like a mocking imp, straddling on the top.

The blue gauze cap is worn only by Roman Catholics. The same distinction of creeds is marked also by the colour of the awnings of the family carriages, which, with their high carved tail-boards, look like Old World ships placed, stern foremost, on wheels. It is a fairly safe assumption, though less universally true than was once the case, that the farmer's wife and daughters, who look out at one as they drive by from beneath a white hood, are Catholics —from beneath a black hood, Protestants.

But time is short. Almost before we can realise what it is that we have been looking at, another slide is in the lantern. The bright greens and pinks and blues and yellows of the Dutch polders, and the softer tints of the sand-dunes behind, fade on the sheet, to re-arrange themselves in more sombre tones. The

windmills and heavy pyramids of straw thatch on stunted walls—farmhouses and barns in one—'dissolve,' and give place to shops and clubs.

The changing scene has shifted once again to London.

CHAPTER X

HAUNTS OF THE SHEARWATER

'From the far-off isles enchanted.'—LONGFELLOW.

THE average stay-at-home Briton, whose experiences of the sea are for the most part confined to an occasional run across the Channel or visit to a Norway salmon-river, has not many opportunities of making acquaintance with ocean-birds. Comparatively few of us have seen an Albatross on the wing, and fewer still are ever likely to witness its eccentric courtships. But we have still within the limits of the British Isles a few colonies remaining of a small cousin of 'the largest of sea-fowles —a typical representative of the great oceanic family of the Tubinarides—the Manx Shearwater.

Driven from the island from which it takes its name, where once it bred in enormous numbers, the Shearwater still congregates during the breeding season by thousands in Eigg, and in smaller numbers in others of the western islands of Scotland, Ireland, and Wales, and has a home on one, and one only, of the Scilly Isles, within a mile or two of the reefs of evil repute among which Queen Anne's fleet on its return from Spain, confused by continuous fogs, and believing itself far to

the south off the French coast, found itself entangled with fatal results on the night of the 23rd October 1707.

The coarse granite on which Annet, in common with the rest of the islands of the beautiful Scilly archipelago is based, is painted to high-water mark brown and green with seaweed, and higher up stained to a bright orange with lichens or grey-bearded with Iceland moss. Farther inland it crops up in all directions in needles and pyramids, which sparkle in sunshine after a shower as if set with diamonds.

The chief part of the island is covered with thrift, which has grown on the dust of its ancestors until it has formed a light spongy peat of its own, extending in places to several feet in depth, honeycombed, more particularly at the eastern end, with burrows.

On landing—though Black-backed and Herring Gulls are in plenty, and the seaside rocks are dotted with Puffins and Shags—there is nothing to be seen which could suggest to an explorer, unwarned, that he stands on the chief English breeding-place of the most powerful and graceful on the wing, and—excepting perhaps its own smaller near relative the Storm Petrel—the most poetical in association of European birds. The Shearwater during the nesting season is nocturnal in its habits, leaving the nest, if at all, only after sunset, and returning before daylight.

It is not until the visitor starts to walk over the pink-carpeted and apparently untenanted table-land, and finds himself tumbling in ankle-deep every ten

or twelve yards, and putting a hand (well gloved, if he is wise) into the holes his feet have made, feels fingers seized by sharply hooked beaks, which cut and make themselves felt through stout 'dogskin,' that he can realise in the faintest degree the number of birds hidden in the ground around.

The burrows vary considerably in length, but seem all to be engineered on the same general principles, entering the ground horizontally, or in a downward direction, and rising a yard or two from the end until within a foot or so of the surface, and then dipping again.

It is at the highest, and in wet weather presumably the driest, part of the burrow, where the borings approach the surface most nearly, and consequently where an incautious footstep breaks through most readily, that the single white egg, not unlike a small smooth-shelled hen's egg, is laid—commonly on a few stalks of brake or grass.

The bird, if at home, is invariably to be found a few feet beyond the egg in the deeper inner chamber, which serves as a retiring-room in case of alarm, and possibly as a second bedroom when both birds are in. When turned adrift, it is for a time more hopelessly dazed than an owl pulled out into sunshine, from a hollow tree, waddling and flapping helplessly for some minutes before waking up to the use of its marvellous wings, which, by the bye, have been developed at the expense of the legs, which are feeble and comparatively useless.

The Shearwater — excepting during the breeding season, when it hides in silence, as if ashamed of coming ashore—keeps clear of the land, following with gliding flight, as if it would never tire, the curves of the waves, or pausing for a few seconds—a true 'petrel,' the little St. Peter walking on the water—to poise its wings and paddle on the surface.

It is poetically appropriate, though unfortunate, that a bird which in a scarcely less degree than 'Mother Carey's Chicken' is the embodiment of sea and storm, should have suffered much at the hands of the Elder Brethren of the Trinity House.

It has been almost, if not quite, driven from its old English stronghold by the erection of the lighthouse on the Calf of Man, and the chief danger now threatening the Scilly colony, which is fairly safe from human molestation under the fostering care of the lord proprietor, is the indirect result of the building of another lighthouse. The Round Island, on which a light was placed eight or nine years ago, was until then the chief home of the Puffins of the Scillies. They seem to have been scarcely less offended at the innovation than were the feathered residents of the Calf of Man, and have revenged themselves by invading the Shearwaters' territory in numbers which threaten to affect materially the prosperity of the rightful owners. From many of the holes into which the writer unintentionally trod when on Annet in the early summer of 1894 was pulled, instead of a Shearwater, an indignant Puffin, which fought hard with beak and claw until it found itself

powerless, and then, mistaking its captor's motives, composed itself in a heroic attitude to die with dignity, looking only doubtfully pleased, and not quite sure that it had not been made a fool of, when it found itself free to return to its desecrated home, or join the excited party of gossips who watched what was going on on shore from outside the breakers.

It is impossible for any one who has established an intimacy with sea-fowl, Puffins more especially, to watch their behaviour under exciting or perplexing circumstances without crediting them with motives and passions the counterpart of our own, a sense of humour included.

The sentiments of a swarm of birds — Razor-bills, Shags, Puffins, and Guillemots—who came out of their holes and craned their necks to see the fun, as a boat rowed away after an unsuccessful attempt to land on the rather inaccessible island which gives the Scillies their name, having narrowly escaped a catastrophe, could scarcely, as appeared to the discomfited crew, have been more vividly expressed, if each had held an extended web-foot to her beak. There is something, too, very human in the way in which evil-doers in feathers as well as fur—birds and beasts of prey—consult their own interest by trying to keep up characters as law-abiding people at home, seldom interfering with creatures, their natural prey elsewhere, near their own nests or lairs. The 'enterprising burglar' has before now been highly esteemed as a Sunday-school teacher in his own parish.

The only Herons seen during a ten-days' ramble among the hundred and fifty or more islands of the group were a pair who flapped peacefully up from a sea-girt rock, on the highest pinnacle of which was a nest of the ancestral enemy of their race—a Peregrine—beautifully quilted with soft grass and the neck feathers of a cock Pheasant from the preserves of Tresco, a mile or two away.

Young Shearwaters, when nearly ready to leave the nest, are said—'slightly salted'—to be excellent eating, the fat with which they are then thickly coated tasting, according to one high authority, like 'the best fresh marrow from a marrow-bone.' Other enthusiastic admirers have described the meat as possessing a flavour 'suggestive of some tropical fruit.'

It was in all probability the Manx Shearwater (*Puffinus anglorum*) which as 'Poffin' was honoured with special mention as a delicacy apart from 'other wyle foyle' in the *menus* which have come down to us of more than one high monastic feast; and, excepting only wrecks, the bird was in old days the most valued product of the Scillies.

The estimation in which it was held is shown by a lease of the island, granted by the Abbot of Tavistock to Ranulph de White in 1345. The rent fixed was three hundred Shearwaters, or 6s. 8d. ('CCC Volucress Vocat. Poffins vel vi$^{s.}$ viii$^{d.}$'), to be paid yearly at the Feast of St. Michael the Archangel.

There are few calculations more difficult than the equivalents of pounds, shillings, and pence at different

periods, and, considering the number of disturbing elements which have to be taken into account, few calculations when made are more apt to be misleading.

It happens, though, to be on record that about the time that Ranulph de White obtained his lease—the year before the victory of Crecy—the Earl of Arundel was drawing daily pay of 6s. 8d.—the amount of the money alternative to the 300 'Poffins' rent—as Commander of the Southampton Fleet.

The pay of an admiral commanding the Channel Squadron, including table allowance, is now, according as his rank may be 'Rear' or 'Vice,' £6 or £7 a day. Judged by this standard—taking, that is, the worth of a fat Shearwater to be $\frac{1}{300}$ of the daily pay of an admiral on active service—the present wholesale price of the bird, if we still appreciated full flavours as highly as did our ancestors, and could gratify our palates on the same terms, would be from 5s. to 6s. a dozen. Pigeons, which, according to Mr. Rogers's tables, fetched in inland places much the same prices as 'Poffins' in Cornwall, were to be had in the fourteenth century commonly at four a penny, and chickens, excepting at Oxford, where tradesmen had already learnt the art of running up prices, for 1d. or 1½d. each.

It is worth noting in passing, as an interesting instance of the manner in which useful commodities maintain their proportionate values, that the cost of a chicken, a cow, and of an admiral competent to command a fleet in action, are relatively almost exactly the same now as in the reign of Edward III. What little differ-

ence there is, is in favour of the cow and chicken, both of which have risen in price rather more than the admiral. But this may possibly be accounted for by 'disturbing elements' in the House of Commons, which in these free-trade days unhappily make themselves felt less in the prices of agricultural produce than in the prices of good public servants.

An ornithological peculiarity of the Scillies is the sociability of the Great Black-backed Gull. In most places — at least in the hardy north — these robber barons of the bird-world, respecting neither life nor property, nest alone, few other birds caring to molest their solitary reign.

Of two of their castles visited at different times by the writer, one was on the peak of a natural Gothic arch of granite, already described, through which the sea broke twenty feet or so from the mainland of the Shetlands. The cliff opposite was deserted for thirty or forty yards on each side by the Lesser Gulls and other sea-fowl, which swarmed elsewhere in every crack and ledge. The other was on an island rock in an inland tarn on a moor in the Hebrides, with no other birds within sight or hearing, excepting a pair or two of restless Peewits and a few Pipits, and other small birds superciliously tolerated as beneath notice.

But as the Moors, who had carried all before them, became weak and effeminate in the soft surroundings of Spain, so the Great Black-backed Gulls have degenerated in the Lotus Isles of Scilly. On the grassy slopes of an outlying island we found eighteen or

twenty pairs of those magnificent birds breeding in friendly company with Lesser Black-backed and Herring Gulls, and to all appearance neither receiving nor claiming more respect from their neighbours than the Razor-bills, Shags, and Cormorants which scarcely troubled themselves to get out of our way as we scrambled up the rocks.

Here, as elsewhere, the Shags habitually place their nests under shelter, commonly as far as they can get under a rock. The larger and stronger Cormorants, which are a little earlier in their breeding arrangements than their smaller cousins the Shags, as invariably build their nests in the open, often in the most exposed positions. Into the walls of one Shag's nest, which we noticed, was firmly built a perfectly feathered skeleton of a sun-dried Starling. From another, made of stalks and seaweed, containing two eggs still unhatched, a startled mother, as she flapped out from beneath a stone, kicked a miserable object, just out of the shell.

The story of the wreck of Sir Cloudesley Shovel's victorious fleet is one of the most tragic in the annals of the British Navy.

Four of his finest vessels were totally lost; three—the *Association*, Sir Cloudesley Shovel's own ship, the *Eagle*, and the *Romney*—with the loss of all hands on board with a single exception. The escape of many of the other ships seems to have been little short of miraculous.

The *St. George*—commanded by Lord Dursley, after-

wards Lord Berkeley, the friend who had given Sir Cloudesley the emerald and diamond ring, to possess herself of which an old woman years afterwards said on her deathbed that she had pushed him back, when still living, into the water—struck on the same ledge as the admiral's ship, and was carried clean over it into deep water on the other side by the same wave that put out the lights, and with this extinguished the last hope of the *Association*.

The escape of the *Isabella*, a yacht attached to the fleet, as told by her captain, was scarcely less narrow.

'This 24 hours' hard gails of wind,' he writes in his journal, still preserved in the Record Office, continued 'until 10 at night, then the wether somewhat moderate. At four in y^e^ afternoon (of the 22nd) y^e^ Admiral brought to and sounded; we likewise sounded, and had between 50 and 55 fathom water, a coarse sand intermixt w^th^ shells.'

The sparkling mica sands, sprinkled with yellow shells of every shade from pale primrose to deep orange, are, for children especially, one of the chief attractions of the Scillies.

'We lay by till 6 foll. (following), at which time we heard several guns fir'd to y^e^ S°ward of us, supposing they had discovered danger; at 8 at night saw y^e^ light of Scilly bearing S.E. by S. dist^t^ per judgment about 4 miles. We took it to be one of our Admiral's lights; we steered after it till we perceaved it to be a fixed light, it being very thick dark rainey wether, we perceived y^e^ rocks on both sides of us; we being very near to

them we immediately wore our yacht and layed our head to y^e^ westward, crouding all y^e^ saile we could to weather y^e^ rocks under our lee; we filled full and full, and by God's mercy we got clear of them all, for w^ch^ deliverance God's holy name be blest and praised.'

After seeing on the spot the relative positions of the rocks on which the *Association* went to pieces, and the bay in which Sir Cloudesley's body was cast up, and the nature of the intervening miles of sea and rock, it is not easy to believe that he could have reached the shore alive. It seems more probable that the murder to which the miserable woman, who first found, and no doubt robbed the body on the beach at the back of St. Mary's, confessed on her deathbed, was the creation of a conscience-stricken imagination.

The theft of a ring from the finger of a shipwrecked sailor in those days would not under ordinary circumstances have been likely to trouble much the conscience of a Cornish or Scilly Island woman. But it was not an ordinary circumstance for a girl to see the body of a man she had secretly robbed, buried, as she supposed, for good and all in the white sand of the bank at the head of the little bay by Holy Vale, in the grave on which, tradition says, grass has never since grown, and then to see him dug up again to be recognised as the great admiral, and carried off at the Queen's express command to be embalmed at Plymouth and placed under marble in Westminster Abbey. The haunting memory of the movement of a powerless arm in the wash on the beach, or the flap of a coat-tail in the

wind, might, in such a case, have easily grown till it seemed, when looked back upon in after years, a last struggle for life, or a hand raised in prayer for help.

The ring was handed over by the poor creature, who had never before dared to show it to any one, to the clergyman to whom she made her dying confession, and sent by him to Lord Dursley, in whose family it has since remained.

The commonly accepted story that Sir Cloudesley Shovel was of very low origin—unless the researches of a descendant of genealogical tastes, the Hon. Robert Marsham-Townshend, have altogether misled him—rests on even less substantial foundation than the legend that he was washed ashore alive and murdered for his emerald ring. Mr. Townshend has traced Sir Cloudesley's family as holding for at least three generations well established positions in Norfolk.

His great-grandfather was Sheriff of Norwich in 1607, and his grandfather and father rented land, respectively, at Burnham—the birthplace of an even greater sailor—and at Cockthorpe.

From a note in the town records against the name of a still earlier Shovel—probably one of the same family, but whose connection with the admiral has not yet been actually proved, *alienus indigena*—Mr. Townshend concludes that they were originally immigrants, probably from the Low Countries.

Among the Treasury papers catalogued by the Record Office is a letter, dated the 20th January 1708, from the Marquis of Kent, Lord Chamberlain of the Household,

to the Lord High Treasurer, desiring payment of the bills for Sir Cloudesley Shovel's funeral, £687, 5s. 9d.

When Queen Anne's ships were lost on the rocks of Scilly, the only light in the islands to warn mariners was a coal-fire burnt on St. Agnes—four or five miles within the outer reefs—in an open iron pan with sloping, grated sides. It was the 'Cresset' shown a few years ago near the model of the Eddystone in the Naval Exhibition, and now commonly in summer blazes with geraniums, on a raised terrace at the end of one of the alleys in Tresco Gardens.

There are now three first-class lighthouses. On one of these alone, on the 'Bishop'—a pink granite rock, once mitre-shaped, which rises sheer from more than twenty fathoms of water at the south-west corner of the archipelago, where the Atlantic breakers roll in with a 'fetch' of 3600 nautical miles—very nearly £112,000 has been spent in buildings and machinery during the last fifty years.

Another favourite home and breeding-place of the Shearwater, grander, and, if possible, even more beautiful, than Annet, is in Irish waters.

Some ten or twelve miles to the west of the coast of Kerry lie two small islands well worth a visit by any who, tempted by the inducements held out by the Tourists' Association, may be exploring the beauties of Ireland, and are not afraid of a tossing.

The outer, which shoots, a stupendous pyramid, cleft at the top, more than 800 feet from the deep water of the open Atlantic, is the rock of St. Michael of the

Great Skellig, where St. Finian, the friend and tutor of Columba, with a few kindred spirits, settled in the days when the object of the most devoted churchman was 'not to draw, but to escape from congregations.'

Their dry-stone beehive cells and oratories, inlaid with white quartz crosses, and looking from below like a cluster of upside-down Martins' nests; the gardens, and wells which never run dry; and the rudely-chipped stones of the little banked-up graveyard, still stand in carpets of thrift and stonecrop at the edge of the cliff 500 feet above the sea, much as they must have been when, twelve hundred years ago, 'because of the extreme blakeness of the scite and hazard of going to and from,' the monastery was deserted for the more convenient Ballinskelligs on the mainland opposite. The chief colonists since then have been rabbits and sea-birds.

Under the slabs of the rude staircase which zig-zags up the south-east face of the rock, laid, probably, fourteen hundred years or more ago by long-forgotten monks, Shearwaters and their smaller cousins, Storm Petrels, nest in great numbers.

A Puffin on the morning of our visit had laid an egg, still warm when we found it, in a crack over the door of the outer oratory, and half-way up the steps lay a Storm Petrel with oil still fresh-running from mouth and nostril.

Change-grooves are apt to run in circles, and if the Church crisis, which has lately loomed large in the newspaper columns, becomes much more acute, some

of us may yet live to see good clergymen flying from the heresies of archbishops and tyranny of secular courts to reconstructed island monasteries. When that time comes, nowhere will a site be found more beautiful or more instinct with the traditions of a primitive Church.

But of even greater interest than the Great Skelligs, if this is possible, for all but the Church antiquarian pure and simple, is the smaller sister island—the poultry-yard of the monastery—a triangular slaty rock of some 14 acres, which rises, with a tilt to the northwards, 440 feet from the sea, a mile nearer the mainland.

It is one of the most southerly, and perhaps the largest breeding-station of the Gannet in the British Isles, and must in old days have been a very important adjunct to the monastery, supplying fresh eggs and fowl in the summer, and, for winter consumption, smoked goose and 'Poffin' in unlimited quantities.

On the south side the almost precipitous walls of the Little Skellig are split by clefts running in places through the island into flat-topped square blocks and columns covered to high-water mark with a black moss of mussels, blossoming with sea anemones. The island looks from this side like an unfinished temple of giants thrown out of the perpendicular by an earthquake. On other sides it bristles with fantastic spikes and needles, and at the north-west corner a flying buttress, under which the water breaks constantly into foam, springs in a quarter-circle from half-way up the cliff to the sea.

It is at the south-west end that the Gannets are massed, crowding together to nest in numbers inconceivable. Two or three solid acres were, at a low estimate, at the time of our visit in May 1899, as white with living birds as if covered with snow, though scarcely an egg had been then hatched, and outlying parties of twenties and hundreds were quartered on every available flat space around. The breeze which blew to the boat from the tops was heavy with the smell of musty oil, and when a shot was fired, the sky was clouded with black-tipped white wings carrying, nearly amidship, skiff-shaped bodies pointed fore and aft, without any perceptible lessening of the numbers of the sitting birds.

From the lower ledges Gulls rose by hundreds, and from every crack and crevice streamed in unbroken lines Puffins, Guillemots, and Razor-bills.

Beside many of the nests, which are slight, and built mainly of a black seaweed, lay mackerel, some fresh and scarcely marked, others cleanly sliced, the Gannet, unlike the Cormorant, which bolts its catch whole, preferring its fish filleted. The tax on the neighbouring shoals must be heavy. But as from 80,000, to 90,000 mackerel had, we were told, been landed daily from fishing-boats at Valentia alone in the week of our visit, there is, perhaps, no great danger of an immediate extinction of the species.

It is a curious instance of the apparently capricious likes and dislikes of birds to particular places, which are still as great a puzzle as ever, that the many

attempts to acclimatise Partridges in the Scilly Islands have all hitherto failed. The ground—at least in the two or three larger cultivated islands—seems suitable, and Pheasants do well. For nine or ten months in the year the birds, it is said, seem contented and at home. But almost always as the pairing season comes round, they become restless and unsettled.

The homing instinct, which leads the Limpet, that has been moved an inch or two, back somehow to his own exact place on the rock, and the armies of the Penguins, waddling in Indian file, with bleeding feet over untold miles of rock and ice, on the appointed day to their precious little pebble-heaps on Cape Adare, and gathers Fulmars from north, south, east, and west to St. Kilda, and wandering Shearwaters to ancestral breeding-grounds in the cliffs of the Great Skelligs or thrift-peat of Annet, draws the Partridges irresistibly eastwards, and sooner or later they disappear in the direction of the mainland.

CHAPTER XI

BIRD LIFE

'One there lives whose guardian eye
Guides our humble destiny;
One there lives who, Lord of all,
Keeps our feathers lest they fall.'—HEBER.

IT is, or before the days of School Boards was, a common article of faith of country boys that no bird can count beyond three.

The imaginative powers of man reach a little farther; but they also have their limitations. But for this poverty of imagination, which is to blame for half the uncharitableness and harsh judgments of everyday life, the feelings with which a thoughtful man would put down any honestly-written book telling the latest conclusions of research in any branch of science would be a mingling of abasement, reverence, and encouragement: —abasement at the thought of the very small spot in the scheme of the universe which the individual man at best can occupy; reverence in the presence of the stupendous mysteries which it is the fashion just now to speak of as 'Natural laws,' lying hidden behind the veil, small corners of which seem to have been lifted by modern searchers for the truth; encourage-

ment to hope: for, if in the past and present are to be seen things which it could not have entered into the heart of man to conceive, no promise for the future can be beyond possibility of belief, only because the conception of its fulfilment may be beyond our present powers.

But imagination fails: and this is why good men in the past have shrunk from inquiry, and too often sought refuge from doubts in abuse of inquirers.

It was only by publicly recanting the blasphemous heresy that it was the earth that moved and not the sun, and by undertaking to repeat once a week for three weeks the seven Penitential Psalms, that Galileo escaped from the torture-chamber of the Inquisition. 'The thumb-screw and the stake, for the glory of the Lord.'

'*It moves all the same,*' was his whispered aside to the friend and disciple who stood by him as he rose from his knees.

We can, after a fashion, picture to ourselves a six-day creation of perfected forms, and poets such as Milton may even venture to fill in grotesque details:—

'The tawny lion'—

like a great Daddy Long-legs escaping from its underground nymph case,

—'pawing to free its hinder parts,'

and birds bursting full fledged from eggs.

But the grander idea of a creation of infinite progression such as that of which from their different

points of view geologists, astronomers, and biologists seem to be catching glimpses, is

'Broader than the measure of man's mind.'

We cannot take it in, nor picture an endless creation, begun when, before time—itself a created thing—was, forces were set in motion, which, working in obedience to

'Laws which never can be broken,'

should spin from floating atoms a beautiful world, and people it with ever-changing forms of life.

Of the many dissolving views which the light of science is now throwing on the screen, none is more wonderful or more perplexing than the evolution of birds from reptiles. And yet, up to a certain point at least, the pedigree seems fairly conclusively proved. Birds and reptiles alike are produced from eggs. The framework of both is, with modifications, the same; and, in an immature stage, the likeness is often marked. A newly-hatched Cormorant is much more like an exceptionally ugly reptile than a bird.

The missing link has been found in the Archæopterix, of which fossil remains have been discovered in the lithographic stone of Bavaria. It was a bird about the size of a Rook, with three free fingers tipped with claws. It had teeth, a lizard-like head, and a long tail like a rat's, from each joint of which, at an angle of forty-five, sprang pairs of feathers.

Three-toed footprints, left ages ago in mud which has since hardened to limestone rock, were until lately

believed to be those of gigantic birds. They are now commonly accepted as having been made by extinct lizards.

The three clawed fingers on the wing of the Archæopterix are met half-way by two serviceable claws on the wings of the young of an existing bird, the Hoatzin, the 'stinking Pheasant' of the Valley of the Amazon. With the help of their claws and the beak, which is used like a Parrot's, as an extra hand, the nestlings of this strange bird, which commonly builds its nest over a stream, before they can fly, crawl about the bushes. The young birds, if they fall into the water, swim and dive like newts.

The Hoatzin is the only known bird still retaining two clawed wing-fingers; but a single claw or Spur on the wing is still to be found in several birds. The Spur-winged Goose, and the Horned Screamers, whose concerts on the plains of La Plata Mr. Hudson has graphically described, are instances of the kind.

But in such deep matters as the origin or special use of anything we see in nature, it is prudent to accept with reserve even the most apparently self-evident conclusions. For proof of this, if proof is needed, it is unnecessary to look beyond birds' bones. These are in most cases hollow, and connected with air-sacks; a wonderful contrivance—in the days of our youth we were taught to believe—for lightening a body which was to be lifted in flight. Nowhere in the realm of Nature was a clearer or more beautiful adaptation of means to end; unquestionable—until a meddlesome

anatomist went out of his way to notice that there were exceptions to the rule, and that these were the birds of greatest powers of flight. The Albatrosses, Swifts, and Swallows have, like ourselves, honest, well-filled marrow-bones. We are apt, the best of us, to read into the text our own ideas, and to see the things which best fit in with them: like the boy with a taste for birds and sport who, when asked in his examination what he knew of the circumstances of the death of Ahab, answered, 'One drew a bow at a *Vulture*, and killed the king.'

To form some notion of what the evolution of a bird from a lizard implies, it is enough to read two articles in Newton's *Dictionary of Birds*, by Professor Gadow, the one on 'Feathers,' the other on 'Colours,' and then —remembering that no lizard has feathers, nor so far as we know ever had one—to pay a visit to the Natural History Museum.

In an alcove to the west of the Great Central Hall is a case containing, with other marvels, magnified models of a section of the web of a flight-feather—a perfect mechanical contrivance for combining, by means of elaborate hooks and eyes and other devices, lightness and strength. The arrangements for decoration are even more amazing than the mechanism of the frame.

In the box used for painting birds, Nature, so far as the learned have as yet been able to ascertain, has only five cakes of actual colours. There is a black, more than half of it pure carbon; two distinct reds, one of which, containing a good deal of copper, dyes the water

when the bird painted with it splashes itself; a yellow and a green, the last containing no copper but a good deal of iron. All colour effects seem to be produced by combinations of these, mixed or laid one over another, with or without the help of surface cuttings and polishings. Strange as it may sound when we think of the numbers of Kingfishers and other blue birds to be found almost all over the world, 'blue has not yet been discovered as a pigment.'

The shot metallic colourings of our English Starlings and of the more gorgeous tropical birds are due to surface chisellings on the feathers, which (Nature is not wasteful of labour) are to be found only on the parts of the feathers exposed to view.

Without quoting at length Professor Gadow's article, which is a model of condensation, it is impossible to do justice to his subject. But a few lines extracted from the section dealing with 'Structural, Prismatic, or Metallic Colours' are enough to give some idea of the wonders of contrivance described. These prismatic 'colours change,' he writes, 'according to the position of the observer,' and 'they always change in the order of those of the rainbow.' They are restricted, as a rule, to one particular part of the web, 'the metallic portions of which are composed of one row of compartments, which often partly overlap each other like curved tiles. In the inside black or blackish-brown pigment is collected; and each compartment is covered with a transparent colourless layer of extreme thinness, *e.g.* 0·0008 mm. in *Sturnus*' (the Starling family). 'The

surface of this coat is either smooth and polished as in *Nectarinia'* (the Sunbirds), 'or exhibits very fine longitudinal wavy ridges when the feather is violet, or numerous small dot-like irregularities as in *Galbula'* (bright-coloured South American birds which, to the eye of the uninitiated, look many of them not unlike Kingfishers). 'The coating seems to act like a number of prisms. All metallic feathers appear black when their surface is parallel to the rays of the light in the same level with the eye and the light. To the eye of the observer the metallic collar of *Ptilorhis magnifica'* (the Rifleman Bird of Paradise) will in one position 'appear absolutely black,' in others 'bright coppery red' or 'rich green; the metallic feathers of the sides of the breast in the same bird will change' with the position from which it is seen, 'from black to green and to blue. The beautiful *'Pharomacrus moccino'* (the Trogon which Montezuma in the days of Cortez kept as a royal bird, and with a staff of attendants to wait upon it, and which is now the national emblem of Guatemala, as is the Eagle of a more northerly American Republic) 'changes from greenish bronze through golden green, green, and indigo to violet. *Oreotrochilus chimborazo'* (one of the Humming-birds) 'exhibits the whole solar spectrum, namely, violet and red on the head, followed by orange and green on the back, blue, violet, and lastly purple on the long tail feathers.'

When we remember that every feather thus marvellously built and decorated is changed, probably, at least once a year, the marvel is not lessened.

Many birds are known to moult much oftener than once in the year.

On the same floor of the Museum as the case arranged to show the structure, uses, arrangement and differing forms of feathers (to the left of the entrance of the Bird Gallery) is another which, though not designed with this object, shows the perfection to which the colour decoration of birds is carried. It contains twenty-six varieties of Birds of Paradise, no two at all alike. One is richly dressed in plain black velvet, and carries as a tiara six emeralds mounted, three on each side of the head, on long spikes. Others are almost vulgarly gorgeous in reds and greens and yellows. Some wear long court-trains of filmy feathers, in buff, or cream, or strawberry and cream. One, over a mantle of orange gold, wears an Elizabethan ruff tipped with emeralds; another, a still broader ruff brightening gradually to sparkling amethysts at the outer rim. The black head of another is seen, half-hidden through a haze of pale blues and browns. One or two carry tails of honest feathers of which, for length, an old cock pheasant might feel proud. In another the only apology for tail feathers visible when the wings are closed are two stiff little wires curled in circles in opposite directions.

Another,—more wonderful, perhaps, than all,—of which there are specimens in the Museum, but which is as yet too rare and precious for exposure to the bleaching effects of sunlight in a glass case (the King of Saxony's Bird of Paradise), carries on its head two

long wires, reaching beyond the tail, gemmed from tip to base with turquoises.

The development of even a Cormorant from a featherless reptile, by the mere operation of blind laws, would be a tough morsel to swallow. To believe, if any could be found now to believe it, that in birds of the same internal structure, living under like conditions, and in the same surroundings, effects so exquisitely varied as are to be seen in the group of Paradise Birds could result without aid from some Omnipotent directing intelligence without, would demand a surrender of reason to faith even more complete than would the acceptance of the inspired poetry of the first three chapters of Genesis as history true to the letter.

Another fact which cannot altogether be put aside in considering the possible limits of such forces as 'Natural Selection,' far stretching as they seem to be, is the apparent permanence of existing forms of animal life.

The habits of a bird may change rapidly to meet altered circumstances. Within the memory of middle-aged colonists, a harmless vegetable-eating Parrot has become a mischievous bird of prey, feeding when it gets the chance on the kidneys of the sheep on the backs of which it alights. Wood Pigeons — in the country among the wariest and most difficult to approach of birds—in St. James's Park and the gardens of the Tuileries think it scarcely worth their while to move out of the way of the perambulators. Another Pigeon — the Tooth-billed — the nearest surviving

relation of the Dodo, has during the last few years completely changed its habits. 'It is,' writes Doctor Sharpe in his *Wonders of the Bird World*, only 'found in the Navigator's Island, as Samoa is sometimes called. It has perfectly-formed wings, but until recently never used them, as it had no natural enemies in its island home, and was accustomed not only to live on the ground, but to breed in colonies, and to deposit its eggs on the side of a hill. As Samoa became civilised, however, the usual accompaniments of civilisation prevailed in the shape of cats and rats, the former devouring the birds, the latter their eggs, and speedy extermination appeared to be the fate in store for the Didunculus.' They have taken the hint in time, and are now, happily, a thriving and prosperous colony of birds 'building, feeding, and roosting on the high trees.'

While on the subject of relations of the poor old Dodo, it is worth noticing in passing an odd instance of adaptation of form for special ends. On the island of Rodriguez, not far from the Mauritius, which was the home of the Dodo, lived in former days another bird, in many respects like it—the Solitaire. It seems, according to the accounts left of it by Leguat, a Huguenot who took refuge in Rodriguez in the seventeenth century, when the Solitaire was still plentiful, to have been a pugnacious bird, and, having little or no use for its wings in other directions,—it was a flightless bird,—used them mainly as a weapon in free fights for the favour of the females. Nature, apparently with

this object in view, doubled the bird's fists. 'On the wings,' wrote Leguat, whom nobody until lately believed, 'were knobs of bone as big as a musket-ball.' Of late years many bones of the Solitaire have been discovered in caves and elsewhere, and have fully confirmed the story. 'The numbers of the bones that had been broken and crushed in life contained in the collections brought to the country is,' writes Professor Newton, whose brother, Sir Edward, was one of the most successful collectors, 'considerable, showing the effects of the *cestus*-like armature of the wing.'

As Leguat's story has proved true in one improbable particular, we may accept another tale he tells of this strange bird. 'We have often,' he says in his narrative, 'remarked that some days after the young one leaves the nest a company of thirty or forty brings another young one to it; and the new-fledged bird with its father and mother joining with the band march to some by-place. We frequently followed them, and found that afterwards the old ones went each their own way, alone or in couples, and left the two young ones together, which we called a marriage.' The French have a precedent for their weddings by family arrangement.

Birds can only too easily disappear either locally or entirely. But for the timely change of habits described above, the 'Dodlet' would probably before now have joined its distinguished cousin in the Valhalla of extinct birds.

One of the effects of the great hurricane of September

1898 was the entire, and so far as can yet be seen, permanent extinction in ill-fated St. Vincent, in little more than an hour and a half, of a Humming-bird, which the day before had been one of the commonest birds in the island.

Among domesticated birds artificial varieties are without much difficulty produced. A Pigeon with a perfectly webbed foot, evolved at Cambridge by only three years' selected crossings, was in January last exhibited as a curiosity at the meeting of the Ornithological Club.

But it would be difficult—perhaps 'impossible' would not be too strong a word to use—to point to a single instance in which a wild species has structurally changed in the slightest particular of any importance within the knowledge of man. The Eider Duck, which now on the Farne Islands sits as closely as an Aylesbury in a farmyard, and the Drake which rides at anchor watching to join her in the open the moment she leaves her nest, are, so far as we know, feather for feather the same as those which twelve hundred years ago were blessed and tamed by St. Cuthbert.

In the vegetable world—as if by way of compensation for disabilities in other directions—forms seem to be more easily changed. A white geranium found in South Africa is said to have adapted itself to the thirsty life of the veldt by developing a bulb like an onion.

But fascinating as such speculations are, it is pleasant to step from the mists and find oneself in the sunshine with the birds as they now exist. On the threshold we

are met by a wonderful instance of the care of Nature for her children—a present mystery as great as any in the past; the protection afforded by imitative colouring to the eggs when in their natural surroundings.

'The heart of the Eternal is most wonderfully kind.'

No one who has only seen dried egg shells in collections can at all realise how perfect this protection often is.

An enthusiastic collector not very long ago made a trip to the north of Scotland with the object of taking with his own hands the eggs of the Dotterel, which, as he had learnt, was breeding on a mountain-side. On reaching the spot the birds rose close by him, and, from the way in which they behaved, he was satisfied that eggs were not far off. But, with practised eyes, he hunted in vain until, when on the point of giving up the search as hopeless, he had put his foot upon them and broken all.

Coots' and Snipes' eggs are other instances of colour adaptation to surroundings. Conspicuous as are the flattened heaps of dry sedges, which are the usual nests of the Coots, it is very difficult, unless quite close by, to say whether or not they contain eggs. Not only is the groundwork of the egg an exact match to the general colour of the dry nest; but the black spots with which they are freely dotted are perfect reproductions of the 'little pitted specks' on the decaying sedge.

The writer, when a few years ago exploring with a friend a marsh by a Broad in Norfolk, was shown by a keeper the exact spot—'five feet from yon bush in line with yon'—where the day before he had put a Snipe off

A HAUNT OF THE COOT

LONDON: EDWARD ARNOLD, 1902.

her nest. The bird rose as the spot was approached, but ten minutes' search or more by two pairs of eyes, not unpractised in looking for birds' eggs, failed to discover the nest. It was not until the keeper, who had been called in to help, had freely relieved himself by strong language levelled at 'them —— Carrion Crows, which won't leave a thing in the place,' that a glossy Maltese cross of four pear-shaped green and brown eggs, mottled in exact imitation of the wet moss around it, revealed itself to all three at once, in the middle of a tuft of sprits.

A favourite breeding-place of the Lesser and Common Terns is a pebble-covered flat, not far above high-water mark, near the mouth of a tidal harbour in Norfolk. Here, too, the likeness of the eggs to their surroundings is so close that only a very sharp eye, unless by accident, is likely to find a nest. A few handfuls of selected stones from the beach have, as an illustration of protective colouring, been placed in a glass-covered box (11 in. by 6 in.), with a few scraps of dry seaweed and other odds and ends gathered on the spot, and among them two or three eggs of each species. When the box, placed in a good light, is uncovered for a quarter of a minute, or even longer, it is the exception for any one seeing the contents for the first time to count the eggs correctly.

The 'survival of the fittest' seems rather a heartless, and not, perhaps, very convincing, explanation of a beautiful provision for the safety of a helpless embryo. But, so far, it is the best that pure science can offer.

'It is,' writes Mr. Pycroft in his *Story of Bird Life*' —a wonderful shilling's-worth—'almost certain that originally all birds laid white eggs, as do their cousins germane the reptiles. But as there is at least one reptile in which there is a distinct tendency to produce a coloured, rust-spotted shell, viz. the Tautera Lizard of New Zealand, so there may have been many birds in which the same tendency developed itself. Of these many would produce eggs much more strongly marked or spotted than their neighbours.' If a number of such birds migrated, say, from the forest-lands of their ancestors to the plains or meadows, a process of weeding-out would quickly begin. For they would probably at once come in contact with new creatures, who would rapidly discover how good eggs were. Thus those which were even slightly coloured would be in so far disguised. Having a taste for *white* eggs, their enemies would pass the coloured so long as white were to be had. In this way white eggs would become more and more rare, for in course of time the birds which produced these would die, and die without leaving offspring, or so few that they would be swamped by inter-crossing with the newer and more vigorous race who had succeeded in laying coloured eggs.'

The same process would go on—the nearer the approach of the colour to its surroundings, the larger the proportion escaping detection—until in the process of the centuries such perfect imitations as the eggs of the Dotterel and Snipe would result, and survive as the abiding type.

Birds, if uneasy for the safety of their eggs, will not unfrequently move them. A Dabchick a year or two ago built its nest in a rather exposed place in the ornamental water in St. James's Park. Before she began to sit she thought it prudent to move it. The nest was cut adrift from the dipping bough to which it had first been made fast, and towed several yards to a more secluded corner under an overhanging bush, to which it was lashed.

A move of the kind when a nest is a floating raft like a Dabchick's is easy enough. But birds with less facilities will occasionally do as much. Mr. Pycroft tells a pathetic story of a pair of Merlins who, after having been fired at several times when on the nest, 'transported the eggs to a bank forty yards distant, placed a few leaves under them, and succeeded in hatching them out.'

The Bar-tailed Pigeon of North America has, he adds, several times been seen, when frightened, to carry its eggs from the nest to another tree. But it is not perhaps very generally known that one at least of the larger Penguins habitually carries its eggs about. An interesting note on the subject, very kindly sent to the writer by a member of the staff of the *Challenger*, shortly after the return of the ship from her long voyage of discovery, has unfortunately been for the moment mislaid. To quote it from memory, there is a fold of bare skin, with muscles unusually developed, which practically forms a pouch between the legs. From this the egg of more than one bird killed for

skinning was only dropped when the tension of the muscles relaxed after death. It is not difficult to conceive the advantage of such an arrangement to a bird breeding upon ice. It is a curious coincidence that the only approach to a pouched bird should have been found in the hemisphere in which the Marsupial is a common type in mammals.

The devices of a Partridge or Lapwing to lead away from the nest are familiar enough to every one who has lived in the country. But to see the perfection to which such deceptive arts can be carried, one of the breeding-places of the Little Arctic Skua in the Shetlands should be visited. The mother-bird can limp like a Partridge or drop as if shot from the sky, and lie on its side feebly flapping one wing; and not content with this, deliberately, when hard pressed, will lead on to the nest of a Common Gull, and then go through an elaborate pantomime of distress.

The Shetland shepherds say, and profess to believe, that the young of the Little Ringed Plover, which breeds in the islands in quantities, when they want to escape notice, throw themselves on their backs and hold a leaf, clasped between the legs, over their stomachs.

'Elusive colouring' plays a scarcely less important part in the protection of birds than of their eggs. This is the case—to a greater extent probably than we yet realise—not only with such birds as the Night-jar and Woodcock, which, unless the light happens to glance from an eye, may easily be passed on the ground

within a couple of yards without attracting notice, but with others which, looked at as dried skins in the hand, seem very conspicuously marked. Mr. Pycroft quotes as an instance of this the Hoopoe—a bird to which, by the bye, more than one curious legend is attached. 'It is of a rich buff or sand colour, with a large and beautiful crest on the head, and the wings conspicuously barred with black and white. Yet on the approach of a Hawk or other enemy it throws itself flat on the ground, drops its chest, and spreads out its wings, and—heigho! as if in obedience to the magician's wand, our bird has vanished: what appears to be a bundle of rags remains in its place.'

The little Bearded Tit is an even more beautiful instance of the kind. It is a conspicuous object when leaves are green, but almost invisible when invisibility is most important. The eggs—to quote from an earlier chapter—are laid in April, when the tall reeds among which the nest is built, an inch or two from the ground, are ripe for cutting. The prevailing tints of the entire district—land, water, and sky—are then the cinnamons, straw-colours, and pale blue-greys miraculously reproduced in the feathers of the bird.

The '*Eclipse*' of the Mallard Drake during the moult, which is described and illustrated in all its stages in Mr. John Millais' lately-published *History of the British Surface-feeding Ducks*, is a yet more marvellous tale. For the fortnight during which the Drake is without flight-feathers, and as helpless as an Apteryx, bright colours of every kind are dropped, and the male wears

the homely and inconspicuous dress of his mate, blending perfectly with the fading reeds among which he hides. Even the legs and beak change colour.

The efficacy of elusive tricks and colours is still more surprising in the case of large than of small birds. The Bittern, which, as it stands stiffly with beak pointed upwards, is difficult to see among the reeds which are its usual hiding-place, is a frequently quoted instance, but one, unluckily, not often now to be seen in England—though, according to a writer in the *Spectator*, a pair have lately nested not far from London.

At Blickling—the home of Anne Boleyn, in days before the additions were built, which now make it one of the most stately examples of Jacobean architecture in England—has been, for a great many years, a flock of Cinnamon Turkeys.

The birds, which are a small and slender variety of doubtful origin, coloured, as the name denotes, are bred and live in a half-wild state with the Pheasants.

On the occasion of a shooting-party a few years ago, a cover had been driven. Two or three only of the beaters remained inside the fence, poking about a rather bare corner for a possible skulking Pheasant or Rabbit. The guns were already moving on, when, like the springing of a mine, thirty or forty great birds rose together and scattered themselves, flying strongly, in different directions over the park.

Two were required for the house; and a keeper, borrowing a gun from the writer, who accompanied

him, followed, with murderous intent, a party of five or six, which had lit on a clump of old oaks in the open, a couple of hundred yards or so away. It was not until the trees, which were leafless, had been searched for some seconds, and a suspicion was beginning to suggest itself that a mistake had been made in the marking, that at first one, then all, were discovered. They stood rigid and motionless, with bodies stretched, and wings pressed closely to the sides, most of them not across, but in line with the branches on which they had perched, looking more like broken boughs than birds. No one passing under the trees, who had not known the Turkeys were there, could, unless by the purest accident, have noticed them.

The devices adopted by birds themselves for the protection of their eggs and young would fill a volume, and very pleasant reading if well written it would be. But space has, like the imagination of man, its limits, and one only—perhaps the most curious yet known—can be mentioned here. The Hornbills, like our own Woodpeckers, are birds which breed in holes in trees. In the forests of Borneo, which they frequent, are snakes and lizards and many little carnivorous mammals with a taste for eggs and young birds. As a protection, presumably, from these, when the hen begins to sit, her mate almost completely plasters up the entrance, leaving only a crack open through which she puts her beak for the food which he diligently supplies to her and her family.

The European Nuthatch in much the same way

plasters up with mud the door of the hole chosen for a resting-place, but only to reduce it to a convenient size through which both birds pass freely in and out.

A Scottish maiden in olden days would have thought it beneath her dignity, however well her future husband's house might be provided, to set up housekeeping without a complete outfit of homespun linen. On the same principle, perhaps, birds in like interesting circumstances seem to think it incumbent upon them to collect nest materials whether or not likely to be of practical use.

A pair of Nuthatches lately took possession of a nesting-box placed in a garden in Norfolk. The entrance-hole, which had been cut for Tits, was barely large enough for the Nuthatches. The 'untempered mortar' was none the less collected, and as it would have been inconvenient to use it in accordance with precedent at the door, the far end of the box was plastered over.

Almost exactly the same thing was noticed in the case of the second brood of a Swallow, whose nest with a first family had been taken down and placed in a soap-box. The feathers of the old nest were used again in their old position; but, before an egg of the second clutch was laid, a far corner of the box—a foot or nine inches off—was carefully built up with clay.

The highest place among the birds was until comparatively lately assigned to the Hawks and Eagles. They have now been dethroned, and the post of honour

assigned to the *Passeres*, on the ground of higher development of brain.

That the London Sparrow, at least, has no hesitation in assuming his rights is proved by the story already told of one of the tribe who, without hesitation or apology, pulled a feather for her nest in St. James's Park from an indignant Wood Pigeon.

With Rooks, too, which belong to the same order, if only half the stories told of their well-ordered commonwealths and rigidly-enforced laws, etc., are true, the position which anatomists have assigned to them as birds of a high order of intelligence is amply justified on other grounds than bones and nerves.

The following was given to the writer as a fact, for the truth of which he could vouch, by a general officer of repute, who had then lately returned from a visit to a friend in whose park it had occurred. A gentleman, who had succeeded to a property in Dorsetshire, was anxious to people a clump of his ancestral elms with a rookery. Having found three or four Jackdaws' nests in unusually exposed situations, he obtained as many clutches of Rooks' eggs from the nearest colony some miles off, and put them in the place of the Jackdaws' eggs, which he removed. His hope was that the Rooks, if reared at the place, might return there to nest, and that thus a rookery might be established. With one exception the birds deserted; but one pair accepted the change, and the eggs were hatched off. Feathers had already shown themselves on the young birds, and the experiment was promising success, when a small

party of Rooks visited the park, and, after a short stay, left in an evidently excited state. A few days later a larger party appeared. They attacked and drove the unfortunate Jackdaws from the nest, and then went off, leaving two of their number in charge of the young birds, which, as soon as they were fit for the journey, were taken away and, unless in flocks with others, never seen in the neighbourhood again.

Between reason and instinct a gulf is fixed for which no bridge has as yet been or is likely to be discovered. But the one at times seems very near the other. In ornithology, as in every other branch of the knowledge of Nature and Nature's laws, the wisest is still the child picking up pebbles on the beach. Since Newton's apple tumbled from his tree, a few more rocks have been laid bare by the receding tide. But beyond still lies the 'untrodden floor' of the ocean.

A man may puzzle himself into headaches as much as he likes in search of causes and meanings; but in the end he will find himself very little farther forward than was the poet of *The Seasons*, when, in days when geology was not yet in its infancy, and 'Nebular theories' and 'Darwinism' were undreamed of, he wrote, as the only possible summing up of his conclusions:—

> 'These, as they change, Almighty Father, these
> Are, but the *varied* God. . . .
> . . . I lose myself in Him in light ineffable.
> Come then, expressive silence, muse His praise.'

APPENDIX A

THE following list of wild birds noticed at different times in London is based upon one drawn up by Edward Hamilton, Esq., M.D., F.L.S., published in the *Zoologist* of July 1879.

RAPTORES

Eagle (species uncertain).	
Peregrine Falcon	*Falco peregrinus.*
Kite[1]	*Milvus regalis.*
Kestrel	*Falco tinnunculus.*
Sparrowhawk	*Accipiter fringillarius.*
Barn Owl	*Strix flammea.*
Tawny Owl	*Syrnium aluco.*

PASSERES

Great Grey Shrike . . .	*Lanius excubitor.*
Spotted Flycatcher . . .	*Muscicapa grisola.*
Missel Thrush	*Turdus viscivorus.*
Fieldfare	*Turdus pilaris.*
Redwing	*Turdus iliacus.*
Song Thrush	*Turdus musicus.*
Blackbird	*Turdus merula.*
Ring Ouzel	*Turdus torquatus.*
Hedge-Sparrow	*Accentor modularis.*
Redbreast	*Erythaca rubecula.*
Nightingale	*Sylvia luscinia.*

[1] Once built in great numbers in the trees in London.

Redstart	*Ruticilla phœnicurus.*
Wheatear	*Saxicola œnanthe.*
Reed Warbler	*Salicaria arundinacea.*
Sedge Warbler	*Salicaria phragmitis.*
Greater Whitethroat	*Sylvia cineria.*
Lesser Whitethroat	*Sylvia sylviella.*
Garden Warbler	*Sylvia hortensis.*
Blackcap	*Sylvia atricapilla.*
Wood Wren	*Sylvia sylvicola.*
Willow Wren	*Sylvia trochillus.*
Chiffchaff	*Sylvia rufa.*
Tree Creeper	*Certhia familiaris.*
Nuthatch	*Sitta europœa.*
Great Titmouse	*Parus major.*
Blue Titmouse	*Parus cœruleus.*
Cole Titmouse	*Parus ater.*
Marsh Titmouse	*Parus palustris.*
Longtailed Titmouse	*Parus caudatus.*
Pied Wagtail	*Motacilla yarrelli.*
Grey Wagtail	*Motacilla borealis.*
Yellow Wagtail	*Motacilla raii.*
Tree Pipit	*Anthus arboreus.*
Meadow Pipit	*Anthus pratensis.*
Skylark	*Alanda arvensis.*
Common Bunting	*Emberiza miliaria.*
Chaffinch	*Fringilla cœlebs.*
House Sparrow	*Passer domesticus.*
Hawfinch	*Coccothraustes vulgaris.*
Yellowhammer	*Emberiza citrinella.*
Wren	*Troglodytes vulgaris.*
Golden-crested Wren	*Regulus cristatus.*
Greenfinch	*Coccothraustes chloris.*
Goldfinch	*Carduelis elegans.*
Mountain Finch	*Fringilla montifringilla.*
Siskin	*Carduelis spinus.*
Lesser Redpoll	*Linaria minor.*

Linnet	*Linaria canabina.*
Bullfinch	*Pyrrhula vulgaris.*
Starling	*Sturnus vulgaris.*
Raven	*Corvus corax.*
Carrion Crow	*Corvus corone.*
Hooded Crow	*Corvus cornix.*
Rook	*Corvus frugilegus.*
Jackdaw	*Corvus monedula.*
Magpie	*Pica caudata.*
Kingfisher	*Alcedo ispida.*
Swallow	*Hirundo rustica.*
Martin	*Hirundo urbica.*
Sand Martin	*Hirundo riparia.*
Swift	*Cypselus apus.*
Nightjar	*Caprimulgus europæus.*

Scansores

Green Woodpecker	*Picus viridis.*
Great Spotted Woodpecker	*Picus major.*
Lesser Spotted Woodpecker	*Picus minor.*
Wryneck	*Yunx torquilla.*
Cuckoo	*Cuculus canorus.*

Gallinaces

Ring Dove	*Columba palumbus.*
Rock Dove	*Columba livia.*

Grallæ

Sandpiper	*Totanus hypoleucus.*
Woodcock	*Scolopax rusticola.*
Common Snipe	*Scolopax gallinago.*
Dunlin	*Tringa variabilis.*
Moorhen	*Gallinula chloropus.*

Coot	*Fulica atra.*
Grey Phalarope	*Phalaropus lobatus.*
Heron	*Ardea cinerea.*

PALMIPEDES

Mallard	*Anas boschas.*
Teal	*Anas crecca.*
Widgeon	*Anas penelope.*
Great-crested Grebe	*Podiceps cristatus.*
Little Grebe	*Podiceps minor.*
Common Tern	*Sterna hirundo.*
Kittiwake	*Rissa tridactylus.*
Common Gull	*Larus canus.*
Lesser Black-backed Gull	*Larus fuscus.*
Glaucous Gull	*Larus glaucus.*
Great Black-backed Gull	*Larus marinus.*
Herring Gull	*Larus argentatus.*
Brown-headed Gull	*Larus ridibundus.*
Cormorant	*Phalacrocorax carbo.*
Guillemot	*Uria troile.*
Puffin	*Fratercula arctica.*

N.B.—Probably several other species of Ducks, in addition to the three named, are occasional visitors; but owing to the number of tame birds on the park waters, it is difficult to speak with certainty.

APPENDIX B

The following instance of the perseverance with which a bird will, at times, cling to the spot selected for a nest in the face of what might be supposed insuperable difficulties is given as told by a careful and patient observer of nature, who has himself succeeded in taming free Swallows, and inducing them to feed their nestlings on his lap.

One is tempted on reading the story to wonder that the sternest of Lady Abbesses,

> 'Though vain of her religious sway,
> Loving to see her nuns obey,'

could have seen the bird complete the round of the nitches of the marble grave, and begin a second round, without relenting.

'I have a sister who is a nun in the —— Abbey, at ——. When she was at home she took part in much of the Natural History work my brothers and I were engaged in, and she certainly has a good knowledge of our English birds, and is a careful observer. I mention these facts to show you that my witness is one on whom I can thoroughly rely.

'On Thursday, July 9th, last year (1891), a Missel Thrush built in the Nuns' graveyard. There is a marble grave there with a pent-house built over it to save it from the weather. The rafters resting on the "wall-plate" make twelve openings under the eaves, six on each side of the building.

'In the first of these openings, on the left, the nest was built. The Lady Abbess told my sister to take it out, as she feared for the future of the gravestone when the young birds would be hatched. It was removed on the 12th, and by the afternoon of the next day another nest was nearly finished in the next compartment between the rafters. This was promptly removed, but on the 14th the third nest was more than half built in the next division of the roof.

'The bird built in this way all down one side of the roof and then down the openings of the other.

'The nests were removed every second or third day, but it had no effect in stopping it.

'When it had been down the second side of the roof, it began again where it had made the first nest, and worked steadily down the openings again, almost always in order, and then round to the other side once more.

'As the nests were taken out they were stood on the ground at the foot of a wall that bounds the graveyard. On this wall there are marks showing where the line of nests began and ended—a distance of over ten feet, for this extraordinary bird built over thirty nests.

'My sister herself took eight-and-twenty, and another nun, who also looked after this part of the grounds, says she took out "a great number," but she did not keep account.

'The bird built even while closely watched, and I am told "flew about screaming as if it were mad."

'It would snatch up green weeds the nuns had just pulled up as they threw them down, for it got hard up for building material by about the middle of August. It was only stopped at last by my sister pushing holly into the holes, and so preventing any further building operations. Strange as this may sound, I have every reason, from knowing many of the witnesses, to believe that it is most perfectly true.'

APPENDIX C

'It is remarkable that the larva of the Bee and of the parasitic Hymenoptera have no anal outlet; no fæces are passed until the larva has acquired full growth, and has ceased to feed, preparatory to the pupa state: thus the fluids of insects infested by the parasitic larvæ are not contaminated by the excrements of their parasites; and the Bee-cells are kept sweet and clean during the active life of the larva.'—*Lectures on the Comparative Anatomy and Physiology of Invertebrate Animals.* By RICHARD OWEN, F.R.S. (Second Edition.)

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