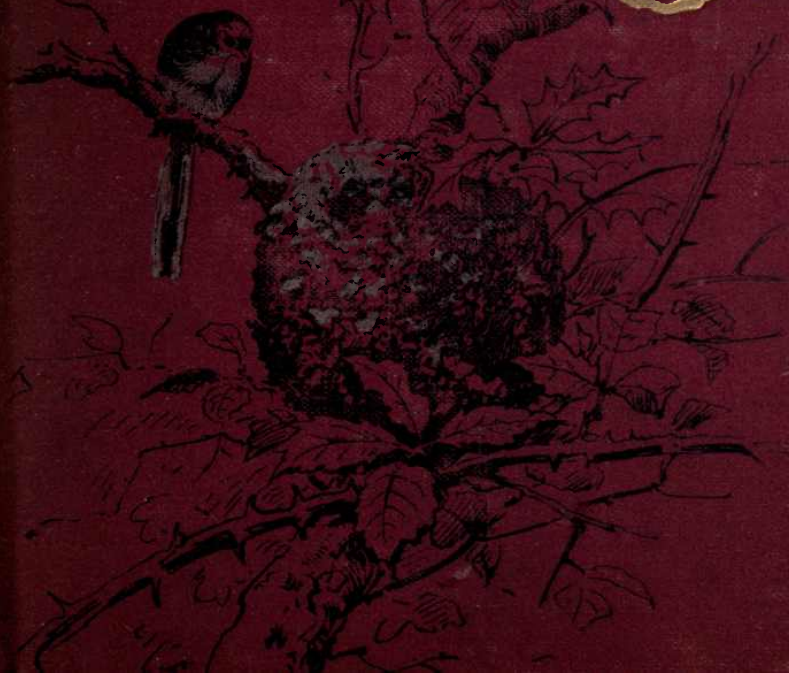


STRAY  
FEATHERS  
FROM  
MANY  
BIRDS







THE LIBRARY  
OF  
THE UNIVERSITY  
OF CALIFORNIA

PRESENTED BY  
PROF. CHARLES A. KOFOID AND  
MRS. PRUDENCE W. KOFOID

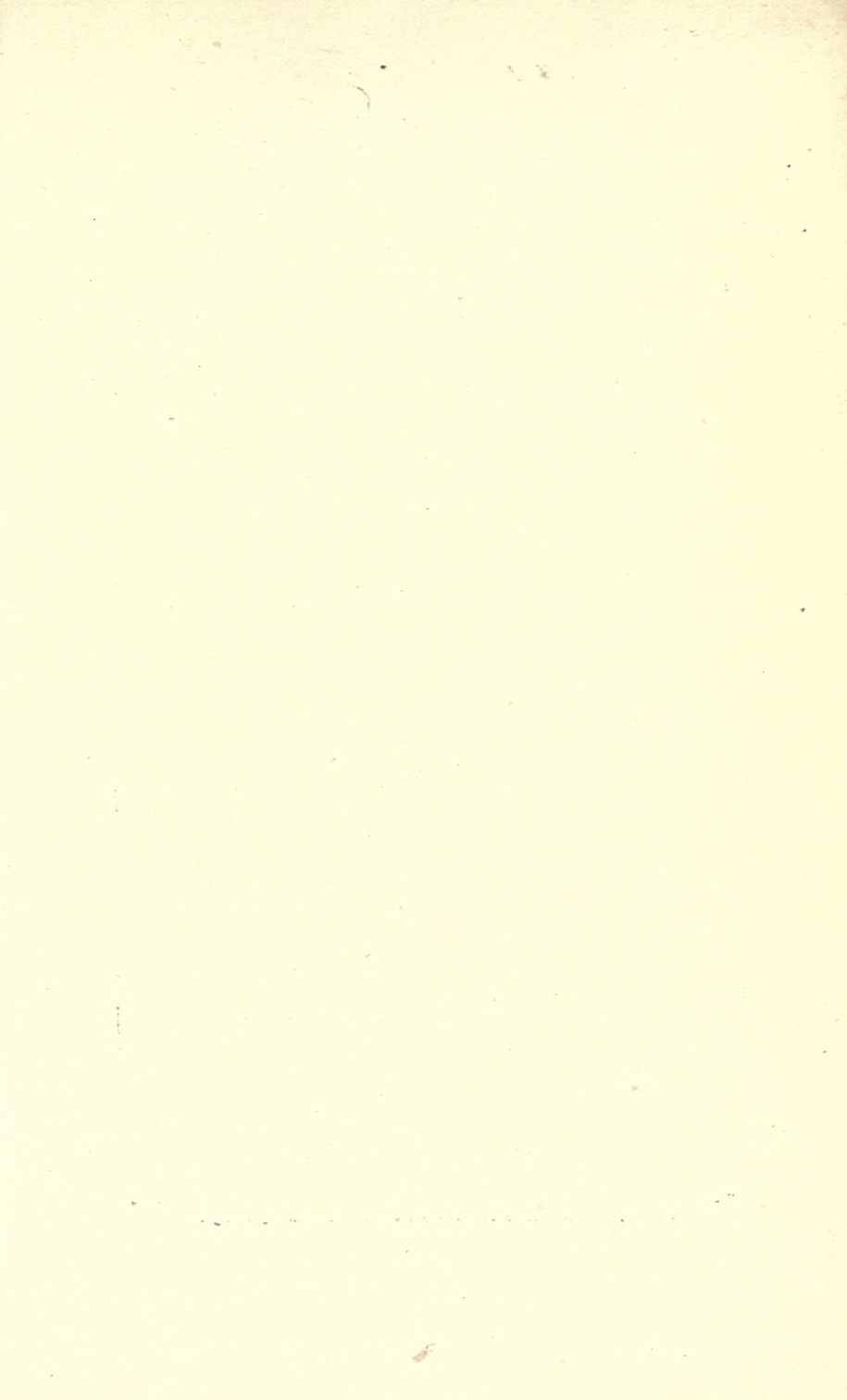






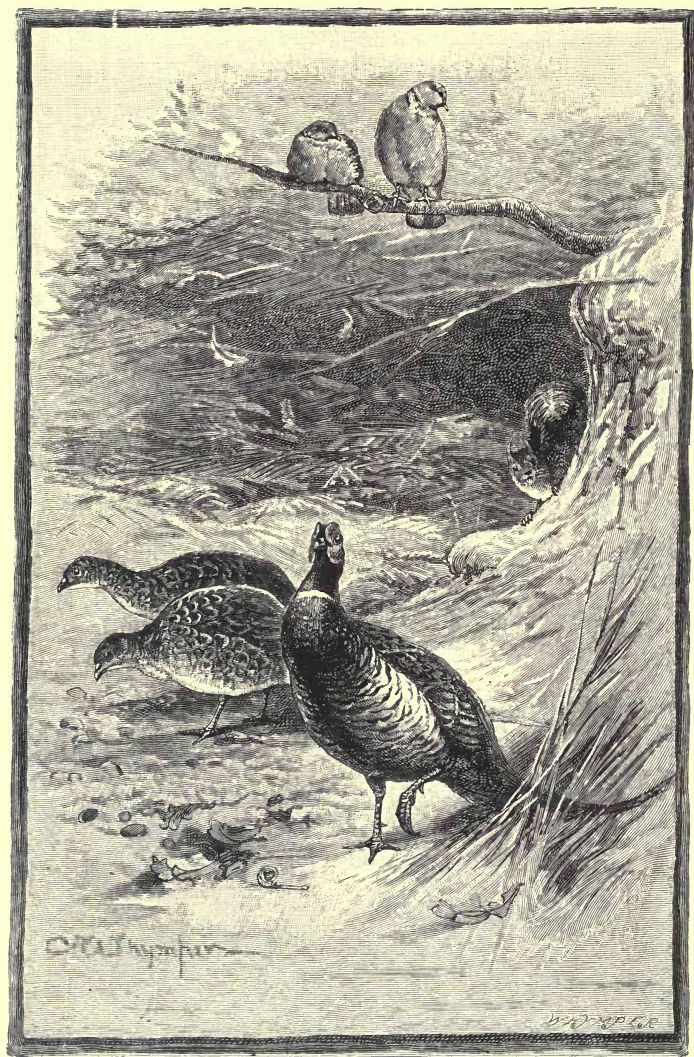
STRAY FEATHERS FROM MANY BIRDS.







Frontispiece.]



“Under one of the largest trees several Pheasants were picking up the fallen acorns, the cock birds resplendent in their brilliant plumage.”

# STRAY FEATHERS FROM MANY BIRDS:

BEING

Leaves from a Naturalist's Note-Book

BY

CHARLES DIXON,

AUTHOR OF "RURAL BIRD LIFE," "EVOLUTION WITHOUT NATURAL SELECTION,"

"OUR RARER BIRDS," "ANNALS OF BIRD LIFE," ETC. ETC.

PART AUTHOR OF "A HISTORY OF BRITISH BIRDS."

WITH NUMEROUS ILLUSTRATIONS BY CHARLES WHYMPER.

"Every bush and tufted tree  
Warbles sweet philosophy."

HEBER.

LONDON:

W. H. ALLEN & CO., 13, WATERLOO PLACE,  
PALL MALL, S.W.

---

1890.

Birds



LONDON :

PRINTED BY WILLIAM CLOWES AND SONS, LIMITED,  
STAMFORD STREET AND CHARING CROSS.



K-QL 676

D64

Biol.

L. b.

## P R E F A C E.



TWENTY years knocking about amongst birds and beasts at home and abroad has furnished me with a great variety of notes concerning their habits, economy, and haunts. I have compiled many of the following articles from my journals, others have been given almost word for word as they were written on the spot, whilst a few are simply extracted from them without any touching up or embellishment whatever.

My principal aim in publishing them is to endeavour to foster habits of careful and loving observation and a taste for Natural History in the reader whose idle moments may be spent out of doors in the country. There is interest everywhere ; there are living creatures whichever way we turn, all appealing, as it were, for notice and for admiration. The sermons preached by Nature in her lovely temple are full of beauty and simplicity ; each one of us is welcome there, the seats are free to all. To those who hitherto have looked at Nature as a sealed book, or have given no thought to

M366602

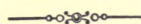
the romance of the wild life around them, I frankly say they are missing much. The pleasures derived from the woods and fields are no fleeting ones ; they leave a long train of golden memories behind them, and furnish stores of intellectual food which may be drawn upon perhaps when Fate has removed the observer far from the country scenes he knew and loved so well to the busy city or begrimed and smoky town.

There are "stray feathers" of information floating about the highways and the byways, the woodlands and the waters. Reader, seek these delightful places and gather them. Believe me, there is not a bird or a flower that will not tell you something if you only question it aright.

CHARLES DIXON.

6, INGATESTONE TERRACE,  
WARREN ROAD, TORQUAY.

# CONTENTS.



| CHAP.   | PAGE |
|---|------|
| I.—IN NATURE'S CONFIDENCE . . . . .                         | I    |
| II.—THE COMMERCIAL AND ECONOMIC VALUE OF<br>BIRDS . . . . . | 9    |
| III.—PLOVERS' EGGS . . . . .                                | 44   |
| IV.—ROOKS AND ROOKERIES . . . . .                           | 49   |
| V.—CAMEOS OF WILD LIFE :                                    | 58   |
| A MOORLAND IN SPRING . . . . .                              | 58   |
| A FOREST HOTEL . . . . .                                    | 61   |
| THE OLD GATEWAY—A TRAGEDY . . . . .                         | 63   |
| HALF-HOURS BY THE BROOKSIDE . . . . .                       | 66   |
| IN THE CORN . . . . .                                       | 68   |
| VI.—AN APRIL RAMBLE . . . . .                               | 70   |
| VII.—SUMMER DAYS . . . . .                                  | 77   |
| VIII.—THAMES SWANS . . . . .                                | 86   |
| IX.—BIRD-LIFE IN NORTHERN AFRICA . . . . .                  | 92   |
| X.—NOTES ON TRISTRAM'S WARBLER . . . . .                    | 104  |
| XI.—FEATHERED OUTCASTS . . . . .                            | 109  |
| XII.—AMONG THE SEA-BIRDS AT THE FERNE ISLANDS               | 119  |
| XIII.—MUSICAL ENTRÉES—A PLEA . . . . .                      | 129  |
| XIV.—A PLEA FOR THE SEA GULLS . . . . .                     | 134  |
| XV.—THE ARCHITECTURE OF THE HEDGEROWS. . . . .              | 140  |



| CHAP.   | PAGE |
|---|------|
| XVI.—THE MOULTING OF BIRDS . . . . .              | 154  |
| XVII.—A DAY WITH THE BARBARY PARTRIDGES . . . . . | 176  |
| XVIII.—A DERBYSHIRE TROUTSTREAM . . . . .         | 182  |
| XIX.—NETTING BIRDS ON THE WASH. . . . .           | 188  |
| XX.—AUTUMN SONGSTERS . . . . .                    | 196  |
| XXI.—BERRIES AND BIRDS . . . . .                  | 203  |
| XXII.—BLACK GAME . . . . .                        | 209  |
| XXIII.—AFTER THE SNOWSTORM . . . . .              | 215  |
| XXIV.—HOW SPECIES PERISH . . . . .                | 222  |

## LIST OF ILLUSTRATIONS.



|   |                     |
|---|---------------------|
| IN NATURE'S CONFIDENCE . . . . .            | <i>Frontispiece</i> |
| THE MIGRATION OF THE SWALLOWS . . . . .     | 75                  |
| THE ENEMY OF THE BIRDS . . . . .            | 110                 |
| THE LONG-TAILED TITMOUSE AND NEST . . . . . | 150                 |
| NETTING BIRDS ON THE WASH . . . . .         | 192                 |
| GOLDFINCHES AMONG THE SNOW . . . . .        | 218                 |

# STRAY FEATHERS FROM MANY BIRDS.



## I.

### IN NATURE'S CONFIDENCE.

IT has often been my lot to hear expressions of surprise and even of incredulity from many persons when they have been told of the great variety and abundance of natural objects that may be seen and heard during the course of an ordinary country ramble. You may tell them you have heard such a bird, seen such an insect, or met with such an animal during your rambles through the lanes and woods, and yet they are loth to believe it, as they may have been over exactly the same ground on the self-same day, and never had the good fortune to meet with anything out of the common run themselves. Such people have no gift for observation ; they have yet to learn the secret which will admit them into Nature's confidence. They go noisily along the lanes and crash through the woods, disturbing every living creature in them ; their sense of hearing is not

trained to distinguish the low sweet voices and subdued sounds of the woods ; and their eyes are unable to give those rapid glances which must see everything with no conscious effort. I firmly believe that it is this want of training in woodcraft which prevents many people from acquiring tastes for natural history. They do not go the right way to work in making their observations ; the result of their open-air studies is a failure ; they think there is nothing of interest round them, and they give up the search in despair. Now, every field, and wood, and hedgerow contains abundant objects of interest ; but they must be sought for and watched with method. Here is the secret of Nature's confidence.

I must commence by saying that Patience, Quietness, and Stillness are the three cardinal virtues of successful observation. The young naturalist must learn to pass along with noiseless tread, examining the ground as he goes, for a stumble over a stone or root, or an unlucky step on a dead stick may cost him the sight of some interesting bird or animal, and cause him to miss the discovery of an unrecorded fact in their economy. Again, as he wanders on he must so train his eyes that they take in everything—not a movement in the foliage or amongst the grass must escape them. He must train them to work simultaneously with his ears, so that at the least sound in any direction the eyes instinctively turn towards it. He must also cultivate a keen obser-



vation for trifling things ; nothing unusual must escape him. Birds and animals leave traces of their whereabouts in many ways behind them—footprints, droppings, remains of food, stray feathers, tufts of fur ; these must be examined ; it gets the observer into ways of woodcraft, and trains him to use the resources at his command to the best advantage in stealing a march on some timid bird or beast. He must learn to distinguish the notes of birds and the cries of animals. This is a matter of time, though some people pick up such sounds directly, whilst others have told me that this matter is their one great drawback to outdoor observation, and the training of years has been gone through with little or no success. An ear for music is a great help.

Now a word as to the line of action in the actual presence of wild creatures. You must assume the most perfect indifference, and, whilst making the timid creature feel that you have not really seen it, your furtive glance must be busy with observation. If a bird or an animal is very near, its eyes will always fix on yours, and as if by inspiration it will read your very thoughts. You may watch them thus, until by accident your glance is turned full upon them, when the spell is broken and they fly or scamper hurriedly away. When making observations at close quarters it is absolutely necessary that you keep the body perfectly motionless ; the least movement causes alarm and flight. Birds and beasts are

wonderfully easy to approach if stalked in the proper manner.

Rooks are among the wariest of birds, yet you may wander within gunshot of them so long as you profess indifference ; it is when you seek to approach them in a cautious, suspicious manner, or stop suddenly to look, that they become alarmed. You must see all you wish and make whatever observation you desire whilst sauntering carelessly past them. Some birds are perhaps easiest to approach when singing, and will often let you pass below the trees in which they sit ; but if you pause for a moment the song usually ceases at once, and the musician retires to more secluded quarters. You must always remember that birds and beasts are gifted with much keener powers of sight and hearing than those you possess, and have most probably observed you long before you have spied them, consequently they are on the alert for the least suspicious movement—a pause in your progress or a sudden alteration in your route is enough to give alarm.

A fruitful mode of observation is to take up a position where you are well concealed among the underwood, and wait for any birds or animals to visit the neighbourhood of your hiding-place. Many a time have I had the Blackbirds and the Thrushes feeding almost at my feet, and the rabbits shyly nibbling the herbage not half-a-dozen paces from where I stood. What cameos of wild

life reveal themselves to the patient watcher in the woods. Here is one of them I saw years ago, still vividly impressed on the tablets of my memory, as well as lovingly recorded in one of my note-books. It was autumn, and the sturdy oak-trees were shedding their russet leaves, and showers of brown acorns dropped to the ground after every puff of wind. Under one of the largest trees several Pheasants were picking up the fallen acorns, the cock birds resplendent in their brilliant plumage. With what gusto they swallowed them ! On a broad horizontal limb two Ring Doves were running to and fro ; a squirrel leaped down the trunk and sat up on his haunches, with his bushy tail curled round his back, nibbling at an acorn held between his paws. Then a Magpie joined the company ; and almost directly afterwards a Creeper alighted on the rough oak bark. After that a rabbit jumped out of the hedge and stood for a moment as if petrified at his own boldness. The distant barking of a dog was a signal for the dispersal of this strange assemblage. The hen Pheasants crouched to the ground amongst the oak leaves ; the cock birds flew with a clatter into the wood. The rabbit listened intently with ears erect and head drawn up, as if scenting the danger, and then his white tail marked his bobbing course into a burrow under the roots of the oak tree ; the Magpie, perhaps more alarmed by the sudden flight of his companions than by



the distant noise, flew leisurely away ; the squirrel dropped his half-eaten acorn and bounded into the branches ; the Ring Doves, startled at this, took wing ; the Creeper disappeared behind the trunk, and then the active scene of wild life had vanished like a phantom from my gaze. Sometimes a bird suddenly perches in the branches near you ; he sees you, and is all alert and nervous to be off ; but as long as you keep your gaze fixed, say on a branch or leaf behind him, he will stay ; move your eyes in the least, the spell of confidence is broken, and he is gone.

All wild creatures seem gifted with an amazing power of distinguishing an enemy from one who bodes them no harm. See how confidently the Rooks and Gulls will follow the plough close to the farmer's heels, or how the Starlings will flock to the fields, even whilst the manure is being spread ; but let a stranger accompany the plough or cart and not a bird will venture near. Birds soon get accustomed to certain persons, and pay little heed to the field labourers and shepherds, as if they knew full well such persons never sought to injure them. That is one of the grand secrets of observation. You must seek to inspire the confidence of indifference, and then all is easy. Some birds will allow you to watch them, so long as you keep moderately still ; others are off the moment they get a glimpse of you. As a rule the larger the bird or animal the shyer and more wary it is.

In making observations do nothing in a hurry—too much eagerness may spoil all. If you wish to gain the confidence of the fields and woods you must do so quietly and calmly, otherwise you create distrust among these wild creatures, excite their suspicion, and cause their hasty retreat. Meet them in the same spirit as they meet you—confidence begets confidence; and it is surprising how soon animals get to know a friend from an enemy. Successful observation needs no small amount of presence of mind. If the observer comes unawares upon a bird or an animal, in nine cases out of ten he will suddenly stop to look more closely, when a rapid stampede invariably follows; but, if he has the nerve to continue walking on, the creature will be made to feel that it is still unseen, and the chances are that it will remain rooted to the spot, although its eye will never for a moment leave him until he is at a safe distance. Again, birds may generally be approached in a sidelong direction, say when they are in open fields, or on mudflats and salt-marshes. I have repeatedly approached Hooded Crows, Dunlins, Knots, and other shore birds in this manner, keeping almost straight on as if to pass them without turning my head, but gradually getting nearer as I went. Wild creatures are also little afraid of horses, sheep, and cows; and I have sometimes approached them when leading a horse across the fields, or driving a flock of sheep.

Such are a few of the secrets of successful observation. By practising them the young naturalist will find a walk through the woods and lanes quite a different matter from his previous experience. He will find that by a careful use of his eyes and ears, and by judiciously bringing silence and stillness to his aid, there are birds and beasts in most unlikely places whose habits and movements may be studied with the greatest ease. He will no longer be blind to the sights, or deaf to the sounds of the wilderness. A new world is opened out before him ; he has learnt the secret of the wild birds' haunt, of the animals' fastness : and in doing so he has been taken into that sweetest of all trusts—the confidence of Nature.



## II.

## THE COMMERCIAL AND ECONOMIC VALUE OF BIRDS.

WE live in a utilitarian age, when every possible bird, beast, and product is viewed from a commercial standpoint and its utmost value is determined to a nicety by the laws of use, of taste, supply and demand. Perhaps in no other period of the world's history has the economic value of many forms of animal and vegetable life, once deemed utterly worthless, been so fully recognised as in the nineteenth century—an age of science and invention, improvement and culture. The birds of the earth number upwards of twelve thousand species, which are universally distributed over its surface, from the eternal ice and snow of the polar regions to the dense forests and the arid deserts of the torrid zone. On every ocean, in every clime, from the deepest valleys to the snow-capped mountain-tops, bird-life abounds, adapted in every way to the peculiarities of the sea or land, and playing a most important part in the world's economy. The birds of the globe are a dominant if unassuming group of its inhabitants, and

their contribution to its industries and to its well-being is by no means an inconsiderable or unimportant one. It is our intention to separate the present chapter into several divisions which the commercial uses of birds and their economic utility naturally suggest, thus simplifying considerably the treatment of our subject.

Our first division will deal with the commercial value of birds as food. In all countries of the world, and amongst all peoples, both of civilised man and his savage brother, the flesh of birds is an important, valuable, and nutritious article of food. In some parts of the world birds are almost the exclusive animal food of man, in preference to either flesh-meat or fish ; and probably there is not a tribe or race of human beings in any part of the world that does not subsist more or less largely on the flesh of birds. As food-producers the various species of Game Birds claim our first attention. This important family of birds numbers nearly three hundred species, which are pretty generally distributed throughout the world, with the exception of Australia and South America, on which continents they are replaced by the Megapodes and Tinamous, whose flesh appears to be equally prized as food. It is a singular and interesting fact that the birds of this dominant family are very prolific, some of them laying as many as twenty eggs for a brood, and also remarkably easy of domestication, many readily reconciling themselves to captivity,

where their fecundity, instead of diminishing, has increased to a wonderful degree. It was these peculiarities that probably impelled prehistoric man to domesticate them and keep them in captivity as ready supplies of food, and which his descendants have continued to do with so much profit and success. Take, for instance, the Grouse of the Arctic and temperate regions of the northern hemisphere, a widely distributed group of birds whose flesh is highly prized as an article of food. Hundreds of thousands, nay, millions of Grouse are eaten every year in Euro-Asia and North America, not only by the highly civilised races of mankind, but by the various Siberian and Russian tribes, and by the Esquimaux and Red Man of the New World. The Pheasants are another important and widely spread group of this family of birds. They are confined to the Old World, their home being in temperate Asia, whence they have been introduced into most parts of Europe. The common Pheasant is one of the best known species of game bird in this country, and the delicious flavour of its flesh is perhaps unrivalled. The Partridges and Quails of the Old World, and the Curassows, Colins, and Plumed Partridges of the New World, are also highly esteemed for the flavour of their flesh, and are eaten in countless numbers. The Jungle Fowls of India and other parts of tropical Asia are also members of this important family of birds, and are specially interesting as the original stock from



which our endless varieties of domestic fowls have sprung.

In most civilised countries the commercial value of Game Birds has caused them to be protected by stringent laws ; and in many parts of the world the breeding and preserving of these birds is quite an important branch of industry. Take, for instance, our own country as an example. Almost every big landed proprietor is a large breeder and preserver of game, spending considerable sums of money annually in keepers and other necessities. These Game Birds represent an enormous amount of capital, and the shooting of them is an expensive luxury, only to be indulged in by the well-to-do. Every year the game industry becomes more important. Grouse-moors, and Pheasant and Partridge shootings let for ever-increasing sums, and the right to shoot these precious birds steadily increases in value. Their commercial value as food, however, fortunately does not advance at the same pace ; and, the more plentiful the game, the lower its market price. Probably the number of Pheasants and Partridges killed in the United Kingdom every season approaches close upon three quarters of a million of birds—truly a luxurious and noble supply of food ! As game breeding and preserving becomes more general the birds become cheaper ; and not only is a healthy and manly sport encouraged, but an important food-supply is increased.

Directly or indirectly the Game Bird furnishes employment for a vast number of people. Beaters, watchers, and gamekeepers profit directly ; gun-makers, shooting agents, game dealers, ammunition manufacturers, and game food purveyors indirectly from this spreading industry. It is an important source of income to many a struggling landed proprietor or country squire, who in these times of agricultural depression makes his game replace the deficiency of his rent-roll. Millions of pounds are spent in this country alone every year in connection with our feathered game, and the amount is increasing. Of this sum many thousands of pounds find their way into the National Exchequer in the form of gun and game taxes, licences to deal in game, and duties on servants, horses, etc. We have only alluded to the worth of Game Birds in this country ; but elsewhere they are equally as valuable, and represent a very important amount of capital and food.

Barndoor fowls naturally come next before our notice as being the domesticated descendants of several species of Game Birds. Their origin may with almost absolute certainty be traced to India and the Malay Archipelago, where poultry is known to have been kept from the very earliest times. The Wild Cock of Malacca is probably the origin of the large breeds of Fowls ; whilst the plucky little Bantam's ancestor is a resident in the jungles of Java. Our game cocks are the domesticated

descendants of the common Jungle Fowl of India ; but it is more than probable that all these wild species have been repeatedly crossed and recrossed in producing the several distinct types of Domestic Fowl. The breeding of poultry has reached the dignity of a science ; and man's careful selection of suitable variations, which have been judiciously crossed, has been crowned with marvellous success. We need only visit one of the many famous poultry shows to see almost at a glance the endless breeds and strains and varieties of these birds which artificial selection has produced—the beautiful and numerous variations of colour, of form, and of structure which have all been evolved from one or two wild species by the ingenuity of man. The annual consumption of poultry is enormous, but the limits to the industry of poultry-breeding are by no means reached, and the demand steadily increases for this highly nourishing and delicious article of food. A passing allusion must here be made to Geese and Ducks—both descendants from wild ancestors, the former from the Grey-lag Goose, the latter from the Mallard or Wild Duck. Both these birds are in high demand for food ; the vast quantities of Michaelmas Geese that crowd the markets from October onwards being a convincing proof of that bird's commercial importance. The Turkey, a native of the woods of North America, is another species of Game Bird that has been



domesticated with the greatest success. It may justly be regarded as the king of table-birds, and takes the place of honour on many a festive board at Christmas-tide. Certain counties have become noted for their breeds of Turkeys, Geese, and Ducks, the rearing of which is an important industry, where much capital and labour are successfully employed.

Birds of the Pigeon tribe are also noted for the delicacy of their flesh, and in all parts of the world form an important article of food. From the earliest period of recorded time the Pigeon has been domesticated. The endless varieties of dovecot Pigeon have all descended from their wild congener the Rock Dove, and are another remarkable instance of what may be done by careful selection and breeding. Great quantities of Pigeons are bred for table purposes, from the monster "Bordeaux" to the little "Blue Rock," and this supply is further augmented by large numbers of wild birds. The largest and commonest of these is the Ring Dove or Wood Pigeon, which frequents most woodland districts in autumn in vast flocks. The Pigeon is highly prized as an article of food in North America, where its numbers are almost past belief—the Passenger Pigeon being especially numerous, roaming over the country in countless hordes. There are upwards of three hundred and fifty species of Pigeons, which are distributed throughout the world, except in the polar regions. Although they

only lay two eggs at a time, many species rear three or four broods in a season, so that their fecundity is large.

From species which are either systematically bred by game preservers, or reared for the table in a domesticated state, we pass to another large and important group of birds which, though strictly wild, are very extensively used as food. This group includes the Snipes, the Plovers, and the various species of Wild Ducks and Geese which are all classed as Wild Fowl. Most of these birds are migratory, and come to the more civilised portions of the globe in autumn from their summer haunts in the Arctic regions, speeding north again in the spring. During their sojourn on southern coasts and marshes they are incessantly sought after and taken in various ways, for the sake of their commercial value as food. Vast numbers are netted every season ; still greater quantities are shot, by men who gain a somewhat precarious livelihood in procuring them for the different markets. The highly prized Woodcock is a great table delicacy ; so are the Snipe and the Plover, the Curlew and the Redshank ; whilst the various species of wild Duck, especially the Canvas-back of North America, are also good eating. Though not strictly speaking Wild Fowl, the Skylark, the Ortolan, and other species of Passerine birds should here be alluded to as articles of food, which are caught in great numbers every spring and autumn when they are on their annual migrations. London alone consumes

half a million Skylarks every season ; and millions of this bird are caught in various parts of continental Europe. In smaller numbers the well-known Corn-crake, the Coot, the Water-hen, and other species of Rails, are shot for the table, the flesh of all these birds being more or less palatable. Some birds, however, have commercially deteriorated in value as food. In olden times the Heron, the Swan, and the Peacock often graced the festive boards of the nobility, but they are never eaten now.

If the birds above mentioned are well-known articles of food, the eggs of several of them are none the less important in the dietary of man. First and foremost of them all must be mentioned the eggs of the Domestic Fowl. It would be absolutely impossible to form any correct idea of the number of eggs of this bird which are consumed annually, even by civilised man. Millions upon millions of eggs are eaten every year in London alone ; and yet what an infinitesimal portion of the world's grand total does this represent. The egg industry is an enormous one, and is almost the only source of the wealth of many Continental districts. We must not forget to allude to Plovers' eggs, which are gathered and sold as expensive delicacies. Nor must we fail to notice the vast numbers of sea fowls' eggs which are collected every year for food by fishermen and others ; the egg harvest in many remote corners of



our islands alone being eagerly watched and waited for by those concerned. As food the eggs of Gulls and Guillemots are savoury and highly nutritious, and numbers of professional climbers regularly search the rocks and sea-girt islands for them. They find a ready sale in most seaside towns and fishing villages. The eggs of Turkeys, Ducks, Geese, and Guinea Fowls are also sent to the markets in considerable quantities for food.

The nest of a species of Swift is another table delicacy, highly prized by the Chinese; and numbers of people gain a livelihood in obtaining them from the caves where they are built. These nests are made of a mucous substance discharged by the Swift, and are placed against the walls of the gloomy caves. They are gathered with a kind of trident or pronged spear, on which a lighted candle is placed, by the flame from which the suitable nests are discovered. The men go to work in pairs, one detaching the nests from the rock, the other removing them from the spear and putting them in a bag he carries fastened round his waist. The best quality nests are bound up in packets, the inferior sorts, which are the darkest, being simply threaded together. Each packet contains about forty nests and weighs nearly two pounds. Their commercial value is about eighteen shillings a pound. The annual value of the nests from the caves in Borneo alone (the property of the British North Borneo Company) is about twenty-

five thousand dollars. For generations these caves have supplied the Chinese markets with this novel delicacy, yielding three crops of nests a year, and still show no signs of becoming deserted by the birds which have so long continued to be imposed upon. We believe that the Chinese make these celebrated nests into a kind of soup, which is thought as much of by the mandarins of Canton and Peking as the turtle soup is by the mayor and aldermen of the largest city in the world.

Before leaving this division of our subject we must say a few words on sea-fowl. In many parts of the world, especially on remote ocean islands, the sea-fowl are almost the sole support of the few human beings that reside upon them. As a case in point we will instance St. Kilda. This lonely group of ocean islets stands amongst Atlantic swells some ninety miles from the mainland of the west coast of Scotland. The population numbers about seventy souls, and the chief sources of their wealth and sustenance are the myriads of sea birds that cluster on their rocky home. The principal birds are the Fulmar, the Puffin, and the Gannet, the two former species being almost the sole flesh food of the inhabitants. They are eaten in a fresh state, as well as salted and dried for winter provisions. The eggs are also eaten in vast quantities, and are absolutely preferred to those of the Domestic Fowl. If birds were of no further service, we think their worth as

food for mankind alone would place them very high in the scale of useful living objects ; but we have yet to notice the commercial and economic value of birds in many other ways.

Our next division will treat of Feather and Plume products. If the flesh of many birds is used for food, the beautiful covering of feathers and down still more takes an important place in the commerce of the world. The down, feathers, and plumes of birds are used for a great number of purposes both useful and ornamental. Probably, from the very commencement of the period when prehistoric man took to wearing any covering or ornament, the feathers of birds were largely used—a practice which the wild tribes of the earth have continued to follow. The Red Man of North America had his head-dress of Eagle plumes ; the African savages delight to make themselves gay with Parrot's feathers, as also do the natives of the South Seas and South America. Nor was this all ; the hollow wing-bones of many birds made him his pipe-stems—a custom which civilised man has also adopted, those of the Goose and the Albatross being special favourites with smokers. The stiff quill feathers of various species of birds are used by savages to flight their arrows ; and in modern archery no better material has yet been discovered.

Two of the greatest of our nightly comforts are due



principally to the birds ; yet how rarely do we spare a thought for these useful creatures when reclining on a soft feather bed, beneath the luxurious warmth of a down coverlet. Most of the feathers plucked from the poultry, Geese, and Ducks which are sent to the markets are reserved for the purpose of making beds, pillows, etc. ; and this supply is further augmented by quantities of imported feathers from the various great haunts of sea-birds. St. Kilda, Iceland, some parts of Norway, and the Bass Rock in Scotland may be given as a few centres from which sea-fowl feathers are annually exported. The feather industry is a large one and finds employment for a great number of persons, who put the feathers through the various processes before they reach our beds. Down, as an article of commerce, is an important product. Eider down are the soft filmy feathers that grow thickly next to the skin, under the ordinary plumage on the breast and belly of the Eider Duck. It is smoky brown in colour, the shaft of each down tuft being a little paler than the filaments. The Eider Duck is found along the coast-line of the Atlantic, in the Arctic regions, and as far south as Denmark and our islands. In Greenland, Iceland, and some parts of Norway this bird is strictly preserved for the commercial value of its down. The Fugel-Vaas or Bird Preserves, on the north-west coast of Norway, the islands of Vigr and Oedey on the north-west of Iceland,

and Greenland, are perhaps the greatest centres of the trade in Eider down. In many parts of Iceland so carefully is the bird preserved that shooting is forbidden, and the firing of a gun is punishable with a fine. So jealous are the Icelanders of their famous Ducks that ships are not allowed to fire salutes near the colonies of Eiders, in case the nervous birds should forsake the district, which would mean absolute bankruptcy for the unfortunate owner. In some parts of Iceland rough walls are built with recesses, in which the Ducks make their nests ; and so tame do the birds become that they even hatch their eggs on the roofs of the houses and in the window recesses. In other districts the grassy banks near the sea are marked out in squares of about a foot, each containing a hollow in which the Eider Ducks make their nests. The nests are robbed of the down as soon as the eggs are laid, and by judicious management the birds may be induced to replace the stolen down several times in succession. Curiously enough the down plucked by the bird itself is the most valuable, that obtained from a dead bird being of only second-rate quality and nothing near so elastic. A great quantity of down is, however, taken from dead birds, which is usually "harvested" in winter or early spring. A nest yields from half an ounce to an ounce of down, so that by removing it each Duck will produce about a quarter of a pound of the precious commodity

in a season. In its raw uncleaned state Eider down is worth from eight to twelve shillings a pound, but when cleaned of all the particles of straw, etc., it is worth a sovereign a pound. About a pound and a half is used in the manufacture of an ordinary coverlet. Iceland and Greenland send the greatest quantity of Eider down into the market, that from the former locality being valued at upwards of £5000 annually. The two districts combined send perhaps eight thousand pounds weight of down into the markets every year, the produce of a hundred and thirty thousand nests. The drake is a singularly handsome bird, and the skin of his head makes a pretty border for quilts, rugs, etc. Thousands of skins of the head of the Duck are sewn together to form linings for cloaks, and the downy skin of the underparts of the body of both sexes when stripped of feathers is also made into rugs. In spite of all this persecution the Eider Duck does not appear to diminish in numbers. Swans' down is also used for a variety of purposes, especially for trimmings, but in much smaller quantities.

Another important branch of bird industry is supplied by the Ostrich. Ostrich-farming and the exportation of the feathers form a considerable part of the trade of South Africa. The birds are bred and kept in regular enclosures for the sake of the noble plume feathers, which are used for a variety of purposes. Fashion,



however, makes or mars many important industries, and the Ostrich farmers are passing through a period of severe depression. Ten years ago the best white Ostrich feathers were making £60 per pound; and a pair of adult Ostriches were worth as much as £300, whilst the chicks a day old realised £5 a piece. Competition, changes in fashion, and depression in trade have brought down the price of feathers to £8 per pound, and the birds have decreased proportionately in value. The feathers are taken from the birds every seven or eight months, either by cutting them short off with a knife, or plucking them out by the roots. It takes the produce of three birds to yield a pound of best feathers, which are taken from the wings; the inferior plumes are from the tail. The feathers are bought from the farmers by dealers who sell them again to the local merchants, by whom they are shipped to various parts of the world. Comparatively few Ostrich plumes find their way to European markets now, the bulk of the supply being sent to the busy marts of America, where the feathers are at present more fashionable than in the Old World. The Ostrich is a bird of the Great Desert, and its plumes are an important merchandise throughout the Soudan. They are gathered from wild birds which the crafty Arabs hunt in their arid strongholds, and are often bartered for slaves, powder and shot, and other necessities in the markets of Timbuctoo and other

Soudanese cities. Many bales of Ostrich feathers are carried on camels across the Desert, the journey often occupying several months, and eventually find their way to European markets, and then to European ladies' boudoirs and wardrobes. The Emus of Australia and the representative Rheas of the New World also supply us with much feather material ; and the eggs of all these birds are known in commerce. Every one is familiar with the beautifully mounted eggs of the Ostrich and the Emu, gay with gold and silver trappings, which are fashioned into vases, cups, inkstands, and other ornaments.

The trade carried on in plumes and bird skins for hats, muffs, dress trimmings, etc., is enormous. At the present time almost every lady we meet has feathers of some kind on her head-dress or garments ; whilst the windows of shops devoted to millinery are quite ornithological studies. The supply of all this feather ornament entails the sacrifice of much bird life ; but birds are prolific creatures, and their numbers do not appear to diminish in any serious degree. Almost every kind of bird is pressed into the industry. Birds of resplendent plumage from equatorial forests—gaudy Parrots, Manakins, Tanagers, Trogons and Fruit Pigeons are sent in bales to the markets of the civilised world. Spangled Humming Birds from the New World, like gems of the finest water, come in their millions : Sun Birds

from Africa and the East ; Ptarmigan from Arctic snows ; Snipes and Plovers from northern regions ; beautiful Egrets and Herons from southern rivers and marshes—all find a ready sale according to the ephemeral fashion that may chance to reign supreme. But the plumassier's art does not end here—he increases the diversity of his goods by the aid of dyes, and by ringing the changes in an endless variety of ways. He puts the Dove's head on the Tanager's body, or the wings of the Woodpecker or Trogon are mingled with the plumes of Egrets, or the heads of Snipes and Plovers. He frosts the feathers of some with gold and silver ; and by endless combinations tries to supply the endless thirst for novelty in the female heart. Sometimes big birds are all the rage, and then the Owls, large Pigeons and Gulls have a bad time of it ; at others small birds alone suit the ladies' capricious tastes, so that the trade in plumes and birds fluctuates almost as restlessly as the shares in a gold or silver mine. What may be all the fashion in winter are discarded in spring, and the summer choice may differ just as widely from that which prevails in autumn. India and South America are the two great centres from which most of the birds in this peculiar trade are sent ; but many other districts contribute an important share. For instance, the endless marshes of Florida are robbed of their bird treasures for the New York plumassiers ; and much of the delicate and costly



“aigrette” or “osprey” of commerce is obtained from the Danube, where the beautiful snow-white Egrets and Herons that produce it live in enormous colonies. The skins of many of the beautiful Pheasants are made into hats; and most ladies are envious of a sister who is the fortunate possessor of a muff made from the gorgeous metallic plumes of the Impeyan. The uses to which plumes are put are practically endless. They figure at the bridal ceremony; they are equally important as funeral attributes. We see them in the form of graceful and expensive fans in ball-room or theatre—in fact, wherever female society is to be found, no matter in what part of the world, the fair sex seek to enhance their charms by the aid of the beautiful plumage of birds.

Other but smaller branches of the feather industry are the manufacture of artificial flies for fishing, some birds fetching very high prices indeed for this peculiar purpose. Another use to which feathers are put is the manufacture of brooms, chiefly from the long narrow hackles of the Barn-door Fowl and from the broader feathers of Turkeys. Nor must we forget the quill-pen makers who earn a livelihood by fashioning the instruments which men of the law and bankers deem necessary in compiling their mystic documents. We verily believe the lawyers would consider a document illegal which had been written with a vulgar steel pen—nor are the

bankers far behind in their prejudice. There is an amount of pliability about a quill pen never to be found in one of steel. An almost equally important use for quills is the manufacture of toothpicks, thousands of gross of this useful little article being consumed every year in England alone. The largest toothpick factory in the world is near Paris, which is said to turn out twenty millions every year. All these uses to which birds are applied may seem simple in themselves ; yet they furnish employment for a great number of people before the finished articles reach the consumers' possession.

Before dismissing this portion of our subject, we would call attention to another small but important use to which birds are applied, and that is the manufacture of fat and oil from their bodies. In some districts great quantities of these products are got from birds—at St. Kilda, for instance, where the natives increase their income from this source. The oil from the Fulmar is much used in the Highlands of Scotland as a sheep-dressing, being preferred to any other substance ; and in many parts of the country it is held in high repute as a cure for rheumatism. The fat boiled out of the bodies of the young Gannets from the Bass Rock is a valuable product to the proprietor of that island. Guano should also be mentioned as a very valuable product of the bird world. It is composed

principally of the droppings of sea-birds, accumulated in vast layers at their breeding stations during the course of ages. The guano harvest is almost exhausted, most of the known stations having been cleared of this costly product, one of the finest known manures. Its commercial value has been enormous ; fleets of ships were engaged in carrying it from the wild ocean rocks where it lay to the ports of the busy civilised world, where it found a ready sale in agricultural markets. A considerable quantity of guano is still obtained from the celebrated bird caves of Borneo.

By analysing the commercial value of birds a little deeper still, we find that they absorb a fair amount of solid capital every year for scientific purposes. Ornithologists must be supplied with specimens of birds and eggs from all parts of the world to satisfactorily pursue their studies. In the scientific world, a bird's value is determined by its rarity. For instance, the skin of the Caucasian Black Grouse fetched quite recently in London the sum of £15 ; but that is nothing to the value of the now extinct Great Auk, which is worth £200, or of its noble-looking egg, which was sold by public auction in the present year for a hundred and sixty guineas ! Our British Museum is another noteworthy instance of the value of birds. Its noble collections are almost of priceless value ; and in gathering them an immense amount of money has been

expended. The literature of birds would fill a borough library ; and in its compilation a vast amount of work has been found for printers, artists, and authors, and an enormous capital has been sunk by publishers and public. Then, too, the various museums in all parts of the world are not kept up without a numerous staff of assistants ; the bird division of the British Museum alone costing the nation considerably over £1000 a year.

Such beautiful objects as birds have from the very earliest historic times been kept in confinement or domesticated for the sake of ornament and song. From the remotest times of which we have any record, Peacocks appear to have been kept for the sake of their exceptional beauty ; and, in some parts of India, they are still deemed sacred birds, and large flocks of them are attached to many of the Hindoo temples. Another valuable bird of ornament is the Swan, which lends such a picturesque charm to a sheet of water. The Black Swan of Australia has been imported into the northern hemisphere, where it commands a high price for ornamental purposes. Other birds of brilliant plumage are kept in confinement for the sake of their beauty—the superb Parrots and Macaws, the Tanagers, the Orioles, and others, too numerous to specify. It may almost be laid down as an axiom in ornithology that birds of richest plumage have the smallest powers of voice. The singing birds are mostly dull of dress ; nevertheless, the



beautiful melody they give forth makes them prime favourites, and the trade in these songsters is generally a brisk one. First and foremost of cage birds stands the Canary, the domesticated descendant of the wild Canaryfinch of the Canary Islands. Careful selection in breeding and crossing have changed the colour of the Canary and improved its song in a wonderful degree. Germany and Belgium are the seat of the Canary-breeding industry, and vast numbers of these little songsters are sent from these countries to all parts of the world. Societies have been formed for the special benefit of Canary fanciers, who hold their periodical shows, and strive in friendly rivalry to produce new and finer breeds of birds and greater sweetness and variation of song. Many homely birds are highly prized as cage pets. The melodious Thrushes, the piping Bullfinches, Linnets, Goldfinches, and Larks, have all their admirers. Many persons gain a livelihood in catching, breeding, and training these songsters, and the large amounts of money some of these highly trained birds realise is truly astonishing. We need scarcely allude to the industry of cage making, and the manufacture of the various appliances and foods which are being constantly produced for the benefit of these little feathered prisoners. In most parts of the world, the bird-catcher may be met with wherever there is anything worth his attention. Thousands of small birds are constantly

being sent from different parts of the world to London and Liverpool, where, from the establishments of certain well-known dealers, they are despatched to all parts of the country. Distant China sends us her lovely Mandarin Ducks ; India her Peacocks and her magnificent Pheasants ; Africa her Grey Parrots, which learn to talk more readily than any other species of this talkative family of birds ; whilst we, in our turn, export Robins, Thrushes, Goldfinches, Linnets, and other birds to distant colonies, where they find a ready sale at remunerative prices to settlers from the old country. We need not enter more minutely into this portion of our subject to show the great commercial value of these birds of ornament and song, nor need we employ more details to illustrate the importance of an industry which finds employment for so many individuals.

Again, no other objects of the animal or vegetable worlds figure so frequently in designs and all kinds of decorative art as birds. The Japanese are perhaps the most ingenious bird designers in the world, scarcely an article made by that highly artistic people being without bird ornamentation of some kind. Birds figure in the designs on their pottery and china, on their fabrics, their fans, screens, and various kinds of paper-work, and are even used as models for their gods. Amongst western nations, the bird is held in high repute for decorative purposes, and in endless ways it is introduced into all

kinds of products. We see it on our wall-papers and valentines, in all kinds of artistic printing, on pottery and porcelain, on textile fabrics and in lace and embroidered work. It figures in our architecture, and is even employed in various ways as trade-marks and advertisements.

As our fourth division we propose briefly to glance at the value of birds used in the Chase. From periods of remote antiquity man has pressed the bird into his service and made it the pursuer as well as the pursued. In days of old the art of Falconry flourished in merry England—a truly noble sport followed by kings and princes and gentle ladies of high degree. Firearms to a great extent rang the death-knell of hawking, and it is only followed in this country now by a few gentlemen who enjoy the sport, most probably from its novelty. It would, however, be erroneous to infer that hawking in this country has ceased to possess any commercial value. The “Old Hawking Club” and many private gentlemen expend good round sums annually in the sport. Falcons have to be purchased and trained; men have to be kept to attend them; food is required for them; and many minor expenses have to be met by the votaries of this difficult sport. In olden days a cast of Hawks was thought as much of as a modern stable of hunters; and extravagant sums were paid for highly-trained birds.

In many parts of the East, however, Falconry still

retains its ancient glory, and continues to be a sport followed by princes. The proud Arab chieftain is passionately devoted to his Falcons. Next to his horse, and before his wives, they rank amongst his most precious treasures. He hunts the small gazelles, the Bustards and the Coursers of the desert with his highly-trained birds, and would sooner part with most other of his personal effects ere he would allow his Falcons to leave his possession. The birds now in demand for the sport are the larger Falcons, especially the Gyr, the Peregrine, the Saker and the Lanner. They require great care in training, and find employment for a good many persons both at home and when engaged in the chase. The office of Master of the Hawks is, we believe, a Court post of no little value, but now, of course, nothing but a sinecure.

Another bird of the chase pressed into the service of man by the Chinese is the Cormorant. The fishing Cormorant will always stand as a monument to John Chinaman's ingenuity. Our modern falconer starts upon the chase with his cast of favourite Hawks; the Chinese sportsman carries several trained Cormorants to his boat and rows out from shore with his feathered fishermen. No birds in the world are more adept at catching fish than Cormorants, and the enterprising Chinese is soon rewarded with a stock of fish. Each bird has a small ring placed round its neck to prevent it from



swallowing the spoil, and one man will manage from two to half a dozen birds. These Cormorants represent so much of the poor fisherman's capital, and their training is a work requiring no small amount of patience and skill. Even the fishermen of our own coasts value the sea-birds, and by observing their actions are often led to many a rich shoal of fish. Savage man is not far behind his civilised brother in making use of birds in his various hunting expeditions. The interesting little Honey Guides of the South African forests lead the natives through the dense jungles and thickets, often for miles and miles, till they unerringly point out to him the presence of a goodly store of honey in some hollow tree. These birds are commercially valuable to the simple native of tropical Africa, who barter the honey he so obtains for the necessities or luxuries of his simple life. A passing word must be given to the keeping of Game Cocks for fighting purposes. By law, the cruelties of the cockpit are forbidden; but many birds still continue to be trained for battle, and there is no doubt whatever, that a well-bred Game Cock is worth nearly as much now commercially as in the palmy days of the sport. Many of the smaller birds are also used in the chase to decoy their wild companions to captivity—well trained ones fetching exorbitant prices.

A glance at "Carrier" Pigeons will bring this division of our subject to a close. The various breeds of Homing

Pigeons, often miscalled "Carriers," such as the Dragon, the Tumbler, and the Antwerp, are of important service to man, and are commercially of considerable value. The chief peculiarities of these birds are their great powers of flight, combined with a strong attachment to home. Some of these highly bred Homing Pigeons are capable of very strong powers of flight, and great endurance. They have been known to fly for twelve hours at the rate of nearly fifty miles per hour. In Belgium, the breeding and training of Homing Pigeons has become a fine art, upwards of one hundred and fifty societies, containing over ten thousand members, being established for the advancement of the pursuit. These societies hold periodical shows, and offer many handsome prizes for the best birds. Some of these prize-winning Homing Pigeons have realised as much as £20. The uses to which Homing Pigeons have been applied have considerably increased of late years. The gentle Dove has been made a messenger of war; and numerous experiments have been made to determine its fitness for carrying messages rapidly from one district to another, where the telegraph or railway is unavailable. As messengers from balloons and besieged cities they are extremely useful; and there can be little doubt that in the warfare of the future, the Homing Pigeon will play an important part. We believe that both the French and German military authorities have been experimenting

largely with these birds, whose capabilities as message carriers in a campaign cannot be ignored. In both countries large sums are being spent yearly in training these birds and in organising their stations. The next Franco-German war will have its corps of Homing Pigeons, as useful accessories both on the field of battle and in town and fortress. In Italy, Carrier Pigeons regularly convey messages between the war office and Rome, and to the military ports in the islands of Sicily and Sardinia. Pigeons are sometimes trained by jugglers to perform certain tricks.

We cease now to look upon birds in a strictly commercial sense, and study them from an economic point of view. There can be no doubt whatever that the commercial value of birds, great as it is, sinks into utter insignificance when compared with their economic value. We do not consider it by any means a rash statement to make when we assert that the world would practically be devoid of vegetable life if it were not for the army of birds that people its surface. The value of birds, not only in farm and garden, but in the forests and plains of the uncivilised world is beyond all efforts of conception. By keeping in check the endless hordes of injurious insects ; by eating up the millions of seeds of noxious weeds and plants ; by destroying poisonous reptiles and troublesome animals, such as rats and mice—the birds of the world are of incalculable service to mankind, and

play a part of most vital importance in its economy. We are often called upon to witness the destructive habits of certain birds. Cornfields are sometimes devastated, fruit orchards are frequently robbed; and the beds and fields in seed-time are dug up by pilfering birds; game is stolen from the woods and moors; poultry-yards and fish-ponds are thinned by feathered marauders—yet after all what does it amount to? A mere nothing, an infinitesimal fraction, when compared with the boundless benefits these little creatures confer on the world at large. If not for them not a leaf could flutter in the breeze, nor a flower unfold its beautiful petals—there could be no time of harvest, for the seed-time would fail, and the ripening crops be blasted by the destructive insect hosts that swarm on every side. The rank growth of weeds that no art of man could check would choke them; the small animals that would then increase in overwhelming numbers would devour them. Again, the really troublesome birds are by comparison infinitely few when compared with all the known species. What else but incalculable good do the vast army, hundreds of millions strong, of Swallows, of Warblers, and in fact of all soft-billed birds, perform, engaged through every hour of daylight in searching for the various enemies of vegetation or the pests of man? What harm are the myriads of Owls and Nightjars and other nocturnal birds engaged in as soon



as night wraps either the eastern or the western worlds in gloom? What injury are the Woodpeckers working in searching out for creatures that are rapidly and surely eating away into the very vitals of the timber, not only in the woods and parks of civilised man but in the vast primeval forests? What damage are the Rooks and most other species of Crows working on the land in ridding it of wire-worms and other fatal pests? And as a set-off to the bloodthirsty propensities of the Hawks, they help to keep the smaller birds within proper limits, preventing their undue increase, and thus preserving Nature's delicate balance. And so we might go on right through the realm of birds; but sufficient has been said to illustrate the great good this vast army of feathered beings are daily and hourly performing in every corner of the globe. Birds are also of considerable economic value as agents for the dispersal of various seeds, and as the fertilisers of certain flowers. Many kinds of plants have been carried in the form of seeds from one part of the world to another by birds, either when clinging to their feet or plumage or in their crops and intestines. In this way many isolated ocean islets have been clothed with vegetation. The well-known mistletoe is largely spread by birds, either accidentally, through them placing the glutinous seeds in the crevices of the bark as they eat the berries, or when cleaning and rubbing their beaks against the branches. In tropical countries where

parasite plants are more common, birds doubtless assist largely in propagating them. In South America many flowers are fertilised by Humming Birds, which would certainly be sterile without their aid. In South Africa others are known to be fertilised by Sun Birds; and doubtless many other instances remain to be discovered. The long slender beaks of the Humming Birds and Sun Birds enable them to probe into the beautiful tropical blooms which they search for insects and nectar; and in so doing they carry the pollen from one flower to another, as it clings to their heads or bills.

Our sixth and last division will treat of the economic value of birds from a sanitary point of view. In spite of man's wonderful improvements in the sanitary condition of the world, there is much left for humbler creatures to do, and the birds of the earth and waters perform a by no means inconsiderable share of the unpleasant duty. Birds are some of the world's greatest scavengers; and in hot climates especially, they are valued and cherished accordingly. The traveller in the hottest parts of the world cannot remain in them long without admiring the important part played by birds, in clearing the streets and suburbs of towns of all kinds of refuse and garbage which, if left in the burning sun, would soon breed fever and pestilence. The King of scavenger birds is the Vulture. In all hot countries these birds of various species abound. They scent the

offal and the garbage, and decaying animals from afar, and on ample wings speed to the uncleanly feast, picking up every morsel, and ridding the tainted air of its unpleasantness. These birds are everywhere protected—in fact it is an offence in some countries to shoot a Vulture, so highly are they esteemed. Through being left unmolested, they flock round the houses and in the narrow streets and squares of the by no means too cleanly towns ; and rows of them may often be seen sitting on the housetops, digesting their unsavoury meal, or eagerly watching and waiting for food. We have often admired the huge Griffon Vultures in Northern Africa, tame as barn-door fowls, either in the dirty towns, or on the dreary expanse of the Great Desert, where the dead camel or gazelle were the objects of their hungry quest. But of little less importance as a scavenger is the Black Kite—a positive boon throughout Oriental countries, where it picks up all the scraps of offensive matter, and shares the larger feasts with the Vultures and the various kinds of Eagles. The Vultures and the Kites and Eagles are welcome visitors to many a blood-stained battle-field ; and in recent years, the sad Soudan was probably saved from the additional horror of pestilence by the good offices of these birds of death. They were in constant attendance on the desert battle-fields, and gorged themselves with the ghastly fare our soldiers provided for them, when the Mahdi's fierce hosts

rushed recklessly to death and paradise against the muzzles of our fatal martinis. Other bird scavengers are the Ravens, and Crows, and Storks, all common birds in the neighbourhood of cities in the warm parts of the world. They live on all kinds of refuse, which is allowed by the dirty indolent inhabitants to putrefy at their very doors ; and even in more temperate lands, the Raven and the Carrion Crow are very useful in this respect. It is much to the credit of the inhabitants of these warm climates, to afford protection to such useful birds, either by law or otherwise. Many an English landowner and farmer might take a lesson from such a practice, and hold forth a protecting hand to the birds of his domain, instead of allowing them to be indiscriminately and wantonly murdered at every opportunity.

We have endeavoured to show, in the small amount of space at our command, the manifold uses of birds, both commercially and economically. We have reviewed the principal uses to which man in his arts and manufactures has applied the birds of the world. We have shown how they supply him with an abundant and nutritious store of food ; how they assist in clothing him ; how they furnish him with a great variety of ornament and song, amusement and sport ; how they carry his messages with a speed second only to that of electricity ; and above all, how they assist him in gathering the harvests of the earth and protecting its vegetable life ; and lastly,



how they help to preserve him in health and cleanliness. Do not our little feathered favourites assume an increased interest when we look upon them not as birds alone, but as objects with a grand purpose in the world's economy. In many ways do they increase the commerce of the world, its prosperity and its happiness; they are the source of numerous important industries; and of all living things they are perhaps the most harmless, the most wonderful, and the most beautiful.

## III.

## PLOVERS' EGGS.

ONE of the first delicacies that spring-tide brings is Plovers' Eggs. By the first week in April we begin to see them in the game-dealers' and poulterers' shops, snugly lying in little round baskets of green moss, or packed carefully amongst bran and sawdust in the original boxes which brought them up from the country. The gathering of these pear-shaped, brown spotted eggs is a profitable industry, which the country folk look forward to with anxious interest, for it increases their scanty earnings considerably, especially if the season be a good one for the birds. The earliest eggs, of course, command the highest prices ; and Society pays eagerly and dearly for these objects, which Hodge picks up from the fallows and the moors. In the beginning of the season from eight to ten shillings a dozen are asked and obtained for these eggs ; but they soon become plentiful, and prices decline to as low as eighteenpence per dozen. Many hundreds of dozen come up to Leadenhall Market alone, and this represents but a small number of the actual harvest.

Plovers' Eggs are the produce of the Lapwing or Peewit, a species of Plover about the size of a Pigeon, which is found more or less commonly in every country district from one end of the British Islands to the other. By choice this bird loves to frequent the breezy uplands, the wild pastures on the borders of the moors, and commons which are covered with rushes, heath, and other coarse vegetation. During winter these birds congregate in large flocks on the low-lying coasts, and wet swampy grounds near the sea. They are constantly changing their ground at this season ; and a flock of these birds flying across country is one of the surest signs of an approaching storm. Numbers of Peewits are shot every season for food, but their flesh is much inferior to that of the Golden Plover, being dark in colour and often fishy in flavour.

At the first sign of spring these vast flocks of Lapwings disperse, and the birds retire to their usual summer haunts on the inland pastures and the hills. Although gregarious at all seasons, the Lapwing does not breed in colonies—if it did so its eggs would probably be much cheaper, as they would be more easily gathered. The nests are scattered here and there up and down a wide extent of ground, and are only found after a careful and systematic search. A site for the nest is often selected behind a little tuft of herbage, or under a small bush ; but very frequently the most exposed situations are

chosen, such as a hollow in the bare ground, or on the summit of a molehill. The footprint of a horse or cow on the bare fallow is a favourite spot ; or on the fields of sprouting corn. The nest is of the simplest, and in many cases is dispensed with altogether. It is merely a hollow lined with a few bits of dry grass, or scraps of broken rush and moss. In this rude shallow nest the female lays her four richly marked eggs. When the breeding grounds of these birds are intruded upon by human visitors, the Lapwings become extremely anxious for the safety of their nests. With noisy wailing cries they dash and whirl about the air, now swooping to the ground, or rising on fluttering wing to hover just overhead. Very often a bird descends to the earth, and reels and tumbles along as if both its wings were broken, trying by this curious artifice to lure the intruder away from the treasured eggs. The birds must be entirely ignored, and the ground searched patiently and closely in all directions, if the nests are to be discovered. From motives of safety the eggs are laid where they resemble the colour of surrounding objects to a wonderful degree, and only the sharpest eyes can distinguish them. In some districts dogs have been taught to search for these eggs, and many children are very expert at finding them. Of course they must be taken as fresh as possible, otherwise their market value is lost ; so that the gatherers generally visit certain grounds at intervals of a few



days. If the first lot of eggs are taken the birds lay again and again, so that the harvest may be prolonged with judicious management for nearly two months.

Plovers' eggs are by no means the only ones that find their way to the table. The tempting price these eggs command, especially in early spring, is the cause of many frauds being perpetrated. The eggs of several other birds are often passed off upon the ignorant and unsuspecting public as those of the Lapwing. Even those of the Sparrowhawk, the Moorhen, and the Coot are often their deputy ; and those of the Black-headed Gull are sold as Plovers' eggs perhaps most frequently of all. This is the gull that might, in the winter of 1887-88, have been seen flying up and down the Thames between London Bridge and Chelsea. It breeds in enormous colonies in Norfolk, and its eggs are regularly harvested for culinary purposes. As garnishes for dishes they are equally as attractive in appearance, and in flavour there is not much to choose between them, those of the Lapwing being slightly richer. Later on in the season the eggs of many other Gulls are collected for food, but they seldom or never find their way to inland markets. This is to be regretted, for these eggs are singularly rich and delicate in flavour ; even those of such species as the Guillemot and the Razorbill being extremely palatable. The wonder is that some enterprising individual has not started the importation of these eggs on a grand scale.

Many Plovers' eggs are brought to this country all the way from Holland, where the bird is extremely abundant, but the risk in transit is large, and we depend upon our native birds for the bulk of the supply. The ploughman and his children gather many of these eggs. He will often leave his horses in a quiet corner of the lane to graze upon the grass by the hedge side, while he spends half an hour in quest of Lapwings' eggs ; or his children, when they bring his dinner, stray on to the adjoining fallows and cornlands to find the nests. Gamekeepers and even their wives search for these eggs, the money obtained for them in the distant town often being spent in some article of feminine finery, or to pay for some little luxury they would otherwise never hope to obtain. Plovers' eggs rank amongst the various objects of the country which are the harvest of the poor. According to season the peasant is generally engaged during his spare hours in garnering some gratuitous harvest or other, made the more welcome and profitable because it needs no seed-time or outlay of any kind. In spring the country yields its tribute of primroses and other wild-flowers, and its harvest of Plovers' eggs ; in summer the various wild herbs are ready for gathering, whilst in autumn the wild fruits, nuts and mushrooms, and in winter the holly and mistletoe help to increase the scanty earnings of the country poor.

## IV.

## ROOKS AND ROOKERIES.

THE Rook is popularly supposed to be the companion of man—almost as much so as the Sparrow. It is such a familiar homely bird in England that the casual observer finds a difficulty in associating it with anything but a semi-domesticated state of existence. But the Rook, in most other countries which it inhabits, is one of the wildest of wild birds, and has its haunts in many instances far from the homes of civilised man. Another very interesting fact in the economy of the Rook is that in those countries where the winters are much more severe than they are with us, as for instance in the northern parts of Russia and Siberia, this bird is a migratory one, and passes southwards in autumn to the shores of the Mediterranean, and even to North-east Africa, Persia, Afghanistan, and North-west India. Many of these migratory Rooks either pass along our coasts in their southern progress, or stay with us during the winter. Although an inhabitant of wild districts, well-wooded ones are essential to its requirements ; and we find that

it is gradually extending its range, even in the British Islands, as tree-planting increases. This fact is very marked in some parts of the Highlands. In Skye, for instance, the Rook is gradually spreading over the island, and attempts to found its colonies in all the new plantations as soon as the trees are sufficiently grown to hold its bulky nest. The farmers and landowners view with dismay this gradual invasion of the Rook, and seek to destroy or drive the poor bird away at every opportunity. They accuse him of every depredation committed by the Hooded and Carrion Crows—strangling young game and poultry, plundering nests, destroying root and grain crops, and pilfering anything and everything within his reach. To a certain extent this may be true. The Rook must live ; and it is difficult to see how he can obtain his usual fare when he penetrates into districts where arable land is scarce, and the food which he is accustomed to seek in more highly cultivated places is wanting. The Rook multiplies apace ; the surplus population are compelled to wander in quest of new haunts, and of necessity their habits have to be modified in many ways. Viewed in this light, the rapid increase of the Rook, and its tendency to spread into little-cultivated districts, is attended with no small amount of danger to the game-preserve and the agriculturist. Yet in the well-farmed portions of the country this bird is an absolute blessing to the husbandman, and should be preserved

and encouraged as an enemy—a deadly enemy—to many of the insect pests of field and garden.

The Rook will ever be associated with those noble halls and country seats, surrounded by well-timbered parks, and approached by avenues of tall elms and limes and chestnuts, which add so much to the charm and ancient picturesqueness of England. With us the Rook is a homely bird, and loves to frequent the tall trees near the habitation of man. It is one of the most conservative of birds, disliking above all things to change its quarters, or to quit its ancestral haunts in certain trees. The railway may pass through its favourite avenue or plantation; houses and cities may be built round the old familiar trees; yet the Rook will linger in them, a link with the past when what is now smoke and grime, pollution and noise, was once a sylvan scene of peace. I always view these built-in rookeries with feelings of regret, and ever fancy that the noisy sable birds have a touch of sadness in their voice, as though lamenting the change in their fortunes. But we will leave the town Rooks to their melancholy surroundings and betake ourselves to the pure fresh air of the open country, and study this interesting bird among more congenial scenes.

There are few birds more regular in their habits and movements than the Rook. I speak thus from twenty years' experience of this bird in both large rookeries and



small. One of these rookeries especially was a great favourite of mine, and I have spent many pleasant hours therein contemplating the ways and doings of my feathered friends. Every spring-time the small wood where this colony is established becomes a scene of great excitement. There are other rookeries I can call to mind which have long since passed away entirely. The big trees have been felled, houses and streets have taken their place, and the noisy hum of machinery is heard instead of homely caws. Let us pay a visit to the rookery this bright March morning. The tall elms and beeches, still bare and cheerless-looking, bend before the breeze, the big limbs rocking to and fro, and every now and then chafing against each other with a creaking sound. How the wind shrieks and howls and groans through the branches; how the tall slim ash poles sway before it and bend like fishing-rods! What music the blast plays across the network of twigs high overhead, like a hundred organs pealing at once. The tree-tops are a busy scene of excitement. Nest-building is going on everywhere. See yonder magnificent beech tree whose scarred gray stem is covered with rudely carved letters, figures, and devices. Sixty feet above its gnarled mossy roots amongst the long slender branches a score of Rooks have made their nests. In the elm trees round it dozens of nests in all stages of construction may be seen; whilst almost every ash

pole supports another, and in many of the outlying oaks and firs the birds have chosen sites and are busy at work. What a Babel of sounds ! What animation and excitement ! Some of the birds are standing sentinel-like on or by the side of half-formed nests ; others are breaking off slender twigs from adjoining trees, always flying clear of the branches with their sticks, and conveying them to the nest by the most open and unobstructed route. Other Rooks may be seen flying from the neighbouring fields with turf, mud, moss, and dry grass ; whilst many more are engaged in noisy converse high up in the bending branches overhead. At this season of the year the Rook is rather quarrelsome with its neighbours, and combats often take place which throw the entire community into a state of feverish excitement. So fiercely are these quarrels carried on that very often one of the combatants falls dead or dying to the ground. The smallest squabble sends a thrill of uproar through the entire rookery, and many birds may be seen bending backwards and forwards on the boughs cawing lustily, seemingly for no other purpose than to increase the general noise.

Rooks are full of strange caprices during the nest-building period. For instance, I have often known several pairs of birds make their nests half a mile from the rookery in an outlying plantation. All has gone on as usual until the nests have been nearly ready for eggs,

when from no apparent cause the birds have removed every twig in these structures, and built new homes in the general colony. Other nests even in the old accustomed trees are commenced and then abandoned again for no perceptible motive. In some cases the birds are much attached to a certain branch, and I have known nest after nest begun only to be blown down by the high winds. Choice of site is another matter of strange caprice. In some cases I have known these birds desert tall trees and make their nests in holly-bushes. This may have been because the higher trees were very much exposed on the summit of a hill and the bushes afforded more shelter, the nests in them being less likely to be blown down by gales. The Rook pairs for life, and the same nest is used year after year, the owners patching up the old structure and increasing it in bulk every spring. Young birds, and those whose nests have been blown down during the winter, have to make entirely new ones. The larger the nest the older it is in most cases, and I am of opinion that the very small nests are made by young birds. So compactly are the nests put together that I know of rookeries where great heaps of twigs, the remains of former nests, still stay in the trees in spite of high winds, the owners having deserted them or died. I have also known Rooks desert trees which have been marked for felling, though in other cases the poor birds have remained by

their nest till the woodman's axe has brought it toppling to the ground.

The Rook's nest is a well-made one, very firm and compact, formed externally of sticks, cemented with mud, and partially lined with the same material. A further lining of dry leaves, pieces of turf, moss, wool, and feathers is added. The nest is rather flat and shallow, and the cavity containing the eggs is very smooth and small in proportion to the entire structure. Sometimes several nests are made together in one dense cluster, and as a rule they are built in the topmost branches as far from the main stem of the tree as is compatible with safety. During the early period of nest-building, the birds only work in the morning, and, certainly in the smaller rookeries, never remain in the trees all night until the first eggs are laid. These eggs are from three to five in number, bluish green, of various shades in ground colour, spotted and blotched with olive brown and gray. Both parents assist in hatching the eggs, and the sitting bird is fed assiduously on the nest by its mate. As the welcome food is being swallowed, the brooding bird utters a series of rapid caws, and very often hops out of the nest on to a branch and waits with fluttering wings the arrival of its mate. Soon we may hear the feeble cries of the young Rooks, and in a week or so more they leave the nests and perch on the branches, many of them falling to the ground, where they

become the easy prey of wandering weasels, foxes, and other predacious creatures. As soon as the young are able to fly, the entire community desert the rookery and betake themselves to the fields. For weeks now, not a bird will visit the nest trees ; but, as the summer draws on, the birds may be seen in them occasionally, though they never roost there. From the beginning of September until the following breeding season, however, they visit the trees regularly every morning in varying numbers.

Rooks are remarkably knowing birds, and soon get accustomed to certain persons and sounds which bring them no harm. The birds in the rookery which I was in the habit of frequenting so much soon got so accustomed to my visits that they rarely left the tree tops as I wandered under them ; but if I was accompanied by a friend, or a stranger made his appearance, the entire colony would become alarmed and fly up into the air cawing loudly. The movements of Rooks are a sure sign to the intelligent keeper that trespassers are about or that something unusual is going on beneath the nest trees. The noise made by the excited Rooks can be heard for miles, and the din, when listened to at close quarters, is almost deafening. It rises and falls in fitful gusts, ceasing for a few moments as if the entire colony obeyed the dictates of a leader, then crashing out anew. Though harsh and discordant, the caw of the Rook is one



of the most pleasant sounds that greets the ear in spring-time.

The Rook is perhaps most destructive in seed-time, especially in spring ; but during all the other months of the year he subsists on the various grubs and worms which are the terror and the pest of the agriculturist.

In Eastern Siberia, in China and Japan, the Rook is replaced by a very closely allied species, the *Corvus pastinator* of Gould. Its plumage is glossed with reddish purple instead of steel blue as in the common Rook ; but the most interesting point of distinction lies in the fact that the base of the upper mandible alone is devoid of feathers, the throat being covered with feathers as in the Carrion Crow.

## V.

## CAMEOS OF WILD LIFE.

To him who is in the habit of spending his idle moments in the woods or by the waterside in quest of knowledge, the few following extracts from the note-book of a fellow-naturalist, may prove of interest; whilst to readers who are not so versed in the ways of wild creatures, and have had but little experience with the country and its charms, they may serve as an incentive to a study which is full of unrecorded pleasures. They are given as they were transcribed, some of them long, long years ago, but each recall a fund of pleasant memories—bygone days which shadow-like have vanished in the past, yet left the record of their innocent delights behind them.

*A Moorland in Spring.*

Our last visit to the moors some weeks ago found little change to chronicle. The Wheatears were back again in the old stone quarries, and a pair of Stonechats were seen in the Blackbrook gorse. The Willow Wrens

were plentiful in the birch coppices at Rivelin, and the Chiff-chaff kept up its monotonous chant in the tall trees by the stream. The coltsfoot flowers like golden stars glistened among the clods of clay in the rough fallows. Spring was coming—the birds and flowers told me that plainly enough ; yet still the wind was cold on the open heights, and I remember I was glad to get into the larch plantations with the Goldcrests and shelter from the blast—so, too, were the Willow Wrens. Every one of them looked cold and sad, and seemed to wish itself safe back again in sultry Africa.

But to-day the scene has changed as if by magic. The air is warm and spring-like, and the migratory birds are back again in force. The brown moors are looking greener ; the gorse coverts are clothed in gold. The Peewits have begun laying at last. How they wheel and tumble, rise and fall in the air when their haunt is invaded by man ! The pleasure of searching for their pear-shaped brown spotted eggs is still the same as it was a dozen years ago. In spite of the wailing Peewits I soon discovered four of their nests amongst the more broken ground, and noticed again how the parent birds seem most anxious when you are really farthest from their treasures. On the sides of the rough valley, where the big boulders of millstone grit shade the tufts of polypoddy, the Ring Ousel is heard singing his love-notes to his mate amongst the birch trees lower down the hill.

I know she is there, for I have already found her half completed nest. The cock is perched on his favourite stump, the dead stem of a birch tree, which has been blown over by the storm and rests across a big rock. I have seen him here for the past three years in succession. He seems quite like an old friend ; and I take off my hat to him by way of welcome in the impulse of my pleasure at seeing him again. The nest of the Dipper I found amongst the rocks by the stream, the last time I was here, is now finished, and the five white eggs are very warm and discoloured, a sure sign that the chicks will soon be hatched. On the level plateau at the top of the valley amongst the long heather and bilberry wires, the Red Grouse are crowing lustily—such bonny cock birds they look, as they stand on the heath tufts, with heads held high and red combs shining in the sun. Their companions, the Merlins, are back again in the old accustomed haunt. I saw the hen bird spring up from the stony ground as I passed. Seven Dotterels are a charming sight as they get up almost at my feet, and fly right across the valley—they are only pilgrims here, bound for more northern haunts than Yorkshire. In my excitement over the Dotterels, I nearly missed noting the presence of my little friend the Twite, but he called so persistently to me that I was compelled to see him at last, and to lovingly chronicle his appearance on the moors again. I have seen him or his descendants,



on this self-same stretch of heather, for more years than I care to recall. The Meadow Pipits are nesting in the swampy hollows where the cotton grass grows ; and I do not ever remember seeing Cuckoos so plentiful before. Their merry notes are sounding everywhere—*cuckoo, cuckoo, cuckoo*—from the hillsides, from the valley, from the moor ; far off in the distance, below me by the stream, and not a hundred yards ahead, somewhere amongst the rocks. “Blithe little spring-time herald, crier of the vernal pageant, shout out thy merry notes on the bracing mountain air ! The birds and insects and flowers may now begin their revels, for the sound of thy voice proclaims the final defeat of winter and his terrors !”

*A Forest Hotel.*

By this expression I do not mean the thatched cosy-looking little hostelry which stands in a clearing of the forest a few yards back from the road, but this great spreading oak tree which has withstood the storms of centuries, and still remains a rugged ornament to the woods in its green old age. Its massive-looking trunk, however, is hollow ; the bark and a thin shell of wood lend it the appearance of solidity, yet its core, once hard as iron, has mouldered into touchwood, and its sturdy limbs are the only relics of its former greatness. The gnarled and knotted roots, like the sinews of a



giant, show here and there above the velvety turf, and lichens and mosses cluster in the crevices of the bark, and garnish the smaller branches. This forest monarch is full of holes and cracks and out-of-the-way corners, which are the quiet refuge of many living creatures; birds and beasts and insects which have made the brave old tree their headquarters. We cannot hope to find them all, nevertheless our scrutiny will be full of interest. The few straws blowing about in the wind at the entrance to a knot-hole in one of the larger branches proclaim a Starling's nest. Starlings are untidy birds, and often betray their homes by their carelessness. The cock bird is whistling on the top of the tree, his notes sounding like the noise made by a rusty axle. Stowed away in the very centre of the hollow trunk is a Jackdaw's nest, a huge pile of sticks which have been dropped into the yawning cavity by the persevering birds until a foundation was formed for the wool, moss, and grass on which their spotted eggs are laid. The Barn Owl also has apartments here; he is at home sure enough, for he never makes any professional visits until dusk. As is the case in all hotels, there are many chance visitors which call during the day and night in addition to the regular *habitués*. As I write a Creeper is wandering up the trunk in a very fly-like manner, winding round and round, pausing here and stopping there to pick out an insect or a grub from the

chinks ; whilst high up amongst the foliage the Blue Tits are hopping about in quest of food. Sometimes sly foxes take refuge in the hollow trunk, going in through the front door—a wide crack in the stem, made during some long-forgotten storm, where the bark has healed over long ago. Those few dead branches at the very top of the tree were blasted by lightning seven summers ago, and are the favourite resting-place of birds. During the hour I have laid here in the bracken a Cuckoo, a Wood Pigeon, three Starlings, and a Jackdaw have perched there in succession, and during the night the Barn Owl will frequently do so. As I climbed up to inspect the Starling's nest, as I have been wont to do each day for months, several bats flitted out dazed into the sunshine, and the Owls snapped their beaks in displeasure at being so rudely disturbed. But I think they know me. They have seen me often enough before, and possibly look upon me as a sort of harmless nuisance.

*The Old Gateway—a Tragedy.*

This evening my old gateway, as usual, has supplied me with another page of scraps from the wild life of the fields. I have never yet described this favourite observatory of mine, although I know by heart every rusty nail in the shaky old gate, every mark and crack in its bars, every scrap of moss and circular patch of

gold and silver lichen on the two square posts, each root of chickweed and tuft of ruddy pimpernel which flourishes at their foot, out of the reach of the heavy tread of the horses which pass through every night in the week except Sunday, to and from the fields. This gateway is at the bottom of a lane which winds through the fields from the high road, and it is the only entrance to the meadows and the woods beyond them. Great thickets of briars and brambles cluster by each gatepost, and on one side a row of tall elms, many of them hollow and decayed, stand in the hedgerow at intervals. I stand here to-night and watch the actions of a pair of Whitethroats which have a nest in the rose briars. The female is only seen now and then. She began to sit on her five eggs yesterday ; but the cock is very restless, and chatters, warbles, and scolds as he flits to and fro through the thicket, or sits on the topmost sprays amongst the pink roses, whose petals he shakes off as he drops upon the briars. As I was admiring him in the act of singing, his throat all puffed out, and his little head turning from side to side, I was startled by the rush of a Sparrowhawk, and my little friend was carried off from under my very nose. He had no time to skip into the bushes ; the bold Hawk was upon him like a lightning flash, and in a second the deed was done. I felt for a moment as if I could shoot that Hawk, when I think of the widowed Whitethroat in the

bushes yonder ; but I suppose the rascal has a nest full of hungry young ones. He might have spared my Whitethroat though, and I feel as if I don't want to see him again for a week. It is surprising what little things annoy and irritate us sometimes. I feel out of sorts with Nature for the rest of the evening. Not even the Goatsuckers can pacify me, even though they sit on the top bar of the gate and feed each other almost within reach of my hand ; and the sight of a big gray Heron slowly flapping away over the woods to his distant colony is not enough to appease my wounded feelings. Poor little Whitethroat ! The rapture of seeing those tiny speckled egg-shells burst asunder one by one as their living freight of blind and helpless chicks came forth ; the joy at hearing their first faint notes of recognition and welcome ; the pleasure of watching those tender young ones, and bringing them to maturity ; the delight of teaching them to fly, of shielding them from harm, and at last of proudly taking them away in autumn on their first long pilgrimage to warmer lands beyond the sea, can never now be your happy portion ! Your widowed mate is desolate, and the hedges will be made glad with your garrulous song no more ! One tiny drop of blood upon the rose-leaves tells a tale of death ! I go home pondering over the "survival of the fittest," the "balance of Nature," the "struggle for life," all stern justice perhaps, but tempered with no mercy.

*Half-hours by the Brookside.*

I never tire of wandering along the banks of the trout-stream ; not only where it babbles and gurgles through the woods, and winds along the bottom of the sloping meadows, but where it boils and leaps over the rocks and stones high up the hills, or widens out in rippling shallows and gleaming pools as it hurries on to join the river. In the woods it is almost hidden in places by the hazel bushes and brambles, and here the shy Blackcaps make their nests. On its banks in the more open parts of the forest the Wood Wrens build and the Common Wren loves to weave its home. In the open meadows the brookside is the haunt of the Yellow Bunting, the Blackbird and the Thrush ; and where the banks are high and steep and devoid of herbage the Kingfishers tunnel into the loamy soil and make their curious nest. Higher up the hills the trout-stream is the haunt of the Gray Wagtail and the Dipper ; lower down on the plains the Common Sandpiper and the Heron are both dwellers on its banks. The alder trees which grow so tall and straight almost in the stream are favourite nesting-places with the Misselthrush. Most birds love the neighbourhood of the stream, and many delight to bring up their young within ear of its babbling waters. Insect life is plentiful in such places ; besides, birds love to bathe themselves, and the vegetation is generally



most luxuriant, and affords good cover on the banks of the stream. All these birds are sure to be met with by the naturalist if he follows the course of the brook ; but we will be satisfied to-day with a glimpse at the domestic life of the Gray Wagtail. The pair of birds whose nest I have been watching for weeks have brought their young ones out at last. Five wee little birdies crouch here and there either on the stones in the centre of the stream, or amongst the grass and primroses on the bank. The parents become alarmed and fly up into the alder trees, calling loudly and incessantly ; but they soon quieten down, and as I sit on the bank begin to feed their young with a charming trustfulness. Both male and female are equally assiduous in their attendance on their young ones, catching flies in the air and among the pebbles, and feeding each one in turn. It is a pretty sight to see the parent approach with an insect, the young bird half flying, half running quickly forward to receive it with open beak and fluttering wings. Such round and feeble little pinions yet, too weak to support the bird in any prolonged flight, but becoming stronger every hour. Most young birds leave the nest before they can fly far, and this causes much mortality amongst them. They are all too eager to come out into the world ; if they would only stay a day longer in their cosy beds, they would be much better able to escape their enemies. I have my

fears about this brood of young Wagtails ; they are too precocious ; a truant weasel or a crafty Crow would soon murder the lot. The old birds seem to have misgivings too, and are constantly manifesting uneasiness over the daring movements of their giddy, inexperienced young ones.

*In the Corn.*

The corn is now ripening fast. Each day the golden tints get darker, a sure sign that the crop is almost ready for the reapers. The farmers' boys are busy from sunrise to sunset scaring the birds from the grain, and their shouts and the noise of their clappers may be heard far and wide. Birds, especially in the neighbourhood of towns and large villages, commit serious depredations on the corn. The worst of these delinquents is the House Sparrow ; not that, individually, he eats any more than the other birds, but because he comes in such vast numbers. For a breadth of several yards round each field, almost every ear of corn shows traces of these little spoilers' visits. My walk round the narrow path, between the hedges and the corn, which I took this morning as usual, led to my discovering that the Tree Pipit feeds greedily on grain. I watched them busily at work shelling out the corn, and flushed them repeatedly from amongst the straw. The Sparrows in compact flocks rose from the grain as I approached them, and

either flew on to the hedgerows and up into the trees, or hurried away to settle in another part of the fields. Greenfinches are also in flocks. These birds have now deserted the grass fields, and live almost entirely amongst the corn. Much more of the grain is wasted than eaten, being scattered on the ground, as the birds either cling to the straws, or break them down, where the head soon mildews or rots, especially if any rain should fall. These Finches feed most greedily, and the new corn swelling in their stomachs and crops often renders them almost unable to fly. If many birds come to the fields for corn, there are others that come for insects. These are the Willow Wrens and Whitethroats, which may often be flushed from among the wheat and oats, but they do no damage whatever. A cornfield is always a charming sight even irrespective of the birds. What beautiful waves and undulations play across its surface as the wind rushes to and fro; then the poppies and the lilac-coloured scabious, how they gleam among the golden grain; and how cool and green the young clover looks sprouting up between the straws. Then the harvest mouse—a wonderful little creature truly—has his home amongst the grain; and the Swallows in their steel-blue coats never seem to tire of crossing and recrossing the undulating waving surface!

## VI.

## AN APRIL RAMBLE.

NOW that Winter and the east winds seem banished at last, and the frost and snow have been driven back to their polar habitudes by a genial April sun, it is a real treat to wander forth into the country lanes once more. All now is life and promise of life. Whichever way we glance we are greeted with unfailing signs of Nature's returning vitality. As the sun mounts steadily up into the northern tropic, plant and animal life unfailingly proclaim his welcome progress. For weeks the farmers have been crying out for rain, the winter store of root crops is exhausted and pasturage is bad. The dry piercing March winds have retarded vegetation ; but, now that the fleeting April showers have come, the thirsty earth already shows signs of improvement.

Trees, shrubs, and more lowly vegetation everywhere are answering to the gentle wooing persuasion of the April sunshine and showers. The big varnished buds of the horse-chestnuts are swelling out to an enormous size, and here and there on the lowermost branches the fresh

tender leaves have already burst from their scaly prison. The lilac buds have broken, and those shrubs and the elders are decked in tiny leaflets. Tints of freshest green are stealing over the whitethorns, and the birches will soon be clothed in vernal verdure. Several species of willow are already decked in golden glory, the yellow "palms" filling the surrounding air with rare fragrance, and the trees are resonant with the drowsy hum of the humble bees which have just woke up from their wintry trance. It will be noticed that the buds on the trees and bushes burst soonest on those branches near the ground where they are warm and sheltered, those on the higher twigs opening last of all. Specially is this observable with such trees as the sycamore, the leaves first appearing on the long "suckers" which grow out near the roots.

Vegetation of a still more lowly character is growing in all directions. The young nettles help to make the banks of the hedges look green and spring-like as they sprout amongst the withered leaves and dead brambles, whilst the anemones and bluebells are springing up in the woods. In the wild weedy corners of the fields, and along the hedgerows and in the coppices and lanes, herbs of all kinds are growing up from amongst the dry grass ; whilst in the woods and by the stream the hairy brown knobs of the fern and the bracken are rapidly uncurling. The flowers of spring are now in full bloom



—a host of simple blossoms, but wonderfully fresh and sweet and welcome. Primroses in pale yellow clusters stud the open parts of the woods, and on either side of the country lanes, nestling warmly at the moss covered roots of the hazel bushes. They grow exceptionally fine and fragrant where the brushwood has been cleared the previous season, and the trees have been felled. By the pond side and in the marshy meadows under the old crab-trees, daffodils throw up their golden crowns from a cluster of spike-like leaves ; and here and there on the mossy sheltered banks the first spring violets may be gathered. A few snowdrops still continue to bloom, looking like little balls of foam-fleck trembling in every breeze ; and, in the pastures, daisies are springing into flower on every side. On the waste ground the colts-foot gleams in yellow patches in the fitful sunlight ; whilst, by way of contrast, the snow-white flowers of the blackthorn are prominent in the hedges, and long before its leaves have ventured to burst forth. This latter shrub is one of the most beautiful objects of a vernal landscape, especially when growing in clusters, appearing when in full flower like drifts or heaps of snow.

Insect life is also on the stir. Many insects which have hibernated during the long dreary winter now come out into the warm sunshine. In the quiet, sheltered corners, and by the pond side under the drooping branches of the still leafless limes and elms, clouds of

gnats dance merrily in the April sun, tossing up and down in a never-ending stream, in and out like some fantastic whirligig, all intricate confusion, yet order personified. Now and then the heavy humble-bees drone by, or make a terrible fuss amongst the tangled vegetation of a sunk fence. At eventide the big beetles resume their nocturnal flights, and the first few early moths flutter up and down in a half-hearted sort of way. A few honey bees wander forth to visit the spring-tide blossoms, and here and there a drake-fly rises from the stream.

Animals also feel the influence of spring-time, and the hibernating species come out of their winter retreats to join the grand carnival of the woods and fields—held in honour of Nature's Birthday! Fat and plump little dormice, like round balls of nut-brown fur, run gaily up the branches of the hazel bushes and skip about among the dead leaves under the trees; whilst in the branches overhead the squirrels leap in merry gambols. At eventide the bats flit out of their haunts in the church tower, or from the hollow trunks of the elms on the village green, and look very conspicuous against the clear western sky. By the brookside you may see the water rat sitting at the entrance to his hole, or on a flat stone, watching suspiciously your every movement; and the shy otters are busy among the fish, which are now hastening to the spawning-beds.

Our little friends the birds have taken a fresh lease of life, and most of them are turning their thoughts to love and song. Such early birds as the Thrushes and the Starlings, the Robin and the Bunting, are already enjoying their brief honeymoon, and soon their nests will be full of eggs or callow young. The Rooks have been busy the past month or more in the tops of the rocking, windy elm trees, and many of the young birds are already hatched, as the fragments of egg-shells under the trees fully testify. Above the meadows the Skylark's song is heard, and these little brown-coated choristers may be seen everywhere rising from the grass and the corn to soar in spiral course upwards to the zenith warbling all the way. On the topmost twigs of the hedgerows the beautiful Yellow Bunting, gayer by far than any Canary, sits and chants his sweet refrain; while the love-melody of the Chaffinch may be heard from almost every tree-top. The Thrush and the Blackbird make the shrubberies resound with song, especially at morn and even, and the Starling, with every feather on his body erect and trembling with excitement, squeals and whistles on the chimney-pots or the tree-tops near his nest-hole. He is a most interesting little musician, best described as the piper amongst birds, his shrill laboured melody putting one in mind of Scotland's national instrument.

Our summer birds of passage are also rapidly putting





They have passed Gibraltar by night on their northern flight, say to  
their old home on some Surrey cottage."



in an appearance. A fortnight ago the naked woods resounded with the cry of the Chiffchaff, and now almost every bush is melodious with the sweet refrain of the Willow Wren. April is the Swallow's period, and a few pioneers are generally noticed in Devonshire during the first few days of the month. The great army of these birds may be expected from the middle of April to the end of the month, according to the state of the weather. They have passed Gibraltar by night on their northern flight, say to their old home on some Surrey cottage, and are doubtless lingering a few days in the delicious climate of Pau or Arcachon, or on the sunny coasts of Spain. The Wheatear is back again on the breezy downs; and the Cuckoo's notes have already broken the stillness of our southern woods. Spring in downright earnest has come on the wings of these southern birds, and they proclaim its advent in joyous song. Many more birds have yet to come, but sufficient have arrived to inaugurate the change of season with becoming musical honours.

The agriculturist is now having a busy time, and let us hope the seasonable April we are enjoying (1888) foretells the advent of a real old-fashioned English summer. Broad brown acres of fertile soil are now undergoing the various preparations for their bounteous crops. The turnip fields take an undue proportion of the farmer's toil, and here the spring flights of Yellow

Wagtails first make their appearance. On the fields where grain is being sown various Buntings and Finches congregate, as well as Rooks and Ring Doves. In spite of the pelting showers the ploughman wends his way with his patient team up and down the broad fields, and the smell from the newly turned earth is delicious as the April breezes carry it to the roadside and even into the adjoining woods. How refreshing and yet how tantalising these April showers are! We see them creeping up from the distant west in frowning masses of dark gray cloud, and the downpour is heralded with a few ominous heavy drops that patter on the wayside. But they vanish almost as quickly as they come, and the deep blue over the western horizon, and the masses of silvery cloud unerringly inform us of their transient character. Soon the sun beams down upon the wet, steaming earth, and all is gladness once more. And then how fresh the country smells after the rain is over! The whole atmosphere is steeped in spring; it is laden with the perfume of flowers and vernal foliage, and resonant with the hum of insects and the glad songs of birds. Each day increases the country's charms, and gradually, almost insensibly, the whole face of Nature beams with spring-tide smiles and vernal graces.

## VII.

## SUMMER DAYS.

ALTHOUGH autumn, winter, and spring have each their own particular charm, there is a luxurious grandeur about summer which no other seasons of the year possess. Life, both plant and animal, is in the full time of its vigour—the hopes of autumn, the prophecies of winter, and the promises of spring are now fulfilled. The naturalist feels that he must spend the whole of his time out of doors ; the days are all too short and fleeting to chronicle the vast wonders of summer. Nature's grand and brilliant pageant is an endless procession of interesting sights, accompanied by strange sounds and sweet songs. Even the very clouds assist in making summer's beauty all the more effective and entrancing as they sail solemnly past high up in the blue sky—huge fleecy masses of cumuli, whose shadows creep across the hay meadows, and over the fields of shooting corn. There is poetry in the clouds, and music in the fleeting showers as they beat down so fresh upon the thirsty earth and bring out the fragrant perfume of flowers and the delicious aroma of summer foliage. There is magic

in the woods and fields and on the mountains when they are full of summer's charm.

How fair all Nature looks at dawn in the bright summer time, when the rosy streaks of morning spread across the eastern sky, almost as soon as the twilight fades in the west ! How active are the birds in these few fleeting early hours ! What words can describe the pleasure we feel in watching the Skylark rise from the dewy grass and shake the moisture from its wings as it flutters warbling to the clouds ! How clearly the Land-rail calls from the meadows as the breeze ruffles the herbage into waves in sweeping across them ; and what early birds the Thrushes and the Starlings are, awake and seeking their breakfasts before the sun peeps over the hills. Then in the noontide stillness of a summer day, when the oppressive heat seems to make even the very insects lazy, what delight we can experience whilst reclining under the cool shade of the lime trees, watching the Swallows glide swiftly by, almost knocking the petals off the daisies as they pass ! How soothing is the drowsy hum of the bees far up among the tasselled, honey-soaked flowers whose fragrance fills the air with intoxicating sweetness ! The birds are comparatively silent in the noonday heat, yet we can watch their various movements as they flit about all round us provided we are careful not to alarm them. Then, after the heat of the day is spent and the sun draws nigh the western horizon, how

the crash of bird melody peals forth from the woods and groves, and the vast evening hymn of joy is taken up by songster after songster as night steals softly over all. How refreshing both for mind and body is a stroll through Nature's matchless temple in the cool of a summer's evening, far away from the whirl and turmoil of hot, dusty cities, and the strife and struggle of men. Who would not exchange the pavements of cities for the cool springing turf of the country, and the noise of men for such sylvan peace? Throughout the long summer evenings birds become unusually active, and even during the few short hours of darkness—we can scarcely call them night—many little feathered creatures wander abroad to instruct and interest us.

He who would anticipate the birds on a summer's morning, will have to be out of doors at an early hour indeed. The sights and sounds that greet him will be an ample recompense for going out so early. The Rooks proclaim the dawn from their roosting-places in the high elm trees, and the Thrushes and Robins soon follow. The Cuckoo is another early riser, so too is the Skylark. Bird-music heralds the coming of day as it will usher the close. The awakening of birds is a gladsome sight indeed, and a fitting commencement for these bright happy days of summer. Now it is the Song Thrush piping forth his first few notes, each one repeated several times in quick succession ; then it is the Robin chanting



in the shrubbery, or the Wren trilling out its wild refrain from the thicket. The Cuckoo blithely calls from the oak trees in the fields, and the Bunting sends forth his monotonous and jerky song from the hedgerows. Nature is awakening; all is bustle and song and excitement once more.

To a superficial observer these woods and fields are eloquent of peace; but war, the cruellest and fiercest of all war, the oppression of the weak by the strong, is waging everywhere. You doubt it? Then linger here under these old trees by the stream, and wait and watch. The bold Sparrowhawk leaves the distant woods and beats up and down the hedgerows; there is a swoop, a cry of death, a flutter of wings, and the little Bunting we were listening to is dead, carried off to feed the Hawk's hungry young. The Swallows as they glide around us or circle in the highest air are destroying insects in countless millions. Now look into the clear water at your feet; see the tiny troutlets drifting down the stream and then fetching up again; these are the food of the Kingfisher. The ephemeral drake-flies that rise to the surface of the brook and poise upon its surface, are snapped up by the hungry fish. Each organism from the highest to the lowest is waging war, one preying upon the other whichever way we look. Not only is this warfare a struggle for food, it is a civil strife for place. Among animals and birds and insects the strong are everywhere

thrusting aside and getting the best of the weak. Everything is for self. In the struggle for life each is fighting for place as well as for food, and every moment the weakest and the most unfitted individuals are perishing. In the vegetable world the battle is none the less fierce—every blade of grass, every branch and twig and flower is constantly trying to best its neighbour in the universal strife. And all this is well that it should be so. Every living organism is furnished with such powers of reproduction that, if no checks to its increase existed, it would speedily outgrow its food, and populate continents and rivers and oceans with its own kind alone. This struggle for life, and this preying one on the other is a beneficial provision of Nature; out of this warfare comes peace and plenty to the favoured few that are able to survive. Our stroll abroad this morning has thus taught us the fundamental conditions of the life around us—the bird singing gladsomely on the hedgerows, the insect flitting among the flowers or high up in the air, and the grass and weeds in the fields—all are happy and savour strongly of peace; yet under this veneer of tranquillity the great conflict is raging endlessly and unrelentingly on every side!

It is mid-day; the sun beats fiercely down and not a leaf is stirring. But we can seek the cool shade of the sycamores, the broad leaves will make a most effectual sunguard; and whilst reclining at full length on the

mossy bank below them, half buried in fern and grass and meadowsweet, we may study Nature as summer paints her. Even this old bank, with its ferns and weeds, its background of hedgerow and its canopy of trees, is a very encyclopædia of knowledge, and will teach us much if we care to question it; and when tired of its philosophy our thoughts may wander out into the distant ring of country round us and shape themselves to other things. The very grass on which we lie can preach a sermon full of eloquence; the ferns and flowers are replete with knowledge. There is not a twig or a leaf around us that is not full of natural wonders. We will wait quietly here and watch the panorama of life as it hurries past in ever-varying forms, a perfect kaleidoscope of interesting beauty. There is no monotony in Nature. Variety is her soul, and change, endless change the secret of her life and being. Yes, CHANGE is the keynote of Nature's system—changeless change. This reads like a paradox, nevertheless it is true. The simple wild flowers round us will fade away, the leaves above our head will wither and fall in their season, the blades of grass grow up only to die. Yonder Sky Lark singing so sweetly in the blue sky has but a short span of life; the Swallows, the Willow Wrens, and the other birds we can see and hear around us will pass away in due course. Even we ourselves have but a short time to live—we are all embraced by Death in common with the lowliest weed or

the most insignificant insect. Such is Nature's system of change, mournful perhaps to each individual creature, yet beautiful in its simplicity, and most efficacious in preserving all things from eternal decay. But the wild flowers will seed, the trees send forth new buds, and the grass sprout up anew; the Sky Lark has its young ones in the fields below, and the Swallows, and the Willow Wrens, and other birds are each busy continuing their species. New generations of men grow up as old ones pass away; there are always wild flowers, foliage, birds and insects, and in one form or another Life will remain unchanged until Earth's allotted course is run and time shall be no more. The voice of Nature speaks her grand philosophy through all living things—the bees drone it in the lime-trees yonder, the leaves and flowers breathe it in their sweet perfume, the butterflies tell it as they dance above the clover-heads and hare-bells, the birds echo it in their song. We listen admiringly to a bird warbling on the hedgerow to-day; we shall be just as charmed with a similar strain in years yet to come, when this particular singer will be dead and gone, though its voice continues through generations of birds yet unborn. We watch the big yellow banded bees creep in and out of the foxglove flowers; we may see the same thing next year; but the bees will be changed, those there now will probably die during the coming winter; the flowers that look so handsome and smell so sweetly now are about to fade;

next year there will be new ones in their place as fragrant and as fair. And so it is with all things. If they as individuals must pass away, the chain of their life remains unbroken, for there is as much immortality even in the life which animates yonder painted snail, clinging to the fern fronds, as in such highly organised beings as you or I !

“God of the Granite and the Rose !  
Soul of the Sparrow and the Bee !  
The mighty tide of Being flows  
Through countless channels, Lord, from Thee.  
It leaps to life in grass and flowers,  
Through every grade of being runs,  
While from Creation’s radiant towers  
Its glory flames in Stars and Suns.”

But our musings and our reverie on the moss-and fern-grown bank are disturbed by the merry conversation of the farm labourers, as they pass along the white dusty road towards their cottages amongst the trees in the hollow. Evening is at hand. Already the trees cast long shadows half way across the fields, and the sun is slowly settling down through a sea of golden light in the distant west. The Larks are dropping down to sleep amongst the big pink knobs of clover, and the Swallows and Martins are taking a last flight over the fields ere seeking their nests. Once more the Land-rails begin their rasping cry as they wander through the herbage ; and the little Whinchats hop about the palings in quest of insects. The concert of the woods and fields



merrily progresses until the gloom of night settles round the trees. Now the Goatsuckers come out of their hiding-places in the bracken, and beat up and down under the elm trees where the big white moths are flitting among the grass bents ; and the Owls call loudly from the woods as they set out on their nightly wanderings in quest of mice. As the darkness deepens strange sounds increase. The grass and herbage under foot, the brambles and briars, the hedges and the ditches seem full of living creatures. Field mice dart quickly through the grass and hide under the withered leaves ; moles and hedgehogs venture from their cover into the open fields. The shy and wary creatures of the woods and hedges now hold their carnival in the darkness. Occasionally a restless Sedge Warbler or even a wakeful Robin help the Nightingales in their melodious song. All night long interesting little sights may be observed by him whose senses of hearing and seeing have been duly trained to the delightful study of wild life at home ; for the summer nights are as beautiful and bewitching to the naturalist as the days which precede and follow them.

## VIII.

## THAMES SWANS.

*(Cygnus olor.)*

PEOPLE crossing the various thoroughfares that span the Thames between Vauxhall and London bridges, may often notice several Swans quietly swimming along the shallows, usually on the "Surrey side" of the water. These graceful birds in their snow-white dress seem strangely out of place amongst grimy coal barges and lighters laden with merchandise from all parts of the world. These Swans, however, are but visitors from the upper reaches of the river. The Thames in London is too grimy now for Swans to reside long upon its waters ; but years ago many of these birds were kept even below London Bridge. In ancient views of the port of London, Swans are usually shown swimming in that part of the river, and even at the present day they may occasionally be seen in the neighbourhood of Rotherhithe and the Surrey Commercial Docks. The Swan, however, must always have been somewhat rare below bridge, and out of its usual haunts. Amongst the fees of the Constable

of the Tower in 1381, we read, "All manner of Swannes that come through the bridge or beneath the bridge, be clearlie the Constables, and also there shall be noe Swanne eyre beneath the bridge, but the owners of the said Swannes shall make a fyne for them to the said Constable, and over that the Constable shall have of every nest a Signet."

Times have changed considerably since the days when Paulus Jovius wrote, in 1543, that he never saw a river so thickly covered with Swans as the Thames. Swans are not so carefully preserved now as they were in olden days when they were served up as a savory dish at every great feast. These Thames Swans form a very interesting link with ancient days and quaint customs. The Swan is a bird royal in which no subject can have property when at large in a public river except by grant from the Crown. When conferring this privilege, the Crown also grants a Swan-mark. This mark is cut upon the skin of the beak with a sharp knife or other instrument. In 1483 Edward the Fourth decreed that no person, other than the king's sons, should have a Swan-mark who did not possess a freehold of the clear yearly value of five marks. No person could appoint a Swan-herd without royal licence. A silver Swan was the principal device on the badge of Henry the Fourth. The laws in those days were exceptionally severe for the protection of these handsome birds. In 1496, during

the reign of Henry the Seventh, a punishment of a year's imprisonment and a fine at the king's will was inflicted on persons caught stealing a Swan's egg ; and taking or disturbing the birds themselves was dealt with still more severely.

The ancient privilege of keeping Swans on the Thames has been conferred very sparingly. Eton College has been granted this curious favour, which has only been further extended to the Dyers' and Vintners' Companies, which for centuries have been allowed to keep Swans between London and Windsor. Both these companies and the college have their own particular Swan-mark. For hundreds of years the Swan has been intimately associated with the Vintners' Company and its privileges. The junior warden of the year is still called the "Swan Warden;" models of Swans are conspicuous ornaments in their hall ; and it is probable that the hotel sign of the "Swan with two necks" was derived from the Swan-mark of the company—the Swan with two *nicks*, the first proprietor of the well-known house of that name having been a member of this ancient guild. The Dyers and the Vintners still follow the old custom of accompanying the royal Swan-herd on the first Monday in August for the purpose of catching and marking all the Cygnets, or young Swans, and renewing any marks on the old birds that may have become partially obliterated. Most of the Swans



living on the Thames belong to the Queen. The royal Swan-mark (three diamond-shaped horizontal slits below two vertical ones) has been in use from the time of George the Third, up to August 1878, when the three lower diamonds were struck out. At the present time, between Southwark Bridge and Henley, the Queen claims upwards of two hundred Swans and Cygnets, the Vintners' Company upwards of sixty, and the Dyers' Company about fifty. So that the birds Londoners may see quietly swimming on the muddy river, in and out amongst barges and steam-tugs, are by no means ownerless, and, were we to get near enough to examine their bills we could easily satisfy ourselves as to their proprietorship. Swan "upping," as the catching and marking of the birds is called, is exciting sport. The Cygnets are marked the same as their parents; but if the old birds do not bear a mark the whole family may, by ancient custom, be seized and marked for the Crown. The birds are pursued in boats and caught with a long hooked rod, which is adroitly placed round their neck. A Swan is a powerful bird to grapple with, and a blow from its mighty wing is no joke. Great is the struggling and splashing before the big birds are caught and overpowered and finally mastered. Should a Swan make her nest on the banks of the river instead of on the islands, a royalty is still paid to the owner of the ground for protecting the nest, though formerly he



received one of the young birds as his reward. When the birds of different owners mate together the brood is divided, the odd bird, if there chance to be one, going to the owner of the male Swan.

We cannot associate this beautiful bird with old Father Thames, where his waters have become clouded and discoloured by pollutions of every kind as soon as he reaches the vast Metropolis. Where the Swan is in harmony with the river is far away up-stream, where the water is clear as crystal, and the grimy barges and endless rows of warehouses are replaced by fishermen's punts, tall reeds, water lilies and weeping willows. There the Thames Swan finds a congenial home, and floats proudly on the bosom of the silvery winding stream. He preserves his favourite reach of the river from all intruders, and is ever ready to wage fierce battle against any other bird that may chance to invade his privacy. Swans are alluded to as "peaceful monarchs of the waters;" but in the mating season they are most pugnacious birds. They probably pair for life, making a bulky nest, generally on an island in the river, in which the female lays six or seven large pale green eggs. As incubation advances, the nest is increased in bulk. The young birds are brown in colour, not fully attaining their snow-white livery until the second year. Swans are a great ornament to the Thames, and lend it an additional charm and grace in its higher reaches; but

it requires a great stretch of imagination to find any picturesqueness in their appearance or their surroundings when once they have got below Lambeth. As a rule, Swans come down the river generally in winter and in pairs. If the weather is severe they stay for weeks between Westminster and London Bridges, feeding in the shallows and near the warehouses on the "Surrey side." They are seldom seen near the embankments or in mid-stream. Should their stay be prolonged, their white plumage soon becomes grimy and stained. Many a Londoner is apt to view them with curiosity, and singularly enough they are little molested by the river population. These wandering Swans, however, do not always escape, and birds bearing the royal mark are occasionally to be seen hanging for sale in the game-dealers' shops!

## IX.

## BIRD-LIFE IN NORTHERN AFRICA.

ALTHOUGH Algeria is so popularly supposed to be synonymous with barrenness—a country of sterile mountains and arid deserts, it is in fact a land possessing great charms for the naturalist, especially if the study of birds be his particular forte. We here meet with many of those feathered wanderers that only by chance drift as far northwards as the British Islands from their African home—such distinguished strangers as the Griffon Vulture, the Bee-eater, the Rufous Warbler, the Golden Oriole, and the Hoopoe. In addition to these birds, which are only known to us as accidental visitors, Algeria is highly favoured with the presence of bird-life, and in all parts of this physically diversified country birds may be met with whose habits and characteristics are intensely interesting. Let us take a peep at some of the most striking birds of these Algerian wilds.

It is the early spring-time. In fact winter reigns supreme in England, and there the fields are still occasionally covered with snow, and not even the hardy

whitethorn has yet burst a bud, or the yellow primroses expanded their simple blooms. But bird-life in Algeria is full of activity, and already many species have come up from their winter quarters in the oases, to the wooded heights of the Atlas, for the summer. Others are restlessly preparing for their spring journey to more northern lands: in fact, we passed a few of the more venturesome birds migrating to Europe, as we crossed the wide expanse of the Mediterranean. Some of the most charming scenes from bird-life it has ever been my good fortune to witness have been in Algeria's sunny oases, high up her mountains in the cedar and evergreen oak forests, on the wide expanse of her glowing deserts, and amongst the luxuriant richness of semi-tropical verdure, near and round the centres of her civilisation.

Upon first landing in Algeria, say at the port of Philippeville, in the province of Constantine, and starting from that place inland to the wonderful town of Constantine, the Griffon Vulture, from its large size and exceeding tameness, is certainly the first bird to arrest our attention. As soon as we near Constantine these interesting birds are almost always to be seen. They soar to vast altitudes, and sweep round in wide circles; they sit upon the roadside, or lazily fly from the stunted trees. No one here thinks of molesting them—they are the scavengers of the country, and rid the towns and villages and highways of garbage and refuse.



This fine bird breeds in the cliffs, and makes a huge nest of sticks on some convenient shelf. The Griffon Vulture nests early, and only rears two young birds in the season. Another remarkable bird to the British ornithologist is the White Stork. Cherished and respected and welcomed everywhere, this handsome bird may be seen strutting about the fields, or perched solemnly on the roofs and chimneys. He is also very fond of fishing by the stream-side, and, owing to his freedom from molestation, his habits may be readily studied. He also breeds on the cliffs, and his bulky nest of sticks is a most conspicuous object on the rocks, as well as on buildings. I saw numbers close together on the cliffs below Constantine. High up amongst the beetling precipices, and round the lofty spires and minarets, the White-bellied Swift darts to and fro on even more rapid wing than its smaller English congener; whilst the delicate little Rock Martins swarm in twittering hosts in all the rocky defiles and passes. Wherever we may wander in Algeria, the Black Kite is sure to be met with, absurdly tame, and hovering just above our heads, as he searches the ground below for food. Another bird equally as widely dispersed is Irby's Raven, a species very closely allied to the British Raven, and which frequents every description of scenery, from the barren arid deserts, to the lofty mountain tops, and the rich well-cultivated valleys and plateaux.



In all the rocky parts of the country we are sure to meet with various representatives of the Chat family, of which our own little Wheatear is the typical species. No part of the desert seems too desolate and dreary for the Black Chat. It perches daintily on the rocks, and when too closely scrutinised drops behind them out of view, or creeps into a hole, where it lurks until the threatened danger has passed. Near the mountain pass of El Kantara the Black-eared Chat is often seen; and still further into the Sahara, in the rocky region south of Biskra, I saw the Pied Chat. It loves the stony hillsides and the broad sandy plains covered with rocks, where scarcely a trace of vegetation can be seen. High up the Aures Mountains the local Seebohm's Chat has its summer residence in one or two chosen spots—a bird like the Wheatear, but with a rich black throat. This latter species was first discovered by Captain Elwes and myself during the spring of 1882, and, as the nearest ally of the Wheatear, it possesses an unusual interest for British naturalists. It is by no means shy, but sufficiently wary to keep at a safe distance, flitting along just above the ground and alighting on the clods of earth or the large stones, where it watches every movement. In the more cultivated districts the Stonechat and the Whinchat are common; and in most wooded localities and near to gardens, the pretty little Moussier's Bush Chat is plentiful. It is a gay and lively little bird,

and soon becomes a prime favourite, fond of perching on the topmost twigs ; but at the least alarm it drops into the cover, which it threads with Accentor-like agility. The Black Redstart frequents the mountain districts in scattered pairs, and its simple song enlivens the wilderness. Here and there in the mountains you may sometimes be fortunate enough to meet with the Rock Thrush and its cousin the Blue Rock Thrush—both of them birds of pleasant song, which relieves the vast monotony of the stony hillsides.

The cedar forests and the evergreen oak woods of the Aures Mountains are the chosen haunts of many interesting and gay-plumaged birds. Nothing can exceed the beauty of this forest scenery—the woodlands being broken up with large areas of park-like country, carpeted with greenest turf, gay with brilliant wild flowers, and studded here and there with clumps of evergreen oaks and junipers, and scrubs and thickets of thorns. Here in all the open glades the beautiful Roller's harsh scream sounds from the trees, and the brilliant bird himself may oft be seen hurrying from bush to bush in curious rolling flight. The Bee-cater sails dreamily through the balmy air, and the forest trees are resonant with the love song of the Algerian Chaffinch and the merry notes of the Ultramarine Titmouse. In the Arab gardens the Goldfinch breeds abundantly ; and the Black-headed Jay screams out in

wild alarm as he hurries off through the dark cedars. The decaying timber is riddled with holes made by Le Vaillant's Woodpecker. Everywhere in these noble woodlands the curious Hoopoe may be met with: it also frequents the bare hillsides and the luxuriant tropical verdure of the oases, its full, soft but far-sounding cry of *poo-poo-poo* being heard incessantly. The beautiful little Pied Fly-catcher makes its nest in a knot-hole of some decaying tree; and wherever the vegetation is sufficiently dense to afford it cover the Woodchat Shrike abounds. It is usually first seen sitting on the top of a bush, or a dead branch of a tree, and looks very conspicuous, both when at rest and when flying to another perching place. In the more open parts of the forest Wood Larks and Meadow Buntings warble loudly; and colonies of black-coated Choughs noisily flutter along the face of the rocks. These mountain forests are the great head-quarters of the Algerian Coal Titmouse—a bird so rare in collections, that up to the period of my visit to Algeria only three specimens were known to exist in British cabinets. This little bird is very similar to our British Coal Titmouse, only the white portions of the plumage in that species are replaced by pale yellow. I found it in company with the Ultramarine Titmouse and the Firecrest, and it was repeatedly to be seen perched on the rocks below the cedar trees and evergreen oaks. Its habits are

much the same as those of the other Titmice. Like its congeners, it makes a nest in holes amongst the timber.

But let us leave these mountain forests and pay a hurried visit to the beautiful oases, the cultivated districts and the wide expanse of the Great Sahara. On the lower ground in the barley fields we notice the fine Calandra Lark, extremely common. It is a very conspicuous bird as it rises fluttering from the herbage and hovers just above your head, or runs quickly across the bare patches of ground. Another bird found in these places is the Crested Lark, whose simple song sounds cheerily from all parts of the fields ; and here and there we are sure to flush the Tawny Pipit from the herbage. Our English Sky Lark is sparingly dispersed, and his rich wild music carries us in imagination to the fields and moors of home. In all the towns and Arab villages the Spanish Sparrow is abundant, and makes its nest in trees as well as under the eaves of houses. It fraternises with the Domestic Sparrow, which is equally common, but the former species is often met with far away from the habitations of men. The notes of these two species are precisely alike. The Barbary Partridge frequents the scrub on the hillsides as well as the fields of grass and barley ; and the merry whistle of the Quail is unusually loud and frequent in the cool of morning and at nightfall.

As we leave the rich cultivated district of the Tell

behind and enter the sterile wilderness which separates us from the oasis of El Kantara, the birds become scarcer. Irby's Raven, the Black Kite, and the Egyptian Vulture, glide about high in air above us, or sit unconcerned at our approach by the wayside. Now and then a Chat or a Crested Lark is seen, and the Hoopoe calls lustily from the hillsides. One of the peculiarities of Algerian travel is the rapid manner in which the surrounding scenery changes. Just before reaching El Kantara, for instance, nothing could exceed the wild desolation of the country, but, as soon as the pass has been traversed, the beauties of this wonderful spot burst upon the astonished traveller like some glorious transformation scene. The barren country changes as if by the sweep of a magician's wand, and all the wonders and beauties of semi-tropical vegetation unfold their charms in a bright and brilliant pageant. This is the northern limit of the date palm; and on every side lemon, orange, fig and pomegranate trees grow in rare luxuriance. In these delightful oases the Sahara Bunting in its rich chestnut dress is one of the most characteristic of birds. It is an absurdly tame little creature, and enters the Arab houses in a fearless way, being even more trustful than our own bright-eyed Robin. Immunity from harm soon inspires confidence in birds; and the swarthy sons of the Desert molest no innocent living creatures, setting a bright example to civilised men, who never seem happy unless killing or persecuting



dumb creatures more helpless than themselves. In the prickly pear gardens the Rufous Warbler may be seen, hopping along the tops of the rough walls and running in and out under the curious vegetation.

Travelling farther to the south, we reach the still more beautiful and characteristic oasis of Biskra. This charming fertile spot is a favoured haunt of bird-life. Gorgeous Bee-eaters utter their plaintive notes as they sit on the tree tops, or glide gracefully about like Swallows above the date palms ; gaudy Golden Orioles sing richly from the dense pomegranates, and every now and then we catch a glimpse of their brilliant yellow dress as they chase each other through the foliage. Shrikes and Babblers sit conspicuously on the tops of the bushes, and the feathery crowns of the date palms are resonant with the full rich cooing of Turtle Doves. The Little Crake, the Little Ringed Plover, and the Grebe, revel by the water side amongst the reeds ; and the air is full of Swallows and Swifts. These Algerian oases are the winter quarters of many of our familiar British birds, or the places of call of many others which visit more southerly latitudes during that season. Here in the early spring-time, vast numbers of Spotted Flycatchers, Willow Wrens, Thrushes, Turtle Doves, Shrikes and Warblers, are holding high carnival—waiting for summer, when they will pass on to European haunts. Many old friends are here to greet us, and mingle

indiscriminately with African resident species. In the Great Desert, which stretches far away to the southern horizon, we may be sure of meeting with various forms of bird-life. What erroneous ideas prevail respecting the physical aspect of the Desert ! Imagination pictures a vast level tract of sand, stretching away to the distant horizon in an unrelieved expanse, glowing in blazing sunlight, the air stifling and hot. Reality shows a vast area of uneven country, like many a rocky district in the North of England, full of hills and dales, and dried up water-courses, the only difference being the presence of sand, and the entire absence, or nearly so, of vegetable life. Low ridges, high plateaux, desolate valleys, big boulders of rock, and stretches of shifting sand, in which the traveller sinks up to his knees, are characteristics of the awful scene of waste. Dark specks on the horizon denote the oases and wells, the footsteps of camels and horses here and there mark the tracks which are followed by the fierce and warlike people of the wilderness, and the bones of sheep tell the camping places of travellers. The rarefied air seems to dance and sparkle above the rocks and sand dunes ; the sky for months never shows a cloud, and the fierce rays of the sun beat down with overpowering force. Every description of physical scene prevails in the Desert, which even the absence of vegetation cannot make monotonous. Near the oases the pretty little Desert Lark lives among the

sand, and the rare and beautiful Cream-coloured Courser runs daintily and quickly along the ridges of the Desert ; whilst the Houbara Bustard and the Sand Grouse haunt its wide expanse, scenting danger from afar, and defying all near approach. The Desert Sparrow chirps cheerily from the Arab houses and the mosque towers ; whilst the singular Wren Warblers flit amongst the vegetation on the sand dunes, and the funny little Fantail Warbler is a denizen of the barley fields on the outskirts of the oases.

Another most interesting fact in the ornithology of Algeria is the wonderful instance of protective colouration among many of the resident birds. This modification of colour is apparent even amongst individuals of the same species ; and, where the differences are even more emphasised by climatic influences, one dominant species has become segregated into several local races or sub-specific forms. All the birds which frequent the desert country are protectively clothed in a sand-coloured dress, which effectually harmonises with the ground on which they run and hide, and conceals them from the prying eyes of enemies. For instance, in the rich well watered portions of Algeria near the coast, the Crested Larks are a normal brown in colour, very similar to our own Sky Lark in appearance. As we travel southwards towards the desert on the more arid soil the Crested Larks become much more sandy in their hue, and finally,

on the Sahara, this bird is dressed in tints precisely the same in colour as the sand. So closely do the birds nestle on the ground, that I have often nearly trod upon them without observing their whereabouts until they have risen twittering into the air. The Desert Larks are clothed in similar protective tints ; so, too, are the Sand Grouse, the Bustards, the Coursers, and the Chats. It is also worthy of remark that most of these birds have conspicuous colours in their plumage, either white on the wings and tail, as in the Chats, but which is almost hidden when the birds are at rest or crouching on the ground ; or rich black or chestnut on the underparts, as in the Sand Grouse and the Coursers, which are equally as well concealed when these birds lie close to the earth, which they never fail to do when alarmed by an enemy's approach. There can be no doubt that constant exposure to the burning sun has browned the plumage of these birds of the Desert—a circumstance which they have been taught by experience to utilise to the best advantage for their security.

## X.

## NOTES ON TRISTRAM'S WARBLER.

*(Sylvia deserticola.)*

TRISTRAM'S Warbler is one of the least known of Palæarctic birds, and one whose habits have been little studied by naturalists. The history of this bird has been somewhat an eventful one. It was first discovered by the naturalist whose name it now bears in one of the oases of the Sahara some thirty years ago. Owing to the vagueness of its diagnosis, as set forth in the 'Ibis' by its discoverer, it was confused with other birds, notably with the Desert Warbler (*Sylvia nana*), and for a quarter of a century it remained as a doubtful species—as one which many naturalists were inclined to think had no existence. This was chiefly because in its winter plumage it closely resembled other allied but perfectly distinct species, and no specimens had ever been obtained in summer dress, when it is very different in appearance. During the spring of 1882 I was fortunate enough to meet with this rare little Warbler in Algeria, and to obtain an example in summer plumage,



thus setting its identity at rest, and placing it satisfactorily and securely in the list of recognised species. In one of my Algerian note-books I have come across an account of the habits of this interesting bird, penned down at the time of observation, and I offer them to the reader as a fragment of the natural history of this little-known species.

Tristram's Warbler is perhaps most nearly allied to Marmora's Warbler (*S. sarda*) and our own Dartford Warbler, the active little bird which was first discovered in the furze brakes of Kent. In winter plumage Tristram's Warbler is a rather plain-looking chestnut-brown bird, but in spring-time, when it assumes its wedding attire, it becomes much more handsome in appearance, the under parts being vinous chestnut, most pronounced on the throat, and the head and nape are gray.

In some parts of the Aures Mountains I found Tristram's Warbler absolutely the commonest species of *Sylvia*. There can be no doubt that like many other birds in Algeria this species retires southwards into the Great Desert to spend the winter, and returns to the mountains in spring to breed. It seemed to have no special choice of haunt, and might be seen in every locality where sufficient cover to conceal it existed. I met with it very common amongst the scrub in the grand old evergreen oak forests high up the Aures, and

also lower down the hills nearer the plains in the thickets just outside the towns and villages. In one place a mile or so from Lambessa it literally swarmed, almost every bush by the side of a rough track extending across the country containing one of these charming little birds. In its habits Tristram's Warbler somewhat resembles a Whitethroat. It has the same restless ways, and is continually hopping from twig to twig, or flitting along in an uncertain manner from bush to bush. It is most trustful and tame; and on more than one occasion, when I have been lying under the scrub for shelter from the noonday sun, I have watched it hopping about within reach of my hand, its bright yellow eye being very conspicuous. If momentarily alarmed, it drops into the centre of the bush, and you lose sight of it until it has regained confidence and hops once more into view. Sometimes it perches on the topmost spray of a bush, and utters its sweet and simple song, then flutters into the air in chase of a passing insect. Now and then a pair of birds would chase each other through the brushwood, uttering a succession of call-notes.

Tristram's Warbler appears to feed exclusively on insects, many of which it catches as they are flying through the air. As is the case with the Dartford Warbler, the present species does not show much difference in the colour of the sexes, females I collected

being almost as brightly adorned as males. This species must breed rather late in spring, for it had evidently not commenced laying at the end of May. The late nesting of so many small birds in Algeria is one of the most extraordinary facts in their economy. With us in England birds begin to breed as soon as ever the weather is suitable and food is abundant, but in Algeria our little feathered friends seem to be in no hurry. Perhaps it is because the summer is such a long one in these mountain solitudes and on these verdant plains, and food is plentiful for many months. Such early birds as Wood Larks had only just begun to breed towards the end of May, and the Algerian Chaffinch had not even completed its beautiful nest at that date. Spring is early in Algeria, many weeks in advance of its advent in England, yet the birds most unaccountably put off their nesting period until the summer. Nothing is known of the nest or the eggs of Tristram's Warbler. I was obviously too early for either, and I am not aware that any other naturalist except my companion, Captain Elwes, has met with this bird in its summer quarters. The birds are common enough in summer throughout the Aures Mountains, and I should presume that the breeding season is in June. The nest is doubtless built in the brambles and scrub which the birds frequent, but its materials and mode of construction, as well as the colour of the eggs, are beyond the province of specula-

tion. It is notorious that the nests and the eggs of birds in the genus *Sylvia* vary exceedingly, even among allied species, so that those of Tristram's Warbler may be very different from those of other known species. I may remark in conclusion that this little bird tries hard to hide itself under leaves and in holes when wounded, and I have seen it creep into crevices when scrutinised too closely.

The specific name of this little Warbler is a most inapplicable one—the bird is no more a desert species than the Cuckoo, the Redstart, the Pied Flycatcher, and scores of others which spend the winter in the oases of the Sahara. I have therefore deemed it advisable to rechristen this bird *Sylvia algeriensis*, its breeding-place and true home being, so far as is at present known, confined to the wooded slopes of the Aures Mountains, in the province of Constantine. Conf. "Ibis," 1859, p. 58; and "Ibis," 1882, p. 565.



## XI.

### FEATHERED OUTCASTS.

AMONG birds, as among men, there are certain pariahs—outcasts of society—against whom every man's hand seems to be turned, and every device is used by which they may be lured to destruction. Sad indeed that it should be so, and every lover of Nature deplores the circumstance. We hold our brief in favour of these poor feathered outcasts, and, in order to strengthen our case for the defence, let us pay a visit to the criminals in their haunts, and obtain from personal observation an account of their crimes and the punishment—their good offices and the reward.

The gamekeeper, that arch-slaughterer of so much that is beautiful and useful among the feathered tribes, is the principal witness for the prosecution. Let us follow him unseen on his rounds this morning. He is off betimes, his double-barrelled gun under his arm, his pockets full of traps, and his dog trotting obediently behind at his heels. He crosses the little paddock, and



a corner of the park, passes under the big trees where the rookery is established, and is soon at the narrow gate of the plantation through which he passes daily to the woods. It is spring-time, and the trees are just bursting into leaf; the Sky Lark warbles overhead, and the Thrush sings in the tree tops. The Cuckoo shouts from the distant woods, and the Ring Doves murmur loud in their amorous excitement as they run along the broad limbs of the pines—all Nature is rejoicing at the change of season, and everything speaks eloquently of peace, tranquillity, and contentment. Yes, all things are very fair and beautiful this morning until man, in the shape of yonder gamekeeper, appears upon the scene. Then the spell of their vernal gladness is broken, and the charm of their sylvan peace destroyed, for verily his path is strewn with devastation and blood!

Our keeper's first attack is on a pair of merry Magpies which have made their nest in a tall oak, far in the wood amongst the highest trees. He stealthily stalks towards the tree, and then whistles loudly. The noise disturbs the mother bird, brooding on her six unfledged little ones, and she hurries out to be ruthlessly shot down. Yesterday the cock bird was killed when bringing food to his mate; now the nest is desolate, and the helpless young are left to die a slow, lingering death from starvation and exposure. Vainly they may cry for food, both parents are dead! We have not a more handsome



"Our keeper's first attack is on a pair of merry Magpies which have made their nest in a tall oak, far in the wood among the highest trees."



bird than the Magpie in our British woods ; yearly it is becoming scarcer, and doubtless complete extermination awaits it in the near future. And what is the Magpie's offence ? Why is he to be banished from the woods and fields he adorns so well ? Simply because he is supposed to rob the Pheasants' nests and to strangle the chicks. But the egg-stealing propensities of the Magpie are not very serious ; and Pheasants and Partridges are well able to take care of their eggs and young if left to themselves. Chuckling to himself over the success of his latest shot, the keeper walks on along the narrow drive, leaving the path a moment to examine a couple of mole-traps, each containing its inoffensive victim, which are ruthlessly stuck in a forked twig among the nut bushes. A little farther on, he pushes his way through the underwood to visit a pitfall which he has set for an unwary Jay, in the shape of an egg, poisoned with strychnine, placed on the flat branch of a tree. Sure enough he has been successful, and the poor bird with expanded wings lies stiff and lifeless among the dead leaves and bluebells at the foot of the tree. What a mean advantage this ! The Jay in spring-time has a proneness for eggs, but searches principally for those of the smaller birds, and never thinks of molesting a Pheasant or a Partridge when brooding on her nest. The Jay's ravages among the eggs can only last for a few weeks, then for the remainder of the year he subsists



principally on acorns and berries, grubs and worms. The Carrion Crow and the Jackdaw are also feathered outcasts, killed off by the gamekeeper at every opportunity, though most useful birds in ridding the land of many of its most troublesome pests. The Raven has long since been exterminated from its English forest haunts ; the Jay, the Carrion Crow, and the Magpie are rapidly following.

But we have not yet seen half of the keeper's ignorant cruelty and wantonness. He has now passed through the first of the woods under his care, and has come to a sloping hillside thickly covered with brake and brambles. The stems of the bracken are fast shooting upwards amongst the rich brown leaves of the previous season, and the blackberry wires and dog-roses are in full leaf. Evidently the keeper knows the ground and the creatures likely to frequent it. He walks slowly up and down amongst the fern, heeding not the rabbits that his dog sends bounding off in all directions, and at last takes a flying shot at a dark-looking bird which rises in a dazed sort of way from under a mass of briars. It is a poor Goatsucker, shot down for no earthly reason but the keeper's wanton love for killing every living thing within his domain. Now, the Goatsucker is one of the most harmless birds, and not a single excuse, even of the most trivial character, can be made for taking its life. The keeper will admit its harmlessness, but justify



his action in killing it by saying it is an ugly creature, and no good to anybody ! But our keeper pockets the Goatsucker and is off to the nearest wood. He has traps set there and is anxious to visit them. His first is set in the deserted nest of a Magpie, which a pair of Kestrels have taken possession of, and the hen has already laid her eggs. Before he reached the tree, he is aware that this trap has been successful. High up in the branches, hanging by one of its legs to the trap, the hen Kestrel is struggling bravely for freedom ; the cock is soaring round and round far up in the blue sky, mournfully calling to his captive mate. The sad scene is soon brought to a close. The agile keeper quickly mounts the tree, and releases the poor bird hanging in the agony of a broken leg. Knocking its head on the nearest branch, he soon kills it and throws it to the ground. Four of the six pretty eggs have been broken as the parent struggled in the trap, which is carefully set again, the keeper knowing full well that the cock will be taken in the course of the day. The nest is full of pellets, and the ground below the tree is scattered with more, all cast up by the Kestrels, and containing the indigestible portions of their food. What is the food of the Kestrel ? Mice ; almost exclusively mice all the year round, varied with coleopterous insects, each pellet containing the skin and larger bones of several mice and the wing-cases of insects. The Kestrel very rarely attacks birds, and

certainly never molests game. He is one of the farmer's and landowner's best friends, yet shot and trapped on every occasion by the wanton stupid keeper !

By the side of the drive a little farther on several poles have been placed horizontally between two trees, and this is the keeper's museum—morgue is the better word—where he hangs and nails up his furred and feathered captures, and where he is in the habit of taking his employer to inspect the motley assemblage—monuments to his zeal in his master's interests (?) Rows of Magpies and Jays are there, with plumage fair and brilliant, even in death ; a dozen or so of Hawks and Kestrels ; moles, weasels, stoats, and the tails of domestic cats help to swell the collection ; here and there are Goatsuckers : and a Barn Owl, two Cuckoos, a Green Woodpecker, a Carrion Crow, and two Long-eared Owls bring the ghastly list to a close ! Poor birds ! When will man realise your usefulness, and extend to you his protection and encouragement ?

But the keeper's morning work is not yet over. Hark to the Cuckoo calling gladsomely in the fulness of his joy from the alders by the stream ! Poor bird ; his mellow notes will soon be hushed ; he is singing his own requiem ! The keeper can imitate to a nicety the notes of most of the woodland birds, and he cleverly lures the poor inoffensive Cuckoo to his doom. A flash, a report, and the deed is done. The bleeding Cuckoo, with yellow bill

full of blood, is gasping out in agony his last breath ; his life so happy and joyful five minutes ago is ebbing fast—he is another victim to the crass ignorance of the gamekeeper. That worthy will solemnly assure you that the Cuckoo is transformed into a Hawk in autumn, and that in spring it lives on eggs ; indeed he has even heard tell of it catching young chicks ! Needless to say the Cuckoo never molests the eggs of Game Birds, and that his food is principally composed of large hairy caterpillars which most other birds refuse to eat.

On his way homewards the keeper does not forget to call at a hollow tree in the park where he knows a pair of Barn Owls are nesting. With a little skilful management he catches the pair alive—he intends sending them and their brood off to the nearest town : they are an order from some bird dealer friend of his. Half a dozen parish mouse traps gone at once ! Poor birds : but better far kill them at once than send them to the horrors of captivity to pine and die. The fate of the Hawks and Magpies is certainly a better one. We ought also to mention that the keeper visited several other traps, but their cruel work was still unaccomplished. Two traps were set in the fir plantations in nests of the Sparrow-hawk, and it is only a question of time, before the birds fall victims to the keeper's cunning. The Sparrow-hawk does live on birds ; but his food is the smaller species, the Buntings and Finches, the Warblers

and Pipits in the fields and on the hedges. He does not molest game as a rule, and his services are of great value to man in keeping down the vast hordes of Sparrows that work such havoc in the grain fields.

It is sad to know that the few species of Raptorial birds which still frequent the country are fast disappearing before the incessant persecution of the gamekeeper. The Merlins on the moorlands are sadly thinned each year; the Hobbies in the woods and forests are seldom left in peace. The Marsh Harrier and the Hen Harrier would doubtless soon become more plentiful if let alone; and all the species of British Owls would rapidly increase in number, to the farmer's benefit, if keepers were forbidden to destroy them. We must also lay to the keeper's charge the diminishing numbers of Herons and Kingfishers—they are accused of catching fish; river pollution, poaching, and unfair fishing does more to decimate our rivers in a week than all our fish-eating birds would do in a year. Let the Heron wander by the water-side unmolested, and suffer the Kingfisher to flit along the brooks in peace.

We must not forget to speak a word in favour of the poor persecuted Starling. This bird is a most useful one to the gardener and the farmer; yet he is among the feathered outcasts, and shot and trapped in a most cruel and wanton manner. The Starling lives principally on worms and grubs; he is fond of elder-berries, it is

true, but surely that is not a capital offence? Protect the Starling—he is one of the most useful of birds.

In bringing these few remarks to a close, it is well to point out that Game Birds cannot be kept too quiet, or be left too much to themselves during the breeding season. Keepers, in search of “vermin,” they would say, go blundering through the coverts, firing guns, and disturbing game birds from their nests right and left. Pheasants and Partridges when leaving their eggs voluntarily cover them with leaves and dead herbage ; but when hurriedly alarmed they leave them exposed—a temptation to any predatory bird or animal passing by. Hen Pheasants and parent Partridges are well able to guard and protect their broods ; and it is only reasonable to infer that game on those estates where Hawks and Crows are shot off is weaker than that in coverts where such birds are allowed to live. The weak and the sick are likely to fall a prey to predaceous birds, and do not have much chance of breeding and transmitting their diseases and weakness to posterity. Again, Hawks, Magpies, Jays, and Owls, do not haunt the game coverts for the sake of preying upon the Pheasants and Partridges. They would be short of food if they did. They love these woods because they can find seclusion and quiet in them during the breeding season ; and I know of woods where these birds are absolutely abundant, and not a head of game is preserved in them.



The Hawks and Owls live on small birds and mice ; the Jays and Magpies on very similar food to that sought for by the Rook. Game preservers should therefore forbid their keepers to use fire-arms during the nesting season—to forbid them killing Hawks, Owls, Magpies and Jays, Woodpeckers, Cuckoos, Kingfishers, Herons, and Goatsuckers, for the good these birds accomplish is unquestionable, and is an ample recompense for any and every head of game they may strangle, or egg they may destroy. Were the keeper to watch these creatures instead of killing them, he would soon be convinced of their usefulness and harmlessness.

## XII.

### AMONG THE SEA-BIRDS AT THE FARNE ISLANDS.

LYING a few miles off the coast of Northumberland is the group of low rocks known as the Farne Islands, rendered famous for all time by the daring deed of heroic Grace Darling. These romantic rocks are perhaps the most famous breeding station of sea-fowl in the British Islands, as regards the variety of species frequenting them, whilst their easy access has rendered them special favourites with naturalists. Let us first of all visit the quiet little fishing village of Sea Houses, where we can obtain the necessary boat for our journey to the islands. As seen from Sea Houses, the Farnes look low and uninteresting on the north-eastern horizon ; and a stranger would never dream of the presence of such vast and varied bird-colonies that exist upon them. But as our "coble" bends to the fresh westerly breeze, we are soon able to make out a few of the many birds that make the islands their head-quarters, and our curiosity is excited more and more as we approach nearer.

It is the genial spring-time; but the birds that frequent these islands are late breeders, and although they are here in thousands, not a nest has yet been made or a single egg deposited. Every morning the Gulls and Guillemots and Cormorants gather at the old familiar nesting-places and appear to hold animated discussions on the approaching nesting-time. But these fluttering noisy hosts do not linger long, and disperse themselves over the surrounding sea in quest of food during the remainder of the day. Each successive morning the birds stay longer, and as the spring days come on apace crowds of beautiful Terns make their appearance—feathered strangers all the way from southern seas, come here for the purpose of rearing their young. The vernal song of the Rock Pipit sounds cheerily from the boulders on the beach, and the noisy piping of the Oyster-catchers and the love-trills of the Ringed Plover mingle with the screams of Gulls and Terns, and proclaim that summer has come at last.

Now let us visit these interesting bird-colonies on a bright warm day in early June, when all is bustle and excitement, and the busy sea birds are deep in family cares. Pairing took place shortly after our former visit; whilst many of these sea birds are mated to their partners for life. The nearer we get to the islands the more numerous do the birds become. We pass scores of Guillemots and Puffins, fishing in the water, chasing their

finny prey under the surface with marvellous skill and speed ; many Gulls beat lazily along, peering down in quest of any food that may by chance be floating on the waves ; whilst here and there a flock of Terns are fluttering along in graceful flight above a shoal of fry—bird after bird dropping down like a stone into the water to seize a tiny fish. Now and then a party of Cormorants pass along in a great hurry close to the waves, with long necks outstretched and wings beating rapidly ; and occasionally a few Eider drakes in their conspicuous dress of black and white pass more leisurely along to some shingly beach where the big green waves are rolling in, bringing with them a plentiful supply of food for these beautiful birds.

One of the most interesting features about the Farne Islands is that every island contains something fresh—no two of them are inhabited by precisely the same species ; so that as we visit one after the other of them in turn we are charmed with a splendid ever-changing panorama of vivid scenes from bird life. One island is the head-quarters of the Sandwich Tern ; another shelters the Common and the Arctic Terns ; whilst a third is principally occupied by Puffins and Lesser Black-backed Gulls, although the latter species is found more or less abundantly in every part of the group. Another island is where the Eider Ducks breed, and the steepest rocks are sacred to Guillemots and Kittiwakes ; whilst the



Cormorants have established themselves on a flat isolated rock some distance from all the other islands.

The first island we visit is sacred to the Terns. As we furl the big brown sail and lower our mast, the frightened birds approach and hover in the air above our boat. Then as we row the short remaining distance the noise of our oars in the rowlocks startles numbers of Terns from the rough shingly beach, and every moment the throng of shrieking birds is increased. Our landing is the signal for direst alarm among the Arctic Terns, which have their colony on the beach. These pretty birds make no nest, but lay their three or four eggs in a hollow amongst the shingle, or between the larger pebbles. These eggs are very pretty objects, buff and olive of various shades, mottled and spotted with rich dark brown. So thickly are the eggs strewn the ground in some places that it is almost impossible to walk along without treading on them, especially as they very closely resemble the beach on which they rest. As we wander towards the centre of the island we come across a second colony of nests. These belong to the Common Tern, which almost invariably places its eggs much farther from the water than its congener, and generally scrapes together a few bits of dry herbage into the semblance of a nest. The eggs are very similar in colour to those of the Arctic Tern, but are a little larger and rounder. All the time we are inspecting these interesting colonies, the noisy Terns in a



fluttering host remonstrate loudly at our intrusion, and fly to and fro full of anxiety and alarm ; nor do they settle down again until our boat is well out from shore.

The next island we visit is famous for the large and beautiful Sandwich Tern. For time out of mind these interesting birds have used this island for a breeding place, in spite of the fact that they have been sadly persecuted by tourists and sightseers ; and occasionally their eggs have been washed away by unusually high tides. Sometimes the eggs are laid on the shingly beach, and sometimes at a considerable distance inland from the water. Noisy and anxious the birds become as we land upon their island home, and the entire colony rises into the air to watch our movements. The Sandwich Tern makes a slight nest on the shingle or amongst the sea campion and coarse grass, and lays two or three eggs much larger than those of the preceding species. They are remarkably handsome and vary from white to dark buff in ground colour, spotted, blotched, streaked and splashed with varying shades of rich brown and gray. As we walk along the rough beach of this particular island we observe a pair of Oyster-catchers flying rapidly over the sea piping to each other most vociferously. Let us bend our steps towards yonder stretch of pebbles and search just above the line of drifted rubbish for their nest. We find several "mock nests" before discovering the one containing the eggs.

These so closely resemble the ground around them that the closest scrutiny is required. The eggs are so much like the pebbles which strew the beach that the best way to find them is to look out for *three* pebbles arranged together. The old birds return to the place and clamour loudly all the time we stay. We have examined their home and its contents, and will now leave the poor birds in undisturbed possession of their speckled treasures. To rob them would be to blot the fairness of this lovely morning when all seems so eloquent of contented peace!

Rowing out from shore again, we make our way across the narrow strait towards another island. Here, wherever our eyes may be turned, we are sure to see numbers of big gray and white birds all standing head to wind, either on the rock boulders or on the ground, and every moment similar birds are rising from all parts of the luxuriant sea campion and grass that carpets much of the higher ground. These big birds are Lesser Black-backed Gulls. As soon as we land here the scene of uproar is almost indescribable. From every part of the island big Gulls rise into the air, and their noisy cries of *yak*, oft repeated in many modulated strains, increase the excitement of the stirring pageant. Wherever we may chance to wander we are sure to come upon dozens of Lesser Black-backed Gulls' nests, some empty, others containing eggs in every stage of development. Some of

the nests are built in niches of the big boulders and rock ledges, others are amongst the sea campion, and not a few are in deep hollows where the burrows made by the Puffins have fallen in. The eggs are olive brown of various shades in ground colour, spotted and blotched with darker brown and grey. In most parts of this island the ground is undermined with burrows which wind and turn in every direction, the peaty earth trembling beneath our footsteps, and every now and then we sink knee deep into the soft brown soil. These burrows are made by the comical little Puffins which are great adepts at tunnelling. They make their scanty nest of dry grass at the end of these subterranean passages, and there lay a single white egg faintly spotted with gray. But very few of the birds are to be seen, although we passed great numbers on the water as we sailed to the islands. But almost every burrow we chance to select has got a Puffin in it, which is easily pulled out if due care is exercised to prevent the indignant bird from biting the hand that grasps it. When captured these birds will bite fiercely and scratch like cats with their yellow feet. Their solitary egg is usually much discoloured by contact with the peaty soil and the parent birds' wet feet. In the crevices of the rocks and under the big flat stones which strew the ground here and there we may be pretty sure of finding the simple little nest of the Rock Pipit; but this bird breeds earlier than the

sea-fowl, and most probably its five mottled brown eggs are hatched or at least highly incubated. Here and there in a hollow in some rocky ridge the Eider Ducks are breeding. They make a slight nest of withered herbage and line it warmly with the soft down from their breasts as soon as they begin to lay their pale green eggs. The drakes never come near the nests, all care of the eggs being left to the female. When she leaves her charge, however, for a little time to search for food she joins her mate on the sea and they swim in company. The female Eiders are remarkably tame and often allow the observer to stroke them gently with the hand as they sit confidently on their nests. A few pairs of Herring Gulls also breed on the Farne Islands, but they mingle with the Lesser Black-backed Gulls and have no special colony of their own.

No visit to the Farne Islands would be complete until the lofty stacks of rocks where the Guillemots and Kittiwakes breed have been inspected. These curious rocks and their feathered inhabitants are perhaps the most interesting and wonderful sight the famous Farne Islands contain. The group of flat-topped rocks known as the "Pinnacles" stands a little way out from one of the islands, of which it evidently at one time formed a part. The rugged sides are tenanted by Kittiwakes, their nests being made on every suitable ledge and projection; and the flat table-like tops of the rocks are

one vast colony of Guillemots. These birds cluster so thickly on the summits that scarcely a bit of rock can be seen—all is one moving mass of birds. Guillemots are constantly arriving from the sea, others plunge head-long down into the water below, their places being quickly taken by the new arrivals. At the approach of man the birds hurriedly depart—in streams they pour off the edges, and the whirr of their wings sounds distinctly above the noise of the waves beating against the rocks and the incessant clamour of the Kittiwakes. As the birds leave the rocks we notice hundreds upon hundreds of their beautiful pear-shaped eggs of almost every variety of colour and combination of markings. No two are alike—the varieties seem endless. Numbers of eggs are knocked off into the sea as the birds hurriedly leave them. The mystery is how each bird can ever find its own egg again ; and there seems no room to doubt that the eggs get sadly mixed in the hurry and excitement of the parent birds' departure.

We bring our peep at the Farne Islands to a close by a short inspection of the rock where the Cormorants breed. This low rock is completely isolated from the rest of the islands. It seems as if the other sea birds had banished the unsavoury Cormorants to this lonely isle. They are dirty birds, and the stench arising from decaying fish and droppings is highly offensive, especially on a hot June day, or when we chance to pass to leeward



of the colony. The Cormorants live by themselves, and never mingle with the Gulls and Terns. Their nests are placed close together and made of sticks and weeds, and the eggs, four or five in number, are pale green, but usually covered with a thick coating of chalk—easily removed, by the way, with a penknife. Most of the dark-looking Cormorants hurry off to sea long before we land, and the remainder fly away directly our boat scrapes against the rocks. It is difficult to walk amongst the nests without treading on eggs, so closely are they built together: and the rocks are exceedingly slippery from the decaying fish and other refuse which covers the place.

Vast numbers of the eggs of the several species of sea-fowl that breed at the Farne Islands are annually taken for food, but the birds are eventually left in peace to rear their broods after being plundered several times. It is to be hoped that the egg harvest will be more judiciously managed by those authorized to collect it, for the birds have decreased in numbers of late years. The possibility of these islands being deserted by the sea-fowl which have bred upon them for ages, is a calamity which would be most deeply regretted by every lover of birds.

## XIII.

## MUSICAL ENTRÉES—A PLEA.

How often does it strike the epicure after the soup and the fish have been removed, and when the *entrée* has made its appearance, of what that dish is often composed ? The *menu* frequently reveals the fact that this course is the savoury remains of Larks, of Quails, or of Ortolans. What are these mystic creatures, at the sound of whose name the mouth of the luxurious diner is apt to water ? They are birds : one of them common enough in this country ; the others not sufficiently so to make their capture pay in a commercial sense, so that we have to depend upon the bird-catchers of France and Holland, and even Italy, for the supply. Who can view the Lark's tiny body, all stripped of its beautiful plumage, without sending a thought to the breezy fields, and the wild uplands where this charming little songster lives, and where he gladdens the rural scene with his matchless melody. No songster is more thoroughly English than the Sky Lark. Its voice is the language of the fields, the music that is in keeping with the cattle grazing peace-

fully in the meadows, with the distant chimes of village bells, and the blue sky and white drifting clouds, that are such a beautiful feature of an English landscape. Autumn is the season that the melodious Sky Lark figures most frequently on the *menu*. Vast flocks of these little birds have for the past months been pouring into this country in an endless stream, flying by night as well as by day across the German Ocean, only to fall victims to the prowling gunner and the cunning net-man, who sell them by the hundred to the game-dealer. Most of them are caught in clap nets, and many in draw nets which are dragged across the fields where the poor birds sleep, tired out after their long journey. As we look at the festoons and bunches of Larks in all the game-dealers' shops, we cannot help feeling regret at the sacrifice of so much musical life. Passing sad it is to think that so much that is beautiful and musical in the bird world should come to such an untimely end, to feed the pampered tastes of nineteenth century civilisation !

Fat Quails come next upon the pretty *menu* card. They are comparatively rare birds in this country, so much so that it is not worth the while of any one to seek their capture ; but in autumn and spring they migrate across the Mediterranean in vast abundance, on their way to and from Africa, where they live in winter. The coming of the Quail is eagerly watched for by the peasants of the South, and the great harvest is caught

as the birds are hurrying on. When caught they are seldom fit for table, but they take kindly to captivity, and soon get very fat under proper treatment. Tens of thousands of this pretty little bird, something like a miniature Partridge in appearance, are exported alive to this country in long flat cages, where they are kept until the demands of the market bring their death-warrant. We often pity them in their narrow little cages, so different to the boundless freedom they once enjoyed, bobbing about so restlessly, and only waiting some gourmand's arrival to order so many dozen for the grand dinner party he is about to give. Perchance their end is a more noble one, and they figure on the tables of some grand banquet where the fate of nations and the destiny of races are discussed over their savoury little bodies. The Quail is not much of a musician, but his merry whistle in the spring-time is full of harmony, and sounds particularly pleasant amongst the meadow grass and the growing corn, in which he makes his nest. In autumn the enormous flocks of this bird that pass Gibraltar, or are met with crossing the Mediterranean, are past all belief. They are coming from the corn-lands and steppe country of Central Europe, and will not stay their flight until they have crossed the Great Desert and the whole length of Africa, and reach Damara Land and the Cape Coast Colony, where they spend the winter. Our next musical *entrée* is the plump little

Ortolan, a species of Bunting, rare in this country, but common enough in all parts of Central and Southern Europe. It also is a migratory bird, coming from Africa every spring, and returning in the autumn. Its song is simple yet pleasing, something similar to that of the well-known Yellow Bunting, which may be seen in almost every English field. The Ortolan as an *entrée* dish has been introduced from the Continent. Hence, of the vast numbers that are caught in spring and autumn, a large proportion find their way to the English *table-d'hôte*. Many of the little songsters are brought here alive like Quails, and regularly fattened up for the table. Fed on hemp seed they soon become plump and fat, and find a ready sale in all our bird markets. Holland and Belgium contribute the greater part of these "fat Ortolans" to the English market. The birds migrate in flocks in autumn, and they are generally caught in nets by the men who fatten them. The poor little birds are kept in darkened cages and allowed little exercise, so that they may fatten quickly.

It should here be remarked, however, that too often the birds mentioned in the *menu* as "Ortolans" or "Larks" are not those birds at all, but Sparrows; yes, in many cases pert little London Sparrows, that are netted at night amongst ivy, and in hayricks where they roost. Birds not quite so toothsome perhaps are also frequently passed off on the unsuspecting diner-out; for the Lark-



netter is by no means particular, and every little bird that falls into his snares counts in the bunches that he regularly sends to the market.

In the South of France and in Italy the *entrée* is of a far more varied ornithological character. There, every small bird is welcomed by the cook and served up in due course under endless disguises. Sad to tell, poor Cock Robin has the repute of being one of the daintiest of morsels ; and he may be seen in large quantities on the stalls in the bird-markets of southern cities, especially in Rome. Other little favourites, some of them possessing songs which rival that of Orpheus himself, are eaten, such as Black-caps, Garden Warblers, and Nightingales. These bird-markets in autumn teem with all the finest feathered musicians of Europe, mixed indiscriminately in heaps ; bought with gusto and eaten with still more, not only by the French and Italians, but by the English and Americans who throng these winter cities when the sun is at Capricorn. Great outcries are raised, and justly so, at the cruel slaughter of Gulls and other birds for hats and plumes, but this endless and increasing destruction of many of our best songsters is allowed to proceed without a word of protest ; although I feel bound to state that, if a thought was given to the poor little choristers which have been sacrificed to furnish in many instances the tasty *entrée*, it would be left untouched, save only by the veriest gourmand.

## XIV.

## A PLEA FOR THE SEA GULLS.

THE fashion amongst the gentle sex of wearing feathers and entire bird skins as objects of ornament was never more prevalent than it is at the present moment. Ladies in every grade of Society follow the practice. What the peer's wife or daughter wears upon her head-dress or other attire in the shape of feathers, the peasant's and artizan's female folk seek to emulate. The market for feathers is always a brisk one ; although the certain kinds that chance to be the favourite of fashion are constantly varying. We do not intend to utter words of protest against the cruel and endless slaughter of the Humming Birds, and other tropic gems of bird-life that glut our English markets in shiploads ; nor do we seek to protest against the sacrifice of so many of our smaller British birds at the shrine of Fashion. The practice of wearing these pretty little creatures as ornaments cannot be too severely condemned ; but our present remarks will be confined to a plea for the Sea Gulls. The delicate French gray and

the pure white of their plumage, and their black wings marked with white in conjunction with their graceful form, render them favourite ornaments with the fair sex. To us, however, who know the Gull so well at home on the sea and rocks, in the full enjoyment of its restless wandering life, there is nothing more barbarous-looking than a Gull or a Tern contorted into the most hideous shapes imaginable, stuck into the modern hat or bonnet. The fair owner may feel proud of her property, and even excite the envy of a less fortunate sister, but her taste and her refinement are not a single step in advance of her dusky relatives in the forests of South America or the Pacific Islands. Feathers are used by most savage tribes as ornaments; it would seem that this fashion among civilised women is one of the few barbaric customs which has been handed down from remote and uncivilised ages.

Let us leave these Gull caricatures in the milliners' shops for a short time, and visit the coast where the Sea Gull lives, and watch the bird as it is in life. The blue-green sea is sparkling in the summer sunshine; the cliffs in rugged outline stand out in bold relief against the sky. Flying lightly up and down, or floating buoyantly on the swelling sea, the Gulls may be seen, and their gambols never fail to interest the observer. If we visit the noble headland yonder, we shall see the Gull at home. Hundreds of its nests are

built on the ledges in the most inaccessible parts of the cliffs. The particular species of Gull that breeds here is the Kittiwake, one of the most beautiful of the Laridæ, and one, alas, that is in special request with the dealer in plumes. What a noisy animated scene the cliffs present ! Fluttering Gulls are passing to and from their nests, which already contain eggs ; Gulls are floating on the waves below the rocks ; Gulls are hovering above the sea—tame and confiding all of them, as if fully enjoying that immunity from harm which the Sea Birds Protection Act has ensured for them. But the summer passes quickly by, the young birds are almost ready for flight ; indeed, many of them are now strong on the wing, but others still remain in the nests dependent on their parents for food. July has passed away, and with the first few days of August the protection of the law is withheld from the Sea Gulls, and the time of their wanton slaughter has arrived. This close time should certainly be prolonged for another month, which would allow the birds to rear their young in peace. The fair leaders of fashion decree that Gulls shall be worn ; that means the death-warrant for our feathered friends, and the merciless gunners commence their cruel work. Thousands of Kittiwakes and other Gulls and Terns are shot down ; many of the young birds are made orphans and left to perish from starvation on the cliffs. The poor birds, rendered

more tame and confiding by parental instincts and long immunity from molestation, fall easy victims, and the sea is covered with dead and dying Gulls. Men come from inland towns to join in the carnage, and the slaughter goes on until scarcely a bird is left on the coast—all have either been shot down or gone out to sea to escape their mortal enemies, the agents of the milliners and the high priests of women's caprice.

We have yet only glanced at the ornamental side of the Sea Gull's life; now let us view it from a useful standpoint. The Gull is one of the fisherman's best friends. It never fails to point out to him the whereabouts of the fish shoals, and he is thus able to fill his nets simply through paying attention to the movements of the birds. Gulls feed largely on fish, and follow the shoals for days and days together. They are also in a great measure the scavengers of the ocean, and pick up refuse of all kinds floating on the surface. The Gull is also a staunch friend of the farmer, and many species, especially the Black-headed and Common Gulls, feed largely on worms and grubs, following the plough with as much perseverance as the Rooks themselves. As storm warnings and weather guides the Gulls are invaluable to the sailor. We saw the sea in its summer aspect, when all was calm and eloquent of peace; but let us visit it when the waves run mountains high, and the tempest sweeps across its surface with relentless



fury. The Gulls revel in the strife of the elements, and fail not to give a timely warning to the mariner, especially when landmarks and light-houses are hidden by fog or haze. The cries of the Sea Gulls have saved many a fine ship and her brave crew from wreck ; and the sailor in his heart blesses the welcome birds, and would not harm or molest them.

Pray, gentle lady reader, let not the Sea Gull's dumb appeal for life be passed unheeded. With you rests the power of granting him immunity from harm ; for, once the fashion of wearing his plumage is suffered to die out, the professional Sea Gull shooter will be heard of no more. Spare this charming sea bird, the ornament of the summer sea, the pilot of the fisher, and the warning guide of the lost and peril-surrounded mariner. If birds and feathers *must* form part of your toilet, let them be confined to those of birds that live in other lands, or of species whose lives need not be wholly sacrificed on Fashion's changeful altar. Game Birds, poultry, and Pigeons can supply almost every variety of form and shade of colour the most fastidious may demand. Nothing would please us more than to hear of some influential dame proclaiming that the Sea Gulls shall be spared. No longer then will our eyes be tormented and our hearts be saddened by the mutilation and barbarous treatment which our favourites receive from the hands of the modern milliner. Every hat

which contains a Gull tells its own sad tale of suffering and death, and the poor bird appeals mutely yet eloquently in the name of all that is noble and kind and generous in the breast of its fair owner, that the Sea Gull's yearly tribute to the Moloch of Fashion may for ever cease. Would that Mrs. Grundy might become an ornithologist, and learn to protect our feathered friends and favourites instead of destroying them. A dead Sea Gull on beauty's brow is a blemish. Let lady readers bear in mind the cruelty which has been practised to supply their requirements—the helpless starving young ones left upon the rocks waiting for food that can never come, and for parents that will return no more ; the mangled, blood-stained birds shot down when life seemed fairest and brightest ; the sea bereft of its greatest ornament ; the heralds of the fisherman killed ; the guide of the storm-tossed mariner destroyed. Let them but just remember this ere ordering the Sea Gull with their millinery, and we are convinced that our appeal on behalf of these graceful birds will not have been made in vain.

## XV.

## THE ARCHITECTURE OF THE HEDGEROWS.

A HEDGEROW is a never-failing source of attraction to a naturalist—it conceals much that is curious, and openly displays still more that is interesting. How beautiful and wild and luxuriant our real old-fashioned hedges are, as they stretch out in crooked lines of foliage between the fields or on either side of the country lanes. What a great variety of vegetation grows in them; what a wealth of bloom and berry, according to the season, adorns their green expanse. And the birds of the hedgerows! In spring and summer especially these places are a chosen haunt of birds. How cheerily they sing from the twigs in spring-time; how snugly they hide their pretty homes among the hedgerow foliage; how they feast upon the berries and wild fruits in autumn. Let us for a brief season devote our attention to some of the architecture we can find in the hedges—the homes we shall find there are most beautiful and interesting.

The hedgerows are of many kinds, but it is not all of

them that are favoured with nests. Birds love seclusion and concealment during the breeding season, and seek only those localities where such can be found. It is of little use to search the hedges between fields where high farming prevails—where the arable land or pasture goes quite up to the division line—we can scarcely call it a hedgerow—where the bank is levelled and every weed and spray of brushwood is cleared away. These hedges are little more than bare hurdles, the tall stems of the bushes are cut nearly through near the root, then bent downwards, and the long twigs twisted round, and in and out into a cable-like band which is threaded between stakes at intervals. Every rotten stump and superfluous branch is lopped off, all the old moss and lichen-covered branches are thinned out, all the undergrowth of grass and weeds, and the drifts of dead leaves at the bottom, even the trees and saplings—all are swept ruthlessly away. Such scientific hedges are shunned by the birds ; they are too low and thin and bare for their requirements. They love the old-fashioned hedgerows, on the farms where no new-fangled notions prevail, and where the banks and dykes below the hedges are masses of tall weeds, bluebells, primroses, rank grass, briars and brambles, and the hedges themselves are rarely if ever lopped, but allowed to grow in uncurbed luxuriance. The sapling oaks, and elms, and sycamores, are suffered to grow in peace where the winds of heaven sow them,



and the only trimming that takes place is when the farmer needs a fresh supply of thatch pegs, and cuts them from his own brushwood in preference to using the new-fashioned square abominations in favour with the more scientific, but often less successful husbandman ; or when he cuts long rods from the sycamores, which he sticks in the ground to guide him straight when ploughing the first furrows—"setting the rig" as Derbyshire farmers say. These dear old hedgerows are full of moss-grown rotten stumps, gnarled roots and tangled thickets. Here and there a dense holly-bush shows out in darker green, and from its centre the dead stump of what was once a flourishing holly tree towers gray and desolate and branchless. On this old stump the Cuckoo loves to sit in spring, and he is heard calling for the first time six seasons out of seven from its dead summit. In winter-time it is the chosen perching place of the Sparrow Hawk, where he watches for the sleepy Chaffinches and belated Buntings, skimming after them along the hedge-side in the evening gloom. Then in spring and summer how beautiful and picturesque these old hedgerows become, at the former season white and pink with fragrant may, bird-cherry, sloe, and crab blossom ; in summer full of odour from the dog-roses and brambles, the elder, the honeysuckle, and the guelder rose. In autumn the beauty of the hedges is none the less, for then the masses and clusters of black and scarlet berries, and pink and



green hazel nuts, lend them a new glory and form a further attraction for the feathered tribes. So thickly do these old-time hedges grow that the very hares and rabbits cannot get through them, save here and there where recognised "runs" have been formed by these little rodents—a fact which the observant poacher takes advantage of in laying his snares.

We will visit the hedges as soon as the first faint signs of spring are stealing over them. It is early yet for nests, but we shall be sure to meet with the home of the Song Thrush in course of construction. We must discard the still leafless portions of the hedges, and confine our attention to the scattered clumps of holly and yew. Here the first nests of the Song Thrush and the Blackbird are almost invariably made. Part the green prickly branches asunder, and wait a moment until the eye becomes accustomed to the gloom ; then peer about in the centre of the bush, low down among the larger branches. There, away to the left, are a few tufts of dry twitch. This is the commencement of a nest ; but whether of Thrush or Blackbird we are yet unable to say. Day by day we may visit this new building, and watch the method of its construction, provided due care is exercised not to alarm the little architects. It is that of a Song Thrush ; and seven or eight days will elapse before the structure is completed, though I have known this bird make a nest in a much shorter time. In the

first place a loosely woven cup is formed of dry grass and a flake or two of moss ; this is then lined with wet mud or clay obtained from the nearest swamp, and finally finished off with a second lining of decayed wood. This latter material is obtained from old fences, roots of trees or dead branches lying in the ditches, the birds selecting those pieces which are already saturated with wet ; or, if none can be found in this state, they moisten the bits of wood in the nearest water. These logs soon become tunnelled by the repeated visits of the Thrushes, and unerringly proclaim the commencement of nest-building to the observant naturalist. Sometimes a few fine twigs or even dry holly or oak leaves are interwoven round the rim of the nest, and then all is left for a day or so to set and harden. Soon the four or five deep blue eggs, spotted with very dark brown, will be laid, and then the patient hen will commence her duty of incubation, thoroughly drying the nest with the warmth from her own body, her loving mate almost all the time warbling his oft-repeated notes from a neighbouring bush or tree. The Blackbird also builds its nest in these hedgerows, but is a little later in commencing operations. A holly-bush is a favourite situation ; but very often the nest is made at the bottom of the hedge firmly wedged between several thick branches, or even on the bank amongst dry leaves and sprouting herbage. Indeed the Blackbird is very partial to a low site, though it will

sometimes select one high up in the branches of trees. The nest up to a certain stage is undistinguishable from that of the Song Thrush, being identical in construction up to the lining of mud or clay. No wood is used, but this cup is finally lined with fine dead grass. The nest is left a little time to dry, and soon becomes very firm and compact. The five bluish green eggs spotted and freckled with light and dark brown and violet gray are known to almost every wanderer along the hedge-side.

Another thorough little bird of the hedgerows is the Hedge Accentor. He frequents these places throughout the entire year, and when the earliest spring days arrive he is one of the first birds to commence nest-building. A favourite haunt of the Hedge Accentor is the garden hedge, or one that is cropped short and grows very thick and impenetrable. Throughout such a hedge the fallen leaves accumulate in big masses, looking for all the world like nests, and the Accentor seems to know this full well—for often indeed its cradle is passed by, none but the sharpest eyes distinguishing it from the lodgments of withered leaves. As soon as the tiny emerald green buds begin to burst, and the brown expanse of hedge is tinged with the very faintest shadow of green, the Hedge Accentor begins to build its nest. The rustic beauty of this structure is great. In the first place the nest is composed of green moss, fine twigs, dead leaves, and a few straws and bents, cemented with cobwebs (which are

to be obtained in great plenty in these quickset hedges) and finally lined with a thick warm bed of feathers, hair, and wool. The beautiful turquoise blue eggs are from four to six in number. The Hedge Accentor is a close sitter, and glides very quietly off her nest when disturbed, hopping up the hedge for several yards with surprising speed before taking wing. About the same time of year the Robin may be often found nest-building in the hedgerows. This bird never makes its nest in the branches, but always on the ground. We must seek for it on the banks of the hedges, or by the side of the ditch below them, where the cow parsley and the nettles, the primroses and bluebells flourish. A site is generally selected under some overhanging turf or root, and in the first place a little hollow is scratched out in the loamy soil. Moss, dry grass, and dead leaves form the outer shell of the nest, which is well and neatly lined with fine roots and hair. The cup is small—not more than three inches across, but the entire nest is a bulky structure. The nest itself is generally placed as far back under the bank as possible in the hollow in the ground, and all the front is filled up with a mass of leaves and moss. From five to eight eggs are laid, white, blotched and speckled with pale brown and gray.

One of the most beautiful nests to be found in the hedgerows in early spring is that of the Chaffinch. A site is selected on some thick moss-covered branch or

stump, or in a crotch where several lichen-covered branches meet. An elder stump is a very favourite place. The Chaffinch's nest is a very elaborate one, and nearly a fortnight is taken up in its construction. The hen bird alone is the nest-builder, but the cock brings much of the material. As soon as the pair of Chaffinches have made up their minds on a site, the dainty little structure is commenced. So slowly does it progress the first day or so, that only the most experienced eyes can detect the slight foundation. This is formed of scraps of moss, fine roots, and bits of dry grass, strengthened with lichens, and cemented together with scraps of spiders' web. Then the inside is warmly lined with hair and feathers, and the down from various seeds. No birds are more solicitous for their unfinished nest than Chaffinches. Even when only the first scrap or two of moss have been placed in position, the anxious owners cannot be driven from the neighbourhood of the place, but keep up a chorus of loud cries as they flit from branch to branch with material in their beak. The Chaffinch tries by the aid of mimicry to hide her nest, and to this cause we must attribute its exceeding beauty and variety. Wherever it is placed the materials of which it is composed harmonize very closely in colour with the surroundings. Thus when placed in the lichen-covered branches, bits of lichen—either silver or gold in colour—are neatly attached to the outside of the structure, so



that it looks like a ball of that beautiful moss. When in holly trees, or among the more slender twigs of the hawthorns, moss of brightest green is used instead; whilst later on in the spring, when the may bushes are white with bloom, I have known the birds silver over the outside of their nest with scraps of paper—the whole appearing like an unusually large mass of flowers. Spiders' webs are largely used on the outside of the nest when it is built on gray branches; and sometimes bits of bark are used, the material in every case being beautifully felted together. The eggs are usually four or five in number, pale bluish or greyish green spotted, and occasionally streaked with dark brown and gray. The spots are generally round, and many of them are darkest in the centre.

The Yellow Bunting is another bird that builds its nest near the hedgerows. Like the Robin, this bird is a ground breeder, rarely making its nest in a bush, though I have found it sometimes in the branches of the gorse or bramble. The usual situation is on the bank below the hedge, under a bush or tuft of herbage. A little hollow is first scraped in the ground, and then the foundation of dry grass and moss is formed. This is neatly lined with fine roots and a little hair, the whole forming a very pretty structure, wonderfully smooth and compact. It often remains finished for several days before the first egg is laid. The eggs of this Bunting are very

characteristic and handsome. They are grayish or purplish-white in ground colour, streaked and pencilled and spotted with dark brown and gray. As we pass by these elder bushes in the hedge let us peep at the Wren's nest, snugly placed in the ivy growing round one of the rotten stumps. It is almost concealed amongst the perennial foliage, and little but the round entrance hole is to be seen. The Wren is one of Nature's cleverest architects—she builds a matchless globular nest, full of engineering skill. In the first place dead leaves have been used, with a little moss and dry grass to bind them together; then moss has been used to well line the structure, which is finally lined with a warm bed of feathers. Round the hole, which is in the side near the top, numerous grass-stalks have been deftly woven. This part of the nest receives the most wear and tear owing to the repeated movements of the owners in and out of their little castle, and is therefore strengthened with these long wiry grasses. Other nests of the Wren are made externally almost exclusively of moss or dry grass, according to the situation in which they are placed, for the Wren, like the Chaffinch, assimilates the outer portion of its home as nearly as possible with surrounding objects. I have seen it amongst the hawthorn stumps thickly garnished with green leaves from that tree. The eggs are five or six in number, pure white, spotted and freckled with pale brownish red, and

occasionally with dark red. Both the nests of the Wren and the Chaffinch are frequently found rather poorly made—the work of young and inexperienced birds, a fact which is all the more apparent among nests of such great skill and beauty, though the same imperfections exist in the work of most other birds, building for the first time.

We cannot well wander by the hedgerows in spring-time without coming across the charming nest of the Long-tailed Titmouse. This is the only British species of Titmouse that builds a nest in the branches. The holly bushes are a favourite situation, and in shape this nest is similar to that of the Wren, but the materials selected are almost the same as those chosen by the Chaffinch. Nothing in bird architecture exceeds in beauty the nest of this Titmouse—moss, lichens, cobwebs, hair, and feathers being deftly felted into a charming abode. Some nests have two entrance holes, one on either side; and I have a nest in my possession which is fitted with an admirable trap-door, made of moss and lichen, which opened and shut as the parent birds went in and out. From six to ten eggs are laid, white, sparingly spotted and speckled with pale red. The Great Titmouse, the Blue Titmouse, and the Coal Titmouse, often make their nests in knot-holes or decayed stumps in the hedgerows, especially amongst the hazel bushes. These nests are



"We cannot well wander by the hedgerows in spring-time without coming across the charming nest of the Long-tailed Titmouse."





little more than heaps of moss, wool, and feathers, and resemble each other very closely in their general characteristics. The eggs of all these birds are white, spotted with reddish brown. Another charming little nest found in the hedgerows in early summer is that of the Lesser Redpole. It is a beautiful little structure, placed in a crotch like that of the Chaffinch, and is made externally of dry grass, fine roots, and slender twigs, and lined with down from the willow tree, and a few feathers. Its fabrication is exquisite. The eggs are four or five in number, greenish-blue in ground colour, spotted with purplish-red and gray, and occasionally streaked with very dark-brown.

As soon as the hedgerows become dense with summer foliage, the Whitethroat's scolding notes may be heard from the deepest cover, where the brambles and briars and woodbine interlace and cluster over the old thorn bushes. You may trace the bird's movements as it hurries along the hedge, by the trembling of the twigs and leaves: and every now and then it bursts out into a garrulous little song, often as it flies above the bushes. Its nest is made amongst the brambles, or even in the tall nettles and meadow-sweet on the bank below the hedge. Few nests are so flimsy-looking as the Whitethroat's; it looks all too slender to support its owner and the tender young. It is made almost exclusively of dead grass stalks; not the broad flat leaves, but the

round stems, and is lined with horsehair and a few fine roots. It is a deep structure, beautifully rounded, and when held up to the light, looks like some miniature network of rods and girders, combining great strength with slenderness. The eggs are four or five in number, greenish-white in ground colour, spotted and speckled with olive-green and gray, and sometimes streaked with dark-brown. The markings on these eggs are mostly confined to a zone or band round the larger end.

About the same time that the Whitethroat is breeding we are pretty sure to meet with the nest of the Greenfinch. Although most of the Greenfinches retire to shrubberies to breed, many do so in the hedgerow whitethorns, and amongst the roses and brambles. There is a wild rustic beauty about the nest of this bird which few others possess. The outer structure is formed of moss and dry grass, a few slender twigs being interwoven round the rim to give strength to the nest: the inside is lined with wool, hair and feathers. It is rather shallow, but well and compactly put together. I have known late nests of this bird made externally entirely of new-mown hay and lined with feathers. The eggs are from four to six in number, pure white spotted and blotched with reddish-brown and gray. Before quitting the hedgerows we will take a peep at one more nest which is often found in them, especially near to streams, and that belongs to the Sedge Warbler. It is formed of

dry grass, leaves, sometimes mingled with a few roots, and lined sparingly with hairs—one of the most simple, plain, and slightly made of any nests belonging to our native birds. The eggs are four or five in number, grayish white in ground colour thickly marbled with yellowish brown and gray, and occasionally streaked with very dark brown.

Even with the closest scrutiny the naturalist is sure to overlook many of the nests which are made in the hedgerows, as proof of which notice the great numbers of empty nests only discovered when the autumnal gales and early frosts have robbed the bushes of their foliage. We have noted the usual feathered inhabitants of the hedges during the spring and summer, but as the meadow-grass grows ready for the scythe, and brown tints creep over the grain fields, birds of many other species may be seen upon them. Flocks of Finches gather in the fields to feed on seeds and grain. Whinchats also frequent the hedgerows, as also do the Willow Wrens and Goldcrests. A season's scrutiny of the hedgerows will not fail to interest and instruct the naturalist, and bring before him in all their beauty some of the most wonderful and curious examples of bird architecture.

## XVI.

## THE MOULTING OF BIRDS.

PERHAPS there is nothing in the economy of birds which is less understood than the seasonal changes in their plumage. Moulting is a proceeding which bears very closely indeed on some of the grandest questions affecting organic life, especially as relating to sexual selection, and the development of so much that is fair and beautiful in the dermal covering of birds. One of the first steps towards becoming a practical ornithologist, is to master the seasonal changes which take place in the feathers of birds, sexual differences of plumage, and the dress which characterises the nestling and immature stages of their existence. There can be little doubt that many rare birds are overlooked in this country every autumn, owing to the ignorance of observers of the immature or winter plumage of such species. It is rarely that adult birds stray so far from their usual habitat ; it is the young and inexperienced that lose their way, and drift to this country in autumn with our streams of regular migrants. In many cases

these young birds are very differently attired from their parents, being dull and sombre-looking, and apt to be overlooked even by the most practical field naturalists. This is especially noticeable in such species as Warblers, Wagtails, and Pipits.

For convenience of treatment it is best to divide our British birds into four classes, quite irrespective of their structural affinities. In our first division we will glance at those birds which go through a complete moult twice in the year, in spring and autumn ; in our second we will include those which have a complete change of plumage in autumn, but only a partial one in spring ; in our third we will take those birds that only moult once in autumn ; whilst in our last we will put those that are in a more or less chronic state of moult during the greater part of the year. It is well here to point out that all birds moult at least once in the year, and some part of the autumn or early winter is the period at which this universal change of plumage is undergone. As a rule, birds begin to moult soon after the breeding season is over, and those species that have a double change of feathers moult a second time just previous to pairing, when they acquire the various nuptial ornaments which render them specially beautiful and attractive.

It is a singular and interesting fact that the only British Passeres or Singing Birds which have a complete



spring and autumn moult, are the Warblers, as for instance, the Blackcap, the Willow Wren, and the White-throat ; and even in this well defined group, the double moult does not extend to the young birds, which only undergo a partial change of dress in their first autumn. The Goatsuckers, Hoopoes, and Cuckoos are birds which moult twice in the season, so also are Pigeons and Cranes, in all of which however there is not any very striking difference between spring and autumn plumage. The information hitherto obtained respecting the family of Rails, shows that these birds are curiously divided in the manner of their moult. For instance the Crakes moult twice in the year, in spring and autumn ; but the Rails, the Moorhen and the Coot have but one change of plumage, in autumn. The two great and well defined natural groups, the Waders and the Gulls, contain birds which moult regularly in spring and autumn, and in most species of the former group the winter plumage assumed after the autumnal moult is very different from the plumage acquired after the vernal one, being much less brilliant in colour. For instance, every one knows the remarkable handsome Golden Plover in his summer livery with jet black underparts, but after the moult in autumn, the black is replaced by white. The Knot is another good instance. This bird becomes chestnut on the underparts in spring, and the upper parts are marked with chestnut brown and black, on the head mantle,

scapulars and innermost secondaries ; but after the autumn moult, all trace of chestnut is lost, and the upper parts are grayish brown, and the underparts white, barred and streaked with brown on the neck, breast, flanks, and under tail coverts. The Godwit, the Curlew Sandpiper, the Dunlin, the Phalaropes, the Sanderling, and the Ruff, are all remarkably good instances, the difference between summer and winter plumage being exceedingly marked. In the Gulls and Terns, the changes between summer and winter plumage are not so marked. The differences are most striking in the Gulls, which don black hoods in spring, and lose them in autumn (except a few indications on the nape, ear coverts and lores), as for instance the Black-headed Gull, the Little Gull and Bonaparte's Gull. The feathers of these parts are not shed, but change colour. In the larger Gulls, such as the Herring and Lesser Black-backed Gulls, the principal difference between summer and winter plumage is that, during the latter season, the head and sometimes the neck and ear coverts are streaked with gray. It is perhaps worthy of remark, that in all these birds which have a double moult the sexes are almost alike in colour.

Before passing on to our next division it may perhaps prove interesting to briefly trace the progress of the young birds to maturity. These phases of plumage and the length of time which elapses during their succession

vary a good deal in certain families. When just hatched the young of the Warblers, the Goatsuckers, the Hoopoes and the Cuckoos are naked, blind and helpless for some time before the first feathers and filaments begin to grow. In the Pigeons the young are hatched blind, but covered with thin yellow down. In the Crakes, Cranes, Waders, Terns and Gulls, the young in every case are hatched covered with thick down, are able to see, and soon run or swim with the greatest ease and confidence. In the Warblers the young as soon as they are fledged do not differ very much in colour from their parents, and the slight differences are lost altogether after the following spring moult, when the fully adult plumage is assumed. The young of the Goatsuckers closely resemble their parents when fledged, but may be readily distinguished by having the spots on the quill and tail feathers smaller, and buff instead of white in colour. After each succeeding moult these spots gradually increase in size, and the buff almost as insensibly passes into white. The first plumage of Pigeons is much browner than that of the adults, most of the metallic sheen on the neck and breast is wanting, and in the case of the Ring Dove and the Turtle Dove the white and black patches on the sides of the neck are absent. After the next moult the young males resemble adult females in colour. The young of the Crakes, of which the Corncrake may be taken as the typical species,

in first plumage do not differ very strikingly from their parents in winter plumage, the adult dress not being assumed until their second autumn moult. The young of the Cranes progress to maturity in a very similar manner, the first plumage being like the winter dress of adults, and the nuptial ornaments are very slightly indicated. In the Plovers and Sandpipers the law which prevails in the plumage of the young birds is exactly the reverse of what we find in the Crakes and Cranes, and instead of the first plumage resembling the winter plumage of adults, it approaches more or less closely in colour that of the summer plumage. These young birds however do not retain the bright colours of their first plumage long, but begin to change at the beginning of autumn into a dress which closely resembles the winter plumage of their parents. Singularly enough this difference of colour is not obtained by a moult, but by an actual change in the colour of the feathers, only the very worn and abraded ones being replaced. In the following spring these immature birds moult into summer plumage, which is very similar to that of the adults, only the wing coverts retain their rich summer hue until the next autumn moult, when these feathers are changed for the gray ones of winter. It is a curious fact that the wing coverts of the adults seem to be only moulted once in the year, in autumn, and this portion of their plumage is consequently always the same colour after the bird

reaches the adult stage of its existence. The progress of young Gulls and Terns towards maturity is very similar to that of the Plovers and Sandpipers, only the difference in colour between the immature birds and their parents is much more striking. In the Terns the young in first plumage have dark brown sub-margins and pale buff margins to the ear coverts, the feathers of the mantle, the scapulars, innermost secondaries, upper tail coverts, the tips of the tail feathers, and a few feathers on the breast and lower back. After their first autumn moult, which begins directly after the former plumage has been acquired, the margins are only retained on the scapulars, innermost secondaries, and tips of the tail feathers. In spring the traces of immaturity are nearly lost, being confined to the wing coverts, which are streaked with brown, and the black on the head is not so much developed. In the Black-headed group of Gulls the young in first plumage have the scapulars, innermost secondaries, and mantle brown, with pale edges ; the crown, nape and ear coverts are brown, and the tail is subterminally banded with the same colour. As soon as this plumage has been acquired the second plumage begins to be assumed, in which the principal traces of immaturity are still confined to the scapulars and innermost secondaries ; the tail band remains the same, and the wing coverts are streaked with brown. This plumage is carried through the winter until the



following spring, when the scapulars and innermost secondaries reach the adult stage of colour, and the brown hood is assumed for the first time, but this is more or less mottled with white, and the band across the tail is becoming imperfect. The amount of white on the primaries gradually increases for several years until the bird is fully adult. The larger species, as for instance the Lesser Black-backed Gull, mature even more slowly, and do not obtain their adult plumage until after the fourth or fifth autumn moult, when they are three or four years old. The first plumage is brown on the upper parts, each feather with a pale margin, and white streaked with brown on the under parts, the quills uniform dark brown, and the tail white barred with brown. After each recurring moult in spring and autumn the signs of immaturity grow less, traces remaining longest on the wing coverts and tail. The white subterminal spots on the longest primaries are perhaps the last marks of maturity obtained, the birds not assuming them until after the fourth autumn moult. In all these young Gulls the colour of the feet, bill and iris slowly changes until the prevailing colour in the adult is obtained.

We now pass to our second division, in which are included those birds that have a complete moult in autumn, but only a partial one in spring. Among the Passeres, there are few species which moult in this manner. These are the Crows, the Wagtails, and the

Pipits. In all these sub-families, there appears to be a moult in spring, which extends to all the small feathers of the body, but not to the quills or tail. Many of these birds assume various nuptial tints in spring, as, for instance, the vinous throat of the Red-throated Pipit, the black throat and breast of the Pied Wagtail, and the black throat of the Gray Wagtail. The Game Birds have one complete moult in autumn, and most of these species undergo considerable change in spring, as, for example, the Partridges and Quails, which moult most of the feathers of the head and neck. In some species this is accomplished without a moult, the feathers changing colour, as in the Willow Grouse, which is pure white in winter, and mottled brown and black in summer. The Bustards also moult many of their small feathers in spring, especially on the head and neck. The Grebes, the Divers, and the Auks have a complete moult in autumn, and change all the small feathers in spring, many of the species in these three families presenting great differences between the breeding and winter plumages—the former of course being much more brilliant and attractive. The Grebes moult their quills in autumn so rapidly, all of them falling out almost simultaneously, that for some little time the birds are unable to fly. The winter plumage of the Divers, obtained after the autumn moult, is carried a very short time, for the birds begin to don their

wedding garments in December. It is also worthy of remark that the sexes in these three families of birds present little or no differences in colour.

The progress of the young to maturity is as follows. In the Crows, the young birds even in their first plumage, closely resemble their parents. In the Wagtails and Pipits, the changes which take place between youth and maturity are much more pronounced. The former birds in their first plumage, and after their moult in their first autumn, very closely resemble the adult female. After their first spring moult, the young males are almost in the adult dress, which is finally assumed by both sexes in the second autumn moult, when the birds are a little over a year old. Young Pipits very closely resemble their parents, but their plumage, especially previous to the first moult, is more suffused with yellow and buff, and the under parts are more profusely spotted and streaked, the marks being larger and bolder than in the adults. It is almost needless to say that the young of the Crows, the Wagtails, and the Pipits, are hatched naked and blind. The advance to maturity among Game Birds is specially interesting. The young chicks are able to run as soon as they are hatched, and almost immediately begin to grow quills, so that in a very short time they are able to fly. As the chicks grow, these quills gradually drop out and are replaced by larger ones, so that

by the time the bird is full grown it has had three or four sets of quill feathers. In its first plumage, the young game bird very closely resembles its mother in the colour of its plumage, but is more spotted. After the first autumn moult the young males assume their nearly adult dress, only showing a few traces of immaturity, which are finally lost after the first spring moult is completed. In the Bustards the young are covered with down, and able to run shortly after they are hatched. Their first plumage very closely resembles that of the adult female, but after the first spring moult, the young males begin to assume their sexual colours, though the plumage is not so finely vermiculated, or the tints as pure. The males of the larger Bustards do not appear to get their fully adult plumage until after their third autumn moult, when they are upwards of two years old. In the Grebes the young are hatched covered with down and able to swim and dive with great dexterity. Their first plumages closely resemble that of the adult in winter, but after their first spring moult, although the adult summer plumage is assumed, the nuptial ornaments are not so brilliant or so fully developed. The young of the Divers are hatched covered with down and able to swim. Their first plumage is somewhat similar to that of the adults in winter dress; but in the Black-throated and Great Northern Divers the feathers of the upper

parts and the flanks have broad pale gray margins, and the sides of the head and throat are tinged with brown. In the Red-throated Diver the spots on the upper parts are replaced by streaks, and the ear-coverts and throat are mottled with brown. Young Divers carry their first plumage through the winter until the following spring (not moulting in December with their parents), when they assume their summer plumage, but the nuptial ornaments are not so brilliant in colour as in adults. In the Auks the young are hatched covered with down and able to swim. Their first plumage resembles that of the adult in winter plumage, and after their first spring moult they do not differ from their parents in any important particular.

We now arrive at the third division of our subject, in which the birds have only one change of plumage in the year. This, with one or two exceptions, takes place in autumn. With the exception of the Warblers, the Crows, the Pipits, and the Wagtails, all the British species of *Passeridæ* are single moulted. They include the Thrushes, Chats, Robins, Flycatchers, Redstarts, Tits, Waxwings, Starlings, Finches, Shrikes, Swallows, and Larks. Many of the birds here specified present considerable differences in colour between the summer and winter plumage. This change is brought about, not by a moult, but by the abrasion or casting of the pale edges of the feathers which conceal the brighter colours.



Good examples of this interesting fact are presented in the Brambling and the Chaffinch among Finches, in the Snow Bunting among Buntings, in the Shore Lark among Larks, in the Ring Ousel among Thrushes, and in the Redstart and Wheatear among Chats. The males of all these birds in the breeding season are bright and conspicuous in colour, yet when newly moulted in autumn the long pale edges to the feathers conceal much of their beauty. The Shrikes and Swallows moult in a somewhat abnormal manner, leaving this country in autumn in their worn and abraded summer plumage, the young birds in the plumage of their youth, but appearing in spring in a complete new dress, having performed their moult far away in Africa in their winter quarters, just previous to their journey northwards. The Bee Eaters, Rollers, Kingfishers, and Woodpeckers are also birds of single moult; so are the Rails, the Coot, and the Moorhen. The Owls, Petrels, Ducks, Geese, Swans, and Pelicans only moult once, in autumn. It is a curious fact in the economy of the Ducks that in most species the male birds moult their small feathers twice in the year, but the females only once. Both sexes, however, have only one complete moult in the year. The female moults as soon as her brood is safely reared; but the male begins to do so as soon as his mate has laid her eggs, all his small feathers dropping out and being replaced by

others resembling those of the female in colour. The quill feathers are moulted last of all, and so rapidly do they fall out that for some time the bird is unable to fly. This inconspicuous dress is worn for several months ; then the usual autumn moult commences, which, however, does not extend to the quills, and the drakes then assume their brilliant nuptial plumage. The Sheldrakes, Geese and Swans of both sexes have only one complete moult in the year, and the change of plumage begins before the young are able to fly, the quills dropping out quickly, and rendering the birds incapable of flight for a time. The Pelicans have but one actual moult in the year, but just previous to the pairing season in winter, crests in some species (as in the Shag) and ornamental filaments and tufts (as in the Cormorant) appear, but are lost by abrasion during the ensuing breeding season.

The progress of the young to maturity in many of these single moulted families of birds is very interesting. All the birds in the Passeridæ, as well as the Bee Eaters, Rollers, Kingfishers and Woodpeckers, hatch their young blind and naked. In the sub-families of the Thrushes, Chats, Robins, Flycatchers, and Redstarts, the young in their first plumage have both the upper and under parts more or less spotted and barred ; but after their first moult in autumn, either the adult dress is assumed, traces of immaturity (in the form of buffish

spots and shaft lines) only being retained on the wing coverts, or in the case of young males they resemble adult females in colour. In the Tits the young are very similar in colour to their parents, but the tints are not so bright, and any white portions of the plumage are suffused with yellow. Young Kinglets, however, do not display the orange and black crown until after the first moult, that portion of the head being almost uniform in colour with the back. Young Starlings and Waxwings are very different in colour from their parents, being nearly uniform brown in the former, and resembling the female in the latter, but the adult dress is assumed after the first autumn moult. Young Shrikes in many instances have the upper and under parts barred and spotted, but in others they do not differ much in their first plumage from their parents. Young Swallows and Martins do not differ very much in colour from their parents, but the tints are not so bright, the quills are often tipped with white (in the young Sand Martin the small feathers of the upper parts have also pale tips) and the tail feathers are not so long and forked. In the Barn Swallow the white spots on the tail feathers are suffused with buff. Young Finches are much duller in colour than adults, and more spotted and streaked, but moult into nearly adult plumage after the first autumn moult. The Crossbills are somewhat aberrant, and their stages of plumage are by no means yet satis-

factorily determined. Young Larks in first plumage are more or less uniformly barred or spotted with shades of brown buff and yellow. After moulting this plumage the young birds closely resemble adult females, but the under parts are more streaked, and in some cases, as in the Sky Lark, the feathers of the upper parts are tipped with dull white. The young of the Bee Eater in first plumage differ considerably from their parents; the green and blue on the forehead is absent, the chestnut head is suffused with green, and the chestnut and yellow remainder of the upper parts are dark and light green respectively. The under parts are duller, the throat band is only faintly indicated, and the centre tail feathers are no longer than the others. When this plumage is moulted the young males resemble adult females. Young Rollers and young Kingfishers resemble their parents in colour, but the plumage is suffused with brown, most strongly in birds in their first plumage; and in the young Kingfisher the breast is banded with greenish brown. The first plumage of the Woodpeckers is very interesting, inasmuch that in the Great Spotted Woodpecker the scarlet on the head is more developed than it is in the adult birds; and in the Lesser Spotted Woodpecker the crown of the young females is scarlet, but white in the adult female. After the first autumn moult the adult plumage is fully assumed. In the Green Woodpecker the young are

barred above and below, and the black cheeks are spotted with scarlet in the male and with brown in the female. After the autumn moult the lower breast and the belly only are barred. Young Rails, Coots, and Moorhens are hatched covered with down, and able to swim and dive: their first plumage is not very different from that of the adults, but is more suffused with brown, and after the first moult, in both sexes, closely resembles that of the adult female. In the Petrels the young are hatched covered with down, and their first plumage does not differ in any important respect from that of the adults. In the Geese (hatched with down and able to swim) the young do not differ very remarkably from their parents in colour, the absence of white at the base of the bill in some species, and of the black marks on the under parts in others, brown taking the place of black, and white being suffused with buff, are among the characteristics of this stage of plumage. In the Ducks the young are hatched covered with down, and able to swim; in their first plumage they very closely resemble the old female, and acquire the adult plumage after their first autumn moult. In the Swans the young are also hatched covered with down and able to swim. In first plumage they are uniform greyish brown; and unlike the Geese they undergo no moult during the first autumn of their lives, but after the moult which takes place in their second autumn, they acquire the pure



white plumage of the adult. In the Pelicans the young are naked when first hatched, but soon become clothed in down. Like the Swans they retain their first plumage until their second autumn. Young Cormorants in first plumage are brown above, shading into nearly white on the centre of the belly, and the feathers of the upper parts have broad dark margins. After this plumage is moulted, an intermediate one is assumed, with more metallic gloss above and less white below. The Gannet passes through a series of mottled plumages of black, brown and white, ere it attains its adult dress when it is quite four years old. It is an interesting fact that this bird begins its life in a snow-white garb of down, then passes through parti-coloured plumages to the white dress of maturity. Young owls in the nestling stage of their existence are covered with down. In their first plumage they do not differ very greatly from their parents, but the colours are more dingy, and the markings in many species are not so clearly defined.

We now reach the fourth and last division, in which the birds may be said to be in a chronic state of moult. In this group we include the Swifts, the Birds of Prey, the Herons, and the Ptarmigan. In addition to the spring and autumn moult, which all these birds undergo, with the exception of the Ptarmigan, all are moulting their quills throughout the year, save perhaps in the breeding season, these feathers dropping out in pairs

and being replaced. This operation goes on very slowly, so as not to incommode the birds in their flight—a proceeding which is directly opposite to that in the Geese, Ducks, Grebes, &c. The Swifts and the Birds of Prey depend upon their wings for very existence, so that this slow and chronic state of moult is the one best adapted to their needs. This singular mode of moulting in the Swifts is another very conclusive proof of the distant relationship of these birds to the Swallows. In the Herons, we have birds which assume many nuptial ornaments in spring, gorgets, plumes, and crests, which drop out or abrade as soon as the pairing season has passed. The Ptarmigan's chronic state of moult is adopted for protective purposes. As is well known, this bird is uniform white in winter plumage, except the tail, which is black narrowly tipped with white, and the lores, which in the male only are black. The wings, breast, belly, and under tail coverts are for the most part permanent in colour. In spring, partly by a moult and partly by a change in the colour of the feathers, the remainder of the plumage becomes black mottled with brown, and in autumn gray mottled with black. The change proceeds so slowly that these two moults overlap each other, and consequently an intermediate plumage between the two extremes is acquired. Broadly speaking, there is not much difference exhibited between the colour of the sexes in the birds of this group.

The young of the birds in this division advance to maturity as follows. The young Swifts are hatched naked and blind, and their first plumage is similar to that of their parents, but the pale margins to the feathers are more clearly defined and suffused with buff. After their first spring moult, the adult plumage is practically completed. In the Birds of Prey, the young, as nestlings, are more or less covered with down. Their first and successive stages of plumage vary so widely in individual species, and the time that elapses ere they reach maturity is in many instances so long, that it is impossible to give details of these birds' advance to maturity within the narrow limits of our space. In the true Falcons, the young in first plumage differ considerably from their parents in colour, but moult into adult dress during the summer following the one in which they were hatched. In the Osprey, the young birds resemble the female in autumn dress, but the males do not obtain their adult plumage until they are several years old. The Eagles mature much more slowly, the White-tailed Eagle, it is believed, taking six or seven years to do so. In the Honey Buzzard and the Rough-legged Buzzard, young birds have the markings on the under parts in the form of streaks instead of bars. Young Sparrowhawks and Goshawks in first plumage resemble the adult female, but the males (at all ages) are much smaller in size—a pecu-

liarity which extends almost without exception through this family. In the Herons the nestlings are clothed in down. The young in first plumage differ more or less considerably from their parents. In the Common Heron, the Purple Heron, and the Night Heron, the differences are very marked, and the adult stage is not reached until after the second or third autumn moult. In the Egrets and Ibises, however, the young in first plumage resemble their parents in winter plumage, that is in the Egrets without the nuptial ornaments, and after their first spring they only differ in having their plumes not quite so much developed. Young Bitterns resemble their parents in colour, even in their first plumage. Young Spoonbills differ from their parents in having the primary quills tipped with black, and the shafts of these feathers and of the secondaries are also black. The crest is rudimentary and the bill is smooth. Young White Storks, and those in their second plumage, also resemble the old birds in colour; but young Black Storks differ considerably from their parents, the head and neck and the wing coverts having rusty white tips, and the metallic gloss is much less developed.

The moulting time of birds is the most critical period of their lives. Not only do they become sickly at this time and out of condition, but they are comparatively helpless, and easily fall into the clutches of their enemies. We notice that during the moulting season,

birds become much more skulking in their habits, never sing, rarely even utter their call notes, shun open places, and keep out of sight as much as possible. The hush that falls over the woods and fields in the late summer is a sure sign that the birds are beginning to moult. It is a tedious, difficult operation, and many birds perish under the ordeal. Many swimming birds quit their haunts upon the land at this period, and retire to the open water to undergo their change of dress in comparative safety, especially those species which moult their flight feathers rapidly. There are few more interesting branches of ornithological research than that which treats of the phases, stages, and changes in the plumage of birds, consequent upon age, sex, and season, and I can confidently commend this fascinating subject, here only treated in the briefest manner, to every lover of birds and to every would-be investigator of their characteristics and economy.



## XVII.

## A DAY WITH THE BARBARY PARTRIDGES.

SPRINGTIME in Algeria! Not the season of fogs and frost, dull grey skies and falling showers, as we know it in England, but brilliantly glorious weather, a bright sun and a cloudless sky, balmy air and temperature almost as high as a northern midsummer. This is at the base of the Aures Mountains, but further south still, beyond the Tell and its cultivation in the desert fastnesses of the lonely Sahara, the heat is still greater and we are glad to take refuge under the cool date palms and orange groves in the delicious oases that stud this sandy waste. But our quarry is not of the Desert, although plenty of furred and feathered game will be found there to reward the venturesome sportsman—Sand Grouse, Bustard, Courser; timid gazelle, antelope, and bubale (the largest of its order in Northern Africa); whilst in the mountains wild sheep abound. If he cares to venture further south into the Desert and enter the country of the warlike Toureg, the panther, the cheetah, and the booted lynx will furnish him with

exciting sport, and the fleet Ostrich will try his skill. Without, however, going so far into the Dark Continent, we can find many a good day's sport amongst the scrub, and the cedar and evergreen oak forests on the slopes of the Aures Mountains. Here the principal winged game is the Barbary Partridge, a bird closely allied to the Red-legged Partridge which has been introduced into Norfolk, Sussex, and other counties, only with too much success.

Starting with my solitary Arab companion Achmed, armed with our guns and game-bag—he with the usual long-barrelled gun of native manufacture, I with a double hammerless breechloader embodying “all nineteenth century improvements,” we left the precincts of the village as the sun was rising over the eastern hills, bent on devoting a day to the Barbary Partridges that frequent the country here in abundance. The scenery as you ascend the hills beyond Lambessa, a small place about seven miles S.E. of the military town of Batna, improves at each step, and you are soon in the midst of scrub and evergreen oak woods studded with patches of greenest turf. Higher up the hills juniper trees abound and the vegetation becomes less luxuriant. Here and there amongst the scrub are patches of barley, the Arab cornfields, amongst which we hear the well known *caw-ee caw-ee* of the Barbarys; but they are too quick for us, and the contents of my two barrels

and Achmed's formidable tube, speed uselessly after them. We gradually ascend to the higher ground, shooting a brace of birds as we go, from a quiet corner of the scrub. Achmed insists on cutting the throats of these and all the birds we shot, which I allow him to do as they are not for specimens, because every true Mohammedan is forbidden by the Koran to eat any animal that has not met its death by the knife. Up here the scenery though bare, is full of wild grandeur. All round and above us are the lofty Aures, stretching away as far as the eye can reach, peak upon peak, and hill beyond hill. There to the north-east is the towering peak of Djebel Chellia, the highest summit of the range, and next to that the almost as lofty heights of Djebel Mahmel, still covered with their winter blankets of snow. It is mid-day now, and my Arab companion spreads his long robe on the ground and commences to say his prayers. Waving his arms in the air, muttering exhortations to Allah in his native tongue, he throws himself to the ground and is lost to all things but his simple worship. While he is engaged in meditations with Mahomet let us glance at the habits of the Partridges.

The Barbary Partridge is a thorough bird of the wilderness, and can live comfortably in districts where most other game birds would starve. Provided there is water and even a small amount of cover it is able to live

and thrive in the most barren districts. In some of its habits it resembles the Red-legged Partridge. Like that bird it always tries to escape from enemies by running, only taking to its wings when absolutely compelled to do so. It is also very quarrelsome and pugnacious, though somewhat shy, especially when the love season has passed. Another habit common to the two species is that of perching on low trees and bushes when it is hurriedly flushed. It runs quickly over the rocky ground and through the matted vegetation, every now and then lifting its head high above surrounding objects to look warily round. It feeds on shoots of herbage, grain, seeds of various kinds, and in summer on insects and grubs. It seldom wanders far from home, and the same bit of scrub or mountain side that has afforded good sport one day generally abounds with birds the next. It makes its nest under a stunted bush or beneath the shelter of a rock amongst scrub and broken ground, merely scratching out a little depression in which it places a few bits of dead grass or herbage by way of lining. The eggs are ten or twelve in number, very similar to those of the Red-legged Partridge, but a trifle more richly spotted. Unfortunately the Barbary Partridge is much more handsome in appearance than its flesh is excellent in quality, and it is but a poor bird for the table, being dry and flavourless.

But our ornithological observations are disturbed by

the stolid Achmed loading his ancient piece, and we must be off in search of the Partridges if we do not want to run the gauntlet of chaff from the French officers in Batna if our bag is a poor one. Amongst the rough ground on a hillside which looks for all the world like a bit of Derbyshire moor without the heather, we shot several brace of birds, Achmed's wonderful tool contributing its due share to the bag. I often used to be filled with astonishment at the good shooting of these Arabs with such ungainly looking weapons, such poor powder, and large shot ; but I fear they have taken a leaf out of the Frenchman's book and prefer to wait till their bird is at rest, instead of bringing it down brilliantly in mid-air. Too often Achmed wanted to stalk the birds when I wanted to flush them ; but after all he was perhaps in the right if a big bag is desired, for they are difficult birds to shoot and often fly like arrows from your very feet. We got one or two more birds amongst the cedar trees, in the more open parts of the forest, Achmed being generally careful to shoot his bird as it peeped at him through the scrub—a sad breach of confidence I always thought. In some places, especially where the scrub was tall and dense, the Partridges abounded ; and as they always prefer to lie close, the report of our guns did not materially affect our sport.

But the sun is gradually approaching the west ; we have a long tramp home over rough broken country



before us ; and the twilight here is remarkably short. I linger near the rocks to watch the Choughs return to roost, and to bag a few Stock Doves amongst the cedar trees, while Achmed counts up our spoil—seventeen and a half brace of Barbarys, half a dozen Doves, and a couple of Choughs which I shot for specimens. Altogether this is a very respectable account to render of such a wild day's shooting amongst strange and rough country. We reach Lambessa at nightfall, just as the hyenas and jackals noisily crept from their retreat amongst the Roman ruins, and the Owls and bats flitted ghost-like round our heads, tired out, but well content with our day on the hills. My only wonder is that Constantine is not visited more by British naturalists and sportsmen. The climate is delightful, the scenery strange and picturesque, and game in all suitable districts abounds.

## XVIII.

## A DERBYSHIRE TROUT-STREAM.

How few people, thoroughly familiar with out-of-the-way Alpine villages, or lonely Scandinavian fells and fiords, are aware of the beauties of our own fair moors and mountains! How little do they know the wild grandeur of country, not four hours' railway journey from the vast Metropolis—scenery which would make that of many a foreign tourist resort seem tame and uninteresting by comparison! The Manchester express from St. Pancras, in about four hours will set the traveller down amongst the wild and beautiful mountain scenery of the Peak in north Derbyshire. Should the visitor have a taste for Alpine climbing, he may here serve a very respectable apprenticeship. Let him follow one of the many roaring trout-streams, from its junction with the turbulent Derwent, up to its source amongst the hills. From the wild plateau on the top of these peaks some of the finest views in the north of England can be obtained, especially so from that of rugged Kinder Scout, nearly two thousand feet above sea level. From its junction with

the noisy Derwent, we trace our mountain stream gradually up the hills, its banks being fringed with alders, and its bed comparatively smooth, except here and there where a moss-grown boulder makes the water boil and seethe and foam in mad career. Wild life, animate and inanimate, in and on this mountain stream is fraught with interest to him who cares to use his eyes and ears. In the dark quiet pools where the water looks almost as brown as peat, yet clear as crystal, the spotted trout rises to the flies sporting on the surface, sometimes leaping quite out of the stream and showing its gleaming sides for a moment ; whilst in the rougher water the grayling darts arrow-like under the rocks or overhanging banks. The water rat or vole may often be seen sitting on the opposite bank, curiously watching the intruder, or dropping hurriedly down to swim along the margin of the pool to a favourite hiding-place amongst the gnarled roots of an old alder tree. The banks of the torrent are clothed with luxuriant vegetation. Now dense thickets of bramble or fern, already flecked and splashed with carmine and gold ; then coarse grass through which the blackberry loaded with clusters of jet black fruit trails and creeps or hangs over the gray rocks, its lower shoots washed by the surging stream. Higher up the hillsides the alder trees are smaller ; and here and there a mountain ash, decked in thick bunches of scarlet berries, forms a pleasant contrast to surrounding tints. Birds of

different species haunt the stream, and are met with in places where the water is suited to their requirements. Where the stream flows sluggishly and slow over a level bit of ground, as likely as not a Heron will start on broad flapping wings, disturbed from his moody contemplation of things piscatorial ; or the Kingfisher, like an indistinct streak of emerald light, darts quickly by, soon to be lost to view round a distant bend of the stream. Higher up the hillsides, where the water is ever rough and troubled, another little bird is sure to be met with. This is the Dipper, a bird that loves the stream in its wildest moods, where the water dances and leaps from rock to rock flecked with foam. By no means a shy bird, he gambols in the water, and flits from stone to stone before the observer, often diving to the bottom of the stream in quest of his food. When the Dipper is met with the scenery insensibly becomes wilder ; the trees become smaller and scarcer ; the rocks become larger, and farmland almost entirely ceases. The pastures are rough and broken, sprinkled with thick clusters of rushes and dense gorse bushes, amongst which the rabbits sport and play, whilst here and there the ground is thickly studded with molehills. Higher up still the border of the moorland is reached, and our mountain stream gradually gets narrower and more impetuous. Its bed is more rugged, its banks more rocky, amongst which the heather and bilberry grow in uncurbed luxuriance ; whilst in the crevices

of the huge boulders tufts of polypody ferns hang down almost into the water ; and in many places the bracken, now fast turning golden yellow, grows breast-high. Here and there plantations of larch and fir trees relieve the monotony of the mountain sides ; whilst an occasional silver birch finds a precarious root on the wild rocky banks. The way becomes more and more tedious to the traveller, who often has to scramble over huge moss and lichen-covered boulders, or beat his way through thickets of bracken, and gorse, and bramble. On the level stretches, the Snipe flies hurriedly up from its rushy haunt, and the spongy ground trembles and quakes under the footsteps. Various gay flowers enliven the waste of cotton grass and rush ; and the stiff mountain breeze now brings the roar of the stream upon its wings in deafening distinctness, or carries it away to echo amongst the surrounding heights. On the broad heathy track, glowing in purple bloom in one fair broad expanse, the Red Grouse rise on whirring wing and bid the intrepid climber *go-bac, go-bac, go-bac-bac-bac* ; and the Ring Ousels in notes of harshest cadence seem to question his right in their lonely haunt. Rural sounds are far below ; nothing human seems near ; perhaps the whistle of a shepherd, or the bark of his dog, is heard from a distant hillside, and serves as a kind of connecting link with the busy world below. When the broad plateau on the top of the wild mountain is reached and



the stream is insensibly lost in some wide patch of boggy ground, the grandeur of the scene is complete. Resting after his healthy exertions, the traveller is rewarded by the magnificent prospect around him ; soothed by the strange silence of the wilderness, only broken by the hum of bees amongst the heather, and the cries of birds ; with nothing to disturb the harmony of his thoughts, or break the thread of his meditations. Looking heavenwards the snow-white fleecy clouds are drifting slowly across the intense blue sky ; far below, fields and farmsteads, woods and copses, streams and villages dot the landscape, and the calm stillness of the scene around him impresses him with its solemn glorious sublimity. The peat is seared with rough trenches, worn in the soft soil by the water which rapidly accumulates in wet weather, to dash down the mountain sides in torrents. The firmer ground is thick with heath, bilberry, crowberry, and clusterberry ; and here and there with patches of cranberry and cloudberry—all more or less full of fruit, on which Ring Ousels and Grouse are eagerly feeding. Bird life is plentiful even in this upland solitude. Peewits reel and dash about in erratic course ; screaming Curlews career through the air alarmed at the presence of a human being ; whilst a few Golden Plovers pipe mournfully from the marshes. But the sun is rapidly approaching the western horizon, and the distant banks of cloud already begin to burn and glow with sunset

tints. Our traveller must take one last look round at the bewitching scene ere he begins his descent to the distant valley. The stream widens out once more as he reaches the lower ground ; and the angler in the quiet pools is trying a last throw for the wary grayling ere folding up his tackle for the night, and betaking himself to his snug quarters in the distant village. Tired out but by no means weary, our traveller reaches his inn ready to do ample justice to the homely fare. The shades of night are falling, and the distant hills are already hidden in a thick white mist, as he crosses the sanded floor of the little hostelry, and seats himself by the glowing peat fire, which is quite cheery-looking this chilly autumn evening. Then as the smoke curls upwards in a blue thin wreath from his after-dinner pipe, he may sit and muse over his adventures up the hills, or examine perchance his well-filled sketch-book or ample collecting case, full of interesting souvenirs of his mountain ramble. Health or pleasure need not be sought so far afield, when so much of both can be obtained, without any of the vexations and troubles inseparable from continental travel, on the rocky banks of a Derbyshire trout-stream.

## XIX.

### NETTING BIRDS ON THE WASH.

PROBABLY no other art, sport, or handicraft which has been handed down from the earliest times has more rapidly decayed under the influence of nineteenth century civilisation than that of "Wildfowling." The drainage of the fens, and the invention and improvement of fire-arms, have rung the death-knell of duck decoys, and driven the hordes of wildfowl that used to swarm every winter in the low-lying eastern counties to more remote and congenial haunts outside the British Islands. Fortunately for birds as well as for naturalists, however, there are extensive areas of mudflat round the Wash and in other maritime districts where the reclaiming and "improving" hand of man is set at defiance, and where the wildfowl are left in undisputed possession of their ancient haunts. Let us take a peep at the mudflats of the Wash during the late autumn months, when these dreary, desolate sands are replete with bird-life. If the birds were absent from this wide expanse of sand and mud, nothing could be more desolate or dreary. The

birds imbue it with life, and change its loneliness into an interesting region full of pleasant company for him who loves the feathered tribes and their ways. Reader, picture to yourself a vast level plain many miles in length and perhaps five miles in width at low water, principally composed of mud, full of little pools, and here and there a large pond, and covered with a network of streams which rise and fall in volume with the ebbing and flowing tide, a sea-bank clothed with long coarse grass, ragwort, sea reeds, musk thistles and thickets of sallow thorn, below which on the sea side is a foreshore of rough broken ground full of hummocks and water holes and clothed with grass, sea lavender, and other marine plants, and on the land side is a broad dyke beyond which are corn stubbles, turnip fields and pastures—picture all this, and you will have a faint idea of the mudflats of the Wash. Truly there are stirring scenes of bird-life to be witnessed upon them. Vast flocks of Wild Geese, especially Brent, congregate on the mud banks in company with Scoters and other ducks—all waiting for the ebb of the tide. Enormous flocks of Dunlins fly along the margin of the water, and Godwits and Curlews may be heard in all directions. Large parties of Knots run about the shining mud in quest of food, and big Gulls fly to and fro, now and then quarrelling with the Hooded Crows which swarm in hundreds everywhere. Occasionally the whistle of a

Plover, or the warbling call notes of migrating Sky Larks greet the ear ; and the Heron on his stilt-like legs stalks slowly through the shallows and the weedy backwaters, where Grebes and Kingfishers congregate to prey upon the small crustaceans and fish.

Of course such vast numbers of birds do not escape the attentions of the wild-fowler, but owing to this district being such an exposed one, the gunner has little chance of stalking his quarry, and the punter small facilities for successfully working his craft within range of the feathered hosts. But man's ingenuity has made up for these drawbacks, and great quantities of birds are captured here every autumn and winter—not by decoys, guns, or traps, but by *nets*. Bird-netting in this district is an industry, followed by many of the fishermen and coastguards, who eke out their precarious and scanty earnings by snaring birds. Miles of nets are spread on the mud banks in October, when the migrating wading birds, and Ducks and Geese are flying along the coast in great numbers. In looking at these nets the inexperienced observer would be sure to express surprise at the singular way in which they are set, and the enormous size of the meshes. These meshes are seven inches square, and the nets themselves are between five and six feet in height. These mere sheets of netting, without pocket of any kind are stretched taut on thin cords run at the top and bottom between stout poles

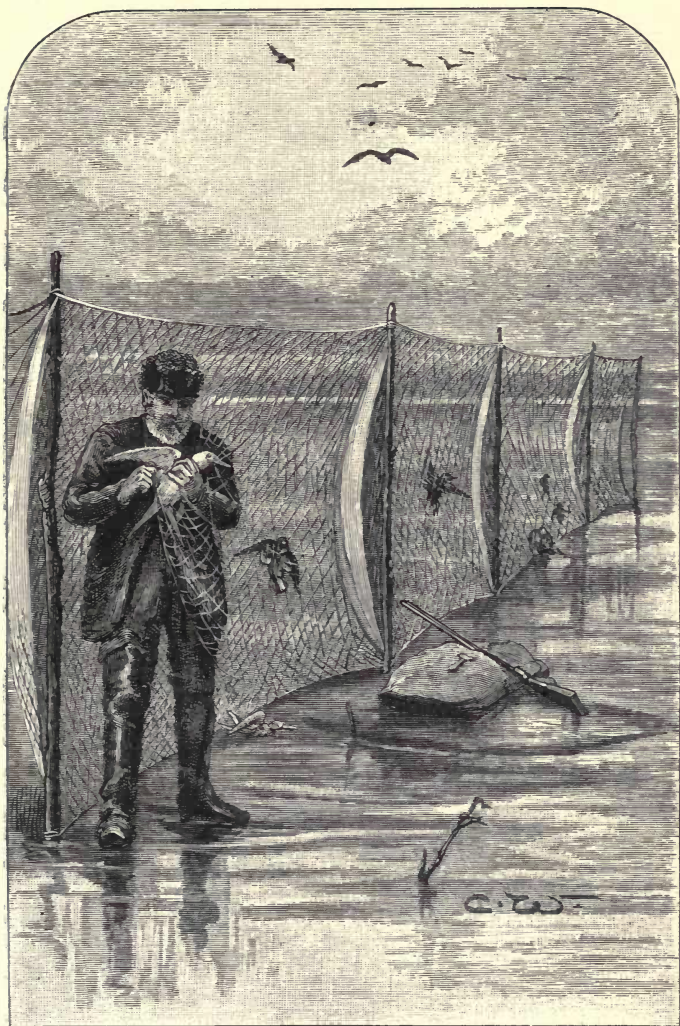


which are driven into the mud. The poles are about ninety yards apart, so that many nets are several hundreds of yards in length. Great judgment is required in setting the nets to face the direction in which birds may be expected, and the owners are constantly changing their position with the changes of the wind and the phases of the moon. Bird-netting is a precarious avocation, and the amount of success attending it is ever fluctuating. When the moon is at the full the birds can see the nets and few are caught ; and during mild open weather the various species of wild fowl keep well out to sea. Rough stormy weather and the first few nights of the new moon are the best times for birds, and then the nets are often full of captures of many different species.

During the brief period when birds are plentiful, there is something extremely exciting about bird-netting. As each morning comes we visit the nets with keen expectation, never knowing what the night may have brought us in the way of rare birds. Let us take a morning round with Stiff the coastguard. He knows the birds of the coast and their ways, and will be able to initiate us in many of the mysteries of netting. We must be off at the very earliest streak of dawn, or the Hooded Crows will be at the nets before us and make their breakfasts of the poor helpless captives.

Biting cold is the breeze on this November morning as we hasten along over the sea banks to the wastes of

mud and water beyond. Big white banks of fog hang heavy over the fenlands, and the rosy streaks of morning spread across the eastern sky. A tired-out Woodcock springs up at our feet from the long dry wiry grass on the bank—he is a new-comer, just reached England during the previous night, and is resting himself ere he passes on to some woodland swamp. The shrill whistle of the Godwit and the somewhat mournful notes of the Curlew ring clearly out on the morning air, whilst here and there a Gull or a Crow fly slowly along and soon disappear into the misty distance. The night has been a rough one, though the wind is favourable for the migrants. The tide has not yet fully ebbed, and we have to wade knee-deep through the pools in many places, and take long jumps across the narrow dykes and trenches. Far away before us are the nets, but we are yet too distant to make out whether they contain any birds. We flush a few Dunlins from the muddy banks of a stream, and a Redshank hurries away from a shallow pool as we approach. We can now see the nets more distinctly, and make out a few white-looking birds in them. We are soon at the first long reach of netting, and the scene before us is a most novel and curious one. Several Gulls are hanging by the wings in one portion of the net, alive, but apparently philosophically resigned to their fate. Farther on in the same net we find a pair of Fork-tailed Petrels and a



“We are soon at the first long reach of netting, and the scene before us is a most novel and curious one.”





Fulmar, evidently driven to the land by the gale of the previous night. The poor Fulmar is dead, but the two little Petrels are lively enough and discharge some oil out of their mouth when taken in the hand. A Dunlin and a brace of Wigeon are all the second net contains, but a third has been more fortunate. Twenty Knots are entangled in the meshes, some of them so intricately that it is a tedious task to extricate them. A pair of Short-eared Owls and a Sky Lark hanging side by side tell us that migration has been going on during the night. It is most curious how some of the birds have been caught ; some are held by a leg alone, others are wound round and round in a complete tangle, the fine twine of the net being buried in some places deep under the plumage. Some birds are caught by a wing alone, others by both ; whilst yet again many are held by the neck and the wing. Many of the birds are drowned, having been caught before high water—for be it known these nets are nearly submerged at high tide—others have flown into the toils much more recently, as they hurried along just above the surface of the sea. In the last net we find three Golden Plovers, a Curlew, two Godwits, a Redshank and several Dunlins. In some places the nets are torn showing where a flock of Geese or Ducks have passed clean through the toils, with such force and rapidity do these birds pass along. It is generally only the solitary Ducks and Geese that are caught, for the



twine of the nets cannot withstand the great force of a flock going at full speed. It is worthy of remark that the Woodcock is very rarely taken in the flight nets. This bird migrates at a great height in the air, and when its journey over the sea is completed it drops down on to the dry land almost perpendicularly. But such birds as Owls evidently fly low, at all events when nearing land, and are entangled in the nets just at the moment the poor birds think they are safe on dry land at last. Our morning's experience, however, has been an exceptionally good one, for very often the nets do not catch a single bird for days and days together.

On our way back from the nets we meet with several interesting birds. A Great Gray Shrike is sitting on the top of a stunted thorn bush evidently considering his position, and wondering however he lost his way and reached England instead of Africa. A Little Gull also flies steadily along the coast, passing south—lost like the Shrike, having crossed the German Ocean needlessly on its southern journey from the lakes of Russia. Vast numbers of Hooded Crows are now on the newly-sown corn fields, and as we pass a stagnant pool below the sea bank on the landward side, a Great Crested Grebe rises hastily and flies startled away. Near the sluice gates, where the drainage from the fields is let off into the marshes, we are gladdened by the sight of several Kingfishers. I am of opinion that these birds are

migrants, for at no other time of the year are they observed in such abundance. They delight to frequent the drains of brackish water, and to gorge themselves on crustaceans. We flush another Woodcock from the grass and leaves in the dry ditch below a tall whitethorn hedge, on our way to the village of Friskney; whilst high up in the blue sky, bunch after bunch of Plover is steadily flying south. In the lower atmosphere tens of thousands of Sky Larks are coming from over the sea, many of them warbling sweetly the moment they reach the land. Verily these vast solitudes of Lincolnshire mudflat and salt marsh are chosen haunts of bird-life, and during the autumn months especially are a paradise for the naturalist.

XX.

AUTUMN SONGSTERS.

NOW that the leaves are falling fast, and in a hundred different ways the advent of winter is foretold, the woods and fields seem increased in dreary loneliness by the absence of many bird songs that in spring and early summer-time rang clear and loud from every wood and thicket. Nature's choirs, however, are not altogether silent ; the crash of melody that came with the budding spring-time has died away, but in its place is left a subdued refrain—the last faint echoes of summer's matchless music. The sweet songs of the army of Warblers have ceased—these little choristers are now far away under a genial African sun ; the Cuckoo's notes no longer sound over field and woodland. They ceased during the last days of summer, and now the bird is safe from winter tempests far away in the sunny south. The chilly autumn days bring the close of nature's concert, and with very few exceptions each musician's song is hushed until the spring. Most of our resident birds are silent, Finches and Buntings, Pipits and Wagtails passing

mutely through the months of winter. Imperceptibly their various songs are missed from the trees and hedges ; with the turn of the leaf they decline and then ultimately cease altogether. Most birds lose their song in the autumnal moult, and never warble again until the spring-tide sun and flowers rouse the latent spark of love within them and cause them to carol forth notes of invitation to their mates. To this, however, there are certain welcome exceptions. The woods and spinneys are carpeted with brown and yellow leaves, ruins of the summer's fairest charm ; the breezes sound desolately through the bare branches, and all things seem embraced with seasonable decay. But the Robin's cheerful song sounds everywhere amongst the shrubs ; like a bright hymn of hope amongst the devastated trees his beautiful music enlivens the autumn days, and gladdens the dying year's oppressiveness. No bird sings so continuously as this little bright-eyed red-breasted chorister, and his tuneful melody, especially in autumn, is one of the most soothing and welcome sounds the woods and fields contain. Then he is so trustful, so confiding, so tame, so active and so engaging, as he perches daintily on the old familiar branch at dusk, sitting there singing at intervals until darkness settles over the woods, and the big white fog-banks wrap the meadows in a cold and soaking shroud. I think we all of us appreciate the Robin most in autumn and winter ; in spring and

summer other birds and other music are so abundant that we are apt to overlook him, but in the year's decline and during the period of frost and snow, he imbues the woods with life and fills them with his song. I know of few things more charming than to stand in the woods at dusk on a calm October day and listen to the music of the Robins. There is just possibly a tinge of sadness about his notes, yet this is perhaps their greatest charm. I know they affect me more than the song of any other bird, and I have often and often lingered listening to them unconscious of all other sounds, and lost in the reverie their matchless cadence involuntarily causes.

Another songster of the autumn is the Wren. So soon as the change of plumage is accomplished this tiny musician resumes his cheery song, and continues it right through the autumn and the winter. We hear him chant his song just as cheerfully amongst the snow-covered banks of a northern trout-stream, as in the luxuriant growth of semi-tropical verdure far away in some distant Algerian oasis, or in Southern Europe, beneath the brilliant sunshine of a Grecian winter sky. Sing he must, in spite of sighing winds and falling leaves ; he reels off his gladsome notes as he hops along the bare hedgerows or skulks in the matted thickets of briars and brambles ; he too chants the dying year's requiem, and makes glad the wintry landscapes with his loud and welcome song. Another beautiful autumn



songster is the Missel-thrush, or Stormcock. This latter name has been applied to him because he only sings during the stormy months of the year. No influence has the spring or the summer over the voice of this handsome bird ; he is silent when the woods and groves abound with song. He begins his wild and careless lay early in autumn, and continues it with increasing power until the following spring. His notes somewhat resemble those of the Song Thrush and the Blackbird combined, but there is a free and fresh independence about them fully in keeping with the season. When the autumn winds blow their hardest, bringing down the russet leaves in showers, his melody sounds more than usually charming from the rocking branches, and I have often known him sit right through a storm of rain and sleet, singing all the time. Next in order should perhaps be mentioned the Starling. This homely, cheerful bird warbles frequently throughout the autumn, especially in early morning and at sunset. The Starling makes himself as much at home in crowded cities as in the quiet country ; and the London parks at this season swarm with these birds, which often keep up a merry chorus from the tall elm and plane trees. Starlings are gregarious, especially at this season, and when the birds of a large flock are warbling in concert the effect is very pretty, particularly so at a time when bird music is scarce. Many young Starlings may be noticed making

attempts at song during the autumn, even before they have fully assumed the adult plumage. This is rather exceptional, for most birds will not sing a note until moulting is over. I have never known *old* birds resume song before the moult has been completed, but young birds occasionally do so, especially Robins, but their music is imperfect and uttered in a very low key. This autumn (1889) a young Starling (in fully adult plumage except the head) has visited an elder-tree at the end of my garden and warbled regularly every morning and evening.

Another chorister, heard by no means unfrequently in autumn, is the Song Thrush ; but he is a somewhat capricious musician, and generally waits for an unusual burst of sunshine to woo him into song. No English bird possesses so much variety in its notes as the Song Thrush ; and his beautiful melody sounds particularly grateful to the ear on those quiet warm days which mark the year's decline. His voice is the favourite music of the country, as well known as it is dear to all who love wild life and rural scenes ; and even in suburban London his speckled breast is often seen amongst the trees in parks and pleasure grounds which are enlivened with his varied lay. In well-sheltered districts, especially in shrubberies, the Hedge Sparrow indulges in perennial song. Like the Song Thrush, his music is only heard at intervals when the warm sunshine calls it forth. He is

perhaps the most capricious of all our autumn songsters, but a few hours' genial sunshine in late autumn, or a lull in the winter storm, is enough to make him sing. His song is something similar to that of the Wren, but not so loud or of such long duration. The Hedge Sparrow is a little skulking creature, delighting to glide shadow-like through the underwood, but sometimes he mounts up to the topmost twigs to warble his low and plaintive song, then drops down again, seemingly abashed at his own obtrusiveness.

The Sky Lark next claims notice as an autumnal songster. It is however only a very small percentage of these birds that indulge in song after the autumn moult. I love his wild, free melody best in the long and balmy days of spring ; in autumn it is not easily reconciled with the decaying year, or in perfect harmony with the browning leaves. It is too joyous for the season ; and the Robin's plaintive voice is in far better keeping with the fall. Perhaps of all our autumn songsters the Black-bird sings least frequently. His mellow pipe is generally hushed in August, and it is only on exceptionally warm days, and in well-sheltered localities, that he ventures to warble a few bars in a subdued voice, as if fully conscious that he was invoking spring long before its time. His song is of the spring ; it best befits the clustering blooms on the apple and pear trees, and sounds most in keeping with nodding blue-bells, pale anemones, and snow-white

fragrant hawthorn. In the early days of autumn the Greenfinch and the Yellow Bunting are often heard to sing ; but these birds moult late, and, as far as I can learn, never regain their song after changing their plumage until the following spring. In the same way, but much more rarely, the Chaffinch may be heard to sing ; but the Willow Wren regains his music after moulting and sings most frequently until he departs for Africa.

Of all the birds that warble in the autumn there are none certainly so musical as the Robin, and his song, with that of the Wren and the Hedge Sparrow, is most in harmony with the season. The plaintive nature of his notes make them indescribably beautiful. They never sound out of harmony with the autumnal sadness, like the songs of the other birds so often do. These sweet and varied songs are best associated with the year in its vernal freshness, or as hymns of triumph in the glorious summer, not as requiems and dirges for nature's death. Nevertheless these few autumnal songs are welcome to the naturalist and lend a sense of life to the almost deserted woods and groves. As such we highly prize them, and linger long to listen to their sweetness, now that we can enjoy each note and each variation distinctly from the crash of melody which so often mingles with them in the spring and summer.

## XXI.

## BERRIES AND BIRDS.

NOW that the frosts have fairly set in, and insect life for the most part has vanished, those birds sufficiently hardy of constitution to brave a northern winter, draw their chief supplies of food from the various berry-bearing trees and shrubs. Nearly all our insectivorous birds have hurried away to the Mediterranean and Africa ; the fields and woods are almost deserted, save by flocks of Finches and Larks and companies of Titmice. Here and there in the lanes the dainty Robin sits and warbles his winter anthem ; but most of these birds have drawn near the dwellings of man for the winter, whilst the hedgerows are made glad with the Wren's loud and merry song. Everything begins to have a very dismal and cheerless appearance, and as the winter days come on apace, many of our feathered friends will obtain their chief supply of food from the various berries that now hang in clusters in the shrubberies and hedges.

One of the most favourite berries with the birds is the



bright-red fruit of the hawthorn. In the genial spring-time the clustering branches of snow-white may-blossom endow the country with one of its most fair and fragrant charms ; then, as the June breezes scatter the full-blown flowers, we are apt to think we have seen the last of the hawthorns' beauties for the year ; but in the late autumn days, when its bright carmine and yellow leaves have fallen, the rich ripe clusters of red "haws" glow temptingly from the branches, showing out more and more conspicuously as the leaves drop from around them. Even more beautiful than the hawthorn's fruit are the bunches of orange-red berries that hang pendant from the long slender branches of the mountain ash — one of the most graceful and beautiful of our smaller trees, the "wiggin" of the country boy who delights to make his rustic whistles from its wood, owing to the ease with which the bark is slipped from the twigs. These berries are the favourite fare of the Missel-thrush ; and the Ring Ousels stay to regale themselves on them as they pass south from the moorlands, where they spend the summer. Growing here and there amongst the underwood on the banks of the stream, or in the dense hedgerows and coppices, the guelder-rose is another berry-bearing tree, whose fruit is a special favourite with the birds. So too are the berries of the more local service-tree which grows luxuriantly on the chalky heights of Surrey. The long red spindle-shaped fruit

of the dog-rose, the more globular berry of the fragrant white-rose, and the hairy "hips" of the woolly-leaved rose, which sparkle from the tangled masses of briars, and hang pendant over the hedges and the brooks, are all eagerly sought after by the birds. The scarlet wax-like berries, like little turbans, that grow singly on the yew trees, are the favourite food of the Blackbird and the Jay, so long as they last ; whilst the deeply-tinted holly-berries that cluster round the slender twigs of that prickly-foliaged tree are eaten in large numbers by Song Thushes, Fieldfares, and Wood Pigeons. The small black berries of the privet and the ivy are also favourites with the birds ; but as these fruits do not ripen till the early spring, they generally form the repast on which the earliest arrivals of Blackcaps regale themselves. Elder-berries are perhaps more greedily devoured by birds than any other wild fruit. All through the autumn, Starlings and Thrushes are continually eating them, so that the trees are pretty bare of fruit before Christmas. Even the grain and seed-loving Sparrow occasionally picks a few of these luscious berries as he sits in the branches. The berries of the juniper, which, by the way, take two seasons to ripen, are not all employed for the purpose of flavouring gin, for the birds levy a fair share of the spoil. Another fruit which is popularly supposed to be the principal food of birds during winter, though, in reality, it is not sought after

so much as others already noticed, is the waxen berry of the famous misseltoe. As the leaves fall from the poplars and the hawthorns, the dense tufts of the parasitic misseltoe loom darkly out from the naked branches and are conspicuous objects in the trees for miles. The bird, which derives its English name from this plant, the pugnacious Missel-thrush, is the principal feeder on its waxen fruit. During the keen winter days, parties of these noisy birds fly in struggling course from tree to tree, uttering their harsh rasping cry. The Missel-thrush helps largely to propagate the misseltoe by placing the glutinous seeds which have chanced to cling to its beak during feeding into the crevices of the bark as the bird rubs that organ against the branches to free it from the particles of berry. In specifying the various berries which form the favourite winter fare of birds, we must not fail to notice those mountain fruits such as bilberries and cranberries, which are eagerly devoured by the Red Grouse, the Capercailie, and the Ptarmigan. Even when the snow lies thickly over the moorland wastes, these birds burrow under the wreaths to regale themselves on this store of berries. In many places these ground-fruits are preserved under the snow until the following spring.

Where the trees are laden with berries, there the birds will congregate in winter-time. A flock of dusky Starlings or speckled Thrushes, feeding in the elder-trees in the garden, or near the swampy corner of the

shrubbery, or a chattering party of Fieldfares in the whitethorn trees on some bright December morning, is an animated sight indeed. How eagerly the plump birds pull down the scarlet berries, deftly casting out the hard kernels of the "haws"! Then the noisy and more timid Blackbirds pick off the holly berries, much to the indignation of the owner, who mayhap was looking forward to cutting the choicest clusters for mural decoration at Christmastide. Many a promising crop of these berries is devastated by the birds; yet who could grudge them this welcome fare at a time when other food is so scarce? Our greatest berry-feeding birds are the Thrushes—all of them musicians of the highest merit which make the spring-time glad with their varied songs. But very few of our hard-billed birds are addicted to berries. Perhaps the Hawfinch is the most notable species, and he, curiously enough, discards the fruity covering of the "haws," and prefers the hard kernels or "stones." The beautiful Bullfinch feeds upon the berries of the yew, the ivy, and the privet, and the Sparrow and the Buntings are partial to elder-berries, the latter species as well as the Bullfinch being very fond of the seeds inside the "hips" on the rose trees.

One of the most popular beliefs in the country is that an abundance of berries foretells a long and severe winter; but, unfortunately for the birds, this prognosti-

cation is more often wrong than right, favourable weather during and just after the period of flowering being the secret of a plentiful supply of fruit. He who would encourage the feathered tribes around him during the inclement months should look well after his berry-bearing trees and shrubs. Birds are remarkably tame and confiding in winter, and will visit the smallest of back gardens or the tiniest of shrubberies and pleasure grounds even in busy towns, if sufficient inducement, in the shape of a goodly store of berries, be provided for their special needs. Their actions in the branches and amongst the twigs, their merry notes and occasional outbursts of song are full of never-failing interest, and imbue with life the dreary aspect of the garden or the shrubbery in the depth of winter, when birds and flowers are scarce. These bunches of white, scarlet, and black berries become even more interesting and beautiful when we remember their great utility in feeding our feathered friends during the days of snow and scarcity. As the festive season approaches, the poor birds will be robbed of much of their supply of food, for these berries are in great demand for mural decoration. We can only regret the wanton destruction of so much palatable food of the feathered tribes, and appeal to the generous-hearted owners of such trees and shrubs to spare a portion of their rich crop of berries for the needy birds.



## XXII.

## BLACK GAME.

*(Tetrao tetrix.)*

EIGHT days after the beginning of Grouse shooting, that is to say, on the 20th of August, the Black Game season commences. Although the Black Grouse is not nearly so well-known as its congener, it is a bird that affords no small amount of sport after the first rush of Red Grouse shooting is over, and before the Pheasant season begins. Most people know the handsome Black-cock, almost uniform steel-black in colour, with lyre-shaped tail; but the "Gray hen" is a very unobtrusive bird, mottled brown of different shades. It is found in England and Scotland wherever the country is suited to its requirements, and throughout the pine and birch forests of Europe and Siberia, almost as far east as the Pacific Ocean. It was exterminated in many parts of England, but in some districts it has been successfully re-introduced. Curiously enough, it is not found in Ireland, and all the attempts to acclimatize it there have turned out failures. The Black Grouse is a bird that

requires plenty of cover ; it is in fact a wood Grouse like the Capercaillie, and is somewhat fastidious in its choice of a haunt. Its home, although very near the broad expanses of heath which the Red Grouse loves, is lower down the hills, where pine woods, fir plantations, and birch copses afford it the requisite seclusion. It is fond of the sheltered hollows, just below the table-lands of moor, studded with spruce and fir groves, and carpeted with heath and bracken, where the rocky boulders of millstone grit are almost concealed by bilberry, cranberry, and huge tufts of polypody fern. Water is essential to its presence ; and it often skulks amongst the patches of rushes, and in the alder clumps. The sportsman often flushes the Blackcock from the tall dense clumps of bracken, or from the long heather on the sides of rough ravines near the banks of mountain streams. It is extremely partial to basking in open places, but it never cares to stray far from cover.

The Black Grouse is a shy and wary bird, and skulks low amongst the vegetation, only rising when almost trodden upon. It flies swiftly, more so perhaps than the Red Grouse, and when flushed often utters its harsh note. It also flies farther at a time and much higher than the other species. Another peculiarity known to every sportsman is its habit of perching on trees. Now, the Red Grouse only perches on trees very rarely, although it is extremely fond of resting on walls

and rocks ; but Blackcock frequent trees, and obtain much of their food from them, roosting in them at night, especially in pines, larches and hollies. In autumn it may frequently be seen on the stubbles, or amongst growing corn. The Blackcock is almost exclusively a vegetarian : seeds, tender shoots of heather, pine needles, buds, berries, and various kinds of ground fruits forming its daily fare according to season. In severe weather it will even eat the leaves of the polypody fern and the shoots of turnips. In heavy snowstorms it frequently buries itself in a soft snowdrift, burrowing deep under the surface, only leaving its shelter to feed. For the greater part of the year the Blackcock is a peaceable bird ; but in March and April an incessant warfare is carried on for the possession of the hens. Like the Pheasant, it is polygamous ; and certain spots are chosen in its haunts which serve as battle-fields for all the cocks in the vicinity. It is an interesting sight to watch the birds in these arenas engaged in knightly tournament. In the half-light of early morning the manœuvres commence. The old cocks strut about the battle-field with outspread tails and drooping wings, uttering a peculiar cooing and hissing note, and showing themselves off to the best advantage before the lady Grouse, who sit or stand around the combatants. Rivals come into the arena and fierce battles are fought, the weakest birds being beaten off ; but the combats cease as the sun mounts

above the surrounding hills. The younger birds are not allowed to approach until they have fought their way into the lists. The strongest birds, of course, secure the largest number of mates, sometimes as many as five or six, with whom they live until the nesting time begins late in May. As soon as the eggs are laid the ungallant Blackcock deserts his numerous wives. He leaves them to bring up their broods by themselves, and betakes himself to the seclusion of his wild home, where he prepares for his annual change of plumage. The hen bird makes a slight nest, generally artfully concealed amongst the luxuriant growth of rushes, bracken, or other coarse vegetation—merely a shallow hole, in which she lays from six to ten eggs, yellowish brown, spotted with dark brown. The young birds are difficult to rear, wet seasons being especially fatal to them. Many nests are often washed away through being made too near the water. The Blackcock sometimes hybridises with the hen Red Grouse ; and it has been known to do so with the Pheasant, the Willow Grouse (the Continental representative of the British Grouse), and even with domestic fowls. Hybrids between the Blackcock and the female Capercaillie are, however, much more frequent, and are very handsome birds. It is a curious fact that the male offspring of these crosses most closely resemble the male Capercaillie, and the females the hen of the Black Grouse.

Black Game moult in July and August, and are not in really first-rate condition before October. The shooting season commences too early ; the poor birds should be allowed at least another fortnight's grace ; for there is really little sport in putting up a bird which is scarcely able to fly from under your dog's nose, and affords an easy shot, even to the merest novice. In mid-winter Black Grouse join into flocks, sometimes the sexes keeping separate, but as often as not the males and females in company. Blackcock shooting may not be so exciting as Grouse shooting, but still the sport is good. Gunners must know the habits of the bird, and chance the uncertainties of the sport. On dull, misty days, the birds often allow the sportsman to walk up and shoot them as they fly from the trees in which they will stupidly sit. Driving, when the corn is cut, is perhaps the best method of shooting Black Game ; but the sportsman must know his book, otherwise he will fail in making a bag even on well-stocked ground. Red Grouse always endeavour to fly down wind ; Blackcock just as surely try to fly up wind. The shooter must make himself acquainted with the particular routes the birds take, to and from their feeding grounds, and always endeavour when driving to let them follow them. The quieter the "drive" is conducted, the better it will be for sport ; because, if the birds are much harassed, they will mount up to a considerable height and fly



right away. Another matter to bear in mind is that the Blackcock rarely flies uphill, but when flushed goes away at a lower level; the gunner should therefore always endeavour to be *below* his birds. Shooting Blackcock over a dog in late autumn is also good sport, especially when the sportsman goes out alone, as he was wont to do in the good old days, prepared for anything that might rise before him. The Blackcock, being a marketable article somewhat easily captured, is consequently a favourite quarry of the poacher. Taking them with silk nets, either on the ground or when roosting in trees, is the favourite method adopted by these gentry. Perhaps this mode of taking Blackcock will explain why it is we see them exposed for sale in game-dealers' shops on the first day of the season, at an hour which makes it quite impossible for them to have been shot in a legitimate manner.

In the pine region of the Caucasus, another species of Black Grouse is met with, precisely similar to the British bird in colour, but smaller and with the tail nearly straight, though deeply forked. The Caucasian hunters have great difficulty in shooting this novel bird, as it only lives in the most inaccessible forests near the snow line.

## XXIII.

## AFTER THE SNOWSTORM.

WE have had a heavy fall of snow during the night. Snow has fallen continuously for the last twelve hours, and fields and woods, park, garden, and shrubbery, are covered with a soft fleecy mantle of dazzling white. There has been but little wind, consequently the trees and bushes are decked with snowy wreaths, and the evergreens are bending under their pure white shroud. If we go out into the fields and woods before dawn, we shall find much to interest us in the snow. How still everything appears; how cold and cheerless; yet how beautiful and picturesque the country looks in its pure unsullied white! Though it wants an hour to sunrise, the snow makes the world look light, as if the day had already broke. We will pass the little trout-stream, gurgling so loudly in the stillness of night, and cross the two intervening fields and wait for sunrise in the shrubbery. The air is biting cold out here on the open hills, and we shall find it warmer amongst the trees. As we walk along we cannot help admiring the

beauties of the snow. Verily Nature is a mighty decorator; every nook and cranny, every twig and branch, has been adorned and beautified. The hedge-rows are banked up high on the weather side with snow; here and there a tall weed or grass stem towers high above the drift, and the brambles and briars are indicated by festoons and masses of white. Here and there snow wreaths have been formed, and in the open and exposed parts of the higher ground there are spaces where the snow lies very thinly, and the herbage underneath is visible. The broad massive tree trunks stand out gray and grim against the white background, and little bits of snow have lodged in the crevices of the bark on the windward side of the stems. Every gate-post and stake is crowned with snow, the deep ruts in the lane and the unfinished furrows are all smooth and level. The scene inside the shrubbery is even more beautiful still. The evergreens are almost buried in snow, in many places the over-laden branches having broken under its weight. Here and there tufts of fern peep through the drift, and the heaps of dead leaves are partly visible. The dark green hollies and yews and laurels form a rich contrast with the almost universal whiteness, and the dark brown patches of ground under the shrubs, strewn with yew leaves and fir needles, lend a pleasant sense of relief. The crunching of our footsteps disturbs many birds from their warm roosting-

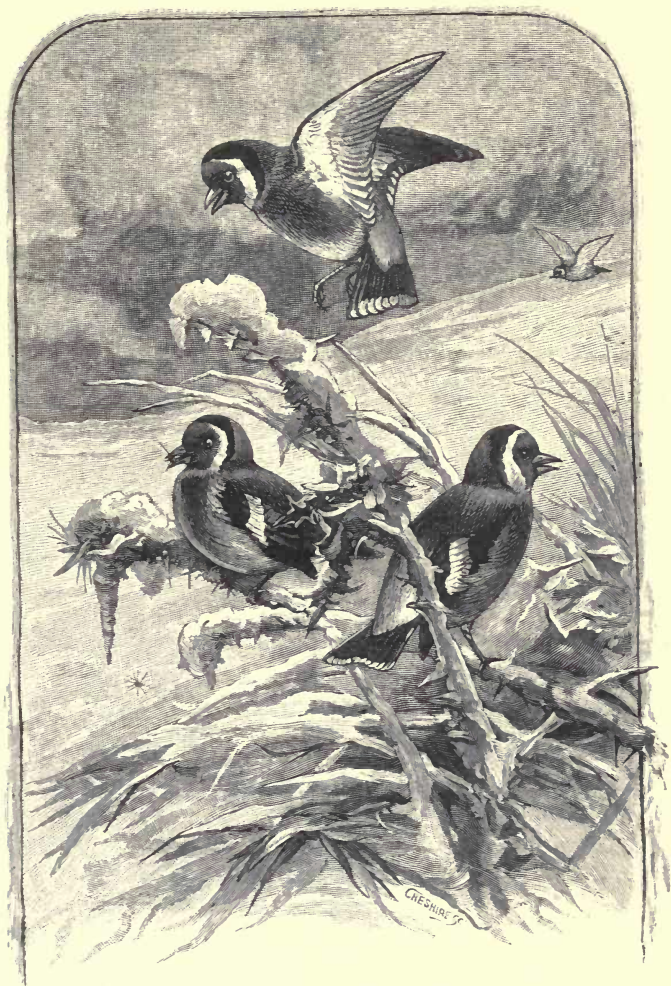
places in the evergreens, and as they fly startled away big masses of snow fall softly to the ground.

The shrubbery in winter time is the chosen haunt of birds, and they may be seen or heard on every side. Day is now breaking. The sun is rising in a blue and cloudless sky, giving every promise of a bright day after the storm. Birds are waking up, doubtless surprised at the sudden change in the appearance of the landscape. The noisy Blackbirds hurry to and fro, uttering their shrill and startling notes ; Redwings are hopping from the yew bushes, and preparing for their usual flight to the fields. These birds are not very partial to berries, and to them a snowstorm means privation, hunger, and death. They will soon be off to the higher fields where the snow has been driven by, or to the manure-heaps and the swampy meadows, where a scanty meal can by chance be found. On every side birds may now be noticed. Here a merry little party of long-tailed Titmice are just setting out on their daily wanderings along the hedgerows and through the woods ; there the Chaffinches are calling lustily from the hollies, and the low pipe of the Bullfinch sounds sweetly from the thicket ; yonder tree-top is full of Bramblings, and their subdued twittering notes are like the tinkle of tiny bells. Now and then a party of Fieldfares hurry away in a straggling manner, *sak-sak-*ing as they go ; and a wandering wary Missel-thrush

watches our movements from the sycamores, uttering his shrill rasping cry of warning at intervals.

As we go out of the shrubbery and pass the little swampy corner where the elder and alder trees grow, we meet with the Robin. With a sharp call of welcome he hops from the brushwood by the side of the stream and perches daintily on the top of an old elder stump covered with ivy. How neat and trim he looks this morning, and what a beautiful contrast of colour his bright orange breast forms with the snow. With a hurried flick of his wings and tail, he passes into the thicket, and his loud notes lend life and animation to the woods. High up above our heads the Titmice are busy in the trees; they are the acrobats among birds and delight to turn and twist their bodies into every conceivable attitude. They are restless little creatures, all of them, and will soon be gone; but we can hear their merry notes far away among the trees long after they have passed from view. We are now once more in the open fields and the wind is rising, blowing the fine powdered snow along the hedgerows and shaking it from the branches. Here all things look particularly desolate and dreary, and the gathering clouds seem to foretell another snowstorm. But birds are not altogether absent. In the little weedy corner of the pasture field a party of Goldfinches are busy among the thistle stems. How pretty these little Finches look





"In the little weedy corner of the pasture field a party of Goldfinches are busy among the thistle stems."



amongst the snow clinging to the prickly thistle heads which rise high above the drift. How deftly they poise on the big drooping heads with wings expanded, or flutter along in up-and-down flight from stem to stem, scattering the downy seeds in all directions. Others visit the rich brown dock stems, dead and withered but full of seed. Every now and then their musical *weet-weet* sounds loud and clear, as they progress in a long straggling party down the hedge-side. The beauty of the Goldfinch is seen at its best in the snow. Then, as we wander along the hedgerows, gay Yellow Buntings and sombrely-dressed Accentors are sure to be seen, the former high up on the bending twigs, the latter gliding shadow-like through the tangled branches. The air speaks eloquently of the confusion prevailing among the birds which the sudden fall of snow has caused. Now flocks of Larks, uttering their well-known call-note, fly over, bound for districts where the fields are free from snow ; then large parties of Redwings hasten by to the land where manure is being spread, and to the banks of rivers and streams. The berry and seed-eating birds which obtain their supplies from the trees and hedges, or from the tall weeds, are not inconvenienced by the snow ; but all the ground-feeding birds, and those that live on grass and clover seeds, are soon compelled to leave the district of the storm. The Chaffinches now leave the fields and visit

the farmyards and dung-heaps, or pick among the droppings on the roads; but the Bramblings linger in the beech woods and about the fields which are being manured. The Rooks soon suffer from hunger and dig about in the snow for anything eatable. They also visit the manure-heaps in company with Starlings, and now and then a noisy Jay or Magpie joins them at this common rendezvous.

By the stream and in the rushy corners of the pools we may flush the Jack Snipe. He cares little for the snow and clings to his favourite haunt until the frost comes, when he leaves the stagnant pools and swamps for the running streams. During, previous to, or just after a snowstorm, many birds are apt to wander far from their usual haunts. Now and then a big Gull may be seen flying over the inland fields, lost in the snow; and flock after flock of Lapwings cross the white country in quest of open ground. Birds also show a strong tendency to leave the woods and outlying districts and draw near to farmhouses and villages, conscious that more food can be found in such places. Domestic Fowls and Ducks, horses and live stock must be fed, and the birds pick up their share. I have known such birds as Buntings, Chaffinches, and even Magpies visit pigsties after a snowstorm to feed upon the contents of the trough. Rooks will often at such a time visit the turnip pits and sheep runs to feed on the pieces of



turnip. Shy birds become tame after the snow, and such timid species as Ring Doves, Fieldfares, Missel-thrushes, Jays and Magpies are seen close to houses, and in places where they are never met with under ordinary circumstances. In a word, the observer has unusual facilities for studying his feathered favourites after the snowstorm ; and a walk abroad as soon as the flakes have ceased to fall, especially in early morning, will be full of interest. Birds for the moment are confused, are apt to allow a near approach, and crowd into a few favoured spots where food and shelter can be obtained. At such a time the shrubberies, and the fields and hedges near them, are the chosen haunts of birds, and their movements in the snow furnish a rich fund of amusement to him who is enamoured of birds and their ways. In these few remarks I have purposely omitted all mention of the tracks left upon the snow by birds and beasts. At some other time we will trace out together this writing on the snow, and read the story of the birds and animals which they leave behind them engraved upon its gleaming surface.\*

\* See "Annals of Bird Life," p. 296.



## XXIV.

## HOW SPECIES PERISH.

AS the planet Earth has gone cycling on in glorious grandeur age after age, from the very earliest dawn of life upon its surface, the various organisms with which it has been peopled have undergone many more or less mighty changes. Species, like individuals, are born and die. The noble science of geology enables us to read the chequered history of those earlier forms of life which have left the record of their being behind them indelibly stamped upon the rocks and otherwise imbedded in the crust of the earth. From these records, blurred, imperfect and often nearly illegible though they be, we learn that each geological period had its peculiar fauna and flora—vast numbers of species lived and flourished in those far-off ages, very distinct from any existing forms of life. Where are all those old-time species now? The grand process of Evolution, by means of Natural Selection and other important agencies, has been constantly at work developing new species from these ancient forms, better adapted to live under the ever-changing conditions an ever-changing universe is im-

posing. The further we go back into these by-gone ages the greater is the difference between most of the species living in them and those existing now. Not only species appear and become extinct again, but vast numbers of organic types have been evolved and then been exterminated. So gradually have these mighty changes taken place, so insensibly have these various forms been evolved, that in many cases their pedigree may be traced with startling distinctness back into the distant past—back from representative types living on the earth to-day to their early and vastly different ancestors.

So far as we can judge, these stupendous changes in organic life have been accomplished by a wonderfully slow and minutely gradual process. Evolution is a work of peace as well as an attendant of cataclysm ; its great and wonderful mission is constantly in progress, but its grandest results can only be discerned through the vista of uncounted ages. The work of segregation progresses so slowly and insensibly that but little of the process is visible to living man ; nevertheless, the careful student of nature is able to collect abundant evidence to show that even at the present time all species are by no means stationary ; on the contrary, some are being differentiated from existing forms, others have only quite recently become extinct, whilst some are slowly passing away. So delicately adjusted are all species to their environment that the least disturbing element is apt to affect

them for good or for harm. So constituted are all living organisms that the minutest advantage is quickly seized upon, whilst the least important change affecting them unfavourably may soon become disastrous to an entire race. The causes which have brought about the extinction of species are almost endless. We can form only the very faintest idea of the agencies by which many forms have been removed even in comparatively recent times ; and when we go back further into the past the causes of extinction are absolutely beyond the estimation of all human intelligence. We know that during the past history of the earth, millions upon millions of species must have had their birth and death—the multitudinous causes of these vast phenomena are unknown to man, and must ever remain so. Unfortunately for science there were no Darwins living in those remote ages to chronicle the wonders of a changing Universe, or to reduce the majestic phenomena to law, and leave a record of the wonderful process of prehistoric evolution to posterity.

It is a universal law of nature that when a species becomes, in no matter how small a degree, out of harmony with the conditions of its existence, that species must surely perish, or in adapting itself to those changed circumstances it becomes so modified that sooner or later a new race or even several races are evolved, formed of those surviving individuals and their

descendants, which most readily adapted themselves to them. In the battle for life in which all living organisms from pole to pole, on land and on sea, in earth and in air, are constantly engaged, each individual has to conform most closely to the conditions of its existence or perish. That great weeding and pruning process, the survival of the fittest, is ever at work sorting out the organisms best adapted to their environment, casting aside to die all those not so constituted. On the other hand, the universe is never absolutely in a state of rest; changes more or less important are constantly in progress. In those parts of the world that have been subject to the greatest amount of change, such as the Polar and Temperate regions which suffer from the periodical disturbances consequent upon glacial epochs, species exhibit perhaps the most important evidence of recent segregation; whilst in the Equatorial regions which have been exposed to the least disturbance we find some of the most ancient types of creatures, which have preserved their identity comparatively little changed through uncounted ages. In the same manner plants and animals inhabiting the bottom of deep seas, where but little if any of the change taking place on the surface is felt, retain peculiarities of form and structure almost identical through the ages that separate the Lower Silurian, the Cambrian and the Laurentian systems from the Post Pliocene and Recent ones.

So far as concerns the birds of the Arctic and north temperate regions of the globe, there can be little doubt that glacial epochs have been the grand means of segregation. Species after species must have perished in those eventful stirring times when they were gradually subjected to the extremes of an Arctic and a Tropical climate, and during the time of their enforced pilgrimage to and residence in more southern regions, and the consequent change of habits, change of food, and exposure to new perils, made all the more deadly through want of experience in combating them. Then came the great and gradual exodus back again, as the glacial ice retreated north, during which period many species were exterminated, others were split up into eastern and western races, and new and old world species, and many more were left behind in the Tropics to develop into southern representatives of these northern species, where they remain to this day, permanent residents among more ancient forms, and living evidence of some of those grand revolutions through which our globe has passed during its long eventful history.

Although we are unable to state with certainty the causes of the death of species even during prehistoric time, there are many birds that have become extinct within the past hundred years or so, the reason for which is known to naturalists. One of the most familiar instances is the Great Auk or Gare Fowl, a bird



very closely related to the Razorbill, only about the size of a Goose, and with wings so small as to render it incapable of flight. The Great Auk was a living though a rare species not sixty years ago, now it appears to be as extinct as the mammoth. The last breeding place of the Great Auk was destroyed by a volcanic eruption, and probably the birds perished in the general ruin. All old writers on the Great Auk testified to its abundance three hundred years ago, a period when man seldom penetrated to the isolated reefs and ocean rocks in the north Atlantic where the bird used to breed ; but incessant and increasing persecution slowly lessened the numbers of so helpless a species, and the final catastrophe completed the work of extinction. The primary cause of the Great Auk's extinction was its incapacity for flight, its wings having gradually degenerated through a long period of disuse. There can be little doubt that the disuse and consequent degeneration of organs have paved the way in many cases for the extinction of species through the conditions of life reverting to the ones prevailing when those organs were in full use and in a consequently corresponding state of perfection, after a long period during which they had lapsed through disuse into decrepitude ; or in new conditions of life arising in which those degenerated organs would have been of the greatest importance to the species had their utility and perfection been preserved. Had the Great Auk main-

tained its powers of flight, by swimming less and flying more, there can be little doubt that it would have been a living and a flourishing species to-day, instead of an extinct one whose memory is preserved only by a few scattered relics in the shape of skins, skeletons, and eggshells, and whose habits and economy are little better known than by tradition. The curious Dodo, which formerly inhabited the Island of Mauritius, has long been extinct, killed off by early explorers and settlers. Like the Great Auk, this bird was also incapable of flight, and paid the penalty of its former indolence with complete extermination. The Dodo was one of the few modern links with an ancient avifauna long passed away, and every naturalist must regret the fate which has overtaken this interesting bird. The Solitaire Pigeon, once an inhabitant of Rodriguez, and the Parrot (*Lophopsittacus*) of Mauritius have also become extinct within comparatively modern times; whilst the Crested Starling has perished even more recently still. The civilization and colonization of New Zealand have been the death-knell for several interesting birds, among which may be mentioned the Moas. New Zealand once contained such birds standing from ten to thirteen feet high, in comparison with which the Ostrich of our time would seem but a dwarf.

There can be little doubt that volcanic eruptions, the submergence of land, tornadoes, earthquakes, and floods have caused the extinction of many species in past ages,

especially those whose geographical area of distribution has been a restricted one, and those confined to islands, mountains, and valleys. Another cause of extinction is the immigration of carnivorous animals and rapacious birds into districts tenanted by species unfitted to cope with such a danger ; in a similar way plants might soon suffer extinction from the arrival of herbivorous animals in their habitat. One more cause of the extinction of species must be noticed, more especially so as it is one that many naturalists are inclined to ignore. This is the gradual absorption of a species by regular inter-breeding with one or more allied forms. I have already entered at some length into this profoundly interesting phenomenon.\* The instances known to naturalists are at present few, but doubtless many yet remain to be discovered. What I believe is a hitherto unrecorded instance of this mode of extinction is presented in the Common Pheasant (*Phasianus colchicus*) and its Ring-necked ally (*P. torquatus*). At one time the typical Pheasant of our English coverts was *P. colchicus* from the Caucasus, with no white ring round the neck ; but since the introduction of *P. torquatus* from China the two races have inter-bred, with the curious result that the ringless variety is fast disappearing, and the white-ringed form is becoming the dominant one in all parts of the kingdom. The evidently more vigorous Chinese

\* See "Evolution without Natural Selection," p. 67.

race is rapidly absorbing its Caucasian ally, and will eventually work its extinction in this country by interbreeding with it. Of course these remarks on the Pheasant only apply to those birds found in the British Islands where the two races have been brought into contact by man ; their natural habitats are too widely separated to admit of any such intermarrying.

The colossal dimensions of many plants and animals which grew upon and roamed about the world during the remote ages of the Secondary and Tertiary periods furnishes us with much material for speculative thought. Compared with them, the race of living organisms upon the world to-day are insignificant indeed, and we are apt to ask ourselves the question: Has Life on the planet Earth already reached and passed the meridian of its splendour, and is it now slowly on the decline through the period of the world's hoary antiquity? Who shall not say the Life around us now, varied and beautiful though it is, and still endowed with wonderful vitality and richness, is but the fragment after all of that grandly magnificent Life prevailing in the distant past? Animal and vegetable life in those far-off ages existed in such gigantic forms that the prevailing conditions of its existence must have been totally different from any with which we are familiar. Such huge organisms denote a high state of development, an abundance and a wealth of life very different to the present time. The incessant reckless persecution by

man has done more perhaps to exterminate the larger and the more helpless forms of life than any other cause. This war of extinction is spreading, and birds and beasts, especially the largest of the latter, are slowly but surely going the way of their ancient relations, disappearing for ever before the scientific war of extermination waged against them. It needs no vivid stretch of the imagination to picture the time when all this "big game" will become extinct, its extermination being one of the great events which mark the progress of intellect and civilization. Well may the naturalist mourn this scientific killing off of these few last grand results of a planet's evolution. We can picture the time when scientists of the future will look back on the existence of what few huge beasts are living now and even of savage man (for civilised man will eventually exterminate his savage brother) with a curious and it may be even an incredulous wonderment! From the period of the grand culminating triumph of Life's development, the appearance of Man, shall we date the dawn of its physical deterioration? Surely it seems so, and that the being which has crowned the genealogical tree of Life has proved to be one of the greatest agents of its destruction, and by his superior and ever-increasing mental powers—his God-like intellect—he has worked the extermination and extinction of those mighty creatures that before his advent roamed and reigned on the earth supreme.



LONDON :

PRINTED BY WILLIAM CLOWES AND SONS, LIMITED,  
STAMFORD STREET AND CHARING CROSS.









