BIRD HAUNTS AND NATURE MEMORIES

BY

T. A. COWARD, M.Sc:

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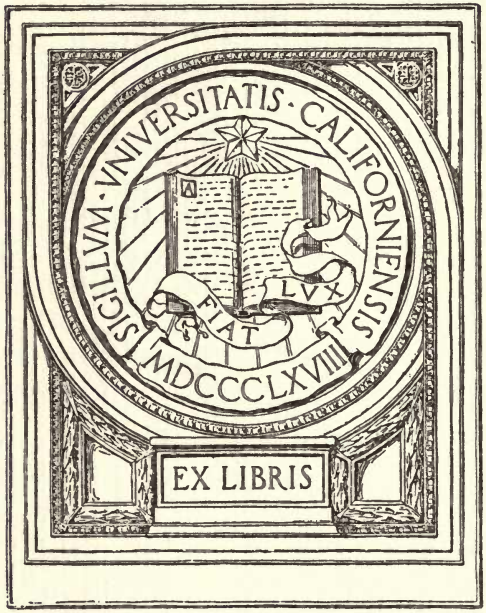
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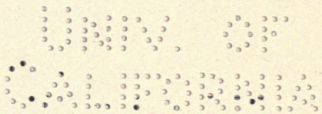

THE NOCTULE.

Frontispiece

BIRD HAUNTS
AND
NATURE MEMORIES

BY

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"THE BIRDS OF THE BRITISH ISLES AND THEIR EGGS,"
"BIRDS OF CHESHIRE," "PICTURESQUE CHESHIRE,"
"VERTEBRATE FAUNA OF CHESHIRE," "MIGRATION OF BIRDS,"
"BIRD LIFE AT HOME AND ABROAD," ETC.

WITH
FRONTISPIECE BY ARCHIBALD THORBURN
AND PHOTOGRAPHIC ILLUSTRATIONS

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PREFACE

THE titles and subject-matter of many of the chapters in this miscellany originally appeared in the *Manchester Guardian*, *Scotsman*, *Daily Dispatch*, and *Westminster Review*. Through the courtesy of the proprietors and editors I am able to issue them in their present form. In every case, however, the articles have been revised, and in most recast and extended. "The Preservation of our Fauna" was the subject of an address, delivered as President, before the Manchester Literary and Philosophical Society.

The illustrations, except that of the "Dandy," for which I am indebted to Messrs. Nicholson and Cartner of Carlisle, are the work of personal friends, who have taken considerable trouble to supply the subjects I desired. The name of each photographer appears in the list of illustrations.

I am especially indebted to Mr. Archibald Thorburn, and to Messrs. Longmans, Green and Co., who hold the copyright, for permission to reproduce the original drawing of the Noctule. Of all pictures I know, this is the best representation of this bat.

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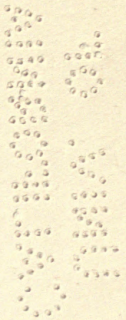


PUFFIN ISLAND.

PUFFIN ISLAND

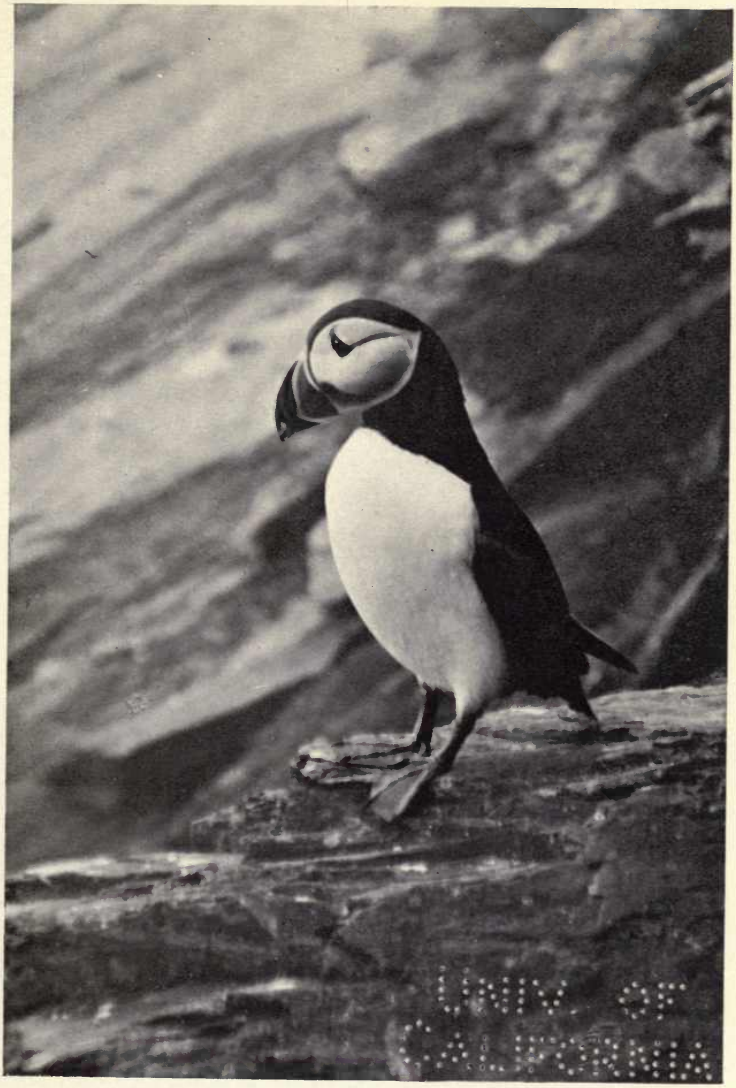
PUFFIN ISLAND

WILLUGHBY, speaking of " some remarkable Isles, cliffs, and Rocks about England, where Sea-fowl do yearly build and breed in great numbers," says that Priestholm is " a small uninhabited Island near Beaumaris in the Isle of Anglesey, belonging to my Lord Bulkley," whereon build " the *Anates Arcticae* of Clussius (here called Puffins), Razorbills, Guilliams, Cormorants, and divers sorts of Gulls." On the Ordnance map the island is called Puffin Island, and below in brackets are Priestholm and St. Seiriol's Island. Giraldus called it Ynys Lenach, or Priest's Island, " because many bodies of saints are deposited there and no woman is suffered to enter it." Other early writers spoke about it as Glannauch or Glanach, but said it was more generally known as Puffins' Island. Now the possessive is dropped; it is called Puffin.

Puffin, visible from many a popular seaside resort on the North Wales coast, is well known. During the holiday season it is a show place, pointed out as the tourist steamer passes, visited from Llandudno, Beaumaris, and Llanfairfechan by sailing-boats. It is private property; visitors are not supposed to land and wander where they will, but if they behaved themselves no one would object. Unfortunately a certain class of holiday-maker refuses to respect property; a party will land with guns to shoot rabbits and sea-birds, even ruthlessly slaying the latter during the breeding season; the eggs of the fowl are robbed without regard for law or mercy. The keeper visits the island from time to time, but is not resident; the damage is done before he can reach the scene.

In size the island is about five-eighths of a mile long by a quarter broad, and everywhere, except at the southern end, nearest to Anglesey, it rises steeply from the sea, weathered limestone cliffs providing ledges and cracks on which birds can nest. The actual crags are not high, but above the rocks a steep grass slope rises to 100 or 160 feet; on, or rather in, this slope the puffins nest; only a few find holes in the rocks below. The whole of the top of the island resembles a great rabbit-warren, honeycombed with burrows; some of these are the occupied or ancient homes of rabbits, but the majority are the work of the puffins.

Strictly speaking, the ovate or oblong island points north-east and south-west; it is, however, convenient to speak of the eastern and western sides. At the northern and highest point is the only habitable, though usually uninhabited, house, originally built as a signal station for the Liverpool Dock and Harbour Board; by semaphore messages were passed on to the Great Orme's Head and thence transmitted to Liverpool. When telegraphic communication was more perfect the station was abandoned, and it was taken over as a marine laboratory by the Liverpool Marine Biological Society, who, when they moved to Port Erin, handed it over to Bangor College. It was, at the time of one of my visits, neglected and dirty; pellitory of the wall had pushed its way through the woodwork of the windows and shed its seeds over the rotting bedsteads. Later, I found it dismantled—doors burst open and windows smashed, slates scattered over the cliff beneath; the next tenant will have a heavy bill for repairs. Close to the house are the ruins of a smaller storehouse, and in the centre of the island stand the remains of St. Seiriol's Church. No part of the old church is left standing except a stout square tower, said by some to be part of the original building, but probably kept in



THE PUFFIN.

repair, after the decay of the monastic buildings, as a useful watch-tower or look-out. The ruins of a small cottage, close to the tower, are not of great antiquity, but hard by are curious narrow tunnels, evidently part of a former and very ancient building. A little way from the tower are low, broken stone walls, which probably mark the site of the conventual gardens; near the landing place are other enclosures, where, in a hollow, a few stunted thorns and brambles " shrink landward from the scathing storm."

Towards Anglesey, from the southern extremity of the island, a spit of sand stretches half-way across the narrow channel; a perch at the point warns the navigator of the dangerous shoal. South of the perch is an ancient causeway, uncovered at low water; pilgrims, it is said, crossed the Lavan Sands, and by means of this causeway overcame the obstacle of the last gutter. Now it would be difficult to walk from Llanfairfechan; there is a deep channel between the Dutchman's Bank and the causeway. Seiriol flourished in the sixth century, but little is known about him; he appears to have been related to a Prince of Lleyn, and by him to have been made chief of a priestly sect at Penmon. Tradition tells that even the Vikings came to the holy man for instruction, but it is far more likely that the warlike priests kept watch and guard at Penmon, and that such foreigners who were captured or wrecked upon the coast were instructed in hard labour for the benefit of the community. It was when he wished to retire from public life that he crossed to Priestholm, and there he died and was buried.

Pennant, Bingley, and other writers at the end of the eighteenth and beginning of the nineteenth centuries, describe Puffin Island as being thickly populated with puffins, but there is a general idea that for a time the place was forsaken. It is said that they were driven away by

rats, the descendants of refugees from a wreck, but that now there are but few rats left. Although I have heard this story repeated by an old rabbit-trapper, who pretended or imagined that he remembered the absence of the puffins, I doubt if it is true; very likely it originated from someone who visited the island at the wrong time, unaware that the birds leave during summer. There are, on other parts of the Welsh coast, islands which are less accessible and further from watering-places, where the puffin colonies are very much larger. On these islands the birds are tamer, standing round the holes and flying up and down, from and to the water, without much concern; here the eggs are but a few feet from the entrance of the burrows, and the birds, wheeling overhead, are comparatively fearless. At Puffin the birds soon leave the slopes; every few minutes one will dart from a hole and fly straight to the water, where with crowds of companions it swims at a safe distance; they are shy. Many of the eggs are ten or twelve feet down the burrows, quite out of arm's reach in most cases. Constant persecution has had its effect both in numbers and habits.

Most of the puffins breed on the western slopes, the tunnels being under great masses of thrift, a wonderful sight when the flowers are out. Old Squire Pennant's description is quaint, but it contains many careful observations. In it he says: "The slope is animated with the puffin auk, which incessantly squall round you, alight, and disappear into their burrows, or come out, stand erect, gaze at you in a grotesque manner, then take flight, and either perform their evolutions about you or seek the sea in search of food." There are two noteworthy points, the first being the words "stand erect." Until recent years, even in Saunders' "Manual," the puffin has always been represented as sitting on the flexed legs or tarsi, like a guillemot; really the bird stands

upright on the so-called feet, actually the toes, and when it rests on the tarsi sinks forward on to its breast. Photography has brought this fact to light, but before the days of photography Pennant had noticed it. The other is the word "grotesque"; what is it about the puffin which is, in our eyes, grotesque? The big, highly coloured beak, the squat, upright figure, and the bird's actions have caused much hilarity. It is what Dr. F. Heatherley calls its "Chinese" eye that gives its solemn countenance the quaint appearance; but the eye is not oblique, not Chinese; the curious effect is produced by its deep setting in the full cheek and the conspicuous backward curving groove.

"The young," says Pennant, "are hatched in the beginning of July. The parents have the strongest affection for them; and if layed hold of by the wings will give themselves most cruel bites on any part of the body they can reach, as if actuated by despair." Now the puffin, which possesses a brightly coloured and very powerful beak, certainly can bite when "layed hold of," but it generally manages to seize the hand or clothes of the aggressor, and leaves its mark. I have seen it stated that the bird will not bite in the dark, so that it is safe to handle it in the burrow; my experience does not confirm this. A lighthouse keeper who was with me on one visit carefully wrapped his hand in his handkerchief before pushing it into a burrow; "I know Tommy Noddy," he remarked. When seized the puffin utters a deep growl, and the same note may be heard from birds in the holes and on the water, but the best emphasis is from the handled victim. It "is horrible," according to Pennant; "not unlike the efforts of a dumb person to speak"; perhaps it is as well that we cannot understand the language!

The description supplied by the Rev. J. Evans in 1804

is more fanciful and less correct; he repeats some stories about the bird fighting with and overcoming the raven, a fable told by Stanley in his " Book of Birds." According to Evans, " the fierceness of the parent is incredible; no bird nor beast will venture to attack them; sometimes the sea-raven will dare to be so rash, but generally he forfeits his life for his temerity. . . . The parent catches him under the throat with her beak and darts her claws into his breast; the raven, wounded, screams most dismally for quarter, but the offended bird is deaf to the entreaty and makes directly for her proper element, the ocean, where the raven is quickly drowned, and the puffin returns in triumph to the nest." Oh, Mr. Evans, and you a parson! Ravens have bred on Puffin, and a pair still nests in the neighbourhood; I have often seen the fine birds passing the island; they have not all been drowned! But the ferocious puffin has foes, very dangerous ones, nesting near by, for there are, as a rule, a fair number of disembowelled puffin corpses on the grass; the lesser black-backed gull could explain, no doubt, and, if not, we can guess that a pair of great black-backs, visitors if not occasional residents, know something about the slaughter. One day, in the nest of a lesser black-backed gull, we found one egg exact in size and markings to that of the larger species, but no great black-back was about, and it may have been an abnormal egg.

On the ledges of the steep cliffs guillemots sit solemnly on their single eggs; it is amusing to watch them alight, somewhat clumsily on the narrow ledge, whir their short wings for a second or two until they adjust the balance of their upright body, then poke the big green or white mottled egg between their legs. Razor-bills crouch in cracks, and do not sit upright like the guillemots; and in one place in particular a fair-sized colony of kittiwakes is established. These dainty and small gulls, delicate

grey and snowy white, nest in the most impossible-looking spots; their weed-built nests seem to be stuck against the rock face. And so they are; a very tiny ledge gives foundation for the structure, for clay and mud are moulded with the wet weed, padded down hard, and the gale fails to dislodge the small but solid nest. As the birds sail gracefully near the cliff, visiting their mates, the cheery " kitti-wa-a-ake, kitti-wa-a-ake," almost a question, is evidence of identity.

The larger herring-gulls nest in considerable numbers all over the upper part of the island, placing their bulky, untidy nests on the turf, amongst the thick vegetation, and on the ruined walls. The situations selected look more secure than those of the kittiwake, but the visitors find them very much easier to rob. On the eastern slope the lesser black-backed gulls have a colony, and the fiercer, deeper call of the bird is mingled with the shrill, wild " hehoh," the laughing " ha, ha, ha," and the angry " wow-ow-ow " of the paler gulls, though the notes have a similar ring. Sheld-ducks nest in some of the rabbit-burrows; a dozen or two may be seen gathered in rather noisy conclave, but what the discussion is about in the middle of the breeding season is puzzling.

As a rule the sheld-duck likes a low sandy shore and nests freely in sand-dunes, but here the nests are fully 100 feet above water. When the eggs hatch the parents lead the young to the sea, and they must know their way well on Puffin, for there is only one portion of the island down which a downy infant could safely trot.

The peregrine has often bred on Puffin, but it does not always escape molestation; on several visits I have found the pair nesting on the Anglesey cliffs within sight, but not on the island itself. Crows occasionally nest, but are not encouraged, and one young bird, barely able to fly, was having a rather feverish time with the angry gulls,

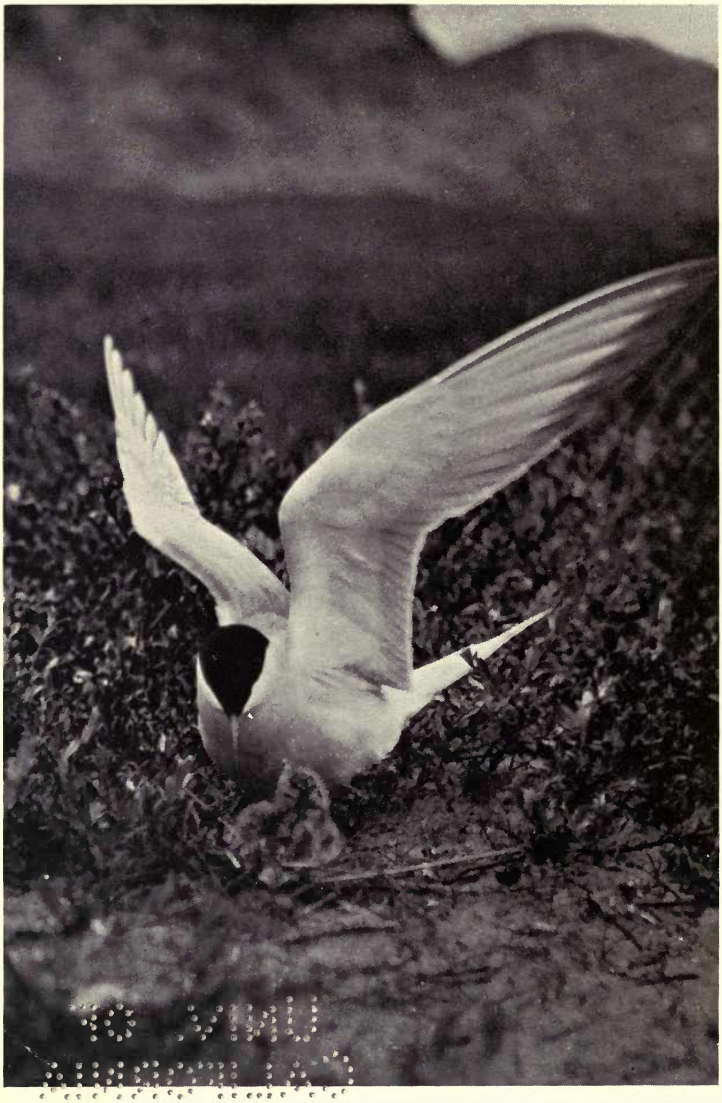
for the lesser black-back in particular seems to look upon the carrion crow as a dangerous egg-robber, quite forgetful of the maxim that " those who live in glass houses should not throw stones." Oyster-catchers, one or two pairs, nest in the thrift, and sit, apparently indifferently, on some mound or other elevated position to watch the behaviour of any visitors; all the time they keep up a steady " pic-pic," probably a warning to their mates or young when they are hatched. Rock-pipits by their anxious peepings reveal the fact that they have nests in the cliffs, and their rather smaller relatives, meadow-pipits or titlarks, find plenty of cover for their brown eggs. Stunted bushes shelter an odd pair of blackbirds and the ubiquitous hedge-sparrow, which last has an occasional visit, for domestic reasons, from a mainland cuckoo. An abundance of holes in the ruins and the neglected house are an attraction for starlings; these holes are mostly tenanted. Wheatears and stock-doves make use of the old burrows, and as the skylark may often be heard in full song on the island we may conclude that it, too, is a member of the Puffin avifauna.

" The *Smyrnium olusatrum* or Alexanders almost covers the south-west of the island," says Pennant, " and is greedily eaten (boiled) by the sailors who are just arrived from long voyages." Alexanders still grows in profusion, but now more on the east than the west; scurvy-grass is there, too, plenty of it; but few mariners land on Puffin after " long voyages "; it is doubtful if they ever did. In July the thick mass of stems gives shelter for the mottled grey young gulls; in September I have seen starlings in vast numbers feeding on the ripe seeds; all had not been reared on Puffin, they had come over for the feast. Hyacinths abound in spring; I have seen a herring-gull's nest decorated with a ring of these flowers, plucked by the æsthetic bird. Another gull,

however, had different tastes, and had selected bleached rabbit-bones for an adornment.

The largest members of the fauna are a small party of very wild goats, the male being a magnificent animal with huge horns; how long they have been there I do not know, but they are never milked, for on the steep cliffs it would be difficult to catch them. Giraldus Cambrensis, writing more than 700 years ago, tells of another mammal. "There is a small island, almost adjoining Anglesey, which is inhabited by hermits, living by manual labour and serving God. It is remarkable that when, by the influence of human passions, any discord arises among them, all their provisions are devoured and infested by a species of small mice, with which the island abounds; and when the discord ceases, they are no longer molested." Perhaps biologists never quarrel! Perhaps the absence of human inhabitants accounts for the extinction of these murine checks to immorality; at any rate, we are still looking for the "species of small mice."

WEST OF LLANFAIR P.G.



THE COMMON TERN, A BIRD OF LLANDDWYN.

p. 15.

WEST OF LLANFAIR P.G.

THE first station on the Chester and Holyhead line after it has crossed the Straits and entered Anglesey is called, by the London, Midland and Scottish Railway Company, Llanfair P.G. Popular tradition affirms that the village of Llanfair possesses the longest name in existence, and a jargon of letters, inches long, is sold for a penny in Bangor and elsewhere, professing to be this Welsh word; the juvenile Celt earns coppers by reeling off the name to the "Sassenach" tripper. The real name is Llanfairpwllgwyngyll, surely long enough without adding a jaw-breaking termination, which is merely a description of the place converted into a single word. Llanfair is the station for Plas Newydd, the seat of the Marquis of Anglesey, and for the Anglesey Column, a monument overlooking the Straits, from the summit of which a magnificent view can be obtained.

Twenty years ago I visited this little-known part of Wales. I have been many times since, but though a steam-ferry has replaced the old sailing-boat from Carnarvon, and motor transport passes through the one small town, there has been little change in these years. I shall never forget my first impressions of a part of Anglesey which the tourist had hardly ventured to invade.

We cycled west from Llanfair, past the fine beeches of Plas Newydd; everywhere wood-pigeons were busy in the tops, gorging on the fresh young buds, flying off with a noisy clatter of wings, as if conscious of guilt and possible retribution. Pheasants attacked the sprouting wheat, raiding the fields from their stronghold beyond the wall;

from the far side of the same wall a pack of harriers yelped a welcome. Against the dark green background of sombre firs the pale shoots of the larches stood out in delicate freshness; a flicker of white wings showed where the chaffinches were busy amongst the little tufts, not, like the pigeons, devouring, but ridding them of tiny insect pests. Anemones, pink-tinged, had pushed through the carpet of last autumn's leaves, and primroses in clumps gave colour to the banks.

Beyond the park, and a little to the left of the road, stands the ruined church of Llanidan, famous in history. Here was—perhaps still is—the Maen Mordhwyd, or stone of the thigh, built into the church wall. Giraldus de Barri, priest and scribe, describes the stone as he found it when he visited the place in 1188; it was small, shaped like a thigh, and possessed wonderful homing instincts; "whatever distance it may be carried, it returns, of its own accord, the following night, as has often been experienced by the inhabitants." Hugh Lupus, we learn from the same veracious source, who did not like anything but himself to have power, determined to subdue its wandering proclivities. Chaining it to a much heavier stone, he pitched the two into the Straits, but next day it was back in its accustomed station. "A countryman also, to try the power of the stone, fastened it to his thigh, which immediately became putrid, and the stone returned to its original situation." Giraldus failed to finish the story; what became of the countryman's own thigh? Here in the early days of the eighteenth century Henry Rowlands, vicar of Llanidan, wrote "Mona Antiqua Restaurata," dealing with all the antiquities of Anglesey from a point of view very remote from that of the higher critics. The marshes and bogs which fill the inlets and valleys of the rugged western shores were, to Rowlands, relics of the Deluge, the "dreggy sediments

of the retiring fluid." How could it be otherwise ? Had not men, digging for coal on Malldraeth Marsh, found shelly sea-beaches deep beneath the turf ? Were not the peat-bogs full of tree-stumps, evidence of inundation ? What did the old parson make of the Maen Mordhwyd ?

West of Llanidan the character of the country changes; woods no longer border the Straits, and the undulating country falls to flat, cultivated land in the valley of the Braint. The road runs along a low ridge, sloping to the south to the Straits and to the north, beyond the little Braint, to the wide valley of the Cefni, Anglesey's most important river. Cromlechs, camps, carnedds, maenhirs—relics of the vanished races—remain as single or heaped stones, or, often as not, as mere place-names on a map; it is a fine country for archæological and antiquarian speculation. Giraldus, crossing from Carnarvon to Aber Menai, remarked that at first sight " the island of Mona is a dry and stoney land, rough and unpleasant in its appearance," but that inland it is " more fertile in corn than any other part of Wales." This, to a great extent, is true to-day. The cultivated land stretches away to Newborough, now but a typical Welsh village, but once of great importance. Rhos-vair was a British town, overlooking the impassable marshes of the Cefni; Edward I. made it the seat of justice for the island, calling it the New Borough, a set-off for the royal town of Aberffraw, with its port and palaces, away across the sands. The mansions of the rulers were here, the business of the island centred in the town; it was within reach of Carnarvon, of strategic value. Pennant, however, says that it has " greatly fallen away from its antient splendour." We echo his lament—" the glory of Newborough has now passed away. "

South and west of Newborough the Warren extends for miles, a waste of blown sand, dune after dune, the home

of rabbit, stock-dove and sheld-duck. The intertwisted, wide-spreading rootlets of the marram grass barely hold the shifting sand, but in the hollows between the dunes dwarf willow has a firmer hold; bees hum amidst the yellow catkins, the titlark sings as it emulates the skylark in these hollows. Marram is Newborough's crop to-day; it is harvested, dried, and taken to the village, where skilled fingers plait ropes and matting, tough and durable, which is exported in considerable quantity; the star grass, which binds the sand and saves the land from further encroachment, feeds the inhabitants of Newborough.

A little rocky peninsula tips the seaward limits of the Warren, where a lighthouse and a few pilots' cottages are all that remain of the village of Llanddwyn; the village itself has lain for centuries beneath the drifted sand, or sunk in the peaty hollows where pools of water lie, thick with the beautiful flowers of the buck-bean and great masses of yellow flags. Llanddwyn Island was once isolated, and even now a storm sweeps heavy seas above its stone causeway; it is sacred to the memory of St. Deuwnn or Ddwyn, an early British lady. Baring-Gould calls her Dwynwen and says that she was a princess, probably daughter of a king of Brecknock. Her own love affairs did not run smoothly, but she became the patron saint of lovers and adopted as her motto: " Nothing wins hearts like cheerfulness." She fell in love with one Maelon, but something went wrong and he spread ugly reports about her; she prayed to be relieved of her passion, and was relieved by an angel who administered drops of heavenly balm. Maelon also was dosed, but with different results; he became a lump of ice. She retired to the peninsula, quite a pleasant place to live in if she was interested in birds and flowers, and prayed that Maelon might be thawed but have no more to do with her, and

that all who appealed to her might obtain the husbands they desired or forget all about them.

The picturesque ruins of an abbey stand on the highest part of the island, and a modern cross has been erected in memory of the many pilgrims who visited the shrine and were buried there. Round the Abbey are the remains of the monastic gardens, still fruitful, for the once well-tilled land, helped by rotting seaweed, an excellent fertiliser, produces the best early potatoes for Carnarvon market. Starlings and a most valuable member of this isolated colony, a donkey, were occupying the ruin on our first visit, and we have since found that patient steed the best method of transporting baggage across the soft and shifting dunes. Llanddwyn was never large, but in Tudor days it was important; its inhabitants entertained and traded with the pilgrims. One method of transferring the wealth of the visitors to their own pockets was a peculiar occult science, divination from fishes, but I have failed to find how the finny tribe revealed the future; the monks of St. Ddwyn knew.

We sat amongst the ruins watching the children from the cottages playing in a hollow below. Beyond the four white cottages is a small harbour, where at one time there was a lifeboat and where the pilot boats can be hauled up the sandy beach. On a headland is a tower, used as a landmark before the lighthouse was erected, and beyond the lighthouse, on a couple of stacks, hundreds of terns lay their nests on the bare, jagged rocks or amongst the dense tangle of tree-mallow and sea-beet. Drying their wings on a tangle-covered stack were three or four cormorants, heraldic birds holding their black pinions half unfurled; nearer an orange-billed oyster-catcher eyed us suspiciously. Beyond, a wide sweep of firm sand stretched to Aber Menai, once a ferry to Carnarvon, and behind were the billowy dunes, their loose

tops lifted like smoke in the stiff sea-breeze. Across the streak of twinkling water, looking cool under a hot sun, lay the Welsh shore with its stern background of mountains, the Snowdon range. Far away to the right, beneath the peaks of Yr Eifl, was the precipitous face of Careg-y-llam, haunt of the chough in those days, and where the guillemots still line the ledges in thousands. Towering above was the shaggy top of Carn Madryn, beyond the Rivals, and to the north Carnedd-goch, scarred by the Nantlle quarries; the snow-capped conical peak of Snowdon itself and the sister height of Crib-y-dysgyll, a great snow mound, were straight before us. The Glydyrs and Carnedds were white alps, Y Foel Fras had a wintry cap; we might have been gazing on Alps, dazzlingly white in hot summer sunshine.

The monks of Llanddwyn are forgotten; the children of the pilots play above their nameless graves and hunt for cowries on the shore where they once landed; starlings nest in the walls, feeding their noisy young in the Abbey refectory. Drifting sand from the Irish Sea has buried deep the village that was, and rabbits burrow and wheat-ears nest where once the pilgrims trod.

Two streams, the Braint and Cefni, rise in the inland marshes, and enter the sea on either side of Newborough Warren; the latter was once a trickle through a great marsh, now it is a broad, embanked tidal stream, draining the whole of the vast Malldraeth Marsh. Much of this land is under cultivation, rich, fertile soil; but here and there are unreclaimed reaches, wet tracts where reeds, rushes, and horse-tails flourish, and where in places the water-violet and mare's-tail abound. Old spoil-banks, where pioneers dug but did not mine for coal, rise above the level, and thick double hedges and deep dykes cross the marsh to mark out the fields where the black Welsh cattle wade in the lush, rich grass. A few pools or llyns

remain; their muddy bottoms are far deeper than the water that overlies them; here we found the gaudy shoveler drakes resting whilst their mates attended to domestic duties; here we disturbed the lively teal, and sent the mallard duck squattering to lure us from her scared flappers. A cormorant was swimming, its beak tilted upward, on one pool, a grey heron rose with a squawk from another; coots scuttled into the rushes, and moorhens swam rapidly into cover, jerking perky tails. From the dense fringe of aquatic vegetation came the long musical trill of the dabchick, and with its triple call a whimbrel came in from the sea and alighted to feed.

The bird of the marsh is the sedge-warbler; everywhere its chattering song drowned other bird notes; swinging on the stems, creeping amongst the rushes and equisetum, perched on the low hedge or tall weed, it poured its varied tunes upon the air—now sweet, now harsh, now but an oft-repeated chatter, now a soft, gentle warble. By the embankment, though the sun was shining brightly, that lover of the half-light, the grasshopper warbler, trilled its continuous song with wide-open mandibles; then like a mouse it crept, still singing, amongst the stems, and once, as it fluttered into the air to intercept a passing fly, expanded its rounded tail.

Below the railway the Cefni runs across level pasture-land to the embankment and road between Newborough and Yard Malldraeth, better known as The Yard. Between road and embankment, a strong wide barrier to keep the sea from the fertile land, lie shallow lagoons, where swallows and martins skim, protected by the sea-wall from the breeze, where the sheld-ducks bathe and sandpipers indulge in nuptial flight. Beyond the sluices the river winds across a wide estuary, bordering the Warren. On the edge of Malldraeth Sands are salt-ings, flat land overgrown with rushes and intersected

by shallow tidal gutters; in the gutters gobies and shrimps dart away, scared by the human shadow, stirring the loose mud in their hurry; above the saltings the redshanks yelp, annoyed and anxious. Sixty-one sheld-duck, perhaps the most beautiful of our resident fowl, were resting on the slub and short grass, preening themselves and leaving behind a litter of white and gay chestnut feathers. Many of the birds were drakes, adorned with bigger knobs on their scarlet bills than their mates, who, no doubt, were deep in some rabbit-burrow, sitting numerous, down-surrounded eggs. When the young brood, tiny infants in down, are led from the burrow to the shore, the fishermen lie in wait to intercept them; the sheld-duck is a showy, handsome bird on ornamental waters. Nevertheless, it is no easy matter to capture these juveniles, for at a very early age they can run, and if they gain the water they prove that diving is instinctive; even a trained water-dog cannot catch them then.

On the Warren, moles burrow in the loose sand, making superficial runs through the turf and star-grass roots; these miners had many runs on the Sands, even below high-tide mark. Surely there are few earthworms within reach of salt water; indeed I have seen countless thousands, drowned out and slain by an exceptionally high tide. Probably the pioneer moles had invaded the sand for the sake of lobs or other marine worms; they had been busy, for the tunnels ran in all directions, crossing and recrossing. Round the point where the sands extend to the islet of Llanddwyn, we met with some accidental members of the fauna, all below the last tide line. The weather had been boisterous, and a strong west wind was lifting the drying sand in clouds, piling the particles on to the dunes; a number of round crustaceans were whisked inland, rolling over the ripple marks. They were masked crabs, usually rather deep water

THE MONASTERY, BARDSEY

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animals, but evidently driven in, and in serious trouble. The masked crab, which gets its name from the face-like marking of the carapace, buries itself tail foremost in the sand, leaving its long " feelers " or antennæ alone exposed. Whenever there was a lull in the breeze, and the crab happened to be right end up, it started working itself into the sand. Many succeeded, and we found some of these by their antennæ, and left them waiting for the next tide; others, however, were caught by the next gust, driven further inland on the sandhills; where the tide would not reach them they would perish, and be added to the varied relics of the shore.

And there are relics, many alas! along this beach. They lie, half buried in the sand, stark, barnacle-covered ribs of gallant vessels. Above the tide reach are broken masts, planks, spars—pitiful fragments. Well may there be a light on Llanddwyn's rocky point; well may there be pilots to guide incoming vessels over the treacherous bar of the western entrance to the Straits. It was bright and sunny here when we saw it first; it is not always so.

THE HOME OF THE SHEARWATER

THE HOME OF THE SHEARWATER

A SLIPPERY grass slope, broken here and there by outcrops of grey rock, rising steeply from the actual wave-washed cliffs to over 500 feet above the sea; a few cushions of pink thrift, a little sheep-bitten gorse, short and thickly matted, and ferns or bracken in the shelter of the rocky cracks; below, the racing water, near two miles of leaping waves, deep eddies, and smooth swirls of oily water, which even on the calmest day gives evidence of the power of great tides rushing through the narrow passage between the island and the point of furthest Lleyn. Such is the home of the Manx shearwater on Ynys Enlli, the Island of the Currents, better known as Bardsey Island, or to the natives as "the Bardsey." Ray named the shearwater "the puffin of the Isle of Man," but it is doubtful if the bird now nests on the Calf; indeed it has been questioned whether it ever did. Other stations appear to have been deserted, but there are still considerable colonies on many little frequented islands round our shores, and on Bardsey a fair number of shearwaters rear their young.

"Beyond Lhyn," says Giraldus, "there is a small island inhabited by very religious monks, called Cælibes, or Colidei. This island, either from the wholesomeness of its climate, owing to its vicinity to Ireland, or rather from some miracle obtained by the merits of the saints, has this wonderful peculiarity, that the oldest people die first, because diseases are uncommon, and scarcely any die except from extreme old age. Its name is Enhli in the Welsh, and Berdesey in the Saxon language; and

very many bodies of saints are said to be buried there." Six centuries before Giraldus wrote about this island which he never visited, Cadfan, with his cousin Maelrys and a party of refugees from turbulent Armorica, found their way into Lleyn, where Einion, its powerful prince, provided them with asylum. Cadfan was created first Abbot of Bardsey, and here the tutelar saint of Celtic warriors had the winds and tides to fight for him; no invader would lightly cross the race.

Ynys Enlli is still little visited. At times a tourist steamer calls, but does not always land its pilgrims, and crossing by boat from the little cliff-sheltered village of Aberdaron, the most westerly settlement of any size in North Wales, is at the best of times uncertain; the visitor may have to extend his holiday. Yet Bardsey is no weather-beaten, inhospitable rock, but a well cultivated island, inhabited by farmers and fishermen, at home behind the plough or in the sterns of their open boats.

We rowed south, hugging the shore of Aberdaron Bay, rounded Pen-y-cil, passed under the frowning cliffs, storm-washed Careg-du on our left, until we reached the great headland of Braich-y-pwll. Centuries ago the fame of the sacred island spread far and wide; pilgrims in thousands, so it is said, toiled westward through Wales or sailed from Ireland to visit or end their days on Bardsey. Some waited chance to cross at Aberdaron, where an ancient church still stands, but others sailed from Eglwys-fair, beneath the shelter of Mynydd-mawr. Throughout their route they found wells of clear, health-giving water, blessed and tended by holy men. There was Holywell, where good St. Beuno raised to life his murdered niece, St. Winefred; there was Tremeirchion, Clynnog, and many another. Last of all on the mainland was the one below the turf-covered stones, all that remains of St. Mary's Church, where the water bubbles into a natural

basin, and thence down the steep steps to the limpet-covered rocks beneath, where the boat waited to take them to the land of their desire. Here, too, we left the shelter of the land, hoisted sail, and pushed out into the racing tide which bore us swiftly south.

With wind and tiller keeping our course westerly, and the tide drifting us rapidly south, we swirled and tossed through the white-capped waves, cheered by the minute and vivid descriptions of our two boatmen of the exact spots in the race where their various relatives were drowned. Diseases may be rare at Bardsey, accidents seem to be frequent. However, this time all went well, and very skilfully our seamen reached the island exactly opposite the one landing-place, where a narrow strip of beach is sheltered by an opening in the rocks just wide enough for a Bardsey boat. The island is divided into two portions by a narrow neck of land, but a few yards across at its narrowest part; here, when the wild west wind or a strong south-easter is blowing, great seas dash over and make the connecting road impassable. At the south end is the lighthouse, at no great height above the sea; the main island is north of the isthmus, and a good road, the only one in the island, connects the two portions. At the northern end, under the shelter of " the Mountain," a rugged upland, is the crumbling ruin of St. Mary's Abbey, on the site of Cadfan's monastery. On the road are the farms, about a dozen in all, good substantial buildings, walled around, built about forty years ago or more by Lord Newborough.

Around the four walls of ancient masonry, all that remains of the Abbey, are the graves of the former inhabitants of Bardsey, and in their midst, beneath a stately marble cross, rests the " old lord " who did so much for the island. Hard by is another cross, in memory of the 20,000 saints who lie beneath the turf, for it was, as

Bradley says, " good to die here." On this cross are the lines:

" Safe in this island
Where each saint would be
How wilt thou smile
Upon life's stormy sea."

When the lighthouse was built and the present farms replaced the older dwellings, the bones of hundreds of " saints " were discovered and reinterred. Coins, gold in some instances, were also brought to light, for the pilgrims did not always come empty-handed; " the road to heaven and the gate to paradise," as the bards called it, was worthy of toll. Twenty thousand may be far above the mark; one cynic says " it would be much more facile to find graves in Bardsey for so many saints, than saints for so many graves." But at Mecca all are saints; the travel-stained, footsore pilgrim who washed in the healing wells thought so, at any rate. What do we really know of those early inhabitants ? Tradition tells of the Armorican refugees, and of the survivors, a century later, of the massacre at Bangor Is-y-coed; of St. Beuno ending his days here, though Nevin and Clynnog both claim him; of Bishop Hywyn, and of Archbishop Dubricius. Did not this last crown King Arthur in 506, and were not his bones removed half a century later to Llandaff ?

Doubtless when the population was so extensive seafowl were much in request. Even to-day the shearwater is relished on some of the Scottish islands, and, as was the case with the puffin, a considerable business was done in " pickled " shearwater. The birds were salted, packed in barrels, and exported for inland consumption. There is no record of an export trade from Bardsey, though, not so very long ago, puffins were shipped from Puffin Island. We were advised to take

food with us, in case we did not wish to live on sea-fowl; we ignored the advice, and found abundance; it was a land of home-cured bacon, eggs, milk, fish, lobsters and crabs; vegetables and new potatoes were waiting to be eaten, the gooseberries ripe for pies. We lacked nothing needful.

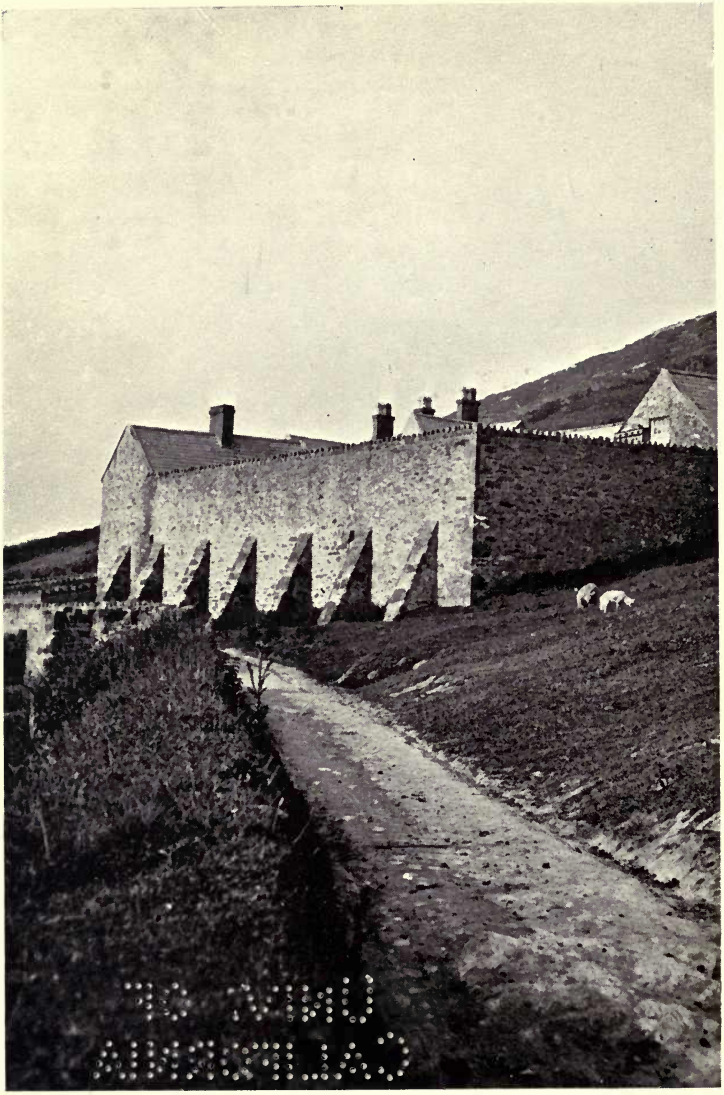
There was, perhaps is, a king of Bardsey, an hereditary monarch without a constitution. No one disputes his right to the title or to the gilded metal crown adorned with the Newborough arms; no one obeys his commands, for he, wise man, gives no orders. The king, when we saw him, had no heir; indeed there are few children now on the island. "The oldest die first" still; what will happen when the present generation, now well advanced in years, joins the 20,000 which have gone before? When we landed we found few people about, but learnt that they were all up in the mountain, "taking the wools from the sheeps"; when they descended they were all middle-aged folk, the only children were aliens, the family of the light-keepers. The fishermen and farmers of Bardsey, though so few in number, have no communistic "parliament" like the crofters of St. Kilda; every man is independent. As sailors and fishermen, too, they are far ahead of the St. Kildians, and are out in all weathers to visit lobster-pots and long lines, often starting at night; "there is plenty of time to sleep in winter," our host explained.

We may divide Bardsey roughly into a cultivated and uncultivated portion, though mountain sheep graze over the rocky upland which makes the island so conspicuous from the towns in Cardigan Bay. The low-lying land to the west of the "mountain" is cut up into fields, bounded by low turf walls, wonderfully cushioned with pink masses of thrift in mid-June when we were there. The cattle, mostly black, occupy some fields and are

milked in the fields; other land is under crops. The grating song of the corncrake resounded from all the fields of long grass, for this bird is an abundant inhabitant of the lower land. A few stunted thorns barely manage to top the wind-swept banks, and brambles grow on the sheltered sides; here the blackbird nests and on any weed or spray that ventures to rise above the wall the corn bunting perches and jingles. From bank to bank along the shore or up amongst the rocks on the mountain flew with wheezy cries scores of hungry young starlings, bustling on whirring wings after their fussy parents. Titlarks mounted high with jerky notes and dropped again with dying trills, and in a few damp spots the sedge-warbler was singing.

The vernal squills and hyacinths were nearly over, but great white masses of bladder campion, a few red campions, and an abundance of bird's-foot trefoil flowered on bank and cliff; kidney-vetch was thick in places, and little blue speedwells gave variety of colour. One field, we noticed, was one mass of fumitory, and yellow rattle was everywhere mingled with the flowering grasses.

Bardsey is practically treeless; save for a sycamore or two and a few stunted ashes there are no trees; but in certain places there is a luxuriant undergrowth, mostly rank weeds, brambles, and elder bushes, where a few warblers and other birds find shelter. When the cottages were pulled down to be replaced by better dwellings, the old sites were walled in and allowed to lie waste; these unused gardens are a paradise for whitethroats and hedge-sparrows and no doubt for blackbirds. Willow wrens, chaffinches, and spotted flycatchers and a pair or two of goldfinches nest on the island, but we did not meet with these; perhaps by the middle of June they had flown across to the mainland. Round the farms swallows were flying, twittering as they flew, and the familiar chirp



A BARDSEY FARM.

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of the house-sparrow came from untidy nests under the eaves of the farm buildings. Considering that Bardsey had been inhabited for about 1,500 years it is not surprising that there are sparrows in plenty, and yet Bingley was informed that they only began to nest on the island at the end of the eighteenth century.

The boat landing is a natural narrow fissure between the rocks leading to a fine shingle beach; here boats can lie in most weathers, but it is necessary, for safety, that they should be hauled up high and dry whenever they are not in use. One of our friends told us that he came one stormy morning to look for his boat and found it in a field a hundred yards away. A few boats are beached on the westward side of the isthmus, but they are not always kept there. Near the boat landing—Cefn Enlli—we saw a pied wagtail tending its young, and on this bit of beach and the surrounding tangle-covered rocks there were frequently curlews, oyster-catchers, and other birds; it was here that we saw a redshank, though, like a black-headed gull which was near it, but a casual visitor. Oyster-catchers nest all round the lower cliffs, on the grass or on the rock, and constantly keep up a noisy cry of alarm when anyone approaches their chosen stretch of cliff.

A few wheatears haunt the mountain, and on its western slope, overlooking the village, where low-growing sheep-cropped furze covers large areas, a single stonechat was evidently concerned about its hidden family. The natives cut the furze, bracken—which also grows on the mountain side—thistles, or anything else that comes handy, roll it into bundles, tie it with rope, and carry it on their backs to the farms. Chopped up small in a chaff-cutter and mixed with hay, this rough harvest of the hill makes excellent fodder. Thanks to the mountain the water-supply of Bardsey is abundant and pure; a well just above the monastery never runs dry and provides

cool, sweet water when all the other sources have given out. Below this well are several hollows to contain water for the sheep; in one of these hollows I found the rarest but most widely distributed of our newts, the palmated newt. Is this the only batrachian on the island? Bingley was told that there were no toads, frogs, or snakes on Bardsey, and a friend of mine who visited the island made enquiries, and was informed that no "great snakes" occurred, only "little small ones." What these were we neither of us discovered. Frogs, my friend was told, could not live on Bardsey, and Bardsey earth, if taken to the mainland, was fatal to the frogs where it was put down. The man who told him affirmed that he had tried this and that the frogs died. The sacred earth or the curse of the saints has apparently failed to banish all the "reptiles," for this one newt, which also occurs in a pool above St. Mary's Well near Braich-y-pwll, is here, an interesting problem in distribution. High on the mountain at the northern end, where we look out across the ever racing tides to furthest Lleyn, is another well, or rather two. These are the pilgrims' wells, two deep holes in the rock, always filled with not overclean water; in the old days, tradition says, it was here the pilgrims went to wash and shave.

Herring-gulls, in a huge colony, nest along the top of the cliffs on the eastern side of the island; their nests containing eggs or grey-downed young were placed even on the narrow sheep-track which runs between the actual rocks and the slippery slope above. A pair of greater black-backs nest amongst them, and oyster-catchers, by their excitement, proved that they, too, were interested in young. Rock pipits piped anxiously when we invaded the colony, but their notes were drowned by the barks and laughs of the angry gulls. A few carrion crows build on the rocks, and one or two pairs of kestrels; when

examining an empty carrion's nest we stumbled across a lovely bed of primroses, still in full flower in mid-June, hidden in a rocky fastness.

Amongst the herring-gulls, resting on the cliff and reluctant to fly, was a brown-backed homer pigeon; how dare it linger, for I saw it in the same place an hour later, close to the eyrie of a pair of peregrines? The tiercel flew past, but did not see the pigeon. Jackdaws swarm on the rocks in some places, and with cheeky familiarity feed in the farmyards, and two pairs of choughs still manage to rear their young on the steeper cliff faces. The red-billed, red-legged birds flew over with their easy undulating flight, very tame and very noisy; their loud, clear "keeaw" easily distinguishable from the "jack" of the daws.

Linnets twittered over the gorse, lapwings called on the lower slopes and in the fields below, cormorants and shags flew by over the water; on the ledges and in crannies below the edge of the cliffs guillemots and razor-bills were crowded, and puffins were abundant on the sea. These last do not appear, at any rate now, to nest on Bardsey, but there are large colonies on islands in Cardigan Bay.

While on the cliffs, looking down on the birds drifting past us on the tide, we heard the clamour of gulls far away in the distance. The birds were floating round or hovering above some large dark object which kept appearing above the surface, some strong swimmer who dived and rose, his rounded head rolling up again and again. When the whole party came racing past, for the waters hurry everything along, we saw that the swimmer was a grey seal playing with or killing a large fish. The gulls were jealous of the prey and swooped again and again, but the angry seal snapped at them when they came too near, and once, springing high out of the water, nearly caught a bird.

Rabbits occur on the mountain, and, when not shot down, in the fields below. In the shallow burrows laboriously worked in the rocky ground there are no puffins, but there are Manx shearwaters. There are not, however, rabbit-burrows enough for the shearwater colony, and by far the greater number of the birds lay their single white egg in some deep crack or hole amongst the rocks. In these rocky holes we handled several birds, and brought out one blue-grey baby of but a few days old; the mother bird, after biting furiously with the long, thin, hook-tipped bill, flew when released straight out to sea, leaving her light-dazzled infant to scramble back as best it could into its dusky retreat. The shearwater, according to popular ideas, cannot rise from the ground without difficulty; it is true that they do not stand upright, in the position in which they are often depicted and always stuffed, but resting on the tarsus and with breast well down the bird spread its long wings, flopped down the slope, and in a few seconds was clear of the cliff. The shearwater, for many months in the year pelagic, is thoroughly at home on the wing.

When, in the evening, we were sitting in the cosy kitchen of the farm, discussing with our genial host and hostess the doings of Bardsey " and the adjacent islands of Great Britain and Ireland " we learnt that the shearwaters were most lively during a heavy rainfall or in fog. Rain came on that night, heavy rain, and before we retired to bed we enjoyed the shearwater concert. The birds we had handled had had little to say, only a few guttural grumblings; but this was a treat we had hardly expected. We had read of the strange voice of this strange bird, and of its habit of calling at night; we had heard vivid descriptions from lighthouse keepers; we had formed no mental picture of the reality. As the birds came flying swiftly round the hill, passing unseen in the darkness,

THE SLOPE WHERE THE SHEARWATERS NEST.

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within a few yards of the house—" in the doorway," our host expressed it—we heard what sounded like an emphatic "it-y-corka," the emphasis on the third syllable, and other loud remarks—" kitty-coo-roo," " kok-a-kok," sharply repeated, and " kok-a-go-go," all uttered with a vehemence which was perfectly astonishing. The birds flew swiftly, following one another; at times there was a moment's silence, then a babel of voices.

Pliny talked about the birds of Diomede, with teeth and fire-coloured eyes, which attacked strangers but fawned upon the Greeks; these are supposed to have been shearwaters. Even now the strings which fly " as if the furies were behind them " over the waters of the Levant are the " âmes damnées." Did not this title really originate in their weird nocturnal calls, not in their easy, graceful, diurnal flight ? A lighthouse keeper once told us that the bird said plainly: " It is your fault "; as we listened we understood. Were they blaming us for the disturbance of their sleep earlier in the day, for liberties taken with their infants ? Long after midnight the din continued, heard through the open window; as we passed into the realms of sleep the cry: " It is yor folt," mingled with our dreams.

THE SPURN

THE SPURN

A NARROW ridge of sandhills, a natural breakwater for Grimsby, Immingham, and other ports, runs for some three miles between the Humber and the sea. A little to the north the restless waves are eating their way into the crumbling brown cliffs, which scarcely rise 20 feet above the shore. A fine beacon, a day landmark, stands over 500 yards inland of its submerged predecessor, and dated houses are also marked with the distance from the sea when they were built. One of these near the beacon now stands empty and condemned; the tide broke through its frail barriers, burst open its door, and forced the occupants to seek refuge in the upper story, whence they were rescued through a window. During exceptional tides the sea and Humber meet north of Kilnsea, and for three days practically all communication was cut off from the mainland during one of my visits, for the tide is landlocked by the walls, and another tide is up before the water has drained off. The walls, though broken in places, permitted passage for the energetic postman, but no one else troubled to go through. The clay beach, thinly covered with drift sand and gravel, shows where cliffs once stood; in the Humber miles of level "clays," slippery and often sticky to walk on, cover the sites of the lost villages of Holderness; the curlew and grey plover whistle where once the fields were tilled and a large population travelled dryshod and were securely housed.

At Spurn Head, where the ridge widens out and ends, there is a small but important official colony, familiar

in summer to visitors from Cleethorpes, but in autumn cut off from all but business connection. The fine lighthouse, whose powerful " mantle " light throws a white beam every few seconds upon the Kilnsea houses, three miles distant, has its keepers, the signal station its watchers and workers. Ten cottages house the resident lifeboat crew and families, men who add to their retaining fees by crab-fishing. Two coastguards are stationed there, or were a few years ago; a publican provides for the needs of the thirsty, and a schoolmaster attends to the upbringing of the youth of the little colony, for the nearest school is at Easington, beyond Kilnsea. There is a post office and telegraph station, from which the wires run along the ridge; at intervals beneath these wires in autumn lie the bodies of many migratory birds; for in their incoming flight on dark or misty nights the deadly wires take frequent toll. Traders' carts follow no regular route on their journey to the Head; they must adapt themselves to the height and state of the tide. At low tide they travel across the " clays " or even on the firm seaward beach, but often they are driven on to rough pebbles, and at the end of the journey through deep-rutted, shifting sandy tracks amongst the dunes.

For many weeks in autumn the fields round Kilnsea, the ridge of Spurn, and the Humber clays are the feeding-ground and resting-place for an innumerable army of migratory birds. Southbound summer visitors converge upon the narrow neck, whilst others reach it by following the coast from further north; by far the greatest number come from oversea, landing from northern Europe at or a little north of Spurn, where they often halt, as at a hostelry, before continuing the journey. In early October the rough coast-fields were white with the seeding heads of sea-aster, and in September the show of this maritime Michaelmas daisy was a sight for the gods; on either side

of the ridge prickly saltwort and sea-rocket were in seed, yellow berries richly adorned the sea-buckthorn, and the hedges further inland were bright with hips and haws. Provision for seed-eating birds was ample, and they did not neglect the lavish feast; linnets, redpolls, greenfinches, sparrows in dense packs swarmed over the aster, saltwort, and rocket; blackbirds, thrushes, and the lately arrived redwings on the larger fruits. Multitudes of snails crawl amongst the marram, and the thrushes have no lack of this, their favourite food; but on the ridge itself there are no stones to use as anvils for shell-smashing, but a stiff bent branch of sea-buckthorn is just as good; every few yards a litter of broken shells marks the abattoir and dining-table of some migratory thrush. Grass seed, insects, and molluscs supply all that the lapwings, larks, and pipits need in the fields, whilst the abundant animal life of tidal mud and the refuse from the ports attracts waders and gulls to the Humber.

Daily the bird population alters in numbers and composition; birds arrive during the night and next morning skulk in the bushes or join their fellows in the fields. All day long diurnal movements of certain species may be noticed. Out of the void specks appear, high above the sea, and in a few moments these can be recognised as approaching larks, lapwings, hooded crows, or gulls. With a favourable wind they come in untired, dropping towards the beach, but seldom alight at once; but when they have been contending with a contrary wind these fresh arrivals are often so weary that it is almost impossible to flush them from the bushes or long grass in which they have taken refuge. I could one day have again and again kicked a lark which refused to move when I almost stepped upon it, and I sat on a balk of timber a foot or two away from a panting, palpitating starling. One morning the ridge and every hedgerow

was alive with goldcrests, on another robins, dunnocks, wrens, and a few belated warblers filled the bushes. Redstarts, stonechats, blue tits, even a couple of pied woodpeckers, were amongst the night arrivals; for two days a great grey shrike rested on the wires, darting down occasionally to reduce the insect population of the ridge, and a water-rail slunk along a drain as we passed. Predatory birds followed the migrating hosts and took toll. Along the ridge were many heaps of feathers where the merlin had dined; a peregrine was travelling with the redwings, and a rough-legged buzzard quartered the fields, passing within a few yards of where I lay to watch it.

Daily the swallows and martins coasted south, following the ridge; they never passed in large numbers, but the stream, though thin, was continuous. Occasionally a big party of starlings passed, flying with businesslike determination, not hawking from side to side and occasionally returning over the same ground for a few yards like the hirundines; the starling, whether bound for feeding-ground, for roost, or winter quarters, always means to get there with as little delay as possible. But the most noticeable migrants were the gulls, chiefly of two species, greater and lesser black-backs. There were black-headed gulls in the Humber, and some with common gulls following the plough; there were a few herring-gulls about, but the numbers of these species which were passing was trifling compared with the darker mantled brethren. Occasionally some of the larger gulls went out seaward to seek a shoal of fish, but as a rule all day and every day the stream steadily flowed south. How many thousands passed each day? Some travelled in irregular order, some in well-formed chevrons, or in long lines, those to the rear benefiting by the air disturbance of the advance wings. At times only a dozen might be in sight at one moment; then party followed party in quick

succession; alike in wind or calm the stream flowed on towards the south. Many times we counted, and found that the average rate of passage was about fifty birds per minute, or, for eight or nine hours per day, 3,000 per hour. Whence came they? Whither bound? Who shall say?

Redwings, a few fieldfares, many blackbirds and song thrushes occupied the red-berried bushes all one day, but by evening they were restless. At dusk several parties rose, mounting higher and higher as they circled round, but finally, when a mere group of specks, heading for the south. On the same evening the woodcock came; they had been anxiously watched for by men with guns, for they gather a woodcock harvest at times. Only a few arrived, however; the big passage, so I was informed, came later. As I crossed the ridge that night, stumbling in the dark and the momentary blinding beam of light, I heard the curious paper-ripping sound of their wings as they rose at my feet, and occasionally, before the light-house beam swung round and pitchy darkness followed, caught a glimpse of the shadowy retreating forms. A few snow buntings haunted the beach, and a brambling or two accompanied the chaffinch flocks round the farms, forerunners of later immigration.

Round the landmark, where the tide has left a wide stretch of sand, the waders gathered, ringed plovers and dunlins in countless packs, restlessly swinging to and fro in mazy aerial evolutions, or packing closely on the sand, every bill tucked into back plumage, and hopping forward on one leg when the water reached them. Early in September, when the last of the terns were passing, the knots monopolised this beach, covering it as with a grey carpet, so closely do they crowd together. In that month, too, warblers, pied flycatchers, redstarts, and other summer visitors were trailing south; but in October the winter visitor was more in evidence.

Birds come and go; the watcher can never guess what he may see any morning, nor how many thousands have drifted by during the night unseen, unheard. The grey geese, in small skeins, passed at sea; ducks of many kinds floated by, or took flights close to the water; the first of the Brent geese was spotted by three or four gunners, but was intercepted on a water hole by one of the oldest inhabitants and his ancient muzzle-loader. On dark or foggy nights the southward flight of many individuals is checked by the dazzling rays from the lighthouse; even in November the list of casualties may number two or three hundred birds of a dozen different species; before me is one night's report when knots, redwings, fieldfares, blackbirds, starlings, lapwings, golden plovers, a rail, and a goldcrest struck in a fog. But the numbers slain at the lantern are as nothing when compared with the disaster caused by strong contrary winds. Dead goldcrests on the tide line were far too common, and some even reached land safely and perished from fatigue; it was almost possible to pick them from the bushes and marram when they first reached land.

Fatal, too, are the wires which run along the ridge. After a big arrival of knots we enjoyed knot pie, all our victims being unfortunates which were running about the sand and road with broken wings or other injuries. With a wind behind them birds would strike so violently that a wing would be torn off or both legs shattered; it was a kindness to end their pain, though the attendant hawks and the hooded crows did not leave them neglected for long.

THE DEE—AN OCTOBER TIDE

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WET sands, crossed here and there by shallow gutters, stretched seaward and across the wide Dee estuary far as the eye could reach; the Welsh shore, five miles distant, was hidden in thick mist. Nearly a mile from the land runs a long sandstone ridge or reef, which at high tide splits into the three islets of Hilbre; the smallest and most southerly, the Eye, was our destination, as three hours before full flow we splashed bare-foot through the remnants of thela st tide. Gulls were drifting up the main, but the tide had not yet begun to fill the gutters, which are seldom if ever empty before the next inflow refills them. Away seaward a line of foam marked the advancing waters, breaking over the East Hoyle; the red and black buoys in Hilbre Swash heeled landward; the big tide was coming, but there was still time to cross comfortably from the mainland.

Then between the two larger islands the lapping water crept in swift trickles, first filling the ripple marks, then swamping them altogether. Bare-footed cocklers trudged back towards West Kirby, and two belated visitors to the main island raced knee deep through the swelling strait which now separated the two. We were left in sole possession of our observatory, a few square yards of turf clinging to the rocky outcrop, wave-washed in storm, wind-swept at all times, but a great gathering-place for birds. The advancing tide, running swiftly over the flats of Liverpool Bay and the " sands o' Dee," drives flocks and lines of gulls and waders before it; reluctantly they leave each bank and spit, but with a 30-foot tide there

is no sand left for them. Some seek the Dee banks and marsh, where they must keep a sharp look-out for danger; but others wisely repair to the rocks round the islets, where they are safe, for shooting is here illegal.

When from Hilbre to the Red Rocks was one unbroken sheet of water and the gutter which cut us off from the land a rushing torrent, our sport began. Our weapons, no deadlier than field-glass and telescope, were at hand; our coats, fortunately superfluous, spread behind a sandy rampart, we peeped over the bank, levelling glasses on the noisy crowd which lined the ever swelling Swash. Middle Hilbre was alive with birds; they crowded, black masses over its lower rocks, whilst herring, common gulls, and black-heads flitted uneasily over the racing waters, wailing and scolding, as if annoyed that their hunt for food was deferred. A twittering flock of linnets danced in the air round the Eye for a few minutes, then made for the Cheshire shore, but two land birds, a young wheatear and a song thrush, were on the island when we arrived, and we left them there; they were reluctant to leave their island oasis. Both, doubtless, had selected it as a resting-place on their southward journey.

The oyster-catcher, better known to the Dee shrimpers as the "sea-pie," has a single note, described in the books as *peep* or *kleep*, which is shortened to an angry *pic* when the bird is disturbed on its breeding-ground. When twenty or thirty of these beautiful black-and-white birds fly past, calling in harmony, the combined *peeps* are very musical, though feeble and uninteresting compared with the concert of three or four hundred individuals singing together over their meal at the edge of the tide. No word picture can adequately describe the thrilling music of the sand-banks; the curlew's wild clear call, the triple note of the whimbrel, the sharp bark of the godwit, the liquid whistle of the grey plover, the purr of the dunlin,

and the noisy yelp of the redshank were mingled continually with the music of the sea-pies, whilst the laugh of the herring-gull and the rook-like complaints of black-heads introduced harsher though not discordant notes. Hour after hour the sound swelled or died down, but the birds were never silent; the difficulty was to pick out individual calls.

High tides in early October are perhaps the best of the year from the bird-watcher's point of view, for though large numbers of northern waders arrive in September, and even in August, there are in the later month hosts of winterers added to the birds of passage. These last are here for a few days, or at the most weeks, and in winter have passed far to the south; in the warmer months they are at their breeding haunts when the short Arctic summer uncovers the luxuriant tundras. But the great southward tide of northern birds is not always regular in its visits; the shores may be lined in September and vacated in October, for the autumn crowds ebb and flow, and a poor day may be followed by one of great abundance.

The first waders which sought the still uncovered rocks which fringe the grass-grown portion of the Eye were dunlins and ringed plovers; these and numerous noisy and very wide-awake redshanks had been feeding as long as possible upon the sand. The redshanks, always nervous, were quick to see that the islet was not untenanted; each as it approached went off yelling blue murder towards Middle Hilbre, and we were glad to see the spoil-sports depart. The dunlins arrived in flocks of from a score to several hundred birds, wheeled round, flashing silvery white as they all turned their underparts towards us, swept past with a rustle as of many silken skirts, and then settled almost at our feet. Immediately some tucked their bills into their scapulars, raised one leg, and

dozed; others attended to their plumage, but whether awake or, apparently, asleep, they hopped nearer and nearer as the water pushed them up the sloping rocks. The ringed plovers did not pack with the dunlins, but ran in the shallow water, snapping up the tiny shrimp-like crustaceans which came ashore with every ripple. Sanderlings, already in grey winter garments, came to join the throng, for the love of companionship is strong in small waders; the Deeside fisherman classes all three, and any strangers such as stints, as "little birds"; they are hardly worth powder and shot, unless he can rake a crowd and pick the victims up by the dozen.

A few yards away, on the red rock, a single knot, grey-backed, black-billed and olive-legged, dozed unconcernedly, and soon some fifty or sixty of these inhabitants of the Far North, breeders in Greenland or the little known Taimyr, swept past, followed immediately by many hundreds, which, after a sharp swing, dropped on the sand, each in alighting holding its pointed wings erect for a noticeable interval. They crowded, as they always do, and ran, a little grey cloud on the ruddy sand, calling a chorus of sharp notes, *knut, knut.* Fanciful writers connected the bird which wades and runs back before the advancing waves with the tradition of Canute, but the longshore man, who named the bird before Linnæus invented *canutus*, knew more about its voice than such writers as Camden and Drayton, and perhaps had never heard of King Canute.

The little birds were soon joined by a motley band, for variation in age and season makes the turnstone a harlequin in dress; happy the man who first names them "tortoiseshell plovers." There was no weed on the rocks to be thrown over, no pebbles to be turned, so the little party rested at the edge of a sandstone ridge. With them were one or two purple sandpipers, stout little

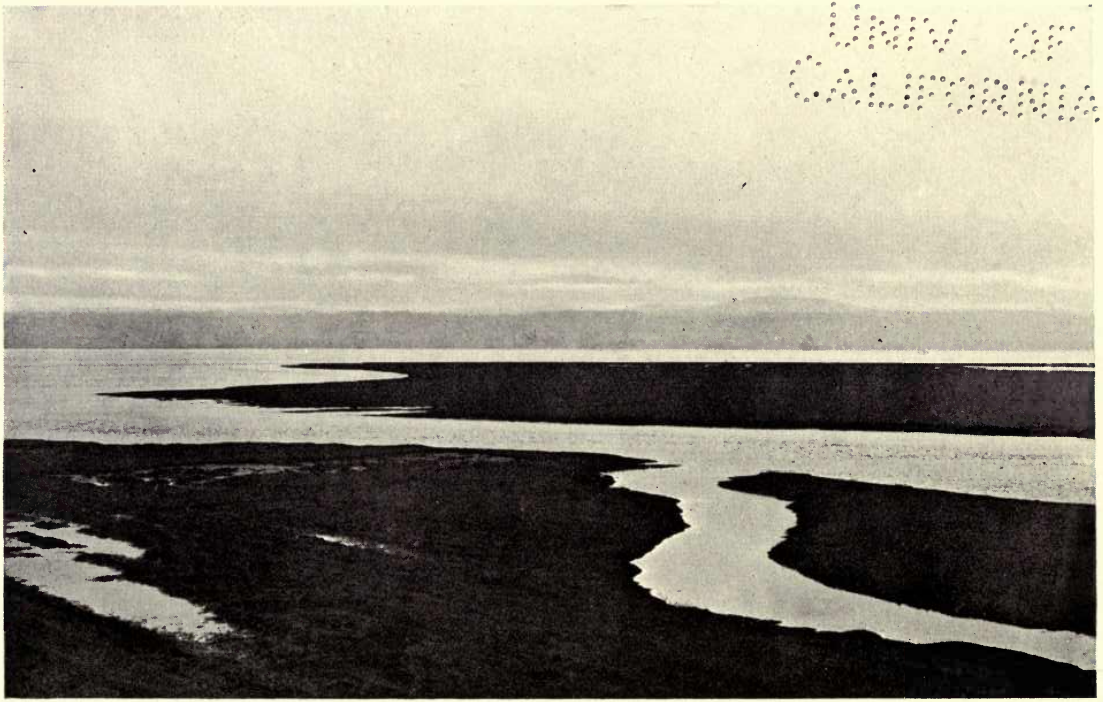
waders who find the companionship of rock hunters more to their taste than the birds which haunt the sandy shore; there are usually some of these two species on the weed-fringed rocks of Hilbre. The curlew sandpiper, a bird with a long, slightly curved bill and conspicuous white upper tail-coverts, was not present, nor was that diminutive dunlin, the little stint; the majority of these two species had no doubt passed in August or September. A few often appear amongst the Dee little birds, but they are never really common.

Curlews, easily distinguished by their size and note from the whimbrels, constantly passed in parties, their long curved bills outlined against the sky; on Middle Hilbre they gathered until, from the Eye, three-quarters of a mile away, it looked as if the grass was browsed by innumerable tiny brown sheep. They left the Eye severely alone; the curlew's sight is too sharp. Not so the pies, for when the sand-browned water lapped the red rocks below us they began to settle, first a single bird, then a score, then hundreds at a time. They saw us and were nervous, but they clung, from habit, to this high-tide roost, and though at times all rose at once and flew round the rock, the scare soon abated and peace reigned once more. Peace? No, they were hardly peaceful, for as each fresh party arrived it drove the first comers into the tide. The reefs at the Red Rocks on the Cheshire shore were one by one submerged, and party after party of pies and godwits, which had used this rest so long as the tide allowed, came swinging, with much conversation, across the water. The godwit flies with the neck drawn back, its bill held straight, but when these barking bar-tails passed the slight uptilt of the beak showed clearly. The bar-tailed godwits settled with the oyster-catchers, swelling the uneasy crowd; they leapt out of the waves, and with a flutter of wings dropped where the crowd was

thickest. Thus the congested area upon the rocks, now thousands strong, was in constant unrest; birds from the outside dropped into the crush and pushed the outer members into the water, where the pies, at any rate, swam comfortably, though the bird, it is affirmed, only swims when wounded! With one lot of bar-tails, always a numerous autumn visitor to this coast, were five larger birds, standing higher on their darker legs, whose tails at once gave them away as the rarer black-tailed godwits.

Few wader notes are more beautiful than the liquid *tluie* of the grey plover, known to the local gunners as the silver plover to distinguish it from the golden and green plovers. Both these species are common on the marshes, but seldom come far seaward; the silver is the real shore bird. One or two " wings " passed, but did not settle; in winter dress as in summer the grey is one of the most beautiful of our many waders. Cormorants passed on strong wing, flying straight and with businesslike determination; they pass up to the edge of the marsh and hunt the gutters on the ebb. Away over Hilbre clouds of little birds and knots, too far off to distinguish species, turned and twisted, flashing like silvery rain as they swooped suddenly down; high tide for some means rest, for others aerial recreation. Away in the main wigeon, pintail, and a few mallard drifted up on the tide, avoiding the bustling tugs which thrust their way seaward, the flowing tide curling against their straining bows; here and there a scoter, black upon the water, allowed itself to be carried upstream, but the majority of these sea-ducks were diving over the submerged banks in the Bay. We neither saw nor heard the geese, pink-footeds and white-fronteds, which had arrived before September ended; they were up on the marshes or the Sealand fields.

Then came a lull. The last bank of empty cockle shells was covered in the little muddy inlets, cut deep in the



THE TIDE FILLING THE GUTTERS.

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blue clay; the last sea-pie deserted the rocks at our feet. It was high tide, and the birds had moved to make the most of the ebb; the only avian companion left, beside the wheatear and thrush, which were sheltering somewhere out of sight, was a lively fly-catching rock pipit, who absolutely ignored our presence. We rose and looked seaward. The tide had turned, and soon the scoters came back, and odd gulls, less visible than a black duck on the glistening water, drifted past towards the Bay. A guillemot returned from an unconscious up-river trip; a line of wet glacial clay fringed the rocks, a patch of sand, a wet whaleback, hove in sight, the top of a bank; the water was receding as fast as it had come. The pies raced to each bank as it appeared, competing with the curlews and knots for the marine worms, the crustaceans, and molluscs which strove to bury themselves in the sand. The birds know that it is a race against time; they must catch these fugitives before they realise that they are stranded high and dry. The gulls and waders distributed themselves over miles and miles of freshly exposed banks; only a few redshanks now came near the islands, probing the sands. The larger gulls went seaward towards the great banks of Liverpool Bay, the common gulls and black-heads scattered over the ever widening stretch between us and the land, picking up cockles before they burrowed. These the common gulls smashed by carrying them into the air and dropping them from a height, repeating the performance time after time, until their purpose was achieved. We had a long wait until the gutters were shallow enough for us to cross, but the waiting time was not tedious; the common gulls smashing cockles, and the black-heads dancing in the shallows to bring up the retreating worms kept up our interest. Once, too, the gulls rose with cries of alarm, for that scourge of the flats and marshes, the peregrine falcon, passed over; it passed

near enough for us to see the markings on its breast and its strong moustachial patch. It sailed over flocks of startled waders and then began to mount; it had singled out a victim, a straggling dunlin or sanderling. Down it came with a magnificent swoop, but the scared wader dodged and the pursuer missed. Up it went again, then down once more, and four or five times the fugitive eluded the deadly stoop. Then the falcon changed its plans, and, following every turn and twist of its quarry, actually flew it down. As it passed, flying landward, we could see it plucking its victim, getting ready for the meal.

When the gutter was fordable, a huge expanse of sand stretched once more towards the Welsh shore, and to the anchored fishing-boats, now heeled over, in the gutter off the stranded port of Parkgate.

EARLY SPRING IN SOUTH DEVON

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SPRING is an uncertain season; it pays no attention to the calendar. The argument that spring begins in December is sound enough, for when the shortest day is behind we are on the upgrade; but a visible, even a perceptible spring is another matter.

On the last day of January, as we steamed through the Mendips, snow-clad slopes detracted from vernal aspirations, but the long-limbed, staggering lambs in the South Devon fields were a hopeful sign. Before February was a fortnight old optimistic black-headed gulls were wearing brown hoods, their nuptial garb, though their breeding season was not due for many weeks.

South Devon, in early spring, is favoured by gulls, black-heads, herrings, commons, and the great black-backs. At Torquay the first species has degenerated into a mendicant; it floats alongside the sea-wall to tempt the indulgent visitor to part with scraps of bread or biscuit, for this omnivorous bird appreciates wheaten flour as well as fish, whether the latter be fresh or very stale. Adaptability of the black-head in this matter of diet is an important factor in influencing its increase, for a bird which can pick up a living alike along the tide line or in a ploughed field is unlikely to starve if one source of supply is cut off. At Brixham, Beer, and other fishing ports and villages the gulls are never short of food when the boats can go out; they stand waiting when the trawls are cleaned, and are especially attentive when gutting is in process. The Devon and Cornish fishermen recognise that gulls are useful indicators of fish shoals; they give

them passive protection, or, at any rate, do not show annoyance when one, bolder than the rest, filches a small fish from a pile upon the beach, and will often throw an attractive piece of gut towards the envious herring-gulls. Perhaps there are other reasons. In a land where belief in the "little people" still lingers, it is possible that education has not eliminated the ancient fable that the beautiful birds, their constant companions, may be reincarnations of long-lost friends.

At Beer a stream runs down the steep street and dives beneath the shingle beach through a culvert. Of course, it is not a sewer, but an open brook is a temptation, and all sorts of discarded scraps are borne seaward. Some yards from the beach is the outfall, where the fresh water bubbles up even when the tide is full; at this spot a little gathering collects, herrings and black-heads, rising and falling on the waves or hovering a few feet above to watch for any edible morsel which may float to the surface. It is not a peaceful gathering, and when one red bill has seized an ascending treasure the corvine calls of annoyance from other black-heads suggest a rookery rather than a congregation of gulls. Some of the herring-gulls are smarter than their smaller companions, and by clumsy dives succeed in securing the still submerged scraps. Black-heads will remain fighting for these uncertain bits of refuse when piles of tempting offal lie on the beach, awaiting the next cleansing tide, but common and herring gulls wait on the fishermen and follow the auctioneer from pile to pile of fish.

Along the wet sands of Tor Bay the razor-shell hunters walk backward with short steps of bare feet, basket on back and probe in hand; they feel the shells beneath their feet, and perhaps bring them to the surface as the deadly "jumbo" brings up the cockles. So, too, the herring-gulls understand the art of paddling. In the tide wash

and beach pools they stand gently swaying from side to side; as their webbed feet mark time in the sand they sink until their snowy breasts are awash. Disturbed worms and molluscs struggle to the surface, seeking safety as the worms strive to avoid a spade; but there is no safety for them, for a yellow orange-splashed bill awaits their appearance.

In Tor Bay is the well-named Shag Rock. Here, and along the coast wherever stack or rock gives foothold, the abundant shags stood drying outspread wings. Surely that ancient herald who first conceived the spread-eagle had cormorant or shag in his mind's eye. One day a dozen stood together on the Shag Rock, and not a cormorant was visible in the Bay; yet it has been affirmed that the larger bird is commoner in Devon than the smaller, greener species with the perky upturned crest. Conspicuous as is the shag when standing in heraldic pose, it is a cautious fowl; from its rocky look-out it can sight danger, and if a gunner approaches the broad wings in deliberate but powerful strokes soon bear it out of range. It is when feeding that it shows special wisdom. The cormorants are expert divers, usually going under after a graceful upward spring, so as to dive deep to where they can chase scared fish amongst the tangle-clad rocks; but whilst beneath the surface an enemy may have approached, for the submarine hunt is often lengthy. Instead of bobbing up to the surface like a diving duck, the careful shag first exposes head and neck alone, keeping its body submerged; with bill uplifted at an angle it peers round with emerald eye before allowing its back to show. How it maintains its body in that position, adjusting its specific gravity, has never been explained. Seldom has the physicist sufficient interest in ornithology, or the biologist in physics, to induce him to investigate the problem.

The herring season was drawing to a close, but a few gannets haunted the coast, wheeling high above the water on narrow, black-tipped wing, then dropping headlong with a half corkscrew dive to plunge on the gleaming prey beneath. One day, close to the sea-wall, a red-throated diver was swimming and taking lengthy under-water excursions; it was on its way to northern waters, a winter visitor to southern seas in no hurry to feel the call of spring. Though still in winter dress its spotted back and slender build, but especially its slightly uptilted bill, made identification easy as it swam within stone-throw.

In the Torquay gardens, ruddy with valerian, and gay with wallflowers, forget-me-nots, and scillas, thrushes were in full song, but the song thrush avails itself of any bright winter day to get into form for the later months. More unusual was the piping of the blackbird in early February, and the cheery rattle of the abundant chaffinches. The garrulous rook always has much to say around the rookery long before early nesting has begun, but in Devon the daws were more noticeable; round the red beetled crag at Watcombe, where countless numbers nest in safety, they wheeled in aerial mazes, crossing and recrossing one another's path until the eye was dazzled by the restless specks, and the air hummed with the incessant sharp and almost querulous cries. Then on curved wing, like some huge swift, a noble peregrine swept over, and the sharp calls deepened into the long corvine note of alarm; but the falcon had no wish for daw flesh and passed on, and soon the sinister threat had slipped the memory of those grey-pated heads.

Invalids and convalescents, who have fled the treachery of northern winters and springs, sit in the sunshine in the sheltered Torquay rock garden. There, too, close by an almond in full blossom on the first day of February, were a couple of blackcaps, feeding contentedly on the ripe

ivy berries. The blackcap, though no invalid, shuns our stern winters to spend its time in the sunshine of Italy or North Africa; it is an early immigrant, but by no means the first to return; these two were neither early nor late, but were exceptions to the rule that blackcaps emigrate. South Devon had tempted them to stay; there was food in abundance, flies and fruit, in the sheltered rock garden; why risk the perils of a long Channel crossing? A couple were they? No, a pair; male with black cap, female with brown; they were a constant pair too, electing to share the experiment of wintering in England in one another's company. In early April the cock blackcaps arrive in our woods, producing song little inferior to that of the boasted nightingale; they spy out the land and select territory, awaiting the arrival, some days later, of the hens. But what happens in normal winter quarters? In Italy and Africa do the sexes remain together, and when the time comes for a northward move does the male bird take leave, explaining that he is going to survey the land? Here, in England, the two were together, and when one flew the other followed; they were undoubtedly mated birds.

Blackcaps were not the only winterers on this South Devon coast. In that peaceful hamlet, one of the most beautiful spots on a beautiful shore, which shares with the busy Lancashire watering-place the name of Blackpool, the chiffchaff was working the blighted bark of the apple-trees in an ancient orchard. Woolly aphids, tiny morsels even for a tiny bird, supplied the warbler with sweetness and sustenance; it was too busy to sing as it flitted from stem to branch, and branch to stem, pecking, pecking, pecking, wherever it went.

In the mild West Country chiffchaff and blackcap, landrail and, it is said, swallow, vary their normal habits by risking an occasional winter, and more rarely still the

stone curlew lingers, astonishing the shooter who adds to his bag one of these big-eyed plovers. But there is another winterer whose habits, though more regular, are more surprising. All along those southern shores, frequenting the rock faces, the bramble scrub, and promenades were black redstarts; whence come they, these continental nesters, and why? The common redstart which nests with us, and in Scandinavia up to the North Cape, spends the colder months in Africa; this darker bird, whose breeding area extends from the Baltic to the Mediterranean shores, comes west for choice; possibly, if it travels from Spain, actually comes north. How the little dusky males flicked their fiery tails as they clung to the rocks, hunting for spiders or insects in every crack and cranny; they flitted amongst the bushes which fill the deep valleys where tiny streams have carved their way towards the shore; they perched on the backs of seats on the sea-front at Seaton. Travellers from Germany find their way to the Lancashire coast, and annually visit the western Welsh headlands, but we have still to learn the nesting area of the particular birds which come each winter to the Cornish and Devon shores.

In those Devon lanes, deep narrow ways, some of them, with high banks and thick hedgerows meeting overhead, tunnels from which the feathery awns of old man's beard still hung in grey masses, and where the hazel catkins were thick and green, abundant lamb's tails, tits worked in busy flocks. The long-tails shot from hedge to hedge with high-pitched calls, the blue tits chimed, the greats and coals sounded their vernal up-and-down challenges. There, too, the nuthatch whistled like any schoolboy, and hammered with its pick bill as it ran up and down the trunks, often descending head foremost. Primroses and violets were in abundance, speedwell and avens weeks before their usual time further north, and even the summer-

flowering wild carrot was still out; probably some were survivals from the autumn, and had been flowering all winter.

Along the Dowlands Landslip, where the whole cliff has moved towards the sea, the laugh of the green woodpecker resounded again and again. Ancient timbers have suffered from root disturbance, and decay having once set in the insect hordes have hastened to assist in disintegration; the woodpeckers have come to aid the trees, smashing the softened wood with iron bill and dragging out the larvæ of the wood-boring *Rhagium*, of clearwing, goat or wood leopard. The goldcrest, a common resident as well as winter visitor, was singing its simple song, and nomadic flocks searched for tiny insects amongst the opening buds.

One inhabitant of the Landslip had much in common with the signs of devastation, the deep gashes in the soil, the bent and fallen trees, the great folds of slithering earth; the carrion crow, perched on some tottering tree, uttered his sinister treble croak. The rook has no fixed limit to the number of successive caws, the jackdaw is garrulous, but both carrion and grey crow usually pause after every third call.

Ring-doves abound on the Landslip, and doubtless some of the birds which cooed incessantly had decided upon nesting quarters; but elsewhere in the county crowds of pigeons, mostly foreigners, roamed far and wide, laying waste the land. Desperate farmers arranged combined attacks on the birds at roosting time; the Board of Agriculture gave advice; many fell, but many more survived to retire a month later towards our eastern seaboard en route for northern lands.

At Watcombe ravens were paired and busy; their deep *glog* was as distinctive as their deliberate and powerful flight. Every day a bird mounted guard, looking sea-

ward, on the fine headland at Beer. As it sent its challenge over the waves below, the ragged feathers stood out on its throat; it dipped its body and half opened its wings when it called. Sometimes the pair circled together, rising on splayed-out wing until mere specks in the sky; sometimes as they flew along the cliff face one would sportively roll, shooting forward with feet and breast uppermost. On the short grass, where bedstraw abounds, the raven finds food in abundance, though in small morsels. The powerful bill, which can tear tough flesh, can daintily pick up the whorled *Helix*, or intercept the sedate and globular bloody-nosed beetle. Both species of this beetle were plentiful on the headland, and when picked up justified their name by discharging from the mouth a red fluid.

Starlings work the Head for beetles and snails, but they appear to be satisfied with the smaller molluscs; it is the thrushes which hammer the unfortunate *aspersa* on a stone anvil until they have so shattered it that they can extract the animal from the shell.

Further west, on the long lagoon at Slapton, South Devon shows what it can do in the way of wild-fowl. The fresh water is separated from the tide by a broad and high pebble ridge where

> ". . . the full tide clambers and slips, mouthing and testing all,
> Nipping the flanks of the water-gate, baying along the wall;
> Turning the shingle, returning the shingle, changing the set of the sand. . . ."

But nothing but spume or spray enters the lagoon, and the gulls splash and bathe in fresh water. Coots were here, not in dozens or scores, but in hundreds; the western end was black with coots. Wigeon swarmed on the water, the crested drakes announced the fact in a beautiful chorus of whistles. Moorhens made for the reeds, leaving a trail behind as they flew, beating the water with running

feet; teal sprang clear into the air, and, with sharp whistles, dodged as they flew at great speed; golden-eyes and pochards beat the water with their wings as they rose with more difficulty; but *the* bird of Slapton Ley, at any rate in early February, is the coot, the wigeon a good second.

Ringed plovers balanced on the wave-rounded stones on the ridge or paddled in the shallows of the Ley, and meadow pipits and pied wagtails swarmed everywhere, hunting successfully the winter flies which settled on the warm stones. Flocks of skylarks haunted the pebble ridge, and from these winter congregations odd birds ascended, filling the upper air with vernal song. At Slapton were no woodlarks, but small parties were on the cliffs elsewhere, feeding in scattered flocks like their open-country relatives; they, too, sing in winter and early spring, but those most in evidence were busy hunting, too busy to trouble about nuptial music.

Few human beings were visible alongside the two-mile lagoon, but one ancient reed-cutter was gathering the harvest. On the pebbles and reed stacks were stonechats, but beside the old man, seeking human companionship, was a robin, settling cheerfully upon the piles he had just cut and collected. The other birds shunned or ignored his presence; the robin enjoyed it.

A CHESHIRE BIRD

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FROM the standpoint of the London and south-country ornithologist Cheshire is not a good county for birds. But if it cannot compare with certain eastern and southern counties, with coastwise areas of considerable size, in the number of rare and accidental wanderers which are included, with or without justification, in the avian fauna, it has a large and varied bird population. Within the county boundaries are hills with extensive moorlands, marsh and bog, extensive grazing land with numerous woods and coverts, a Royal forest, and a coastline, short it is true, but including sandhills, estuarine mudflats, and saltings. Best of all the whole county is well watered, and that means insect life in abundance, the great attraction for many birds; rivers, streams, innumerable ponds or "pits" as they are locally called, cross and dot the cultivated land, and there are very many larger waters, known as meres. It is, perhaps, these meres which account for the majority of the interesting Cheshire birds, and no bird is more characteristic of the meres, and of the county, than the great crested grebe. Many students of bird life believe that in Norfolk only is this bird common, though, as a matter of fact, this grebe leaves the Broads in winter, whereas in Cheshire, Shropshire, Yorkshire, and perhaps other haunts it is an all-year resident.

It is true that I have had no lengthy experience of the Broads, but whenever I have been there in summer I have been surprised at the comparative scarcity of grebes on these much-talked-of waters. In England, without

doubt, Cheshire and Shropshire are the headquarters of the great crested grebe, though now that the bird is rapidly extending its range, other counties are well populated. Thomas Pennant, a Flintshire man, describes it thus at the end of the eighteenth century: "These birds frequent the meres of Shropshire and Cheshire, where they breed, and the great East Fen in Lincolnshire, where they are called Gaunts." Montagu copied this distribution, but most later writers, though referring to Lincolnshire, ignored the other two areas; Cheshire, to many a southerner, is still an unknown country, wild and uncivilised, inhabited by country boors or, in the industrial portions, by barbarous sons of toil! Can any good thing exist in Cheshire? they ask.

About the middle of the last century the grebes in Cheshire, as elsewhere, had a tough struggle for existence; they were persecuted unmercifully for their plumage. How much this exploitation of the unfortunate bird for its silky breast had to do with one of its names—the tippet grebe—is uncertain. In summer it wears a frill which is often described as its tippet; nevertheless the "grebe fur" was used for an article of feminine attire known as a tippet, and once the bird had earned the name, tippet may have been transferred to its own neck adornment. When the price of the deceased grebe had risen to about a pound Bird Protection came to the rescue and accomplished much, but in Cheshire private rather than public efforts saved the situation. Most of the meres on which they nest are on game preserves, and the bird, though not on the game list, received passive but very effective protection.

The great crested grebe, the largest of its family, is a handsome but rather peculiar-looking fowl. Though a bird of the water it is in no way a duck, and is more nearly related to the divers. It is a little smaller and very

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The female is sitting; the male has a newly hatched young bird on his back. The nest on the left is that of a Coot.

much slighter in build than the mallard or common wild duck; in build it is not specially a surface swimmer, but is excellently adapted for rapid progress under water. When a grebe wishes to travel swiftly from one part of the water to another it dives, swimming under water. A bird which feeds on fish must be cigar- or torpedo-shaped in order to capture its swift prey; there are no bluff bows, projecting elbows, or other obstructions on the body of the diving grebe. The general colour scheme is brown above, white beneath, but in summer the head and neck are ornamented; the dark brown crest has two elongations, known, somewhat misleadingly, as "ear tufts," though they have nothing to do with the ears. A chestnut frill or ruff surrounds the upper part of the long and slender neck; this is the tippet. Pennant, who thought that the tippet grebe was a distinct species, says: "This species has been shot on Rosterne Mere in Cheshire; it is rather scarce in England, but is common in the winter time on the Lake of Geneva, where they appear in flocks of ten or twelve, and are killed for the sake of their beautiful skins. The underside of them, being dressed with the feathers on, are made into muffs and tippets; each bird sells for about fourteen shillings." For diagnostic characters he states that this species is rather smaller, lacks crest and ruff, and "the sides of the neck are striped downwards from the head with narrow lines of black and white." It is evident that Pennant's Rostherne bird was immature, still having the striped neck markings which are characteristic of all young grebes. The frill and full tufts are lost in winter, though indication of the latter can be seen at all seasons on mature birds. Thus Pennant's tippet grebe was without tippet; it was the silvery breast, suitable for tippets, which gave it the name.

The adaptability of the grebe for rapid subaqueous

motion is not confined to its general shape, but is specially noticeable in its feet and legs. It is not strictly web-footed like a duck or gull; the toes are distinct but are broadened out or lobed, whilst, in the same way, the tarsus or leg is flattened and broad. The grebe does not paddle through the water with alternate strokes, but, at any rate when travelling quickly, rows itself along, the legs striking out sideways and not beneath the plane of the body. Set far back, the legs are further furnished with special rotatory muscles; in the forward swing the bird "feathers under water," turning the tarsus and lobed foot so as to present as little resistance as possible to the water, cutting it with the narrow cutting edge. In the back stroke the lobed toes are turned, spread so as to give a bigger surface; foot and tarsus grip the water. So freely do bone and muscle work that the bird can easily raise a foot above its back; often, when a grebe is lazily swimming on the surface, head resting on the back, it will raise and shake a foot above its back.

In one big and generally correct work on British birds, published not very long ago, it is definitely stated that the grebes leave fresh water for the sea in November and return in February. This, I believe, is the case in Norfolk, and even in Cheshire there is a certain amount of movement, especially amongst birds of the year, but the meres are only deserted entirely when they are frozen. There are always a few birds about in December and January if the water is open, and often there are many together, for the grebe is gregarious in winter. Some of the Cheshire birds go to the coast in late autumn, and there is always a noticeable increase of returning birds in flocks.

In the same book it is stated that "the wing beat is not unlike that of a duck, and they strike the water on alighting in similar fashion." This is exactly what they do not do. Anyone who has watched ducks alighting,

or has studied the beautiful drawings of such bird artists as Thorburn and Lodge, must have seen that the duck when near the water throws its head, neck, and shoulders back and its tail and feet forward, checking its pace with its wings, so that it actually impinges with the feet first. The grebe flies with the head and neck a little lower than the plane of the body, in that way resembling divers rather than ducks, but when about to alight, slightly elevates both neck and feet, which trail well behind; it strikes the water with its breast, causing a considerable wave. When avoiding danger the bird seldom flies; if suspicious it sinks the body, so that almost the whole of the back is submerged—it often swims with the lower neck awash—and if threatened dives, travelling to safety under water. The statement that it seldom flies is, however, erroneous; during courtship, and at other times, the grebe flies swiftly and frequently; it also moves from mere to mere and to and from salt water.

Courtship is a complicated affair which has been described at considerable length, but the sequence of the various actions is by no means always the same. The male bird, very early in the season, and occasionally in autumn, pays attentions to his mate or would-be mate, swimming towards her with his long neck and spear-shaped bill stretched out along the water. He has many deep croaking remarks to make, and in spring a loud, repeated call—*jik, jik, jik.* When the pair meet they both raise themselves in the water, sitting up on the hinder part of the body where there is the merest apology for a tail. Stretching the long necks upward, and with the heads at right angles, they gently fence with their bills, and vary this by occasional strange head dips, usually simultaneous in the two birds. The necks seem to double under, the back of the heads reaching nearly to, if not actually touching, the wings; but the action is rapid and the necks

are at once raised again. A favourite suggestion that it is getting near nesting time is made by the male, who dives for submerged weed, and bringing up a strand waves it in front of his lady. Sometimes, but not often, the male approaches with the ear tufts drooping, and usually with depressed frill, but during the bill kissing, ear tufts are erected, frill fully expanded, so that it stands out, framing the curious Japanese face.

The nest of the grebe, on most of the Cheshire meres, is placed amongst reeds or other aquatic vegetation; it may be in a lily bed, or where vegetation is absent, as on some of the upland reservoirs, on a floating branch or drifted sticks and rubbish. It usually, though not invariably, is afloat, anchored by its surroundings, but it is so slight a structure, rotting weeds and rubbish, that it rocks on any ripple. A simple wet platform, it rises and falls according to the varying height of the water; though soaked and sodden, the eggs do not seem to suffer from their moist setting. When the bird leaves the nest it covers the eggs with a few bits of weed, and in a short time their chalky white surface absorbs the green of the nest and covering so that they become permanently stained with blotches of green and brown. Undoubtedly these nests, warmed by fermentation of the rotting weeds, produce considerable heat, and it has been suggested that this aids incubation; this may be true, but the birds do not leave them to their fate, but sit closely, both parents taking a share of incubating duties. When a sitting bird is disturbed, it rises on the nest and with a few rapid passes covers the eggs with some of the nesting material; then, in a second, it enters the water and dives.

When it first leaves the egg the tiny grebe is a beautiful little creature, striped with brown and white down, and with a small triangular patch of bare crimson skin on its head. One of its first efforts is to leave its sodden home

NEST OF GREBE COVERED AND UNCOVERED.

and climb to the warm, dry back of its parent, but it can swim as soon as it has left the shell if necessary. Certainly, for some time, it seems to object to the water, and whenever it can it seeks the parental steed, snuggling down in the cradle formed by the slightly elevated wings. It has often been stated that the parent bird, if danger threatens, takes the young down beneath its wings, but I have never seen this done. When the young is on the back it can be held in place by the paternal or maternal scapulars or wings, but as a rule the little one, when not so held, comes bobbing up, astonished and doubtless much annoyed, when its parent has given it an unexpected ducking. At all times it is very much a mother's spoilt baby, following her about with incessant squeaky demands for attention. As it grows it gets a little more independence, but it is quite as big as the adult bird before it ceases this continuous call for food. Its early dives are very superficial, and it may be traced as it swims for a few yards under water by the ripple on the surface. Belated nesting is too frequent on the meres, where early broods frequently meet with disaster; it is no uncommon sight to see young birds still squeaking after their betters in September or October. Egg-robbing by boys, and, in spite of the careful covering, by jays, crows, and other birds, doubtless explains the failure of many an early brood; but when the young are hatched they are in even greater danger from the pike which lurk in the reeds close to their floating domicile. Four eggs is common—one young bird, a survivor, only too frequent. And yet the great crested grebe holds its own on the pike-haunted Cheshire waters, and twenty or thirty birds, even more, are not infrequent on the water; on one mere, at any rate, a dozen or a score of nests might be discovered in its reedy marginal belt. The bird is certainly not diminishing in numbers in this its ancient home.

THE NOCTULE

THE NOCTULE

THERE are perhaps no animals which are less studied by scientific men than bats, and consequently there is little cause for surprise that popular ideas about these creatures are so erroneous. There are many educated men and women who do not know whether a bat is a mammal or a bird, and a man once asked me if it was not "a kind of insect." Even expert zoologists often confess that they cannot distinguish between the commoner species, and lamentably little is known about the distribution and habits, though bats occur in nearly every part of the British Isles.

Daubenton first described the noctule, or great bat, but it was Gilbert White who identified it as an inhabitant of Britain. He called it *Vespertilio altivolans* "from its manner of flying high in the air," a characteristic which, though by no means invariable, is very useful as a means of identification. The noctule is the largest British bat, considerably bigger than its near relative, Leisler's bat, and slightly exceeding the greater horseshoe and serotine. The evidence of the occurrence of the mouse-coloured bat, *V. murinus*, in England is so slender that it cannot be accepted as a native. The name *V. murinus* was for long applied to the "common bat," the pipistrelle, showing how little intercourse existed in the early part of last century between the British and continental naturalists, for the mouse-coloured bat was well known then as the common bat of the Continent. It is strange that there should have been confusion between animals that varied so much in size as this bat and our little pipistrelle. The

expanse of the outstretched wings of the noctule reaches 13 or 14 inches, and as it flies before the light has faded, often before the swifts have vanished, it is a conspicuous object against the evening sky.

Donovan, in 1820, said of the noctule that it "is of a colour far less dismal than that of the common bat," and though the pelage of the pipistrelle is hardly dismal, the fur of the noctule is a beautiful ruddy brown, almost golden at certain seasons. The question of the seasonal and age variation in colour of mammals is not fully investigated, and the researches in bats have yielded little result. Barrett-Hamilton found no evidence of change in the noctule, but thought it probable that the colour was richest just before hibernation—that is, after the season's activity and constant feeding. Old males, I have always found, are far more golden than immature bats. These aged males, at the height of the breeding season, are wonderfully sleek and glossy. Donovan's picture of the noctule was, I hope, drawn from memory; the colour is curious, and it possesses a leaf nose not unlike a vampire, whilst the tragus is depicted as long and pointed instead of short and rounded. Bingley's plate, published in 1809, is far better. The Rev. W. Bingley is little known as an authority on British animals, but of mammals in particular he was a careful observer, deserving a better reputation than he enjoys. At last we can boast good figures of our British bats, for Mr. Thorburn's lifelike pictures can hardly be improved.

The noctule emerges from its winter slumbers in March or April, and it is usually the beginning of the latter month before it is much in evidence; it has been seen flying in February and exceptionally earlier. In September, if the weather is suitable, it is abundant until the end of the month, and often is abroad regularly in the early part of October, but a November noctule is rare.

The duration of flight is remarkably short, a habit shared with its Irish representative, Leisler's bat.

Mr. C. Oldham in England, and the late Dr. N. Alcock in Ireland, by careful watching, confirmed the opinion of Dowker that the vespertinal flight lasts for about an hour and seldom exceeds this limit; two hours away from the roost was exceptional. As Alcock pointed out, "a mammal that rests for six months in the year, that only feeds for one hour a day during the other six, spending this hour in rapid and sustained flight—as great a contrast as can be imagined to its previous condition—certainly presents a very curious picture of animal economy." Alcock was reckoning it as active from April until September, but even allowing for a month or two at either end when the bat comes out occasionally, and for a morning hour of energy, the problem is still acute. During the winter sleep noctules herd together in hollow trees or in the roofs of buildings, but in summer the diurnal resting-place is usually a hollow tree. The species has been included amongst the cave bats, but the evidence is not altogether satisfactory. Regular cave-haunting bats, as I have proved or endeavoured to prove elsewhere, frequently move and feed in the caves themselves, and, in the West of England, at any rate, go abroad to feed in winter. There is much that we have yet to learn about the mystery of hibernation, and one by one our ancient beliefs, founded apparently on the best evidence, are subjected to rude shocks. Yet, so far as we know at present, the noctule sleeps very soundly in winter, all its energies latent during that period when flying insects are difficult to obtain.

Directly the bats emerge in the evening they fly straight off to the feeding-ground, a glade in the woods, an open field, or some large sheet of water; the situation varies according to the insects which are the object of the chase,

but as time is precious the bat wastes no time in getting to the scene of action. The speed of flight varies considerably, but is usually rapid and straight, though varied with occasional dashes from side to side and sharp oblique dives. These erratic movements are, almost certainly, due to the fact that the bat has become aware of an insect at another level or on a lower plane. Bell thought that they were caused, at any rate when the descent was sudden, by the loss of balance if the bat had caught "some large or intractable insect," and Grabham enlarged on the idea and described the noctule using its thumb to rend asunder the prey it was carrying. If the drop is closely observed it will be seen to be not only direct, but oblique; it is a dive, not a fall.

Noctules frequently chase one another on the wing, squeaking vigorously, and almost the whole time that they are abroad they keep up incessant noise. This sound, a high, shrill squeak, is uttered in the roost before they emerge and after they have returned; Alcock points out that the note may be imitated by striking a halfpenny smartly with a sixpence. Bats are erratic about their appearance in the evening; some nights hundreds are visible, on others hardly one emerges. Doubtless to some extent this irregularity is due to weather conditions, cold, wind, or rain keeping many indoors; but a few go abroad in stormy weather, and at times there are few to be seen on evenings which are apparently suitable.

The noctule has a curious smell, which White and Donovan thought "fetid," but though strong it is not really offensive; it has given rise, so some think, to the name "fox-bat," but that may have originated in the colour of the pelage.

The habits of any creature which comes abroad at night or in the half-light of evening are not easy to observe, but so easily does this bat adapt itself to the restraint of

captivity that it is strange that so little is known about its ways. Of all bats, except perhaps the long-eared, this species is the least difficult to keep under artificial conditions. It requires no taming process to induce it to feed; it rapidly connects human fingers with the food that they supply, though it does not seem so easily to recognise that the finger itself is inedible. When captured or wounded the noctule bites fiercely, and though its teeth do not make a serious wound they draw blood, for they are exceedingly sharp, and the jaws which can scrunch the hard armour of dor or cockchafer are powerful. For weeks I have kept noctules in a box, releasing them for exercise every evening. There were nineteen in the hollow from which some of my captives came, and of these sixteen were males; that looks as if the sexes form separate colonies. Almost immediately that the captives were placed in their new home they took food from my hand. The best beloved food was the mealworm, the larva of a beetle; this they preferred to their natural diet of dors, or big-bodied moths. Mealworms can hardly be looked upon as natural food, for the larvæ of beetles cannot come in the way of animals which feed upon the wing; yet it is the food which, once tasted, no bat can resist.

In a very short time my noctules would scuttle across the table to my hand when I offered mealworms, but so frequently did they fix their sharp teeth in my fingers that I began to offer the gift from between forceps. There was no suggestion of anger in this attack; it was merely anxiety to get as much food as possible in a short time. But there was one interesting fact apparent: as the bat feeds in flight, it never seemed to realise that it could recover food that it had dropped; it would walk over a maimed and struggling worm to ask for more. The long-eared bat, which often captures insects at rest, would hunt on the floor of its cage for an insect which had escaped.

When the box was opened in the daytime or early in the evening the bats were comatose, and it took time to awaken them; but later, if left to themselves, they roused and became lively. If neglected during this wakeful period, usually less than an hour, they relapsed into lethargy, and later had to be roused for food; and indeed the normal diurnal sleep of bats seems as profound as the winter slumber which we call hibernation. Alcock found that the breathing became shallow and irregular—"Cheyne-Stokes'," he calls it—and that the temperature rises as much as 31° in fifteen minutes, and it often took that time to induce full activity. I would take a bat in my hand to warm it, and in a few minutes its breathing became rapid, the whole animal panting and shuddering as if in fear; it pumped itself awake. When really roused its whole being changed; its body felt hot, its eyes gleamed, its sensitive ears were in constant motion. Raising itself on the carpal joint it would patter towards me, and if I kept it waiting would climb my arm, snuggle for a few seconds at the back of my neck, and then take wing for its evening exercise. As a rule, however, they were in no hurry for flight, but after a good feed and a long drink—for they are thirsty creatures—they liked a short flight round the room. They would lap water from a saucer or suck it from the end of a camel's-hair brush. Raw meat they took if shredded fine, and bits of fish were also appreciated, but they required teaching before they tackled these unusual viands; what is more, they found them more difficult to masticate than the horny skins of beetles and mealworms.

Mealworms, small moths, bluebottles, and some beetles are tackled and eaten without difficulty, but a dor or a chafer had to be overcome, and large noctuid moths were the most difficult captives. When the bat is walking or at rest the tail is carried in a curve, the tip often under

THE TWITE.

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the body, pointed forwards; the bent tail thus causes the interfemoral membrane to bag, for this membrane stretches from foot to foot, with the tail in the centre. When any large and powerful insect was seized the bat at once thrust its head under its body, pushing the insect into the bag or pouch between its legs and securing a firmer grip. Upon first seizing the insect the bat raised itself, pressing the forelimbs, the wings, to the ground, and bringing the legs forward so as to increase the capacity of the pouch. If the insect was not very strong the head was withdrawn at once and the unfortunate devoured, but a big insect gave trouble, and it might be a second or more before a firm enough grip was secured. The whole movement was quick, and at first we did not realise that it was a normal habit, but there is little doubt that it is what the bat does when on the wing. A moth seized by the wing alone would give trouble in the air, and might easily escape, but if at once thrust into this living net its struggles could be mastered, and the bat could shift its jaws to the body of its prey. Though it is seldom possible to watch this swift action in the flying bat, there are times when we see it dip its head in the air.

When feeding the motion of the bat's jaws is exceedingly rapid, and the crunching of the hard beetle elytra may be heard as the noctule passes overhead. The process of devouring a beetle is more interesting than pleasant to watch, for though the strong jaws move quickly the insect passes but slowly down the throat; its still undevoured limbs twitch long after much of the body is no more. Bingley noticed this habit of pouching food in a small bat, to which he had given a flesh-fly: "The animal, raising itself higher than usual on its fore-legs, bent its head with great dexterity under its belly, and forced the insect into its mouth, by thrusting it, from side to side, against that part of the membrane which extended betwixt the two

hind-legs." Thus more than a hundred years ago the observant parson saw an action which later naturalists ignored; but it is evident that the use of the interfemoral pouch is not to force the prey into the mouth, but to secure such a hold upon it that it shall not escape.

After food and exercise the noctules invariably performed an elaborate toilet before retiring once more. The ablutions were performed as they hung by one leg; with ease they reached every part of the body or wing membrane with the other leg, combing out the fur, scratching the back, head, or belly. They sucked their toes as they combed, washing and brushing at the same time, and twisting into curious positions, swinging from side to side.

My male bat took more vigorous exercise than the female. He seldom struck an object, but would sometimes brush lightly over my head as he passed. Once he touched an electric globe, but he circled round and round the wire without stirring it. Unlike some bats, which can reverse in the air, he invariably alighted on an upright object head uppermost, clutching first with his thumbs, but instantly shuffled round and took hold with his feet, thus hanging in the most convenient position for a renewal of flight.

How the flying noctule becomes aware of the presence of prey, when both are passing rapidly through the air, is not easy to understand, especially as we cannot be sure how perfect is its eyesight. Experiments with other bats have satisfied me that the power of vision differs considerably in the various species. The big-eyed, long-eared bat certainly seems to see well; the horseshoes, in which the little eye is almost hidden in the fur, certainly see but little. The noctule uses its eyes, but it may be short-sighted. One thing is certain, its hearing is good, and the vibration of an insect's wing may set up notes which it can

appreciate when we are unable to hear them. The greater horseshoe locates its flying prey by hearing, and possibly the noctule does the same. When my bats were fully awake a loud noise, such as that caused by dropping a book, kicking the leg of the table, or shouting, caused them no annoyance; but the scratch of lighting a match, a sudden hiss, or similar low note always startled them. It was interesting to note what sounds caused their ears to twitch and made them raise their heads.

MEMORIES OF A CHESHIRE MOOR

MEMORIES OF A CHESHIRE MOOR

1884

AWAY to the north, hazy in the distance, a line of trees screened the quiet village of Carrington; the square tower of the church peeped above them. Eastward, still further away, were the tall Lombardy poplars of Ashton-on-Mersey, but between us and the trees stretched a level expanse of purple ling, a grouse moor, well stocked, within seven miles of the centre of Manchester. Hundreds, nay thousands, living within a radius of a few miles hardly knew of its existence, and certainly did not consider it worthy of a visit. To us as schoolboys it was paradise; the dread of the keeper's stick or of a sudden drop into a bog-hole added a spice of adventure to our visits. Merciful accident, a matter of levels, carried the railway through a cutting at the edge of the Moss; only the smoke of passing trains was visible, whilst the scarcity of houses within sight detracted from the idea of any considerable population.

The ling was thick and rank, its ancient stems intertwisted in a maze, for little systematic burning had been undertaken for many years. As we tramped through masses, nearly waist-high, we flushed again and again the startled grouse. We too were startled at the whir; we thought of keepers and glanced round before hunting for the ruddy, well-protected eggs, whilst the cock bird, yards away, dropped after skimming the heather with bowed wings to give his warning: " Go back, go back, go back." The straight-cut drains, 4 or 5 feet deep, were often overhung and concealed by clumps of ling or bil-

berry; an incautious step and we were floundering in brown peat water and very black mud. In the overhanging clumps the yellow-billed twite, the "heather lintie," made its nest, often using the feathery cotton-grass for a cosy lining; from the oozy mud the snipe rose, dodging and calling; more rarely we disturbed the curlew and heard its plaintive whistle. Doubtless it too nested there, though we never found the nest or the crouching, short-billed young.

Cranberry and bilberry varied the monotony of ling and heather, for both heaths were plentiful; lush tracts were white with the waving flags of cotton-grass. Sundews, three species, took toll of the countless flies which buzzed over the moor and alighted on their sticky, deceitful leaves; marsh andromeda was there, and a few fine clumps of royal fern. Crowberry, often confused with heather, was abundant, as it is on the upland moors. When we disturbed the hare from its form its powerful hind-legs threw up showers of glistening drops as it dodged between the tussocks. We chased and caught the heath moths and the Manchester treble-bar, whose caterpillar devoured the cranberry; we brought away scores of the hairy larvæ of the oak-eggar and lost them at home, finding starved unfortunates spinning in out-of-the-way corners where the domestic brush had failed to reach them. The big, green, gold-spangled grub of the emperor moth was a special treasure; we liked to watch it spin its flask-shaped cocoon, and to examine the bottle-neck with its hair-like stopper: no ichneumon can enter, but the emerging moth can easily push its outward way. Beautiful insects were these eyed moths, the males smaller but far richer in colour than the grey females; often, too often, a dipterous parasite, a large fly, appeared in our breeding cases instead of the much prized moth.

Lizards, though not rare, were elusive; when we saw

THE CURLEW ON THE MOOR.

them quietly sunning themselves we grabbed, but usually either missed them or only gripped the far too fragile tail. Then, as the late owner thankfully escaped amidst the tangled stems, we held the violently wagging caudal appendage in our fingers, watching the reflex struggles grow weaker and weaker. Vipers occurred, but we refrained from familiarities, though we treasured the cast sloughs when we found them.

Almost in the centre of the Moss was a pole-trap, cruel, but legal forty years ago, and near by, on some stunted birches, the keeper hung his " vermin "; when we were sure that the coast was clear we also visited the trap and gibbet. To the top of this solitary post, a tempting perch for any passing hawk, was chained an unbaited circular tooth-trap; many an innocent victim alighted for a rest and remained, hanging in agony, until the keeper chose to make his rounds. We found the mangled corpses of nightjar and cuckoo, even of thrushes and titlarks, on or near the fatal trap, but we were better pleased when we could recover the fairly fresh body of a kestrel or merlin for examination or efforts at the taxidermal art. That arch-robber, the carrion crow, avoided the fatal pole, but we found and annexed one which the keeper had nailed to a tree. Probably the marsh harrier formerly nested on the Moss, as it did on many of the wilder moors; about this time a young bird, perhaps visiting the home of its ancestors, was shot as it quartered the moor. Short-eared owls nested regularly, but in that wilderness of overgrown ling were hard to discover; we longed for but never found the nest.

1894

In the previous spring the short-eared owls nested, probably for the last time, and a young bird was shot in the autumn. Carrington Moss was in transition; the last

patch of heather had vanished, and almost the last covey of grouse rose from a field of cabbages. Commerce extends its rapacious arms, populations grow, massing in already congested areas, and nature, unhappy nature, suffers. Eight years before this date Manchester had purchased the moor, cleared the ling and heather, dug up the peat and moss litter, and changed everything. Fussy little locomotives dragged trains of trucks laden with moss litter over the quaking ground, and brought in return loads of refuse from the city; nature's rubbish, converted by natural change into useful fuel, was replaced by the discarded refuse of a teeming population, in its turn to suffer chemical change and become fertilising matter. Gangs of toilers cut and stacked the peats, others tipped in the apparently defiling filth; it was not a pleasant sight. Smoke, grime, and worse had replaced the bright bloom of heather and the sweet smell of fresh cut turf. Already crops were appearing on the marked-out fields, but the Moss was a moss no longer; it was an utterly lost-looking tip, a rubbish heap. Curlew, snipe, twite, viper, emperor, andromeda, and sundew had vanished; docks, nettles, ragwort, and weeds were springing everywhere. The larks and pipits remained, but the sparrow had appeared and the corn bunting found a spot worth colonising.

1904

From north to south and east to west railway lines ran straight across fields whose borders were drainage ditches white with crowfoot; sleepers, well bedded, had replaced the rough planks which had served well enough when the foundations were so uncertain that a truck or locomotive might any time sink into the boggy soil.

Alongside the metals were broad and level roads, leading to the few farms that had already been built.

Nurseries and plantations had come into being, but here and there a patch of bilberry or a clump of ling clung tenaciously to the edge of a ditch. Sidings from the main lines wandered, apparently aimlessly, into ploughed fields; but at the end of these tracks were piles of top-dressing, including tins and pots, old boots, and all the flotsam and jetsam of Manchester's ever-flowing human tide. Acres and acres were under cultivation, but where clearing was still in process big pools of shallow water, not overclean, were the feeding-ground of the black-headed gull, which had discovered that Shudehill's fishy refuse was palatable if ancient.

We were musing over the past history of an umbrella handle, that lay amongst the cinders, the metal of the permanent way, when the sun broke through the clouds. Immediately every field, ploughed or harrowed, flashed out innumerable heliographic signals; the brown, peaty earth was thick with scintillating diamonds, for there is beauty even in the broken glass of countless discarded bottles.

1914

The farm had come to stay; the land was tilled. Low but thick quickset hedges, adorned with the fragrant May, lined the old drainage ditches. The main railway lines remained, but the branches, the sidings, where they had not been removed, were rusted and disused, lost in fields of thick and healthy grass. Manchester refuse had fulfilled its promise, had proved fruitful; save for the level chessboard of fields there was little difference between the Moss and the surrounding country. The corn bunting was no longer in evidence, but the starling, thrush, and blackbird worked the ground for grubs and worms which never appeared amongst the heather; linnets nested in the hedgerows, and the partridge called where once the red

grouse crowed. The skylark and titlark, birds which were there thirty years before, had altered their habits, adapting themselves to changed conditions; they, perhaps, were the sole survivors of the old avifauna. Corn and roots had not only replaced ling and bilberry, but dock, goosefoot, and nettle had vanished; the tip was a tip no longer.

In the centre of the great cultivated area we met a bread van, and by the side of the track, where some of the latest rubbish had been dumped, noted the remnants of a bound magazine. A plough was cutting straight furrows through the rich earth, and every yard it turned up fragments of crockery; in years to come will archæologists collect and piece together some of these fragments to study the ceramic art of the twentieth century? Will they write learned papers on the strange habits of an ancient civilisation which scattered its glass and china broadcast? Or will they talk more correctly of these municipal "kitchen middens"?

1921

There has been less change during these last few years, the decade nearing completion; the hedges are denser and higher, the fields yield better results under crop rotation; the flagging city trees, after a spell in pots in the smoky air, recruit in the nurseries; the motor van and lorry cross unquaking roads, the tractor furrows rich soil. The waste land is perfectly reclaimed.

Is it purely sentimental to regret the change? Near forty years have passed since those happy, careless days of boyhood, and now,

> "When we look back and regretfully wonder
> What we were like in our work and our play,"

did we really appreciate the beauty of the moor, or has

memory added an unnatural halo, a glory which was never there? Yet many of us still claim to be

> "A lover of the moorland bare
> And honest country winds,"

and it is small comfort to know that we must travel further and toil harder to satisfy our cravings. The town grows; its needs increase; it extends octopus arms, grips and demolishes the wilds. The craze for utility overrules æsthetic claims, and, too late, the public conscience awakens to the startling fact that the preservation of open space means more than sentiment—fresh air and health, the conservation of that individual energy which alone makes the citizen worthy of the city. Perhaps Carrington Moss was a better place forty years ago.

THE OLD QUARRY

THE OLD QUARRY.

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THE OLD QUARRY

TIME has healed the wounds, effaced the scars. Many years ago man—commercial, go-ahead man—saw the red sandstone outcrop amidst the bracken and beneath the smooth-boled beeches; he saw and calculated, then brought his tools of steel and iron. Ruthlessly he hacked down the ancient timbers and dug out their roots; he smoothed the undulations, nature's lines of beauty and grace; he filled in the little valleys and the hollow where for ages the brook had worked so patiently; he laid down branches and barrow-loads of broken stones where the ground was soft and made a road. Along this road, little more than a track amongst the trees, he dragged his lumbering carts, scoring deep gashes and ruts in the sweet earth, the leaf-mould of hundreds of years. The thunder of blasting-powder startled the ringdoves a mile away and set the pheasants crowing; its smothering fumes tainted the scented air. He hacked off masses of rock and shaped them with his clinking chisels, and soon great red walls appeared, and ladders were lowered to enable the worker to reach the more difficult spots. So the pit deepened, and the scar became larger and redder.

Round the thatched sheds, thatched with straw and the bracken he had destroyed, was a litter of broken pots and bottles, empty tins, rusty iron, and waste paper; it was the chaos of untidy man. But in the country round, and in the towns, walls were built, substantial stone houses were erected, and stately square-towered churches, and the tortured, tool-hacked stone lost its brilliant natural red and darkened to a beautiful weathered grey or brown.

Then, having got what he wanted, he left the quarry and looked for stone elsewhere, leaving an unsightly hollow, filled with spoil and rubbish—a blot upon the landscape.

But another worker was ready to continue the task. Nature stepped in when man stepped out, and with an ordered disorder began to heal. The pine-needles dropped from the firs above, the browning wind-drifted beech leaves found refuge in the bottom from the blast, the winged sycamore seeds whirled through the air, the elderberries rolled down the slope. Paper rotted, and the mice tore it up to line their grass nests; mould and fungus devoured the dead wood, and even the despised wood-louse did its share; leaves and the earthworms buried the glass, pot, and iron. Winter storms shattered the deserted sheds; props gave way and allowed great masses of earth to fall on the discarded stone; earth and moss, living green cushions, filled in the unsightly tool wounds. In spring the nettles appeared, and sapling sycamores and elders, and even tiny birches, pushed their way through the earth; grass grew over the road, and the brambles and wild roses sent trailing prickly stems in all directions; honeysuckle and ivy climbed and trailed, holding alike to rock and to the growing vegetation.

Season followed season, year succeeded year, each bringing marked changes, evidence of growth, and now we look into the old quarry and say that it is beautiful. Those rough, weathered grey rocks with a ruddy tinge here and there are covered with lovely lichens and mosses. The sunlight only reaches the depths of the quarry through the overhanging foliage, and dapples the thick mass of elders and sycamores in the hollow with shivering light and shade. The evergreen ivy carpets the ground and old spoil bank, climbs the birches, and mounts the wall. Half-way up gorse has found a lodgment, covering the

green wall with a patch of gold in spring, whilst in autumn the children find the old quarry a fruitful garden for blackberries. The wren has her nest on the ivy-clad wall; the whitethroat and willow wren hunt for aphides on the broad sycamore leaves and fill the air with delicious music; the wasps have taken possession of the rotting thatch, and the air hums with the vibration of myriad other gauzy wings. The rabbit throws out the sandy earth, and the fox has safe shelter in a pile of broken rocks, useful for his home, if beneath the notice of man. The turtle-dove purrs in the birch, the wood-pigeon coos in the beech; nightly the owl leaves his ivy-bower to hunt round the old quarry, whilst the bats dodge in and out amongst the branches. In the close summer days the hollow hums with insect life; millions of whirring wings produce a low but steady booming note, and in the evening the trees and bushes are haunted by the silently flying, ghostly moths. Nature has reclaimed her own.

Man must have stone and brick and coal; he can no longer exist in natural holes or beneath the uncertain shade of the trees. Yet the artistic eye is shocked by the damage and unsightly mess of the quarry, the mine, and the brickfield. Æsthetic taste rebels against the destruction of the picturesque, and demands that something must be done to stop the levelling of a Penmaenmawr, the quarrying of an Ailsa Craig, the mining in a Tilberthwaite Ghyll. Are these outraged champions of nature prepared to do without stone and metal? Let them wait. Let them look, for instance, at the Thames Embankment, and then visit the great quarry on Lundy Island, whence the stone came. Nature, there, has reasserted herself and reconstructed marvellous beauty. There is nothing sordid or unsightly in those fern and heather clad granite rocks, even if some show the tool-marks and drill-holes.

Let them look at the noble old church, with all its evidences of the art of man, and then at the rugged, tree-grown, ivy-clothed sandstone quarry in the wood. Nature very quickly heals the wounds and regains her own.

THE PASSING OF THE "DANDY"

THE PASSING OF THE "DANDY"

THERE was nothing in Bradshaw, nor anything on the railway ticket to Port Carlisle, to suggest peculiar means of locomotion; we noted that we had to change at Drumburgh, that was all. But when we alighted at that busy junction, there was the dandy, with its locomotive skewed across the metals, gazing with equine contemplation at its rival on the Silloth line. The dandy is a survival—a railway carriage drawn by a horse, but distinctly a railway carriage and not a tram. In general shape, colour, and wheels, as also in its windows, door, ventilator, and even door handle, it is a railway carriage, and its inscription—"Port Carlisle. N.B.R. No. 1."—suggests its antiquity; was it the first coach built by the North British?

But there is something more than ordinary railway rolling-stock about the dandy, for at either end is a wide driving seat with a neatly curved splash-board, whilst along the sides the ordinary double step is transformed into a row of seats; above all is the power, the patient horse, ready to pull this strange conveyance along the two and a half miles of normal gauge line to Port Carlisle. The dandy was built for a horse, not the horse adapted to the dandy.

There were four passengers for the terminus, and one for the porterless station of Glasson, where "the Trains [with a capital T] call when required to take up and set down Passengers," as we read in Bradshaw. What constitutes a Train, and why the capital? The dictionary states: "A continuous line or series of carriages on a

railway coupled together with the engine." That hardly applies to the dandy; but, wait, there is another of the several definitions which may apply. "That which is drawn or dragged along or after, as the hinder part of a beast," seems suitable, if we consider that the dandy is inseparable, figuratively speaking, from the horse. Granting that a horse is a "beast," there was nothing beastly about our placid tractor, nothing fiery or untamed even—and we congratulate the editor of Bradshaw: when at work dandy and horse are one, a train.

After all we did not stop at Glasson on the outward journey; the passenger neatly skipped from his seat beside the engineer on to the lonely platform; the engine preferred to keep on the move. On the return journey, a few days later, the dandy was full inside, for it was market day at Carlisle. When we reached Glasson there was a crowd of perhaps half a dozen waiting on the platform, and whilst the driver attended to the receipt of fares the engine left the metals and browsed contentedly on the bank. Perhaps there were a couple of dozen passengers in all, inside and out, but in summer there are at times so many as fifty; the overflow sits with the heavy luggage on the top. With our light loads the horse alternately trotted and cantered, keeping well in the centre of the four-foot way, and striding over points without striking a shoe against the metals. It knew its work and acted as if it had an easy job, for the gradients, if any, are of little moment.

From information culled from a communicative fellow-passenger, and from that man of many parts—engineer, fireman, guard, station-master, ticket collector, pointsman, and porter—I gathered as we slid smoothly over the well-known lines that the Port Carlisle Railway is about fifty years old. Immediately we left Drumburgh we ran into the bed of an old canal, and along this bed

THE DANDY.

travelled until we reached the Port, where empty locks open upon the derelict and silted harbour. Three miles lower down the Solway the Caledonian viaduct crosses, and it was the construction of this railway that finally shattered the hopes of Port Carlisle; shipping to the port was obstructed. The old sandstone quay is weathered and crumbling; it is already cut off from the land, and the redshank whistles as it paddles in the mud of the boatless harbour. No old salts, red and weathered as the sandstone, lean on the rope-covered bollards to watch the flatmen transfer their cargoes to the schooners, for flats, ships, and ancient sailors have departed for ever; it is Port in name only. The heron can catch dabs in the gutters on the marsh a few yards from the railway, but the screaming gull finds no fisherman's offal to reward his scrutiny of the harbour.

Port Carlisle boasts that theirs is the last dandy, the last one-horse railway; but rumour has it that another survives at the other extremity of England—in far Cornwall. Possibly, but does it also combine railroad and canal? The day of the dandy, however, is drawing to a close. Even as we passed on our speedy journey we saw signals lying ready to be put up, sleepers being replaced, and safety rails laid at the worst curves. Within three months other work will be found for the horse, and the dandy will cease its diurnal trips; an engine and carriage, perhaps a train, will ply between Drumburgh and Port Carlisle; the summer visitors to Solway shore must do without their dandy. Probably it will stand, wheelless, beside its old canal bed to serve as a shelter for platelayers, and the passing tourist will remark: "What a funny old carriage!" As we travelled down the line the platelayers at work cracked jokes with the driver; to them the dandy was amusing. To some of us there is pathos in the passing of the dandy.

THE FROZEN TIDE.

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NEW YEAR ON SOLWAY

NEW YEAR ON SOLWAY

OYSTER-CATCHERS in hundreds—many thousands altogether—each with orange bill tucked in its scapulars, snoozed or pretended to snooze on the frozen tide margin. Though really conspicuously pied—"sea-pies" the fishermen call them—they appeared black; the white under parts were lost against the white background. Common gulls flapped idly down the estuary or drifted, tail foremost, on the flow. "Grey-duck" (the Solway name) came up with the tide, and with them white call-ducks, birds which, for the time, had thrown over restraint of domesticity on some frozen inland pool to seek the open life of the estuary. Curlews wailed across the frozen flats; cormorants, with solemn, purposeful flight, passed up ahead of the tide, flying close to the water.

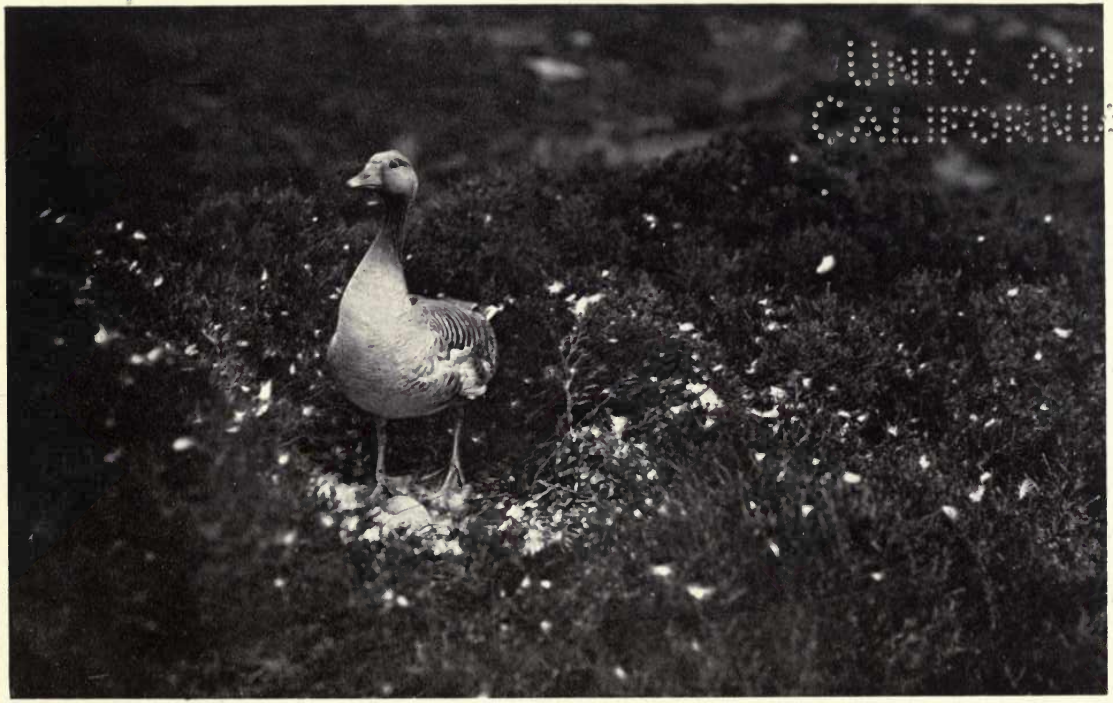
Bare hedgerow and tree, and the green grass in the fields, were white with hoar-frost; even the sheep-cropped marsh pastures glistened with rime; everything was transformed with fairy decorations. The stiff upstanding stems of last summer's nettles, the withered seedless knapweed heads, the wilted nipplewort, and the untidy willow-herb, still flaunting tattered white awns, each had its edges and borders bedecked with diamonds. On the marsh itself, where the ditches cut deep into the sticky soil, water still flowed; snipe and wideawake redshank probed in the only soft mud to be found, wading recklessly in the shallow trickle close to the road. Titlarks had found these food-supplying spots, and blackbirds rattled their alarm cry as they rose from the depth at our

approach; the birds were hungry, for supplies were limited. Where the peat-stained water debouched upon the sand all was glazed with ice; the tide pools, where the fresh-water gammarid meets the salt-water mysid, were closed to all crustaceans, and no marine worm could force its way through the frozen surface cake; naturally the waders had left them to other bipeds, the sliding, cheerful village children. An odd disconsolate dunlin here and there, a ringed plover with its plumage puffed out like a robin, wandered unprofitably along the high tide mark, but most of their fellows were with the oyster-catchers at the edge of the incoming tide.

The sand itself was firm as a macadam road and far more slippery, for the receding, shallowing waves froze as they slipped seaward, and the wet surface became a film of ice. Ice, too, had filled the tiny valleys between the iron-hard ridges of the ripple marks, and all along the highest tide line was a broad ice border, inches deep and several yards in width. The flowing tide had stripped the ice film from the shore, pushing it forward, piling layer upon layer; film had frozen to film, forming a cake; cake upon cake had made an ice-floe. Crushed and up-ended, this mass had been forced landward by the resistless power behind until the shore resembled an Arctic scene.

When the tide turned the steady beat of powerful wings and the clanging cries of swans drowned the crinkling of the disturbed ice; five whoopers, with necks outstretched, came one behind the other from the upper marsh. They passed quickly, for the slow beats are wonderfully strong; in a few seconds they vanished into the seaward haze.

Next day the wind backed to the west, and warmer sea-breezes brought a thaw and clearer air, and we looked out on a fine range of snow-clad hills, behind Dumfries



THE GREY LAG, GOOSE OF SOLWAY.

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and far to the westward, those hills which the exiled Stevenson remembered so well:

"Grey recumbent tombs of the dead in desert places,
Standing stones on the vacant wine-red moor,
Hills of sheep, and the homes of the silent vanished races,
And winds, austere and pure:
Be it granted me to behold you again in dying,
Hills of home! and to hear again the call;
Hear above the graves of the martyrs the peewees crying,
And hear no more at all."

Where the Wampool empties its waters geese and ducks were in thousands, but the fowler, whether tramping the slub or gliding cautiously down the gutters, found his quarry hard to approach; the wary spoil-sport curlew was ever ready to sound the alarm. Wigeon, drifting seaward on the ebb, were distinct enough, but the grey geese, far away on the sands, were impossible to identify, though some at closer quarters were undoubtedly grey-lags. On the marsh were a few barnacles, finding the saltings provided a substitute for half-frozen zostera; hooded crows were lifting shellfish to drop them from a height on the hard sand, smashing the tightly shut valves. The winter range of the hoodie and carrion overlap at Solway, and we found the latter bird gorging on a mallard which some sportsman had failed to gather.

Bar-tailed godwits, occasional winterers on Solway, were with the oyster-catchers, or flying in little parties with sharp, barking cries; twice or three times we heard the triple note of the whimbrel, a much rarer bird as a winter visitor. With the thaw the golden plover and lapwings returned to the fields, hunting the softening sods; during the frost they joined the more maritime waders. Fieldfares and redwings, larks and starlings were all in the fields, and the last fed with rooks and daws on the marsh as well as inland.

Each afternoon, when the light faded all too early, the starlings rose and took a bee-line across to the Scottish side. A geographical barrier, even a natural one so wide as the Solway estuary, was to them no obstacle; at meal-times they were English, at night they roosted in Scotland; the two or three miles between were crossed in a few minutes.

This was in the early days of 1914; much has happened since then. The starlings, versatile birds, may, like the dandy, have changed their habits; the old horse, whatever war service it accomplished, must surely have passed; travel, speed, and manner of travel received many unexpected jolts in the years which have intervened. Port Carlisle ceased to function, the canal emptied, the dandy vanished, but the Solway remains practically unchanged; the tide sweeps over its miles of sands, fills the gutters of its marshes, and brings its hordes of fowls. Away to the north are those wine-red moors, the eternal hills, which the hand of Time seems unable to alter. What do we know of Time? What are our three score years and ten, what indeed the whole history of our race, compared with the ages which have passed since those hills were formed?

AN OLD CHESHIRE WILD-FOWLER

THE OLD WILD-FOWLER.

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AN OLD CHESHIRE WILD-FOWLER

SNOW and ice, ice and snow, far as the eye could reach into the mist that hung over the marshes; every broad gutter fringed with an icy border where the last flood had reached, every hollow where the water had lodged firm enough to walk on; flakes of cat-ice where the water had sunk, and packed broken fragments piled on the edge of the rime-encrusted grass; the broad Dee saltings resembled the Arctic regions rather than Cheshire. These frozen marshes were a scene of desolation different from summer days, when the air danced above the short-cropped grass of rich turf, pasturage of hundreds of sheep, and when bright-plumaged sheldrakes flew past, when noisy lapwings called and redshanks yelped over the green plains. A bitter east wind sweeping across the reclaimed levels of Sealand cut like a knife, it was almost torture to face it; yet the cold winter sun struggling through the mist that veiled the distant Welsh shore made the ice particles glitter and sparkle. It was very beautiful, but very cold.

Hungry fieldfares, redwings, and mistle thrushes looted the red berries from the wind-swept thorns or sheltered in the evergreen oaks in the Hall garden. Skylarks in hundreds searched the tide wrack, every little head down as they ran like mice amongst the debris left by the water; now and again a twittering flock would rise and pass out into the mist towards some likely bank that they knew well. Black-headed gulls, though now unadorned by brown hoods, beat to and fro, waiting for the food-supply-

ing water; and far in advance of the tide came a great flock of curlew, alighting on a patch of marsh which even the high tide could not swamp; here they crowded, bunched together, their wild moorland calls deadened by the searching wind.

Ere we reached the small white farmstead that stands on the very edge of the saltings, its garden wall lapped by the highest tides, the deep gutter that runs close inshore—remnant of the ancient channel—was filling fast. Up came the water, bearing on its flood a swaying mass of ice blocks, floes, and crinkling fragments; visibly the level rose till the frozen mud vanished and a broad, swift river forced its way towards the embankment. The tide was coming.

A steel-grey line stretched across the horizon towards the once famous Parkgate, indistinct at first, then growing clearer, till we could see the dancing ripples of the racing waters. Sandbanks and mud flats disappeared, grass-covered salting sank beneath the flood; tiny trickles became brooks, empty depressions deep gutters, gutters rivers, until the tide swept far and wide across the view.

> "The western tide crept up along the sand,
> And o'er and o'er the sand,
> And round and round the sand,
> As far as eye could see.
> The rolling mist came down and hid the land."

With the water came the gulls—black-heads and commons galore, lesser black-backs and herrings; before the tide reached the frozen cart-track a pair of great black-backed gulls, fine birds indeed, alighted on the shore to investigate the body of a crow. The curlews packed closer as the water swirled round their refuge; not until the freshened mud was left bare at the ebb, bare but glittering with daggers of new ice did they move in search of food.

When the tide was full, when we could see shadowy boats steaming down the distant channel seaward, the grey geese came, following the water from their sandbank refuges, now many feet below the tide. Only for a minute did we see the pack, then they settled, hidden in the mist; one or two skeins broke from the main body, flying inland towards the fields. Fine birds, these pink-footed geese, as with outstretched necks they swing along in regular line with steady, powerful strokes; there is nothing in their wild freedom to suggest the awkward, waddling, overfed birds of the farmyard. They are geese of the wilds, of the mists and driving spume, ever alert, ever free, birds of the mysterious North.

In the white farm by the cart-track lived the old wild-fowler, the man who knew the birds and where to find them. He could tell when they would come from northern lands, knew when they would return; he knew where they would be met with at any hour of day or night, feeding on the grass, resting on the banks, or swimming on the tide. He was one of the few who, as often as not, could outwit them, taking toll of their numbers by his skill and patience; he was a sportsman of the old school, a man of first-hand knowledge, very critical and often scornful of modern methods. In spite of years—he was then past the proverbial human allowance—of much exposure to the wildest weather on the darkest, coldest nights, he was still hale and hearty, well able to guide and govern his extensive farm, for he had inland cornfields and pastures, and grazing over miles and miles of the broad marshes. With his sons and five of the smartest dogs in the district he tended a huge army of sheep, gathering them from the furthest confines of the marsh to fold them safe from the rising tide, and sending them back at the ebb to feed on salt-freshened turf. Though by force of circumstances he had deserted the hereditary

passion for wild-fowling and become sheep-farmer, his heart was still in the old days; he loved to boast of his big shots, his adventures amongst the birds. By right of knowledge he made the marshes his, later they became his by legal tenure; his Scottish flocks grazed where he formerly punted.

How can we describe the man? He was no miserable shore shooter who tramped along the tide line, fearful of losing his way on the wastes, snapping his 12-bore at any passing gull, balked by the first deep gutter. No; in his younger days he was a true wild-fowler, who loved the roar of the punt-gun that hurled a pound and a half of lead into the packed grey geese or barnacles, laying low ten, fifteen, or twenty at a shot. Once, he told us, thirty-five were gathered—a famous number, he reckoned. When the grey dawn came—for he often shot at night—he would visit the spot where he fired to gather the slain and cripples; he knew where he had been in the darkness; the wastes were mapped in his brain. What need for daylight when he could find his way in the "wild roads" or amongst the "lums" and "gorings"? He was acquainted with every channel, every intricate gutter and current; the banks and flats were as easy to him as the streets and houses to the town dweller. Why, he said, should he waste time with the "cripple-killer," or tramp the dangerous mud at night to pick up fallen birds, when he might get another shot at fowl elsewhere on the marsh?

Somewhat bent, more perhaps through much crouching in the old punt than the result of years, the old fowler was a fine, broad-shouldered, well-built man. There was penetrating keenness in his eyes, which twinkled with humour beneath heavy eyebrows, though, like all men of crepuscular habits, he had a half-frown. This was not the frown of ill-humour, but a set expression of determination, indicative of the strong character of the owner. A

THE COTTAGE ON THE SHORE.

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firm, determined mouth, fully exposed by a clean-shaven upper lip; a skin tanned and wrinkled by many a keen wind and salt-laden blizzard—we have the picture of a man who had conquered nature's wild forces, had stood and withstood the bitter rigours of winter which had slain many of his weaker fellows.

When we entered the cosy parlour and sat down with the family to a sumptuous repast, we saw our host in his true character, a yeoman farmer of the real Cheshire type. Courteous, kindly, with that generous nature and open-handed hospitality that marks the true gentleman, his very independence made one feel at ease. With pride he talked of the excitements of the chase; story after story, racily told, flowed from his lips; at times he spoke with scorn of ignorant bird hunters who could not make a bag. Often he was asked to teach the art of wild-fowling, but, though always ready to give a hint to anyone who was really trying, even at the expense of a coveted shot, he invariably refused to give the benefit of his long experience to those who aimed at saving themselves the drudgery of learning. In his narratives he mingled the Cheshire vernacular with Lincolnshire long-shore names of birds, for his father was a Lincolnshire man. "Billy th' Duck," as the Wirral men nicknamed his father, came with his broad, undecked punt and big gun from the eastern seaboard to find virgin soil, or rather virgin mud and sand, in the Dee estuary; there were no professional wild-fowlers, no students of the art, when he first arrived in Cheshire.

Donning his sealskin coat, cap, and long boots, Billy launched his punt, loaded his old muzzle-loader, and paddled down the gutters to look for fowl. Two Neston men, fishing in one of the channels, saw through the mist a strange object approaching. "Look ye, a wha-al," cried one; "see its flappers going!" They would have had a

weird tale to tell if the skin-clad figure had not laid aside his paddles and hailed them; as it was, the stranger with his uncouth garments, his big gun, and flat-bottomed craft, was long the talk of the neighbourhood, until he became a well-known character in all the Deeside villages and the city of Chester.

Old " Billy " grounded his son James in the sport, but it was through perseverance that the son became master of the art. In these days of light, narrow, well-decked punts and complicated breech-loading swivel-guns it is not easy to realise the skill that was necessary to work, single-handed, the broad, pointed craft, with only a few inches of protection from the waves, with the great muzzle-loader firmly fixed upon its block. There was no fine balance or recoil minimiser in the old gun, only strong rope breeching; both punt and gun had to work together on the bobbing wavelets to secure a successful shot. James was less amphibious in his sporting garments than his father; he was content with a ragged black overcoat, and a black felt pot-hat; yet he could bring down more fowl than many a man with more perfect modern appliances. He was very full of the deterioration of the estuary as a wild-fowl haunt; the fowl no longer came, for they were too much disturbed and could " get no harbouration nowadays."

The pink-footed is now the goose of the Dee; these he had sold so low as 1s. 3d. per head in Chester or to the farmers and cottagers of Wirral. Not only did he shoot them, but at times he would set traps, common rabbit gins, in neatly hidden holes in the slub. " Laughing geese "—white-fronteds—he knew well, and he had great tales of the former abundance of barnacles, though he persisted in calling them brents, a common confusion. Half-a-crown was the price of a barnacle in Chester market; the true brent, though he knew it, was seldom

TOM EVANS, QUARTERMASTER ON THE "LUSITANIA," LOOKING FOR FOWL ON THE DEE.

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obtained. Ducks of various kinds—mallard, teal, wigeon, pintails, even the rare garganey—fell to his gun; sometimes he would slip down to the Point of Ayr, risking rough weather, and on the banks obtain " black ducks and tufters " (scoters and tufted ducks). Curlew, golden and grey or " silver " plover, and small waders were marketable; once he declared he got 240 knots at a shot, and considering how these birds crowd together when the tide flows his story may well have been true. Shovelers he knew, but called them " spoonbills," and when he really obtained the latter bird he distinguished it as a " white spoonbill."

Those who condemn wild-fowling as massacre know nothing of the sport, nor of the avifauna of the tidal estuaries; apparently large bags obtained with the " big gun " are trifles compared with the vast hordes of fowl which frequent the flats and saltings in winter. The shots are difficult to obtain, as often as not are not obtained, and a second shot is impossible anywhere near the first for some considerable time. The skill, knowledge, endurance, patience, and pluck required to make a successful " gunner " make wild-fowling one of the best sports; it is far too arduous and dangerous for the majority; as a profession it no longer pays. When it is, as in this case it was, a means of livelihood, no one has a right to criticise; wild-fowl are alike food for rich and poor.

William Kemp, " Billy th' Duck," came to Cheshire at the very beginning of the nineteenth century; James Kemp died in 1905. For nearly a century father and sons—for James had a brother, who also for a time followed his father's profession—led the way as Cheshire wild-fowlers. Others imitated them with more or less success, but now, in days of easier carriage, professional wild-fowling has vanished from the county.

THE WORKING-MAN NATURALIST OF THE PAST

THE WORKING-MAN NATURALIST OF THE PAST

THERE are to-day amongst the working classes a large number of men who fully deserve the title naturalist; they attend science classes, read at the libraries, often have a small but well selected library of their own, and both possess and know how to use a microscope. These men, by careful use of spare time, a keen delight in their hobby, and a determination to see and find out for themselves, often have a more intimate knowledge of wild nature than the systematic and academic scientists whose names figure in the scientific journals. But about the middle of the last century there flourished men of a very different type, whose counterpart hardly exists to-day; a few, but only a few, survive. They had few books, and indeed seldom referred to books, though they took delight in clapping systematic names to their hoarded specimens; they were collectors and especially competitive collectors; their great pride was the possession of rare specimens which their companions had not got.

The keen interest taken in sport, football in particular, is largely responsible for the lack of enthusiasm about natural science, though the artisan often takes pleasure in seeing wild beasts and loves flowers and the songs of birds. The working man, when not looking for the latest winner, often reads short and generally erroneous paragraphs about natural history in his Sunday paper, or in the trashy paste-and-scissors journals, gleaning a smatter-

ing which is worse than no knowledge at all. Unfortunately he believes anything which is in print.

Within my memory many of the old school have passed to happy hunting-grounds; those who remain will not be hurt by recollections of their companions of the past. One by one they pass—forgotten. Few of these men boasted general knowledge; they took up some special hobby and made a collection, striving with untiring zeal to obtain specimens of everything within their reach. Botany and entomology were the favourite callings, but the accumulating of stuffed birds, birds' eggs, land and fresh-water shells, and of geological specimens occupied the attention of many. Taxidermy was the employment of leisure time, and not only did the devotees of this art stuff their own specimens, but they added to their incomes by preserving and setting-up foxes, dogs, cats, and cage birds for their friends, and some were expert in making plaster casts of fishes, the record catches of the local angling clubs. These works of art have in many cases perished, but others still grace the walls of small public-houses or, from time to time, appear, unclaimed, in the pawnbroker's window.

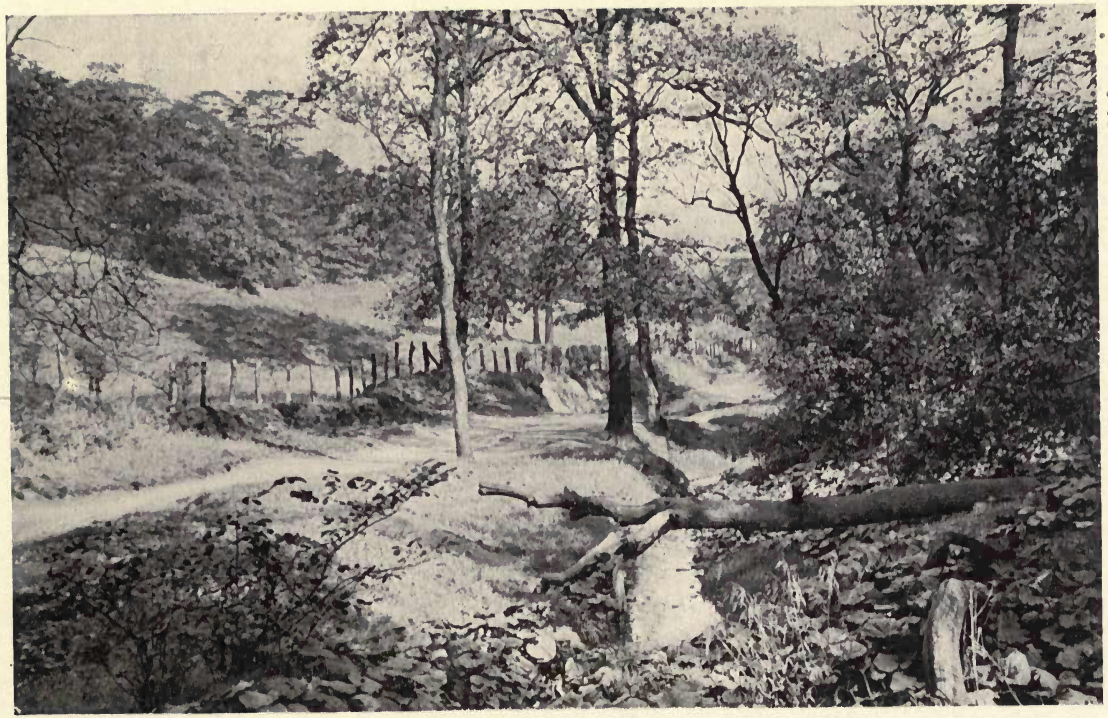
Beetles were what Old Joe went in for, and a very fine and valuable collection he gathered together. He had hunted for and captured beetles in every locality near Manchester, had mounted them carefully and arranged them in boxes, each specimen with its scientific name. His heart was in his work, and he loved order; the smallest beetles, too tiny for the finest pins, were neatly fixed on cards. In his palmy days, say in the fifties, Joe would go any distance for a beetle. There were no cheap excursions, and had there been his purse would have been too empty; so he would tramp or beg a lift in a farmer's cart. On Saturday, soon as his work ended, he gathered together a few boxes and nets, tied his food in

a handkerchief, and walked twenty to thirty miles to some likely hunting-ground, Delamere Forest being one favourite. When darkness cut off hopes of further finds he would lie down and sleep for a few hours, the bracken his bed, the trees his shelter; often the springy fir-needles provided a soothing couch. Up with the lark, he would beat through the woodlands the whole of Sunday, and at nightfall, weary and footsore, but happy if his pockets were full of coleopterous treasures, he would tramp back to Manchester, arriving in time for work on Monday morning. An accident deprived him of one leg and stopped these pedestrian excursions, but it did not quench his enthusiasm; he never tired of showing and arranging the collections, comparing notes with others, and relating the adventures of the past. Joe has gone, but his collection lives, and it contains much of great interest now that the city and other towns have spread and destroyed many of his old haunts.

A very different man was Sam. Like one of Bret Harte's heroes, he was "frequently drunk." Anything was game that came to his net—birds, butterflies, reptiles, fishes. He lived alone in a dirty cabin of a house; probably his rent was in arrears, for he was reluctant to let us cross the threshold until he had satisfied himself that we really only desired to see his collections. He was very drunk then, but not too drunk to remember the localities whence he obtained his dusty, moth-eaten specimens. Yet he was shy about giving information, though he undoubtedly knew the countryside. His collections have probably perished; they would be a danger in any museum, riddled by moth, mite, and beetle. He was a battered, unpleasant specimen himself, drink-soaked and dirt-encrusted; it is, however, fair to say that he was a rare type of working-man naturalist; the majority that I have met have been steady, sober men.

One of the best type, warehouseman in a well-known Manchester house, made a well-earned name for himself as an all-round, reliable naturalist; he saved and retired, ending his days in the enjoyment of the hobby of his life. He stuffed birds in his spare time, and very well he did them. Thoroughly trustworthy and honest, he hated anything that savoured of fraud or sham; he made many life friends and many bitter enemies by his outspoken exposure of deceit in his brother naturalists. Greedy collectors, by no means an extinct class, have only themselves to thank for much of the fraud which surrounds the " identity " of specimens. A school of collectors and taxidermists discovered that there was a market for British or locally obtained specimens which could be supplied by substituting specimens from abroad or from other areas than those stated on the labels. Wild-fowl, and often ornithological oddments, arrived from abroad in the wholesale markets, and these were speedily snapped up, and often shown to the collector " in the flesh " with an entirely spurious local history. How many black woodpeckers are preserved in museums or collections as British? This practice our honest warehouseman exposed and frustrated, cutting off much illicit gain. It was from such men as he that we learnt how skins of ruffs were imported from Holland, mounted and sold as locally obtained; how American skins were treated in the same way to obtain the big prices for " British killed " rarities. It is an old fraud; has it ended?

In suburban Liverpool lived one who in his day was counted the great authority on all local natural history matters; Liverpool scientific societies knew his name, published his notes. He was past his four score years when we visited him, and no doubt a failing memory accounted for some of the strange " facts " he related. As we entered his garden we were hailed by the screams



MERE CLOUGH, HAUNT OF THE OLD LANCASHIRE NATURALISTS.

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of a bateleur eagle, caged near his front door; in the window was a bleached but historical specimen of a Greenland falcon. His specimens were unlabelled, and he either could not or would not tell us whence they came; few of these old collections ever are labelled with date and locality; the owner prided himself that he knew all about them, and forgot that a day would come when his word would be no longer available. Then he passed, and the value of the collections, many of them invaluable, passed also; friends and relatives try to realise upon the hoarded goods, but the scientist refuses to purchase. All the labour has been in vain; for lack of a little care, a notebook, or a catalogue, the specimens become so much lumber. The house was crammed with natural history objects, but the glass cases were cracked and broken; dust and dirt, moth and mite, had found their way through many crevices; the whole place, the man himself, showed the waste of years. A life and a life work practically wasted!

The objection to stating localities was not always laziness, but was the result of the competitive system; these men dared not reveal where they had found their good specimens, for fear that their associates would also find them and so lessen their fictitious value. It had its value for the species; it has its value to us to-day. One or two instead of a score or more raided the locality; many plants and insects would long since have vanished had their habitat been disclosed. Very many years ago the entomological world was astonished by the discovery of a new moth near Manchester; the finder had not one or two, but many specimens. He refused to disclose the source of supply, and gloated over the envy of his less fortunate companions. Time went on, and drink and consequent poverty induced him to part with two or three specimens, one to be figured in Curtis's "Entomology."

At last, for the price of a drink, he disclosed the locality, but either the information was incorrect or the stock had been exterminated; the eager collectors who hurried to the spot, to the very tree, failed to find a single larva, pupa, or moth. More liquor loosened his tongue, and he admitted that the moths had been left in pawn against his score at a low beer-house, but when the searchers investigated they were met with the disquieting information from the landlady that, thinking the " flies " of no value and that they would never be reclaimed, she had " stuck the box behind the fire." *Œcophora woodiella* (Curtis) has never been seen since. Three specimens remain: two were in the Manchester Museum, but one of these is now in the British Museum, and the third, the one Curtis named and figured, is in Australia. The fifty or sixty others which were taken about 1840 on Kersal Moor perished in the flames.

Yet another, a true naturalist at heart but not always accurate, was my first taxidermist. Ducks, gulls, and waders, sometimes song birds, purchased in the market, or the victims of the uncertain aim of my boyhood's gun, were " put into skin " for me, their necks often woefully stretched, their bodies bloated by too much tow; but until I could make a skin for myself all my spare cash passed into his hands. Many were his stories of the " pot-hunting " fraternity, mouching along the hedgerows with a gun, men who shot for " sport," but who traded any good species they obtained. Many a rare migrant or accidental wanderer passed through his unskilful hands. He would give me specimens of snakes and lizards, fresh-water sponges, or rare plants. He was a constant reader of the popular natural history journals that flourished in those days, but he did not write himself. Later he became poetical, and many a doggerel verse, recalling days gone past, has been penned for me. He

became an ardent bird protector in his poetical days, and a keen botanist; he was a character, but a good sort.

The working-man naturalist has, perhaps, evolved rather than vanished; he has, to a great extent, ceased to collect for mere collecting's sake. There are to-day many small local natural history societies in the Lancashire, Yorkshire, and Cheshire manufacturing towns, and some, though not so many as formerly, hold their meetings and have their "museums" in public-houses. I have drunk bad beer and eaten potatoes roasted in their "jackets" in order to attend these meetings, and, frankly, have enjoyed myself, though the dialect, to a southerner, would have been a foreign language. Many societies have a much better tone and more scientific ideals; they are led by men who love nature for nature's sake, and care about their collections as means of increasing knowledge. The pity is that the records of the older clubs were badly kept or not kept at all; they seldom had a recorder; each member was jealous of the others, and kept his knowledge to himself.

When we were parting from one old collector, he asked: "Do you collect birds?" "No." "Do you stuff them?" "No."

We explained that we wanted to get records, to write about them. He looked at us with pity. "Come any Sunday; you'll meet lots of *practical* men here."

Writers about birds and recorders are evidently not practical. Perhaps they are not!

"JIZZ"

"JIZZ"

A WEST Coast Irishman was familiar with the wild creatures which dwelt on or visited his rocks and shores; at a glance he could name them, usually correctly, but if asked how he knew them would reply, "By their 'jizz.'"

What is jizz? The spelling is uncertain; probably its author could not have informed us, whoever its inventor was; it is certainly not in most dictionaries. Possibly the word has never before been written, so that we are justified in spelling it phonetically. We have not coined it, but how wide its use in Ireland we cannot say; it may have origin in this one fertile Celtic brain, or it may have been handed down from father to son for many generations. One thing is certain; it is short and expressive. If we are walking on the road and see, far ahead, someone whom we recognise although we can neither distinguish features nor particular clothes, we may be certain that we are not mistaken; there is something in the carriage, the walk, the general appearance which is familiar; it is, in fact, that individual's jizz.

Jizz may be applied to or possessed by any animate and some inanimate objects, yet we cannot clearly define it. A single character may supply it, or it may be the combination of many; it may be produced by no one in particular. As a rule it is character rather than characteristics, the *tout ensemble* of the subject. Perhaps the outdoor naturalist, and in particular the field ornithologist, realises the full value of jizz better than most people. At a distance, too far away to see details of form, colour,

or pattern, so precious in the eyes of the systematist, he sees a bird and recognises it. He says that it is a chaffinch, a lark, or a sparrow ; but how does he know ? Shape, size, manner of flight, or maybe note, is the reply. Yes, but there is something more; something definite yet indefinable, something which instantly registers identity in the brain, though how or what is seen remains unspecified. It is its jizz.

That mental picture recorded through the eye is accurate in proportion to our familiarity with the species; the more familiar we are the less we note except the jizz. The passing curlew may have a long curved bill, a pale lower back, a strong distinctive flight; we knew these characters were present, but we did not actually see them; we saw a curlew. Curlew flashed into the brain without pause for mental analysis, for we noted the jizz. I am often asked the question which the Irishman was asked; I know of no better answer than his.

Personal experience has proved that a skin, a cabinet skin, may be more difficult to recognise than a living bird. In the skin we see certain patches of colour, markings, or patterns with which we are unfamiliar on the bird in the field. They are described in the textbooks it is true, but they are not the points which catch the eye when the bird is alive. In addition all the pose, attitude, and habit-character is lost when bird becomes specimen. Its jizz is gone. The systematist, used to handling these specimens, contends that identification by impression is less sure than by study of detail, which is in the main true, but then, even if an error is made, the bird is still alive ! That to the field naturalist as well as the humanitarian is an important point.

How often we hear disputes as to the value of the drawing or the photograph as the more satisfactory portrait of the bird; how futile is much of this discussion!

The taxidermist, too, is accused, often with reason, of presenting an effigy devoid of character. But there are pictures and pictures, photographs and photographs, stuffed birds and stuffed birds; it is not the drawing, the negative, or the set-up skin which shows the bird, but the ability of the artist, whether draughtsman, photographer, or taxidermist, to catch the jizz. I have in mind some slight pencil sketches by Mr. Archibald Thorburn, one of a tawny owl, one of a pintail; there is little detail, but a world of jizz. In my room is a print from a photograph taken by Mr. O. J. Wilkinson; it shows a bird perched on a stump, nothing more; yet in every curve and detail we see at once a living spotted flycatcher. In the " Sportsman's British Bird Book " are a number of illustrations photographed from specimens mounted in Rowland Ward's studios; I have not seen the originals, but whoever mounted some of these birds was an artist; he knew how to record jizz.

Jizz, of course, is not confined to birds. How do we recognise the bank vole, seen for a second in the lane, the long lean rat which appears and vanishes like a grey streak, the pipistrelle flitting in the dusk round the barn ? How do we know the daisy in the field, the sturdy oak ? Is it by colour, size, length of tail, or shape of wing, by petal, form of leaf, or fruit ? No; the small mammal and the plant alike have jizz. We do not stop to look for detail, to ask ourselves what we saw; we know. Jizz may deceive us; that is our fault, for each and every thing has its distinctive jizz; if inexperienced we may fail to discern it.

To learn the jizz should be the object of every field naturalist; it can only be learnt by study of wild creatures in their natural surroundings. The seagull in the aviary, the lark in the cage, the rabbit in the hutch have lost more than half their jizz; the specimen in ninety-nine out of a

hundred cases has lost it all. The representation, whether drawing, painting, or photograph, is not faithful according to the artist's skill in registering what his eye sees, but in reproducing that mental picture which exists in his very soul. Ability to portray jizz is a psychic gift.

Since the publication of the first edition, a friend pointed out that in Webster's Dictionary both "gis" and "jis" are given as obsolete varients of guise, and this seems to be the origin of the expressive word.

TRAGEDY IN NATURE

TRAGEDY IN NATURE

BENEATH the ancient beeches I came across the body of a kestrel, a male in all the beauty of its nuptial dress. For many weeks I had watched this bird, had heard its cheerful note when it made love to its mate, had seen it circling and wheeling round her, and had admired and wondered at its easy hovering flight when it beat the meadow for food. The nest of the pair was in a hollow timber near by, and probably the eggs were laid; but the keeper had also seen the birds, and now one, widowed, was left to bring up the family. Beneath the nesting tree lay pellets cast up by the birds, fur and small bones of mammals, shining elytra of beetles and other rejectamenta; but they contained no bones of game-birds, nothing, indeed, to justify the murder. One russet wing was smashed, and there was a cruel shot rent in the neck; but the bright yellow cere, the blue-striped head, the broad-banded, widespread tail, and the creamy throat and cheeks were unstained by blood. The yellow legs were drawn up, the claws clenched, the bill half open; fierce to the last, he had died in an attitude of defiance. Of what use had been my arguments that the bird was a farmer's friend, my warning that to slay it was breaking the law? To the keeper it was a hawk, and so must die.

The dead kestrel is but a single example of the daily, hourly destruction that wasteth the animals and plants: one tragedy out of countless thousands. In the broad parkland, where the bird lay, evidences of the ever-present struggle for very existence are ever before us. Here

stands a fine old oak, many hundreds of years old, slowly perishing in the strangle-hold of the flourishing ivy; here beneath the sombre fir the grass is withered, robbed of the moisture it craved; there the trailing bramble has invaded and choked a bed of hyacinths; there rushes crowded out the blue forget-me-not. Park and woodland are a battlefield.

"But having entered in,
Great growths and small,
Show them to men akin,
Combatants all!
Sycamore shoulders oak,
Bines the slim sapling yoke,
Ivy-spun halters choke
Elms stout and tall."

Here lies a rabbit, bitten in the neck by a stoat; there a duckling mallard, torn and mangled by the murderous brown rat. Beside the tussock where the tree pipit has its cosy nest are the callow nestlings, stark and stiff, shouldered out of house and home by that diabolical foster-brother, the infant cuckoo. Nailed on the barn are the festering, wind-dried, grinning trophies of the keeper's prowess—hawks, owls, jays, magpies, slender stoats and weasels, grey-pated daws and a rook or two, a squirrel, and the tails of sundry domestic cats.

Under the owl roost, the thick ivy on another oak, lie a litter of pellets, larger than those of the kestrel but easier to break up and analyse; these show what destruction goes on amongst the lesser woodland folk when the reeling barn owl makes its rounds. Rat skulls are there —the murderer murdered—jaws and limbs of bank, field, and water vole, house and field mice, shrews galore, even bats mingled with fragments of sparrows and finches, torn in the night watches from their perches. The heron has left an unfinished meal on the margin of the pool, and on the unpicked shoulder of this bream is a deep wound

where the spear beak struck; the rail above the outflow stream glistens in the sun, for there the kingfisher beats off the scales of the minnows, its victims. Under the bracken fronds are bleached bones of a fallow fawn, starved during the winter; a ring-dove, struck down but discarded, suggests the passage of a peregrine; a litter of feathers is all that the fox has left to mark the murder of a pheasant. The tail of a chaffinch and a decapitated bunting lie at the foot of the tree where a carrion has a nest; not far away are a brood of young jays, thrown out to perish miserably when a fierce gale overturned the nest.

Man, though the direct or indirect cause of the death of many creatures, plays but a small part in this great tragedy of nature. His interference, except in a few instances, does not lessen or increase the actual death-rate of wild creatures; slaughter for food continues whether he steps in to take a hand or not. When, however, he attempts to regulate the massacre, strives to protect one species from its foes or to wipe another off the face of the land, he causes widespread calamity, for very precise and definite, albeit ruthless, laws regulate birth and death rate in nature. The Balance of Nature—have not the masters of science pointed out what it means again and again? Yet, how readily we forget or ignore their teaching, for the relative abundance of interdependent animals and plants must be, in the long run, a stable quantity. In order that there may be neither increase nor decrease, when we take an average of many generations, it is absolutely necessary that each pair of animals shall produce during their whole lifetime no more nor no less than a couple of offspring to perpetuate the species; the rest, however many see the light of day, must perish childless. Naturally the number varies with regard to individuals; some leave more survivors, some none, and from year to year increase or decrease in the species may

be noticed. But when the average results are considered the final doom is always the same—all but two of the hopefuls must go to the wall.

A pair of birds may lay an average of four eggs per year for three years; ten out of twelve produced must have negative results; the young if hatched and reared must never become parents, or if more than the two survive in many of the same species we shall at once have a noticeable increase. A small steady increase in the families descended from one pair of birds will, in a few years' time, mean a vast army; any mathematician can demonstrate that. And what does happen when this occurs? for it does constantly in certain species. Simply this, that the joy and success of one species spells sorrow and failure for others. The supply of victuals, whether animal or vegetable, of each species is not illimitable, and when your successful species gets to grips with others the weaker kinds suffer famine. How often do we deplore the decrease, say, of the woodpecker, the chough, the swallow. Do we ever think that there may be any connection between this and the increases we welcome of starling, jackdaw, swift? That these particular species mentioned have any interdependence is mere theory, and the whole skein is so ravelled that we cannot disentangle its intricate meshes; but there is connection between all increases and decreases. By no means is it certain that the improved breech-loader explains the absence of the great bustard from our open plains, or that the egg-collector wiped out Savi's warbler and threatens the Kentish plover and Dartford warbler; men, in their greed, help to destroy the struggling species, and there is no excuse for this rapacity; but these were struggling when man took a hand in their final extinction. The red-legged partridge, a hungry alien, the go-ahead reed warbler, the ringed plover, and even the willow wren, may have

played a very important part in the competition for food supplies.

The life stories of different creatures are by no means equally easy or equally difficult—generally it is towards the latter quality that the complicated history leads us. Some animals have more enemies than others, some pass through stages which expose them to more varied dangers; indeed, the more complex the life before reaching maturity the less the chance of attaining it. But there is compensation, or none of the weaker brethren could survive; the creature with a simple, shadowed life produces few young, and the required number, a fair proportion of the whole, come to their own; the one with many foes and a long and precarious youth presents the world with an overflowing family. The cod with its two to five million eggs might mourn the death of five million infants and leave its fortune to two and only two; the rest, if it is any satisfaction to it to know, have probably gone to improve the stock of other species, not excluding the cod itself; indeed, it is not at all unlikely that many cod thrive on their own offspring.

The guillemot, on the other hand, a bird which no doubt assists in keeping down the surplus population of the cod, has but to lose a few, perhaps two or three, out of its annual output of one big egg. The mortality of the species is small, yet when we find the storm-battered bodies of this pelagic species thick along the tide line we think more seriously of it than the massacre of the millions of possible cods. Suppose that for a few seasons the cod should have a dearth of enemies, say if some epidemic or other catastrophe overtook the normal feeders on its pelagic eggs and larvæ, and a few thousands from each roe came to maturity; where would the food be in the overstocked seas for the vast army of hungry cods? Nature, by the simple method of starving the unwanted,

would adjust its dislocated balance. And what would happen, any time might happen, to the guillemot if the carrion crow, jackdaw or other egg-snatching species should for a few years increase abnormally? Certainly there would be a rapid depopulation of the crowded ledges of our steepest maritime cliffs.

Fluctuations do occur, sometimes through climatic variation, often directly due to human stupidity, or from reasons which we cannot fathom. Suddenly we awake to the fact that the field vole is swarming in some hilly area, that the concourse of starlings is beyond all calculation, that the gamma moth is on every plant, that an army of caterpillars of the antler moth are eating all before them. For two or three seasons the overabundance continues, and we are threatened by a new plague of Egypt. The last serious vole plague happened in Lowland Scotland in 1889-90; grass and herbage were devoured, sheep were starved for want of nourishment. Shepherds and farmers, unable to stop the increase of the little mammal with dog, trap, and poison, appealed pitifully for help, and a Parliamentary Committee was appointed to enquire into the trouble. Some very interesting zoological facts were ascertained; man rose in arms against the rodent; many useless suggestions were mooted, and still the voles increased. The Committee laboured, sent a commission out to Greece to learn what they did when voles troubled them, wrote a very instructive Blue book, and drew fees. But Nature could not wait for Mediterranean steamers to return, and took the matter in hand. Who can explain what happened? Short-eared owls came over in the autumn in greater numbers than had ever previously been known, and fewer returned across the North Sea in spring; they had hit on a land of plenty, and they stopped. They nested and reared double broods, laid larger clutches than usual, and

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Nature did not sweep off the superfluous young; for once in a way they were not superfluous. Kestrels passed the message on, rooks swarmed to the field of action and became bloodthirsty mouse eaters. For generations game-preserving man had been fighting against these vermin, and vermin came in hordes, returning good for evil, to feed on vermin. The voles declined, the voles vanished, the tainted fields recovered and clothed themselves with grass, and the enemies of voles, replete, either went back to their own place or in their turn perished.

But a few years ago the papers were full of the ravages of the antler moth; from the Cheviots to the Peak all the uplands swarmed with hungry caterpillars; they devoured the grass on the hillsides and descended in solid, squirming armies to hunt for food. It was a wonderful sight to see the travellers striving to top the rough grit walls, and to note the streams and roadside horse troughs full of their drowned, bloated bodies. Again the Board of Agriculture gave advice, and some effort was made to reduce the plague, but it was the rooks and daws, the partridges and, most of all, the ichneumon flies, which really tackled the problem; the grass came up again, doubtless fertilised by the parasitised corpses of its late enemies; once more Nature was responsible for righting the wrong.

Well known is the American pond weed, choking canals, rivers, and lakes; steady and deadly its increase, sudden its death when it has devoured all the nourishment in the mud and water. Watercress, an introduced plant in New Zealand, has blocked rivers so as to cause floods, and willows have been planted so that their spreading roots may rob the cress of nourishment. By no means can man always call in the correct natural antagonist to stem the torrent of increase which unwise introduction of an alien species often causes. Stoats and weasels sent to Australia to tackle the rabbit problem found the

farmers' hen runs easier to loot, and the native fauna stupidly indifferent; rabbits had competed with stoats in the old country; these unsophisticated natives were simple game. Goats on St. Helena enjoyed the native forests, and wiped out countless creatures which these had formerly supported, and in oceanic islands everywhere the omnivorous rat has swept interesting insular forms away, leaving the zoologist irate but impotent.

What is so easy to see where vertebrates are the chief actors is not so evident amongst the lower forms of life, but the great changes, the struggles for the mastery, are just as keen, just as ruthless in result.

Indeed, the wholesale destruction is numerically much greater than amongst vertebrates, and not merely because the smaller fry are more abundant. Year by year, if we observe and think, we witness a calamity, a massacre more ruthless than anything in vertebrate economy. What, for instance, happens to the house flies? They annoyed us thoroughly during the summer months; we wished them anywhere but where they were; then autumn came and all vanished. Here and there on wall or window-pane we found one stiff and dead, in attitude of life, but glued to its sarcophagus by the deadly fungus that ate its life away; but we only see a few, millions perish unnoticed. Just enough survive to carry on the race, to repeople the world with winged annoyance. And the aphides, the green fly, which clustered in uncountable crowds on our plants, sucking the life-blood of our cherished roses, our necessary vegetables, our forest trees; the stem mother produced millions of parthenogenetic offspring, generation after generation during the summer. Alarming calculations were issued to warn us what would happen if the garden were neglected; we syringe, we employ all kinds of restraints and preventive methods, but the aphides continue to multiply. Then

one day the air is filled with winged aphides, another and different generation has appeared, and we know that the end approaches. A frost, a heavy shower or two, and all our plants are clean; gone is the blight, gone the lady-bird, syrphid, and lace-wing larvæ, which fought so bravely for us during the period of abundance. The race is wiped out, suddenly and effectually, but hidden from our eyes is that spark of life in a few dormant individuals which will in spring kindle the prolific flame once more; we have not done with aphides because none is visible.

Faced by such dread facts, by an order that is not only "careless of the single life," but apparently careless of life altogether, Siddartha might well be saddened when he marked—

> "How lizard fed on ant, and snake on him,
> And kite on both; and how the fish-hawk robbed
> The fish-tiger of that which it had seized;
> The shrike chasing the bulbul, which did hunt
> The jewelled butterflies; till everywhere
> Each slew a slayer and in turn was slain,
> Life living upon death. So the fair show
> Veiled one vast, savage, grim conspiracy
> Of mutual murder, from the worm to man,
> Who himself kills his fellow."

But is this the whole truth? Is life one great tragedy in "a world of plunder and prey"? Had not Buddha, but a moment before, rejoiced that—

> "All the jungle laughed with nesting-songs,
> And all the thickets rustled with small life
> Of lizard, bee, beetle, and creeping things
> Pleased at the spring-time."

This first contemplation, when "all things spoke peace and plenty," was as true a picture as the second. Few wild creatures perish in decline, die of old age; sudden, often violent death terminates their short lives; ordinary

disease is rare, though parasitical disease, in which some other organism benefits, is commoner. And so long as there is life and health there is every indication that those possessing it find enjoyment and pleasure in the possession. Each animal to exist at all must be alert and fit, ever watchful to avoid danger, ever quick and strong to overcome an adversary or obtain a victim. But fear, as we understand it, is absent; the weaker creature watches for danger, but has no apprehension; the alertness is not merely instinctive but largely reflex. The quickest to act without waste of time for thought is the one which survives and leaves progeny; the weakling goes to the wall.

The heedless butterfly, flitting from flower to flower, bent on pure animal satisfaction, for it does not need the sweets it sips, dodges the onslaught of the shrike, and at once continues its hunt for pleasure. The young lapwing crouches when the peregrine's shadow crosses the moor, but continues to feed immediately the terror has departed. The whitethroat, which dived into the hedge when the sparrowhawk swooped, sings again whilst the hunter chases another possible victim. The mouse, which froze when the owl reeled past, attends to its ablutions immediately the coast is clear. All these avoid the danger, but are not unnerved; they do not think beforehand about what may happen; they brood not on the terrors of the past. If we watch the play of animals, listen to the singing of birds, observe the busy hunt for material satisfaction of the insects, we see no suggestion of fear or misery; their alertness is hardly uneasy, though if the hare is startled or the bird's nest threatened there are certain indications of anxiety—in the one case uncertainty about where and when to escape, in the second a parental attachment to property. Immediately the animal realises that it or its home is no longer endangered it appears by its behaviour to again enjoy the

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fullness of life. Indeed, that is what the healthy animal does, enjoys all that life means to it; care, anxiety, apprehension, fear, as we understand them, have no place in its economy. Tragedy and death are all around, but they mean nothing to the creature which has no fear of extinction, but is simply conscious that it exists and that its existence consists in satisfying its immediate needs.

THE CONTRAST

THE CONTRAST

THE wealth of foliage, leaves at their largest, is responsible for the gloom of the wood; beneath the trees all is in shade, though dappled with circular light patches, where a beam has found a pinhole or crack to penetrate. It is difficult to push one's way through the undergrowth, the saplings are so tough, and brambles, armed with clinging, tearing hooks, trail everywhere in the waist-high grass. The litter of old reed-stems is hidden by the new growth, but jagged broken staves wait for the unwary foot, and the ancient stocks of cut osiers cause one to stumble; it is easy to step from the wood into the water, so similar is the terrestrial and aquatic vegetation. Purple and yellow loosestrife push their showy heads above the sedges; young willows and birches are surrounded by reeds and rushes. Above the sapling sycamores stand the staunch old oaks, the graceful birches, and the sombre firs; nearer the water are gnarled willows and alders, whose roots straggle out over the water, for winter storms have washed the soil between them.

Few birds are singing, though they are by no means silent; call notes, to and from youngsters, resound on every hand. Yet in the dense leafage the birds are barely visible. We catch the flash of the white wing-bar of the chaffinch which is hunting aphides in the tops; we hear the wheezy, insistent cries of juvenile starlings, the *luit* of the anxious willow wren, the low chitter of the reed-warbler near the water's edge. The dunnock, in neat quaker garb, pipes beneath the evergreens as it turns over the leaves of last autumn; the great tit calls sharply,

the jay utters a heart-rending shriek, and the wood-pigeon clatters through the branches on noisy wing. All, including the young thrush which *seeps* continuously only a few feet away, are hidden or only visible for a moment. The trustful robin is the only bird really in evidence, for no sooner do we enter the wood than we hear its subdued song of welcome, and see it flit across our path to perch eyeing us with friendly gaze; it exhibits no annoyance at our presence and certainly no apprehension. Man, it shows by its behaviour, is looked upon as a friend, a companion. Beyond the reed fringe the playful mallard flappers are splashing; their elders chuckle in contented tones, and now and again utter a sonorous quack. Coots and moorhens utter explosive and loud metallic remarks; immature grebes with striped cheeks and necks follow their stately parents with incessant querulous demands for attention, and now and again the cheerful dabchick ripples out its laughing trill.

The bird voices are accompanied by a constant murmur, which rises and falls in volume and varies in quality. A puff of wind raises a gentle rustle amidst the leaves; a gleam of sunshine and the buzz of millions of gauzy insect wings swells into a boom. The stout and bustling humble-bee leads with a deep bass rumble as it blunders from blossom to blossom on the bramble or stirs the dust amidst the tree roots as it searches for something, the bee alone knows what. The hover fly hangs motionless in the ride, its whirring wings—a mere blurr to our slow sight—singing tenor; the annoying banded gnat produces a shrill treble scream two inches from our ear. Reflexly we raise an arm and sweep the air, but never hit the singer. A small tortoiseshell butterfly and many diurnal moths, a skimming, darting dragon-fly, " with loud latticed sails," bees and wasps of various kinds, two-winged flies of every description, from a great bluebottle with a chequered

back to a tiny midge, flit, dart, or hover. From each wing comes some sound, some vibration, perceptible or imperceptible, which in the aggregate makes the busy, joyful hum of the wood. What does it all mean? The enjoyment of summer? The joy of living?

Look at the scene from another standpoint; look closely and critically, and watch the varying actors in this great life drama. Is it comedy or tragedy? The big leaves are stained, ragged, and torn; aphis, coccid, and fungus have blotched or scored them; leaf-miners have left their subcutaneous tracks in their tissues; larvæ have riddled and devoured their living flesh, drained their life blood. There are defoliated twigs on the oak, and a pretty little green-winged moth on the trunk; it and the mottled umber know what has become of those leaves; tortrix and geometer caterpillars were nourished upon them. A passing chaffinch sees the moth; one snap and it is gone. Everywhere is evidence of the larval insatiability of moth, beetle, sawfly, and dipteron, and everywhere ichneumons and other predaceous insects have attacked the caterpillars. Fungi push their brown or lurid red caps through the rotting leaf-mould, flourishing on decay; spongy fungus galls knob the half-submerged roots of the alder; fungi spot the decaying broken twigs and branches. One huge limb of the old white willow is down, and decomposition is destroying good timber; the wood-louse and centipede use its hollowing carcase for a shelter. An ancient oak is struggling for breath in the strangle-hold of the ivy; woody nightshade, honeysuckle, and other climbers trail over and smother any bush or shrub in their way. For yards the young reeds are already bruised and broken, for the weight of hundreds of roosting starlings has exceeded their power of endurance.

A rabbit screams, or the hunger cry of some young birp turns to a shrill note of terror and ends in a gasping sob;

the stoat or fox is at work, the fierce sparrowhawk or relentless carrion crow has secured a victim. And at night the cries of fear, the shrieks of pain are frequent and startling, for then the nocturnal carnivores and the owls are hunting. The stoat and weasel attack the rat, itself a ferocious marauder; the fox stalks and captures the rabbit, or rudely disturbs the slumbers of the roosting bird; the otter slays the flapper and the strong-jawed pike, which is itself responsible for the murder of many a downy infant coot and grebe. The noisy jay could tell why some of the birds are childless; its blue eye discovered the nest. The gentle dunnock, the trustful robin, the ever-busy little wren killed the spider when it was thrusting its poison fangs into the nerve ganglia of the predaceous fly, whose beak was plunged into a smaller member of its order when it blundered into the fatal snare. The dragon-fly and other hovering insects are keenly seeking possible victims; the wasp bears off the dismembered but still moving prey to the ever-hungry grubs. The solitary wasp laboriously drags the paralysed spider or caterpillar to be entombed alive for the edification of its still unborn children, children which it will never see; sealed in the tunnel the captive, inert but alive, will be consumed by a future wasp. The young thrush sees the bumble-bee and disables it with a peck, then, scared by the angry buzz, leaves it to perish; the ants hasten the end. The lumbering dor-beetle, wandering across the ride, carries with it a host of parasitical mites; if these are blood-suckers its days are numbered.

What is the real condition, what the actual feelings of these inhabitants of a joyful and beautiful world which is scarred and stained with the lust of blood? We cannot tell, but we may hazard a guess. We are predatory, flesh-eating animals ourselves; we, too, live in an atmosphere of accident, outrage, and sudden death. We know

it, and are constantly reminded of it, yet we live hopefully, peacefully, with an easy, often thoughtless confidence that we and ours are immune, will escape the dangers which surround us. These other creatures, their methods of living and their actions moulded by heredity and the manifold forces of environment, may exist in the same careless, trustful way. Were they not keen of sight for prey, swift to pursue and strike, they would starve; were they not keen to sight pursuer, smart and active so as to escape, they would be slain. When they are hunting, feeding, playing, or paying court, their every action suggests the real enjoyment of perfected power. May we not reasonably believe that they do enjoy life, and that the other actions, suggestive of anxiety or fear, are merely the outcome of heredity, the inborn necessity of "keeping the eyes skinned"? We may even go further, and believe that their wiles to escape from their enemies, either by speed or concealment, are as reflex as our effort to whisk away the blood-sucking gnat. Unconsciously they see, hear, or scent danger, and without thought act in the promptest and most effective way to avoid it. But the hand failed to localise the gnat, and wing or limb are not infallible; when the failure comes there is but one inevitable result—annihilation.

THE PRESERVATION OF GAME

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CLOSE upon twenty years have passed since I contributed an article on "Game Preservation and its Relation to the Protection of Birds" to the *Westminster Review*. Conditions are not what they were then, but still are not what they ought to be. The deadly pole-trap, a deceitful lure, has been declared illegal. An unbaited trap, usually circular in shape, was chained to the top of a post in some open position; the passing bird—hawk, owl, cuckoo, nightjar, even the harmless pipit, saw this promising rest, alighted, and sprung the trap; after an ineffectual flutter it hung head downwards, held by its lacerated legs, until the keeper chose to come to end its agonies. Declared illegal—yes, but has it gone entirely? Do those who are responsible for seeing that laws are respected ever cross the wild Welsh or Scottish moorlands with their eyes open? Do those who shoot, and perchance take their place on the Bench to deal out justice to that terrible criminal, the poacher, always instruct their keepers that no illegal traps must be set? Is it not more frequently urged upon these underlings that they must keep down the "vermin" without any instructions as to methods to be employed?

Yet, it is only fair to state, the present generation of land-owners and sportsmen includes a much larger number of men who take pride in protecting persecuted species, willingly sacrificing many head of game to the rapacious visitors. On many large estates bitterns, harriers, eagles, ospreys, and other rare birds may come and go without danger; there are estates, too, which are

the best kept "reserves" for all birds, though their owners rear pheasants and shoot game and wild-fowl. The naturalist-sportsman often is the best bird protector.

All sportsmen, unfortunately, are not naturalists, and many a one cares little about the ethics of game preservation; he wants his pleasure, and it never enters his head that the means by which he obtains it may be other than right. The humanitarian roundly condemns the preservation of game, and indeed all sport, so far as the word is applied to pastimes which involve the slaying of animals, as immoral. His arguments are not unsound, but there are fair replies to which he usually turns a deaf ear; we must go to the humane sportsman or the scientific humanitarian to obtain a broad-minded view of the rights and wrongs of sport, or, which is an important point, of the wisdom of preserving a particular species for sporting purposes.

We are all hereditary sportsmen. From those far distant ancestors who had to slay or starve we inherit this love of the chase. In spite of advanced civilisation we are yet children of the savage, each born into the world uncivilised, primeval. Cruelty, alas! seems to be childish human nature; the child is cruel until it is taught otherwise; therefore, if unconscious, it cannot be immoral cruelty. Innocent thoughtlessness, and maybe a thirst after knowledge and sensation, prompts the infant to "pull the pussy's tail to make it yowl for fun," or rip legs and wings from flies upon the pane. If the child has been reproved, learnt what pain means, and repeats experiments in private, delighting in the torments of its victims, it is then cruel. Once the larger knowledge has been acquired the question is entirely different; it is then a subject for thought for the theologian and psychologist; it may be for action by the medical man or criminologist. The habits of the domestic dog and cat provide, to some

extent, a parallel, but the habits under domestication must be considered in relation to those of their wild relatives. The main object of killing in wild animals of the dog tribe and in the larger cats is to obtain food; but, it must be admitted, the lust of blood has grown, and many wild creatures of predatory habits will slay far more than they require to assuage their hunger. To kill the edible prey becomes instinctive, almost reflex, and doubtless the habit increases skill, makes the meal more sure when it is required; preservation for future supplies does not enter into their primitive economy. Domestication has not entirely eliminated the hunting spirit in most dogs, though certain debased varieties have through ages of pandering become lethargic and effete. The well-trained sporting dog, though retaining the hunting spirit, has lost desire to feed upon its prey, and in certain breeds man has practically eliminated the wish to kill; setters and pointers hunt and enjoy the hunt, but the killing is left to their masters; the well-trained retriever will bring an unbroken egg or an uninjured rabbit at command. Yet even in the best dogs survives the ancient craving, and now and again lapses occur. I knew a small West Highlander which was ruining the morals of a young setter by frequently taking it off for days at a spell to chase the deer on a Scottish forest; punishment, when the worn and jaded pair returned, had an effect which lasted until the shame was forgotten, and that was all. W. H. Hudson's story of " a dog in exile " is a most interesting study of canine psychology. " With this excellence," he says, after describing what the sheep-killing exiled retriever could do, " there was the innate capacity to go wrong, a sudden reversion to the irresponsible wild dog—the devilry, to keep to human terms, that sent him into exile and made him at the last so interesting and pathetic a figure."

The cat, on the other hand, is seldom trained to hunt for man; its inclination is to destroy; it hunts for its own pleasure and profit. A desire for warm blood persists, and however well the domestic pet is fed it generally devours some portion of its prey. Much of the play of puppies and kittens, as indeed that of all juvenile animals, is " make-belief " of sport; the mock hunt is far more marked than the mock sexual fight or amour. We, too, are but domesticated wild animals; we have ceased to kill to supply daily need, but have not lost the hunting spirit. The boy who stones a cat or bird or hammers a toad to death is only allowing freedom to his inherent savage inclinations. Let us not judge him harshly, but deliver a salutary moral lesson—for preference with a stick. " Much teaching," declared Canon Lyttelton, " is needed to make children learn what cruelty means, and sometimes a practical application of *lex talionis* is necessary."

Whilst actually writing the above paragraph I was called into the garden to interview a neighbour's tabby; it had struck down and was tormenting a hen blackbird. That cat is well fed, and it did not require a meal; the cat was sitting close by the terrorised and wounded victim, which had energy sufficient to flutter away, but dare not move The cat was waiting for it to attempt to escape, when it would have stopped it just when the bird imagined that it was free. Though perfectly aware that the habit of playing with the victim is natural, I object to my garden being converted into a Spanish arena or a torture chamber, but I found the unfortunate so mauled that I ended its miseries. Nevertheless it was an interesting example of feline instinct; the wild carnivore was there, had hunted for sport, and was killing slowly for its own gratification. Can we justly say that the cat was cruel ? Is it not fairer to call it primitive, savage, and realise how wonderfully, in spite of all our softening,

civilising influences, natural instincts survive? Your infant recapitulates the crude impulses of his long forgotten ancestors. "Surely they dwell," as Stevenson so aptly puts it in his entertaining but philosophical article on "Child's Play," "in a mythological epoch and are not the contemporaries of their parents."

The humane sportsman, if asked for arguments in favour of his pastime, will tell us that exercise in the open air, the necessary sharpening of the wits, and the pitting of knowledge and power against the inborn wariness of wild creatures, is health-giving and exhilarating. If he stops there he is right; if he adds, as some will, elevating, we demur. Familiarity with death, even of the meanest creatures, is apt to dull the sensibilities; after that it is an easy step to thoughtless cruelty, and thence to pleasure in giving pain. Blood lust, unfortunately, is no unknown disease.

Twenty years ago I stated that whilst deploring the massacre of wild animals I believed that were sports of the chase to lose all hold upon our countrymen, Britons would also lose much of the energy and grit by which the Empire was upbuilt. We have learnt hard practical lessons since then, and we wonder if much of this grit and energy was misplaced. How we might have colonised may be learnt from the early history of Pennsylvania, where there was no lack of true grit and energy, tempered by wise statesmanship. What we should never forget is the story of Tasmania, and our hands were not always clean in India, South Africa, and in many of those glorious victories which our history books paint in such glowing colours.

This, however, does not alter the fact that the real sportsman must be a man of untiring zeal and energy, a man of muscle and yet of brain. All outdoor sports, unless indulged in to excess, are health-giving; those savage

ancestors of ours built up a race with iron muscle, inured to hardship, and, so far as venery was concerned, with brains superior to the creatures they hunted. Strong and active, keen-witted and cunning they were bound to be; when these qualities were dull they starved or were slain by the more powerful beasts.

The true sportsman is a good shot, if shooting be his hobby; he hates to wound and not kill clean. Often the drive has little fascination for him; he likes to tramp the turnips or the covert; he enjoys watching the well-trained dog, and insists that birds should be retrieved so soon as shot. Indeed, he will fire his second barrel to stop a cripple rather than leave a wounded runner to secure another head. Not infrequently he is more or less of a naturalist, watching the birds and other animals which are not included in the game-list. Sometimes he permanently exchanges gun for field-glass; some of our best ornithologists have been keen sportsmen, and still enjoy a shoot.

Unfortunately there exists another class; some of its members are town-bred men who have no real love of the country; they rent an estate and shoot over it at the proper time because it is the proper thing to do. They care nothing about their victims, but they like to make a bag that they can boast about; these are the men who are most ruthless in destruction of their rivals, the predatory birds and mammals. Bosworth Smith, pleading for the birds of prey, especially the persecuted raven, said that "as a rule it was not the great land-owner who was so much to blame, except in the matter of that culpable *laissez-faire* which led him to put a gun into the hand of his keeper without instructing him as to what he might and what he might not kill with it. The British land-owner was, as a rule, pleased to see a rare bird in his grounds; if he possessed a heronry it was the crowning

glory of his park, and he tolerated the otter in his osier beds, and the badger in his sand-hills. The arch-enemy of wild birds was the non-resident shooting tenant, and, worse still, the syndicate—hateful word and hateful thing—of shooting tenants. The shooting tenant had hardly any bowels of compassion; the syndicate had none at all. They valued the land chiefly or wholly according to the number of head of game; and dividing the entire animal world into game and vermin, bade the game-keeper, in the words of King Lear, ' Kill, kill, kill!' "

On the shooting tenant's " big day " the unskilled guests blaze away, maim, and seldom kill; they snatch the gun from their loader, loose off, and snatch again, while around them lie the wounded, struggling victims of their slipshod shots, if we may use that term. When the drive ends the puffed-up host strides between the rows of slain like an Eastern potentate after a victory. Sport has degenerated into massacre; the butcher deserves the chastisement we mete to the lad who slays the harmless toad. How different from the other type! Roosevelt, an example of the better sportsman, declared: " I love hunting still, but slaughter is abhorrent to me." What really matters is the attitude of the game preserver towards the animal world; he is no true sportsman who regards everything which is not his game as vermin.

Game preservation, the artificial protection afforded to certain selected species, is unbeloved by many naturalists, but they only consider one aspect, the destruction of vermin. To provide a plentiful head of game it is essential to hedge the favoured bird or mammal with safeguards, to give it seclusion and security from its natural foes, to protect it from those circumstances which would normally reduce its numbers to the limit allowed by nature. An introduced species seldom if ever finds a groove exactly to fit; if food is plentiful and enemies

scarce it flourishes abundantly, as witness the rabbit in Australia; if circumstances are against it nothing but artificial aid can save it. A bird like the pheasant, supposed to have been originally introduced, can exist to-day without artificial aid, but only because we have so reduced the predatory species that it has but few dangers; yet where it is truly wild it is never numerous. Hand-reared birds would have very little chance in an unpreserved district, even were coverts allowed to remain.

Woods and pheasant coverts, provided for the accommodation of the sainted bird, are important factors in the domestic economy of many other species; they even supply refuge for the very vermin under the preserver's ban. Most of these woodland inhabitants are tolerated rather than encouraged, for they do no harm to game; but the keeper is their unconscious guardian, their enemies are his also. The unreasoning keeper spends his master's time and money in protecting his worst enemy, the brown rat. A large proportion of the massacred vermin subsist upon small birds and mammals; kites, kestrels, owls, hobbies, buzzards, and others are exceptional robbers of game, but they are regular and successful hunters of rats and mice. In the pellets of the barn or tawny owl are a few skulls of robins, tits, and finches, but far more of the troublesome house-sparrow, and the quantity of murine remains is amazing. Even those species which are game robbers whenever they have the chance—merlin, eagle, peregrine, sparrowhawk, raven, and crow—kill far more birds and mammals in which the keeper has no interest than his own special pets. Thus, the destruction of predatory species undoubtedly helps the increase of the kinds preyed upon, but as species depends upon species in both animal and vegetable world, any interference with the normal numbers causes a dislocation which is beyond all calculation. The increase of one harmless

species may result, through the drain upon food supplies, never an unlimited commodity in nature, in the destruction of many other plants and animals upon which other creatures depend. Nature has laws which are not to be tampered with.

The grouse moors, deer forests, trout streams are but different settings for the same problem; a sanctuary is supplied for many an innocent animal; their enemies absent, they flourish abundantly. Some, however—the rat and house-sparrow, for example—are anything but innocent so far as man's welfare is concerned, and they, too, benefit by food and asylum. Both in moderation might be useful members of society; unchecked by natural foes they are a menace.

That the sparrowhawk can be included as a bird with any virtue may astonish some preservers. Lord Lilford, sportsman and naturalist, shall answer in his words to Canon Tristram: "The sparrowhawk does good service by taking hard-billed birds, as *Passer impudicus* (Mihi), *Damnabilis* (Irby), *Papisticus* (Tristram), *sanguineus* (agricolæ), and other grain-devourers." Even the most inveterate destroyer of game, so long as its numbers do not increase inordinately, is useful in preventing the multiplication of other possible nuisances.

The science and cunning of the game preserver and his agents have failed to subdue the adaptive *Corvidæ*, though some are in a parlous state. The magpie is rare in certain areas, but it makes up by overabundance where the gamekeeper holds no sway; there the lesser fowl suffer from its keen eye and wicked beak. The jay defies persecution; there may be many mouldering corpses on the keeper's gibbet, but the survivors scream defiance from the thickets, eluding gun, trap, and poison. The keeper is not to blame in all cases for the scarcity of the raven, carrion and hooded crow in many areas. Sentimental

protection has surrounded the rook and daw; they need no further help. The raven, ruthlessly driven from our inland shires, survives upon the coasts and in the wilder hills; there the shepherd rather than the keeper deals with it. Though undoubtedly destructive, its numbers are so far reduced that it deserves protection. The hooded or grey crow and the carrion are hated alike by everyone who has a hen run or a game preserve; but the natural cunning of their tribe has saved them, and in many places they abound. Neither keeper nor farmer has had much to do with the diminution in the numbers of the chough; the increase of the jackdaw is a more important factor; nevertheless the egg-collector is in his greed hastening the inevitable end.

Strict preservation of game serves one most useful purpose in the eyes of all who wish to see our rarer birds protected; it is a check on the depredations of that worst enemy of our disappearing avifauna, the unscrupulous collector. There are keepers, unfortunately, who add to their income by shooting birds and taking eggs to supply the market; but there are estates so well guarded by honest men that the collector and his agents cannot enter or trade. There are land-owners whose estates are bird preserves, not game preserves alone, and who are more than anyone responsible for the survival of the remnant of many a species. Where would the eagle, osprey, kite, harriers, bittern, and great skua be to-day were it not for benignant protection? We are too prone to blame game preservation and the sportsman for the destruction of rare birds; sometimes the men who blame most are the most guilty. Many collectors rave about the scarcity of certain birds, and yet pay high prices for British-taken birds and eggs, encouraging the dealer to seek out the last refuges of the unfortunates. And it is no excuse to say that they only have in their cabinets eggs they have taken

themselves. " One or two specimens, a clutch or two for my own collection will make no difference," the collector argues, or, worse still: " The species is so near extinction that it is too late to save it." How can sense be driven into selfish heads ?

Let ornithologists be fair; let them not wrestle with the mote while the beam blinds them. The sportsman will often listen sympathetically to argument, even sacrificing a few head of game for the sake of other species; but the collector, seldom a true naturalist, professes and does not act, a hypocrite at heart who wants the birds protected so that he may possess them, filling his miserly cabinets. Natural history specimens are of value in educational museums and in the hands of private scientific workers, but too easily does the collector persuade himself that he is making use of his collection. Most honest accumulators of specimens for genuine scientific work either give their collections after the special task is ended or leave them to some scientific institution for the benefit of those who will follow after. The true scientist is never selfish; his aim is to gain and spread knowledge. The collector for collecting's sake is a hoarder, a miser, anxious to possess what others have not got; he will even boast that he possesses the " last " of any species.

Those of us who have more sympathy with the hunted than the hunter should not be blind to the fact that many sportsmen are more generous-minded than the pretended scientific collector. The aim of the scientist, as well as the man who is merely interested in the preservation of animals and plants for humanitarian or other reasons, should be to enlist the sympathies of land-owners and sportsmen rather than make enemies by calling them hard names. The preserver of game and the land-owner have opportunities of helping science; when he realises that there is interest in his vermin he often adds them to the

list of creatures whose lives shall be preserved. It is not our place to demand that he should deny himself his pleasures, any more than it is his to tell us to mind our own business when we plead for creatures which are not personal property. All we ask is that he will show mercy to wild creatures which are at his mercy.

THE PRESERVATION OF OUR FAUNA

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ENTIRELY distinct from the question referred to in the last chapter, the influence of game preservation on our fauna, is the vast and complicated problem of the preservation of a fauna and flora, for the two cannot be separated, in a civilised land, or in a new country that is undergoing the destructive process of fitting it for the habitation and exploitation of the colonist.

Economic questions loom large; there is little need to urge control of certain animals and plants. But the word "control" is misunderstood, and is usually construed as synonymous with destruction. Some particular creature or plant is harmful to some particular interest; "Sweep it away," is the cry, "Swot this fly," "Root out this weed." In our wholesale methods of removing an assumed foe we may also get rid of a valuable ally. The destruction of a food plant may mean the end of those creatures which feed upon it; the annihilation of one particular insect may destroy the plant that it fertilises.

Our fauna includes two main constituents—the native or ancient, and the colonist or alien; it is with the first that we are most concerned, those animals which inherited this land of our birth before we, mostly descended from alien invaders or colonists, decided that the land was ours, not theirs. It is a strange ethical question this of proprietorship, and man, thinking himself Lord of Creation, demands, like "Cunning old Fury," the right of life and death over all so-called lower animals.

"I'll try the whole cause, and condemn you to death," is the usual verdict.

Maybe man has the right of might, whether by strength or learning, of cultivating certain plants and animals at the expense of others, and condemning those which are in his way as " weeds " or " vermin," but he is apt to overlook a very important point. Knowledge is progressive, and, as the historian knows, the acme of knowledge is a matter of the age; what is wisdom to-day may be foolishness to-morrow. The learning of the past, in some cases at any rate, is ridiculous in our twentieth-century eyes; in each era there were philosophers who believed that they had reached the top of the tree. Alas for their folly !

Just as the scientific manufacturer, generally through the chemist, constantly finds fresh use for his by-products, the rejectamenta of former years, so the economic zoologist finds value in the condemned weed or vermin. Furthermore, there is at the present time a growing belief in the interrelation of all life, and though the study of ecology is in its infancy, and so far has failed to throw strong light upon the so-called balance of nature, it is on the right track. When it becomes the life work of many more philosophical naturalists, and is not merely treated as something to dabble with during years of preparation for some more lucrative career, we shall have discoveries which will make us very diffident about destroying or even attempting to destroy organisms which at the present time we think are in our way.

What is the object of protection or preservation ? Why do we endeavour to maintain one plant or animal, or urge that all should have consideration ? There are four main arguments brought forward in support of protection, and though the first three are for specialising, or selecting individuals or groups of individuals for care, the last applies to creatures as a whole. The one which perhaps appeals to the largest number, and which gets most support in that agent of popular propaganda, the Press,

is the Economic argument. The lay and commercial mind understands this line of reasoning. Your animal is or may be of value—to whom or what ?—to mankind in general; of value commercially; of value as a means of checking the increase of, or even of destroying, something else which appears detrimental to human welfare; of value as food for some other creature whose body or products are a commercial or agricultural (one and the same thing) asset for man. It must therefore be protected, not for its own sake, but for the welfare of another, must indeed be exploited for that other—man. For this reason (and, are we ashamed to say, for this reason only ?) exists our Board of Agriculture and Fisheries, striving to regulate the numerical proportions of certain creatures, and to instil its doctrines into a rather slow and old-fashioned constituency.

So far so good: since man has a right to exist, even though we class him as but a competing animal, he must use all his arts and sciences, the product of his superior brain, to accomplish his ends. I do not condemn him; indeed, I strongly uphold the study of economic zoology and botany, and especially advocate that sensible assistance should be given with this end in view to our schools and universities. Unless we treat such delicate matters in a truly scientific manner we shall find ourselves in a more parlous state than we are at present. It is not to the academic mind that we need to appeal, but to the great body of electors whose duty it is to send as representatives men who will realise that science is the driving power in life, and that science without education is impossible. The economic argument may not be disinterested, but it is important, very important indeed.

The second argument for protection is the Æsthetic one, and this, with a few exceptions, is confined to propaganda on the subject of bird preservation. Bird pro-

tectors, both in societies and Parliament, are largely backed by the economic issue, and many, who are influenced purely by æsthetic stimuli, make use of the economic argument; for that they know will appeal when their own desires fail to attract. The bird protector, however, is fully alive to the value of the æsthetic argument in certain circles, and gains much support from the sympathy and purses of ladies and others who are mainly concerned with "the poor, pretty little birds." From the purely æsthetic side there is much to be said in favour of maintaining all birds of bright plumage or pleasant voice, and there is, perhaps, nothing else which will combat that depraved commercial spirit which fosters the pseudo-love of the beautiful in the head-gear of unthinking woman—a survival of barbarity. When it is a question of the plumage trade, use the æsthetic argument for all it is worth.

The third argument, which may be called for want of a more descriptive title the Humanitarian argument, appeals most strongly against the cruelty of destruction. There is sound good sense in it, too, but it is often marred by a strange lack of balance. Men and women who sicken at the sight of pain in animals they admire will ruthlessly inflict it upon those they class as vermin or merely consider ugly. Here again, where there is cruelty in destruction, it is safe and right to use the humanitarian argument for all that it is worth, but we must avoid faddism; the massacre of the plume-bearing herons for the "ospreys" of commerce entails the slow torture and starvation of young birds as well as the cruel death of the parents, and this gruesome fact has, when pointed out by reasonable advocates, influenced many tender-hearted women to deny themselves the ornaments they coveted.

The last and least popular argument is the Scientific, or, to put it in other words, the argument for scientific reasons. It is, apart from economic arguments, most

difficult to advocate, and yet, I must confess, it is the one which appeals most to my mind. It is an ethical question, and it is fair to say that its force cannot be urged without admitting an element of all other arguments. Why should it mean anything to us if a species becomes extinct, ceases to exist? Nature's competitive struggle has swept away untold forms without any call upon man's influence, swept them away before man appeared upon the earth, brushed them aside, the "thousand types," actually to allow the development of the better fitted creatures, amongst which man ranks so high. If man be merely looked upon as a competitor in a highly competitive world, there is no reason why we should bemoan the fate of such types as were an impediment to his development. Yet, I am sure that many share my feeling of regret whenever they see evidence of depletion in numbers of any species; probably they also share my inability to explain why, when wanton destruction or the influence of purely natural forces is causing this reduction, a wave of sentiment, which has in it something of the feeling of chivalry, impels them to uphold the cause of the oppressed. Frankly it is not the death of the individual which matters—thus the humanitarian impulse fails to apply—it is the threatened destruction of some existing form.

We cannot argue, at any rate with ease, that we suffer personally because the great auk foolishly refused to develop wings and would persist in placing its egg on a shelving rock up which men with clubs could climb as easily as itself; is it a matter of inconvenience to us that the Greenland right-whale possessed more blubber than sense, and so allowed itself to be outwitted by the northern whalers, who in their rapacity destroyed their own livelihood? Does it really matter that we never saw a living dodo, or that Wicken Fen was made a preserved area too

late to save the large copper ? Yet these and many other creatures have passed but a few years, comparatively speaking, before our time, and others are passing now. We, who look at the question with what we may term scientific sympathy, mourn the loss. It is because we know that within recent years species after species has vanished, and that we know that man's rapacity is in many cases responsible, that we are so anxious to check his evil influences whilst yet there is time.

There are two methods of stopping or at any rate retarding destruction—legislation and personal influence; each has its place, and as a rule one without the other fails. Protective laws cannot be passed without the strong use of the economic and humanitarian arguments, and the last has often failed to gain a hearing. Laws, too, are useless unless the sympathy of legislators, and of the public servants whose duty it is to enforce them, is strong and constant. Our House of Commons is filled by men whose tenure of office depends too much upon topical political issues for it to spend much time upon questions that are only appreciated by the minority of voters. Thus, if we get a good sympathetic naturalist in the House, and he advocates some useful protective measure, the chances are against his success; his Bill is crowded out by matters which appear more imminent but yet may have transitory importance, matters which appeal to the immediate interests, usually pecuniary, of the majority. The struggle for the Plumage Bill is a recent case in point. It was through the indifference of the majority of members who nominally supported the Bill, men of all shades of party, that for so long it was impossible to combat the small but powerful interests of the plumage trade. Time alone will show whether in these days of economic struggle there is sufficient true sympathy with the intentions of the Bill to secure its legal enforcement.

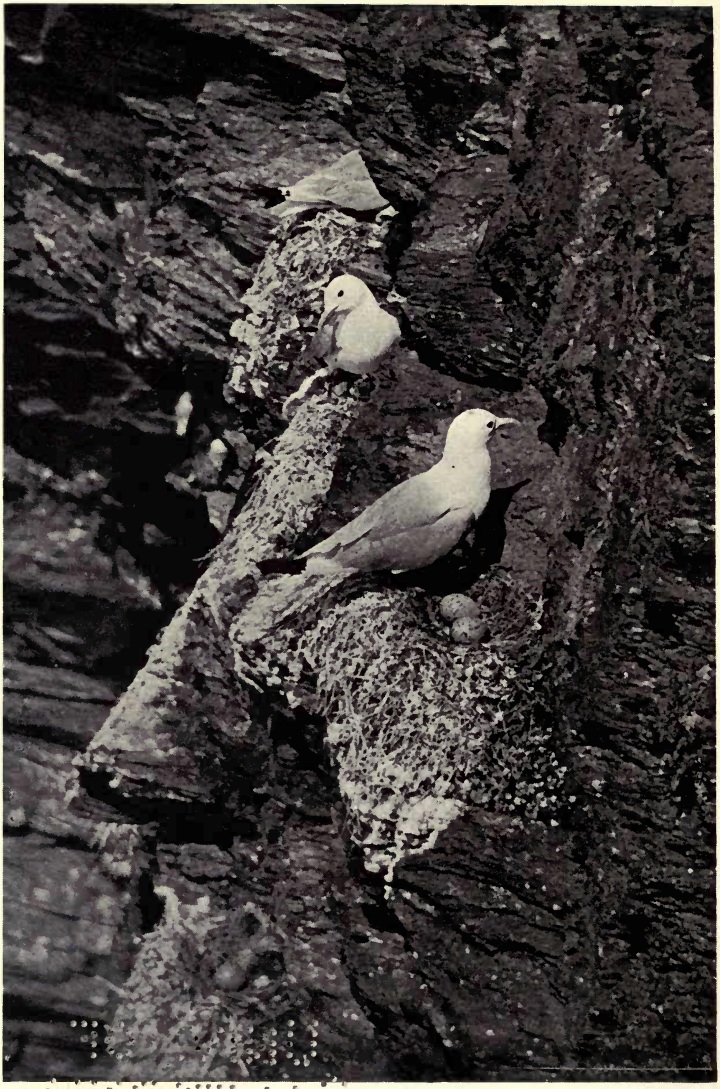
Legislation for the protection of the fauna is not viewed with much intelligence by some of those who are sent to act as our representatives. During the second reading of the Expiring Laws Bill, in August, 1921, one Member made what he considered a witty speech, in which he poured scorn on the work of protectors. This is what he said, as quoted by Hansard:

"Then we come to the Sand Grouse Protection Act, which inflicts penalties for killing, wounding, or selling sand grouse. We are getting very near the 12th, and I suppose there are some honourable Members who know something about grouse. I believe that the object of this Act is to acclimatise a species of bird which, when this Act was passed, was supposed to be the sand grouse but which is now recognised by ornithologists as not being a grouse at all, but a form of pigeon. The amusing part of this Act is that it was passed to protect sand grouse in this country. There has never been a sand grouse seen in this country since the Act was passed. It is called the Sand Grouse Protection Act and, apparently, like all protection Acts, it had the effect of destroying the thing which it was intended to protect. There are various forms of grouse—the red grouse, the willow grouse, and others—but the one thing that does not exist here is sand grouse, and why in the name of common sense we are going on year after year with the object of acclimatising a form of grouse which is not a grouse at all I cannot understand."

It is perhaps unnecessary to say that every sentence uttered is erroneous; it is true that the Act, passed in 1889, was too late to save the birds which came in the 1888 invasion, but there have been seven irruptions or invasions since that date. The object, of course, was to protect a species, not to acclimatise a sporting asset, as the gentleman who appeals "in the name of common sense"

seemed to think. But he was not content with that; he continued by attacking the Grey Seals Protection Act of 1914, and, though an Irishman, he was absolutely ignorant of his own native fauna. "Its object is to protect the species of seal known as the *Halichærnus grypus*" (this is the spelling as it appears in Hansard). "I do not know what we are protecting when it is so described. I am advised that there is no such thing in the waters of this country as the *Halichærnus grypus*. It is a variety that is found only in Scandinavia. It sometimes swims over as far as Denmark. The humour of this legislation is that there is no such thing in this country to protect." Comment is unnecessary.

Those who have followed since 1880 the repeated muddling alterations, amendments, and orders of the Wild Birds Protection Acts must realise that the passing of laws alone will accomplish nothing. The law must be backed, and backed with determination, by public opinion. Then the constable will feel that he is supported in his efforts, that the Bench is behind and not against him. It is true that many of the officers require instruction; they are not ornithologists, and may easily make mistakes about the identity of species; it is equally true that our magistrates, supposed to be educated men, are frequently more ignorant than the constabulary. There are, of course, magistrates and magistrates, and we cannot expect that all should at sight be able to tell the difference between a protected and unprotected bird, but that is no excuse for doubting the word of a constable. I have in mind one local case. A bird-catcher was summoned for trapping protected redpolls, and his defence was that the birds were not redpolls but "jitties"; the constable, a Cheshire man, asserted, quite correctly, that "jitty" was a local name for the redpoll, but the magistrate, somewhat sharply, demanded how he knew, gave the accused the



THE PERSECUTED KITTIWAKE.

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benefit of the doubt, and dismissed the case. Can we expect that that officer would again expose himself to unjustifiable ridicule ?

It is, as was shown, possible to ride roughshod through the existing Acts, but many constables, by bluff alone, have carried out the meaning and intention of bird protection, though they were aware that strict adherence to the letter of the law would have spelt failure. In other cases the law has been upheld by public interest and agitation; those in authority were quick enough to feel the popular pulse, though personally they cared nothing about birds.

Looking back at fifty years of struggle to legislate on behalf of wild birds we see some strange examples of the futility of human efforts and some curious and unexpected results upon our fauna. To no man, perhaps, does bird protection owe more than to the late Professor Newton. He was a rare type of philosophical ornithologist, and largely to his determination was due the first really unselfish legislation on behalf of wild birds—the Sea-Birds Protection Act of 1869. There were earlier protective measures—indeed they date back to medieval days, but in every other case the Acts were tainted by personal interests, and partook of the nature of game and forest laws; the bittern, heron, duck, or other bird was protected in order that some privileged few might destroy it; the peregrine, hobby, and merlin were not to be exterminated, for they were required by certain noble sportsmen for hawking. Other laws were openly intended to prevent trespass; only those in high places might kill, might enjoy blood sports.

Newton, though no sentimentalist, was touched by the sufferings of the sea-fowl. To the big breeding stations, especially those of Flamborough and Speeton, excursion trains were run in the nesting season from London, and,

to our shame, from Manchester and other Lancashire centres; these trains were filled not with ornithologists, but with " sportsmen," who shot the trusting fowl when they refused to leave their precious eggs or young. It was butchery of the grossest kind, and the drain on numbers was beyond all calculation, for the young perished of hunger on the ledges. In many cases no effort was made to gather the spoil; gull feathers were too plentiful to make the labour profitable; the excuse of commercialism could not be given; it was sheer brutality.

" If this is not cruelty, what is it ?" was Newton's indignant cry. " Can men blaze away hour after hour at these wretched inoffensive birds and call it ' sport ' without being morally the worse for it ? We thank God that we are not as Spaniards are, who gloat over the brutalities of a bull-fight. Why, here in a dozen places around our own coasts we have annually an amount of agony inflicted on thousands of our fellow-creatures to which the torture of a dozen horses and bulls in a ring is as nothing."*

The railway companies advertised the opportunities for sport, and then the subtle trader stepped in and created a fashion in gulls' feathers; the price went up, the dealers were able to offer one shilling per kittiwake, so Cordeaux states, and one man alone boasted that he had slain 4,000 adult birds in one season. Taking into consideration the number of eggs which might have been laid and hatched, the number of young which certainly must have been starved in the nest, and the wounded birds which escaped to slowly perish, it is probable that that single butcher was responsible for a reduction in one year of at least 10,000 birds. " Fair and innocent as the snowy plumes may appear in a lady's hat," says Newton, " I must tell the wearer the truth—she bears the murderer's brand on her forehead."

* Wollaston, " Life of Alfred Newton," 1921.

But why agonise our feelings with things of the past? The Sea-Birds Act, though repealed, as was the later Wild-fowl Act of 1872, was, after many struggles, replaced by a better and more sweeping measure, and *all* birds are now protected. Are they? It is just because what Newton foresaw has taken place—the substitution of a nominally better Act with much wider scope, framed by men who were either indifferent or not disinterested, has failed in a great measure to preserve those species which were most in danger. It is true to say that the Act of 1869, converted into that of 1880, has saved the kittiwake, but it has not converted the sinners nor roused a better spirit in the general public. Egg-snatching on the Yorkshire cliffs is still a trade, and though under proper regulations it would not do serious damage to the various species which still nest there in large numbers, it has the result of delaying the nesting period and turning the young out at the end of the close season when still unable to escape the guns of the "sportsmen." I have seen in early autumn a boat load of immature kittiwakes and other gulls brought in at Flamborough; I have seen young loafers, men with money, no doubt, lounging about the jetty at Knott End and shooting at every unfortunate young gull or other bird which ventured within range. "Would you stop the poor man's sport?" is a common cry; yes, and the rich man's too if he is endangering the existence of a national asset.

What happened with the Bill of 1872 is this: it was made too all-embracing to be functionable. After a British Association Close-time Committee had carefully considered all points, the Bill was framed and passed without consulting any real ornithologists. Newton, writing to his brother, says: "Mr. Herbert, on the 21st of June last, laid a cuckoo's egg in the carefully built nest of the British Association Committee, and the produce

is a useless monster—the wonder alike of the learned and the layman, and an awful warning as an example of amateur legislation."*

In order that the sentimentalist might be propitiated, such birds as robin and dunnock received protection, and a small fine, which included costs, was imposed for an offence against common birds and those which were threatened with extinction. The collector smiled, took the risk, and if caught cheerfully paid, knowing well that such fine was a minute discount off the price which he could obtain. So, in a few years the Act died, and the better framed Act of 1880 was passed, but its scheduled birds were not sufficiently protected, and in a few years so many amended clauses were added that it became necessary to describe the measure as "the Acts"; no one but the lawyer was any the wiser or better off, and few lawyers found it worth while to study the complicated problem. Until protective legislation is framed by scientific, unbiassed students of bird life, who ignore the plea of the sentimentalist and weigh with caution the enthusiasm of the economist, the depletion of bird life—that is, of the species we most wish to preserve—will continue.

The law has failed to reach and check the depredations of one class of criminal (it is justifiable to use the term for any law-breaker), the greedy collector and his agents, those who supply him. The professional collector, the man who trades in specimens, is constantly blamed for the damage he does, for his looting is wholesale, but he would very soon turn his attention to some other method of gaining a living were he not patronised; it is the hoarding private collector, the man who pretends to be, but so seldom is, scientific, who is really responsible.

It must, however, be admitted, as even Newton was forced to admit, that the Acts, in spite of their blunder-

* Wollaston, *op. cit.*

ing, have accomplished much. Public feeling was and is strong, and, backed by indifferent legislation, it has so far checked destruction that many species have benefited. Here comes an anticlimax: some of the species, actively or passively protected, have increased so enormously that they have exceeded the natural limits, overweighed the balance, and it is questionable whether further protection is or is not desirable. The æsthetic and humanitarian school are shocked at any suggestion of relaxation; the economic and scientific are in doubt, the first because personal interests are affected, the second because of the uncertainty of interference with nature's balance.

The world is a big place, but it is a very varied one; its inhabitants, whether human or otherwise, are unevenly distributed. Vast tracts are sparsely populated, others are sadly congested, but there is reason for the irregularity. The unpopulated areas are unfit, at any rate during a portion of the year, for a crowded population; the congested areas are the ones where food is obtainable. When we exclude from our thoughts colonising man, who has the power to some extent of altering the whole face of a country, we see that the lower forms must either remain in or travel to and from the best food-supplying districts or perish. Britain is a typically crowded area, and is so well stocked with various forms of life that we may treat it as a fair example of a food area. It supplies just the necessary amount of food to make life endurable for just that number of creatures which it can support; in other words, there are enough and not too many of each form existing within its bounds, and this required number depends entirely upon the seasonal supply of vegetable food, and the balanced and regular supply of animal food which depends upon the vegetation. Any shortage, due to climatic variation, of the vegetable food supply is immediately followed by famine, which means not only famine

for the phytophagous, but for the carnivorous forms; a good year, an increased output of cultivation, the introduction of a new or alien crop, is followed by an increase of vegetable feeders, an increase of their natural enemies, and of the creatures which subsist upon them. What is the result? The numbers are raised above the normal, and when the normal food supply returns, famine follows as surely as when the supply was short; there are too many mouths to be filled. Thus, taking an average of years, the necessary average is maintained, and this is nature's balance.

It is fair to say that there cannot be in any civilised, indeed in any, country populated by man a real natural balance; man is the great disturber of nature. But in a country like Britain, where civilisation has been working for the ends of man for ages, there is what we may call a human or artificial natural balance; a point at which, under the present artificial system, the interrelation of plants and animals, cultivated and domestic as well as wild, remains more or less constant. It is our duty to maintain that present-day balance so far as we can consistently with our actual requirements, for if we fail mankind as well as the lower animals will suffer. It is with this end that economic zoology and botany should be studied.

The increase beyond the normal proportions of any species of bird, due to protection which has not taken into consideration consequences, may be a tragedy. It may, probably will, affect our life interests; it certainly will have influence upon the relative numbers of other forms. Need I mention as problems of the day the extraordinary increase since 1880 of the black-headed gull and the starling, two species wholly valuable in their proper proportions, but threatening other forms, actively or passively, now that they have become so numerous.

Dr. Ritchie has supplied a fascinating study in faunal evolution in "The Influence of Man on Animal Life in Scotland." I know of no better exposition of the need for sensible and well-considered protection than is supplied by this book.

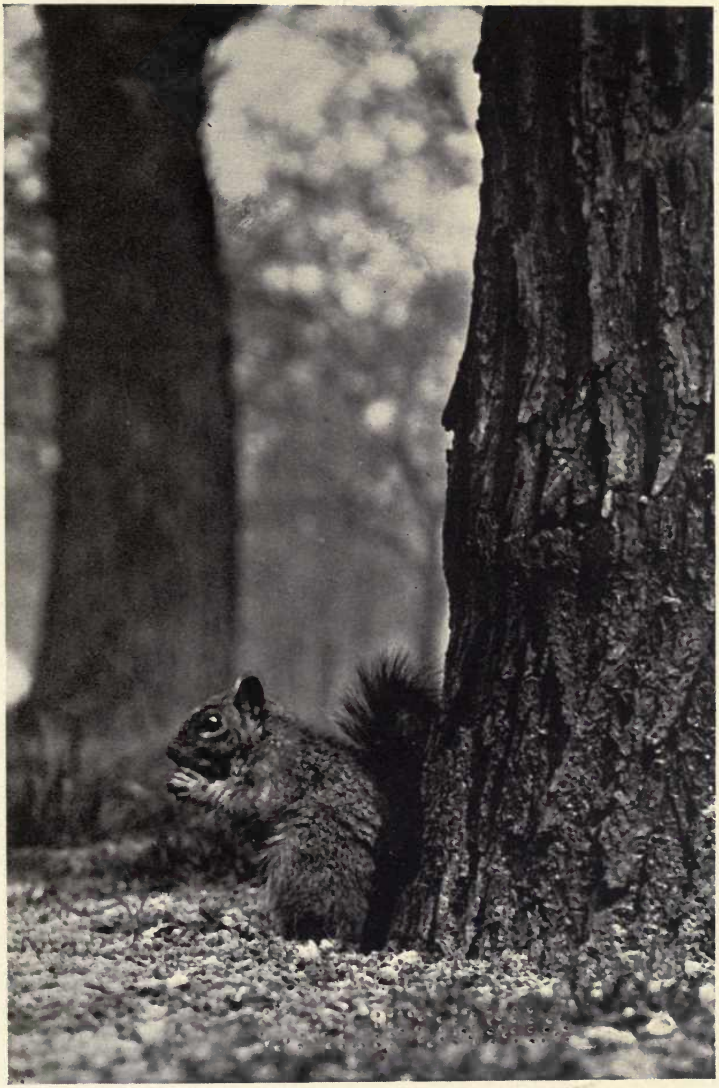
Dr. Ritchie divides his subject into two parts—deliberate and indirect interference with animal life. In the first he groups domestication, intentional destruction of animals for various reasons, protection of animals for other reasons, and the introduction of new forms. In the second he deals with changes in natural environment and the influence on animals, cultivation, civilisation, and the accidental or unintentional introduction of creatures for the most part classed as pests. An entirely different method of grouping or analysis of results would be the dividing of those from which man derives benefit from those which are detrimental to his welfare. Deliberately or unintentionally man has in his dealings with animals derived profit and loss, and he has by no means invariably succeeded in attaining the ends that he desired, or which, at first blush, seemed likely to result. Animals, consciously or unconsciously, treat man as a competing species, and, however warmly a Krapotkin may advocate mutual aid, or a Drummond urge the harmony of nature, the painful fact remains, man and the primitive protozoon alike strive and have to strive to exist at all.

So long as the disturbance of nature is confined to cultivation of land or domestication of useful animals, necessities for man's existence, this disturbance is not only justifiable, but a duty. It may mean, it is certain to mean, destruction of many existing forms as well as individuals, but the loss cannot be helped; it is true, however, that in few cases has the cultivation for food or the destruction of animals for the same reason been the cause of extinction; it is when commercialism demands

wholesale and usually wasteful methods that this undesirable end is evident. The African native, who in his pitfalls slew wholesale for the sake of obtaining food, did less havoc than the trading sportsman who found ivory and other products meant wealth—in other words supplied more than was necessary for his welfare but not for his desired wealth. The Red Indian was not gifted with foresight in his attacks upon the bison, but he failed to destroy it until commercial Western civilisation took a hand; then the vast herds soon ceased to exist. Mr. H. J. Massingham says that "in many ways, our attitude to animals is still very barbarous and very imperfectly consistent. But it must be remembered that these barbarisms are partly vestigiary relics of an unenlightened past and partly the consequences of the detestable predatory spirit directly encouraged by commercialism."* Not only do I endorse this, but I would add my belief that the ancient barbaric attitude, cruel, wasteful, blind though it was, was more in harmony with nature than the greedy, commercial, devil-take-the-hindmost spirit of the so-called intelligent man of the present day who, for his own gain, exploits the weaker brain power of less highly developed creatures. Granted, however, that a certain amount of disturbance is bound to follow any effort for advance, it is all the more necessary that we should take steps which will involve change only after carefully considering the cost; this cannot be estimated until we have so studied, to the best of our ability, the life history of all living creatures, that we may gain some knowledge of how far one depends upon another. Furthermore, any interference with what I have called the artificial natural balance must be watched with an open mind.

This last point may be illustrated by a practical case. One of the questions which has constantly puzzled those

* Massingham, "Some Birds of the Countryside," 1921.



THE ALIEN GREY SQUIRREL.

p. 198.

who are framing laws for protection has been how far the taking of eggs of the lapwing should be prohibited; the usual conclusion is that the lapwing is wholly insectivorous, using this word in that wider sense which means invertebrate-ivorous, and that therefore it should receive the fullest protection. But two other interests are taken into consideration—the one commercial, for the eggs are in demand in the market, the other a matter of policy, the attitude towards the farmer and his hands; it is unwise to add restrictions which it is difficult to enforce. Therefore, in most cases eggs may be taken up to a certain date, but after that they are protected. But supposing that full protection is granted to the bird, and it increases, are we sure that increase is desirable? The lapwing may, when in its normal numbers, confine its attention to certain food, say the larvæ of root-eating moths, larvæ of phytophagous diptera and coleoptera, such as crane-flies and wireworms, or to the small molluscs which certainly do damage. But does the bird confine its attention to these? Does it sagely examine and leave unmolested the larva of a carnivorous beetle? Can it, or indeed any bird which follows the ploughman, distinguish between the grub of a cockchafer and that of the fertilising dung beetle? And, if it could, have we any reason to suppose that it would leave the so-called useful insect for our benefit? And in particular, does it or does it not eat earthworms, and if it does, is it doing us good or harm? Darwin, the great earthworm's advocate, showed the utility of this despised creature, but may we not have too many earthworms? It is an unsettled problem. Leave the worm problem to the mole, some say; but do we? We destroy the mole, yet not, if we are honest, because it devours the worm, but because it throws up unsightly and awkward mounds, obstacles to tillage, or, in many instances, because it has a pelt which has commercial

value. But does not the worm-devouring mole do exactly what the worm accomplishes, aerate and moisten the ground through its tunnels, and throw good top-dressing to the surface? In short, we must remember that those creatures which appear to be of service by destroying pests do not discriminate; they also destroy other useful checks on these same pests. The bud-destroying bullfinch eats also the seeds of troublesome weeds, the tit kills the spider which itself ensnares alike the troublesome fly and the parasite which keeps it in check, the moth, parent of the caterpillar, and the ichneumon which destroys the grub. It is all very complicated, very confusing. All the more reason for careful, unbiassed study of all animal life; we never know where and when we may hit on fresh light, a new link in this complicated, tangled chain of nature.

Without entering into the ethics of war, we can look back and review the lessons of the recent struggle, when interference with nature was rampant. First consider food shortage apart from political and economic causes; it was deemed necessary to encourage internal resources; we strove to increase our food supply, especially of wheat, potatoes, and vegetables. We sowed wheat everywhere, but we did not always reap the harvest; in certain soils for long unsuited to or at least unused to this crop, the wheat bulb-fly appeared and worked its wicked will. It was not, as Dr. A. D. Imms pointed out, that *Hylemyia coarctata* was a new-comer to our lands, but that wheat had been sown on unfavourable ground, following in incorrect rotation; we were, in fact, very ignorant about the life history of this fly, and unwittingly gave it an opportunity of increasing before its natural parasites had a chance of reducing its numbers to the normal. With a little more knowledge we should have avoided the catastrophe; but had we continued to grow wheat in spite of

the set-back, we should probably have discovered that we had in time reached an artificial natural balance, when man would have got some wheat, but neither would the bulb-fly nor its parasites have entirely vanished. We may, in cultivation, force the pace, we do it constantly, but ultimately natural forces assert themselves; a stable condition is reached.

Game preservation has wrought many changes in nature's balance, and these are often closely connected with the introduction of alien creatures. A new and complex situation arose during the war; its effect is still noticeable. Apart from the previous interference with animal life caused by game preservation methods was the fact that a large number of men were engaged in continuous efforts to decrease the numbers of certain creatures, called by them " vermin," and simultaneously to increase the head of game, a persistent effort to upset natural balance. Many of these men were drafted into the army, artificial rearing was almost entirely neglected, and much of the seasonal shooting or sport was discontinued. Immediately a change was noticeable; predatory animals such as hawks, owls, crows, magpies, jays, stoats, weasels, and foxes increased; rabbits became a nuisance in spite of controlled prices, rats were a perfect plague, and small birds decreased. Unfortunately the issue was confused by a natural catastrophe, the abnormal winter and spring of 1916-17, when so many birds suffered from starvation, and in direct consequence insect life had a chance to increase. If, however, some measure of the decrease in bird life was due to the abundance of predatory creatures, which I believe it was, we can see why the wheat bulb-fly increased, and why the forest trees for several years have suffered defoliation by the larvæ of species of *Hibernia* and *Cheimatobia* and other insects. Possibly, too, it was a factor in the abnormal

invasion of the upland pastures by the larvæ of the antler moth.

One remarkable, significant, and, in some quarters at least, unexpected result is that the stock of wild pheasants—that is to say, of birds which nested and reared their young without artificial aid—is greater than before the war. It has often been asserted that the pheasant, an introduced bird, could not exist without protection; I believe that it is so firmly established as a colonist that it has reached that position when it is fitted to maintain its own natural balance. The wild birds not only could exist, but actually benefited by the absence of competition with their hand-reared brethren; there was no longer overstocking.

Game preservation, a very ancient source of interference, has altered the constituents of the fauna more than most agencies, the cultivation of land and domestication of animals excepted; it has too often altered it for the benefit of the minority. Yet we must face the fact that the destruction of predatory creatures and the provision of shelters for game—woodlands, coverts, and moors—have proved advantageous to innumerable creatures, mammals, birds, and insects, for example, which were innocuous to game or beneath the notice of its guardians. We have no vivid faunal picture of our land before the days of forest and game laws, but we can imagine what it was like from analogy. A friend of mine who served as a doctor during the East African campaign was much struck by the apparent absence of small birds and the visible abundance of raptorial species. He argued that there must be a wealth of bird life to feed all these carnivorous vultures, kites, eagles, hawks, and falcons, and soon arrived at the correct solution of the problem; small mammals and birds sheltered in the dense jungle, the predatory birds " waited on," as the falconer would say.

When a possible victim ventured from its shelter it was at once hunted, driven back, or captured. Our forests and woodlands, now reduced to a minimum, must have been similarly crowded with timorous creatures; the open country was free to the larger and more powerful forms. Man has altered all this, man with his axe and hoe has let light into the jungle. What says Stevenson, the roadmaker?

> "'Mid vegetable king and priest
> And stripling, I (the only beast)
> Was at the beast's work, killing; hewed
> The stubborn roots across, bestrewed
> The glebe with the dislustered leaves,
> And bade the saplings fall in sheaves;
> Bursting across the tangled math
> A ruin that I called a path,
> A Golgotha that, later on,
> When rains had watered, and sun shone,
> And seeds enriched the place, should bear
> And be called garden."

When others, long before Stevenson, hacked their way through the primeval forest, "bathed in vegetable blood," they let in the predatory beasts and increased the struggle. But man, too, is predatory, and from craving for food or desire for sport he helped the lesser folk at the expense of the greater, especially when he realised that these powerful creatures competed with him in blood lust. How well he succeeded in driving them from the face of the earth may be realised by the study of history. Here in Britain the white-tailed eagle and the osprey have gone, the golden eagle survives because it is useful as a protector of other game or rather as an assistant on the deer-forest; the kite, once a useful and very familiar scavenger in our medieval towns, and the harriers are reduced to a few strugglers, solely maintained by private protectors;

the pine marten, badger, and otter are threatened with extinction; the polecat and wild cat have within our time followed the wolf and bear. The raven once nested in our midst, but now only exists in the wilds; the lesser fry have suffered, too, though in a smaller degree. It was woe to many creatures when gunpowder came into general use, it was the end when the lethal weapon was "improved."

When engaged in warfare against the smaller creatures, especially those which are in reality his parasites, man usually fails to destroy, though he may succeed in keeping them in check by materially reducing numbers. But when he pits his science and cunning against the less developed intelligence of the larger forms, he can entirely wipe a species out, and often does this in his greed to secure wealth in advance of his human competitors. Thus the rat, sparrow, house-fly, and louse defy his efforts, and until his whole moral outlook changes, for sanitation is a moral question, his cleverest devices will fail to utterly check their ravages. Even then it is doubtful if he will ever destroy the fly and mosquito, though he may render their attacks innocuous. The rat, indeed, persistently following man, has often undone his best work. Its arrival on Lord Howe Island has resulted in the ruin of that successful Australian bird reserve.

With larger and less numerous animals the fight is more one-sided, for they are not numerous because he is numerous. How effectually he can destroy is shown by the extinction of the vast hordes of passenger pigeons,* the Eskimo curlew, the great auk, and many of the Australian parrots. But we need not go beyond the limits of our own land for examples. It has often been argued that drainage of marshes or cultivation of land explains

* Man as the sole factor is now doubted. *Cf.* P. R. Lowe, *Ibis*, p. 137, 1922.

the extinction as breeding species of the bittern, ruff, black-tailed godwit, great bustard, Savi's warbler, and crane. Yet the bittern, after long absence, is nesting once more in the marshes, where it derives protection, private protection be it remembered, and the ruff, too, has returned; there are many suitable places still remaining where these birds might nest if allowed. What has happened with another marsh species, the black-headed gull? Driven from place to place by the drainage of one after another of its haunts, it has still found sites to colonise and wherein to increase. True, there may be factors which explain the increase of one species and the decrease of another which have no connection with the influence, at any rate direct, of man; we can, for instance, explain the increase and spread of the great crested grebe, at one time nearly swept away by the demand for its soft breast plumage—protection gave it the start it needed. But it is hard to imagine that the same factor operated in the case of the turtle-dove. A change of habit and of breeding range may have influenced the godwit and black tern. It is, however, certain that immediately these and other species were seen to be rare their commercial value rose, and they were hunted out of the country by the collector. When Seebohm pointed out that the St. Kilda wren differed from the mainland form it was an evil day for the little islander; one prominent bird protector, now no more, did his utmost to help in extinction of this subspecies.

The Rev. F. C. R. Jourdain recently called attention in *The Times* to the havoc of commercialism amongst the eiders of Spitzbergen. The motor on the sailing sloop is the engine of destruction, for it enables the egg and down hunters to enter bays and inlets which were unsafe before its introduction. One sloop, at the end of last June, had on board " no fewer than 15,000 eggs." The

remnant of the Spitzbergen eiders may be saved when there are so few that it no longer pays to exploit them, but, unfortunately, even this has not saved every persecuted species.

One of the worst destructive features is the intentional introduction of animals to a land to which they are alien. This is usually due to sentiment, but often to a desire, apparently harmless, of improving the fauna by the addition of attractive animals. The result of this well-meaning but mistaken policy is never satisfactory, at any rate for many, very many years. There is no middle course. The introduced creature either finds life so hard in the new land, and enemies so numerous that it dies out at once, or it finds conditions so favourable and natural checks so few that it increases rapidly and some less fitted native succumbs to give it room. Many efforts have been made to improve and increase the variety of our game stock, but whereas the Barbary partridge, the willow grouse, the colin, bob-white, button quail, and even tinamou have been tried and failed, the red-legged partridge has established itself, and the various pheasants have settled down. Amongst mammals the reindeer, wapiti, and beaver rank amongst the failures, the rabbit is perhaps the best instance of a successful colonist; so far has it established itself that we now count it as native, and realise that it has reached that stage when an artificial natural balance with other forms is stable. But can we not guess that awful dislocation of the balance amongst native forms occurred before the rabbit found its level; how many creatures whose absence we mourn may have owed their decline to competition with the rabbit? What it can do when placed in an alien land we know, for is not Australia still faced with the problem? And have not other efforts to check it by introducing its foes—stoat, weasel, dog, cat, and fox—all had bad

results?—the destruction of the native fauna or the colonists' stock, but not of the prolific alien.

Later enthusiasts have brought us the little owl and grey squirrel, and we have yet to see the full results of the folly of introducing successful colonists. At Woburn already it has been necessary to have a squirrel drive, and though neither squirrel nor little owl may be guilty of all the crimes laid to their charge, it is certain that as both are rapidly spreading some other creatures are suffering. I have heard complaints from Hertfordshire and Northants, where the little owl flourishes, that the tawny and barn owls are decreasing; there is only a certain catchable quantity of owl food, and the smart little owl is getting the pick. The bird has now reached our area, where during the last ten years or so the barn and tawny owls have increased; what will the next decade show?

There are many introductions for which we are not intentionally responsible, creatures which travel with and in our food supplies. Many of these come merely as stowaways and perish in an inhospitable land, but others, the hangers-on of civilisation, follow man wherever he takes or sends his supplies. The codlin moth, estimated to cost America at least £2,000,000 annually, we sent from Europe, and in return we have to thank America for the American blight. Cockroaches travel from various parts of the world, for they are great navigators, and colonise wherever they land. The Mediterranean flour moth is everywhere, its land of origin is uncertain, and that small weevil, *Calandra granaria*, is a similar cosmopolitan pest. These and many others, too numerous to mention, increase and spread as trade increases and spreads. We must investigate their life story and take whatever course we can to reduce them to their original status.

Having realised that man not only has been, but still is, responsible for great changes in animal life, many of which

entail the passing of species, two questions may with reason be asked. Why should we endeavour to preserve any of those animals which are so feeble that they can no longer compete? To that I would answer with other questions. Do we desire to see any of the existing forms follow after those which have gone? And do we look forward with joy to a land, nay a world, peopled only by man, his domesticated slaves, his animate commercial assets and his parasites? If this is not a pleasant outlook, then what must we do?

There are, as I have said, two ways of dealing with protection—legislation and public opinion. If we foster the latter the former will follow. But we want our legislation to be wise, and to achieve this our advocacy of the cause must also be wise. Newton, as bird protector, was sarcastic about many methods of its advocates. "The worst is that people will gush and be sentimental . . . the sentimentalists give far more trouble than anyone else." He also refers to the extravagant assertions, over-coloured statements of letter writers: "Our wild animals have no great reason to be grateful to their ordinary defenders in the newspapers." It is true. We need moderate, cool statement of fact, based on the study of life in field and laboratory, and the philosophical application, after careful experiment, of what we have learnt. Above all let us so order our behaviour towards the lower animals that it may not be asserted by the generations to come that the thoughtless, selfish men of the present era destroyed or allowed to be destroyed, for their own commercial ends or for their sporting pleasure, creatures which belonged to all time, the men of the future as well as the men of to-day.

In conclusion. Do these creatures *belong* either to us or to those who will follow? Have they not equal rights to a place in the sun? If so, we are justified only in destroy-

ing when and where we are forced to maintain our own competitive position.

Until we have fathomed that great problem, the evolution of the mind, we have no right to be dogmatic in our assertions that animals cannot understand and even think. What may be their attitude towards us and our boasted civilisation? There is sound common sense in Edward Carpenter's allegorical lines on "Squinancy-wort":

"What have I done?
I am a little flower,
Out of many a one
That twinkles forth after each passing shower.

* * *

"Many an age agone,
Before man walked on earth,
was. . . .
Web-footed monsters came
And into the darkness went
In ponderous tournament.

* * * *

"What have I done? *Man* came,
Evolutional upstart one!
With the gift of giving a name
To everything under the sun.
What have I done? Man came
(They say nothing sticks like dirt),
Looked at me with eyes of blame,
And called me 'squinancy-wort.'

* * * *

"Yet there is hope. I have seen
Many changes since I began.
The web-footed beasts have been
(Dear beasts!) and gone, being part of a wider plan.
Perhaps in His infinite mercy God will remove this
Man!"

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