

BIRDS THROUGH THE YEAR



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BIRDS
THROUGH THE YEAR



THE NIGHTINGALE
B. A. W. S. C.

BIRDS THROUGH THE YEAR

BY W. BEACH THOMAS
AND A. K. COLLETT



BULLFINCH IN BOX-TREE

ILLUSTRATED IN COLOUR
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CHIFFCHAFF

FIRST COMERS

To every bird-lover the day when he sees or hears the first summer visitor makes a great landmark in the year. On some soft morning of late March, when the south-west wind seems to suck a new smell of growth from the plastic clods, the chiming cry of the chiffchaff comes once more from the thorn-brake or the hazel-wood, or the wheatear is seen flicking over the banks on the common; and then a newer and gladder era seems once more to open, and we cast off the old thoughts and mental habits of the winter season. 'Behold, the winter is past, the rains are over and gone.' Now is the time of the singing of birds; and the cry of the first chiffchaff from overseas is the true voice of spring returning to our northern islands. The voice of the turtle, which stands as the type of spring in Solomon's Song, is heard later with us than in Palestine; in England it is a murmur of later May, and of the elder-groves in midsummer blossom.

The two earliest summer visitors haunt very different ground, and each brings the signal of spring to spots which the other passes by. Chiffchaffs like well-grown gardens, woods with high timber and rich foliage, and a measure of shelter and softness. They are less hardy in the choice of a nesting-site than the willow-wren, and cling more habitually

to the lowlands and the milder counties. Wheatears are thorough birds of the open country, haunting downs, warrens, seaside cliffs and dunes, and the smoother stretches of turf on moors and mountains. Their song, which is curious and cheerful, is seldom heard in March, when the greater number of the birds observed are still journeying by stages to their nesting-places; and thus we are chiefly dependent on the eye for our earliest knowledge of the wheatear. But no small



WHEATEAR

bird is more conspicuous than a wheatear on an open down; it is perpetually taking short flights from one exposed perch to another, in the course of which its white patch on the rump is strikingly displayed. As soon as it chooses a spot where it means to nest, it has an anxious and obtrusive way of flitting from perch to perch with a clacking cry, and rest-

lessly twitching its tail. It has the same habit to a less extent even when disturbed at a casual halting-place; and it is only a very weary and wayworn wheatear, or one very eagerly bent on migration, that will flit straight away from its haunt without this little exhibition of anxious proprietorship. Wheatears generally travel in small parties, and this also makes them more easily observed. The earliest arrivals occur very early in March, and by the twentieth of the month they are beginning to be common in the bird's favourite haunts by the sea and on bold, turfy hills with outcropping stones. The wheatear builds and takes shelter in holes, and therefore likes dry, broken ground. Rabbit-warrens are much to its liking, and on high-lying ground

which rabbits avoid it chooses places where split rocks and scattered stone-heaps give it harbourage. Such screes and stony labyrinths are also favourite refuges of the stoat ; much can be seen of both bird and animal in and under the rocks if we lie and watch for a while on the airy hillsides ; and no doubt the hunting stoat is the wheatear's chief enemy during the nesting season.

Chiffchaffs arrive, on the whole, a little later than wheat-ears, although a few stray specimens are sometimes reported from the south-western counties very early in the year. By the end of the third week in March they begin to appear in their usual haunts, and in most parts of the south and west of England they are regularly present in small numbers before the end of the month. When the weather, as often happens, is cold and wintry, they do not sing ; but although they may be overlooked for a few days longer than when they announce their presence, it is by no means difficult to catch sight of them at this time of year. After the leaves come out in April, and the chiffchaffs are joined by willow-wrens and many other birds of similar habits, it is by no means always easy to identify them, except by their song. In March it is very different. We can see even a small bird plainly among the naked boughs, for chiffchaffs prefer deciduous trees, and do not often take shelter among Scotch firs or other evergreens, like tits or goldcrests. When the winds are cold and blustering and loaded with hail, chiffchaffs take refuge from the blasts and their pattering bolts in snug lanes and the warmest corners of the copses. Such spots are marked out by the earliest primroses and robins' nests, and various other forms of early spring life ; and here it is not difficult to find the delicate chiffchaff hunting singly, or with a mate or rival, among the lower branches, and full of the restlessness of spring. The slenderness and grace of

this little visitor distinguishes it at a glance from all the winter company of tits and other small birds, not excepting even the golden-crested wren. The goldcrest is smaller than the chiffchaff, but is more thickset and hardy looking for its size; and the common wren is still more stalwart. The chiffchaff is the very type of all the slender insect-eating birds which haunt the green summer foliage, and leave us before it decays. All its motions and gestures are more



GOLDCREST

refined and delicate than those of our small birds which brave the winter; and its slender bill marks it out from the tribe of the tits. It is greyish-olive above, with a slight pale buff strip above the eye, and greyish-white beneath. Later on, it is difficult to distinguish by sight from the willow-wren; but the willow-wren's upper plumage is distinctly greener.

The wood-wren is greener still, and is strongly tinged with yellow about the rump and throat. Young willow-wrens are the yellowest birds of the whole family, as the chiffchaff is the ashiest; but they do not make their appearance until the end of May. As the chiffchaff hops and flits among the clattering March boughs in the north wind, it sometimes gives a mere whisper of song, like the occasional low prelude to its full notes; but the promise is checked and stifled. The song of the chiffchaff is unmistakable, once it is known. Monotonous, but always soft and welcome, it has a see-saw alternation of a higher and a lower note, which rings like a cry of 'chiff chaff—chiff chaff' almost *ad infinitum* through the trees. Occasionally the sequence is slightly altered, and the song takes

a threefold shape as 'chiff, chaff, chiff,' before returning to the old pendulum swing.

The chief winter home of the chiffchaff is in Morocco, Spain, and other countries in the Mediterranean basin; and as this is comparatively near at hand for one of our summer visitors, it is not surprising that the bird returns to its English haunts very early in the season. Occasionally it lingers through the winter in our own country, especially in the extreme south-west of England and in Ireland; and the chiffchaffs, which are reported at the end of February or early in March, may in many cases be birds which did not leave our shores in autumn, but have sheltered in some warm corner throughout the winter months. The wheatear's winter home is further to the south, in tropical Africa, and there is little or no trustworthy evidence of stragglers of this species remaining in Britain during the winter. Wheatears are sometimes met with late in autumn, when the majority of their species have already fled; but in many cases these are specimens of the large northern race or variety known as the Greenland wheatear, which is a bird of passage in these islands, traversing them in a leisurely manner in spring and autumn on its way to and from its breeding-places in Greenland and other parts of the Arctic regions. Besides this northern race, a number of the common wheatears seen in spring and autumn are also birds of passage, migrating to summer quarters in Norway; and they too, as well as our own birds from the north of Scotland, are likely to turn up as belated wanderers in various parts of the kingdom on their southward course. Many birds appear to be much more leisurely about their autumn migration than when they are driven onwards by the restlessness of spring.

A less common summer visitor which often appears before the end of March is the stone-curlew or Norfolk

plover. Most of its remaining breeding-places are on the chalk hills of the southern and eastern counties, where it is found in company with the wheatear. Later in the season it is often a noisy bird by night; but by day it is always silent, and usually attracts notice by shyly skimming over a heave of the down out of sight of the intruder on its solitudes. Occasionally it can be seen swiftly running with outstretched neck along the slopes strewn with flints, or the chalky upland cornfields; and sometimes it stands erect and on the watch, when its large head and eye make it easily distinguish-



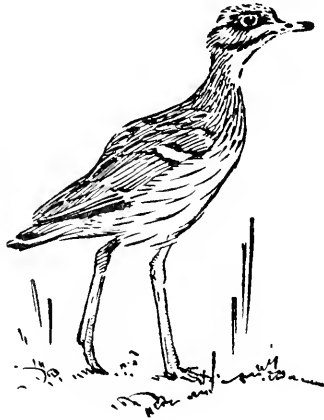
STONE-CURLEW

able. This large eye is a mark of its nocturnal habits, as in the case of the owls. Like the chiff-chaff, it usually winters in the Spanish Peninsula, Morocco, and other Mediterranean lands, but occasionally remains in Britain.

The landrail and the blackcap are also met with now and then in winter, and it is rather remarkable that they do not appear now and then in March like the stone-curlew. Both pass the winter in North Africa and the Mediterranean basin, but do not return to Britain until about the middle of April, the blackcap being a little the earlier. The way in which these normally migratory species are able now and then to sustain life through part or all of the winter in England is one of the most striking signs of the mildness of our climate. Swallows and martins sometimes attempt to do the same; they take up their quarters in some sunny and sheltered nook of the south coast, and may be seen flying on bright days far into the winter. But sooner or later the damp, or

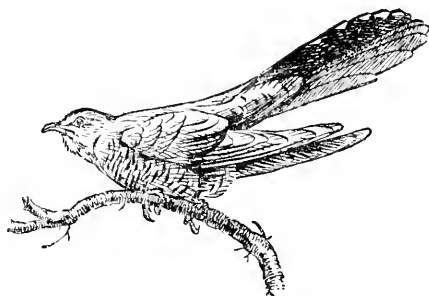
cold, or the diminution of the supply of insects overcomes them, and there is no good evidence that these lingering birds have ever survived till spring. House-martins are usually the last of their family to depart, but swallows are the earliest to arrive; and it is not a very rare experience to see a March swallow in the southern and western counties. Small parties—usually from two to ten birds—appear here and there in the last week of the month, and are usually seen on fine days skimming easily at some distance overhead, bent on making good speed to their summer quarters further inland. The flight of the migrating swallow is much like that of the clouded yellow butterfly, which is also a migrant; it looks desultory and unhurried, and yet covers a great distance in a very short time.

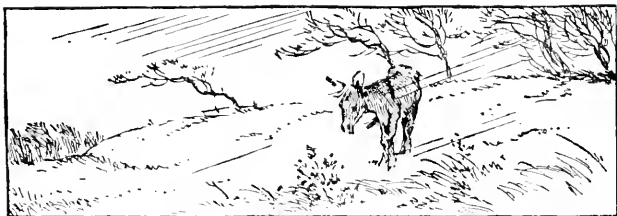
March cuckoos are much scarcer than March swallows, and yet undoubtedly occur. There is no event of spring, however, over which the unwary observer is so likely to be deceived. It is the immemorial practice of British school children to begin imitating the cry of the cuckoo on any fine spring morning when primroses and violets suggest other associations of spring; and the imitation is often quite good enough to delude the uncritical. Sparrow-hawks and kestrels are also apt to be mistaken for cuckoos when there is a hot spring feeling in the air, and the mind outstrips the calendar. But some of the records are too well authenti-



STONE-CURLEW

cated to be doubted; and with the March cuckoo, or sometimes even a few days before it, comes sometimes the cuckoo's mate, or wryneck. By the latter half of March the trees harbour enough reviving insects to provide the wryneck with a fair living if the weather is bright and mild; but one can only conjecture how exceptionally early cuckoos pick up a living, before the first of their favourite hairy caterpillars—the woolly bears and drinkers—emerge from hibernation and creep among the April grass.





MARCH

' — neath the ruin of the withered brake
Primroses now awake
From nursing shades :
The crumpled carpet of the dry leaves brown
Avails not to keep down
The hyacinth blades.

The hazel hath put forth his tassels ruffed ;
The willow's flossy tuft
Hath slipped him free :
The rose amid her ransacked orange hips
Braggeth the tender tips
Of bowers to be.

A black rook stirs the branches here and there,
Foraging to repair
His broken home :
And hark, on the ash boughs ! Never thrush did sing
Louder in praise of spring,
When spring is come.'

ROBERT BRIDGES.

' Leaf-woven homes, where twitter-words
Will grow to songs and eggs to birds ;
Ambitious buds shall swell to flowers
And April smile to sunny hours.
Bright days shall be and gentle nights
Full of soft breath and echo-lights,
As if the God of sun-time kept
His eyes half-open while he slept.
Roses shall be where roses were,
Not shadows but reality ;
As if they never perished there
But slept in immortality.

(1,922)

TOM HOOD, *Spring Promise.*

2



ROBIN'S NEST

EARLY NESTS

EVEN in the coldest spring, many of our winter resident birds are nesting before the end of March. The earliest birds to build are those which have a settled home, and as it were a fixed and seasonal routine, and when their regular spring nesting-place also provides them with shelter and plentiful diet throughout the year, they are even earlier than birds which have a fixed building-place, but desert it during the winter. Rooks return annually to the same rookery, and waste little time in determining where to build; but thrushes and robins which have spent the whole winter in the garden begin building even earlier than the rooks. Robins, hedge-sparrows, and some song-thrushes and black-birds are so constant to their winter haunts in the garden that we often know beforehand where they will nest, and may be sure that they will begin several weeks before birds of the same species in the open country. Colonies of rooks in bare outlying clumps nest a fortnight or three weeks later than those in sheltered situations; and the occasional pairs which take up new quarters in outlying positions are usually latest of all. Robins are conspicuous in the garden all the

winter through, with their red breasts and bold ways ; but it needs a little more observation to see how faithfully the dusky little hedge-sparrow clings to his own modest round. Both birds are among the earliest nesting species, the robin being a little the earlier of the two. The robin's nest is a nightingale's nest clipped at the edges to make it fit into a hole. The two birds are closely related, and the plumage of their spotted young shows their cousinhood very clearly. The robin's nest is packed together from loose leaves, and lined with hair, just like the nightingale's ; but the leafy foundation is cut short where the nest fits close to the bank or wall, and spreads down the slope in a sort of smooth staircase or ramp. By the time that the young are growing big it is often worn smooth by the old birds alighting at the nest ; and from an early stage of building it is easy for a practised eye to pick out robins' nests in walking along a lane by this characteristic apron of leaves. Hedge-sparrows usually build among bushes and brambles, and need a nest warmly framed on all sides. It is often built within a few yards of the previous season's nest, now sunk into a discoloured lump, and is built of a new crop of the same materials—vivid green moss of the bygone winter's growth, and last autumn's garden rubbish and gale-strewn elm twigs.

The difference in the date of the first thrushes' and blackbirds' nests in the fields and in the garden is often surprising. In an average season few nests in the lanes and hedgerows have eggs by the end of March, though there are many in various stages of preparation ; but in a sheltered garden it is not at all uncommon for young song-thrushes to leave the nest before the end of the month. As they remain in the nest about a fortnight, and the eggs take twelve or thirteen days to hatch, this means that the first egg was laid about the last day of February. Blackbirds

are rather more leisurely, and it is exceptional to find such early broods; but many sets of their eggs are hatched by the beginning of April in sheltered box-bushes or the ivy on a warm corner of the garden wall. Blackbirds are earlier than thrushes only in a very hard season. Owing to their way of finding food among the leaves in sheltered ditches, they suffer much less from hard frost; and the end



of a bitter spell of winter weather finds them far less reduced in strength and numbers, and ready to begin nesting at almost the usual time. At the end of the famous frost which broke up gradually in March 1895, the blackbirds in a Gloucestershire garden abounding with birds were almost as numerous as usual, and had several nests with eggs by the end of the month. Far worse was the plight of the song-thrushes.

Only one pair of survivors mustered spirit to attempt to nest before the last week of March; and they built no new nest, but laid a scanty set of three eggs in an old one.

A difficulty which often besets song-thrushes building in a dry or frosty March is the scarcity of mud for their plastered lining. Rotten wood is often used as an alternative to mud, and is found specially serviceable in arid springs. But even a decayed stump needs a certain amount of moisture to make it easily workable, and thrushes are sometimes driven to curious devices. In the same March of 1895, a nest was found in a Berkshire wood with a large triple bramble leaf almost covering the inner hollow above a scanty smear of mud. In dry stony thickets the mud lining is sometimes abandoned altogether, and the nest is lined with long stringy moss wound round and round,

much as the missel-thrush and blackbird line their nests with dry grass. The muddiness of English weather must certainly prove attractive to our song-thrushes, and is perhaps one reason of their abundance. Thrushes and blackbirds, like crows and magpies, also require a considerable amount of mud for the foundation of their nests; and where mud is scarce the fabric is considerably lightened, and framed with a larger proportion of sticks or moss.

The magpie's elaborate nest takes a long time to finish, and is usually begun before the end of March, except in the bleaker districts. The nest consists of a deep cup and a large dome of sticks; and although only the lower part of it has a mud wall, the amount of mud collected and moulded into its fabric is remarkable, considering that it has all to be carried in the magpie's bill. As March gives place to April, the bushy roof of the nest begins to rise, impudently conspicuous in the still naked boughs. Magpies seldom nest in pines or other evergreens; their deep cunning does not extend to the adoption of any methods of hiding their brood from man. But against all other enemies the nest is a safe stronghold. One small hole in the side of the dome is the only means of access; and this the magpie is well able to protect. Occasionally the fort may be seized in her absence, and then the tables are turned. A moorhen migrating in spring has been seen holding a magpie's nest against its builder, which seemed extremely puzzled at this unusual interloper. It is a mistake to suppose that the magpie habitually roofs in its nest with thorns, so as to make it a doubly formidable fortification. Where a quick hedge has lately been clipped, they will weave the thorny shoots into the prickliest of walls; but if they happen to build among ash-trees or elders, they do not trouble to hunt for hawthorn shoots, but use the smooth dead branchlets. It is

purely a question of what kind of twig comes handiest. The clay cup of the nest is extremely solid and durable, and lasts for many years, long after the wattle-work of the roof and outer walls has decayed.

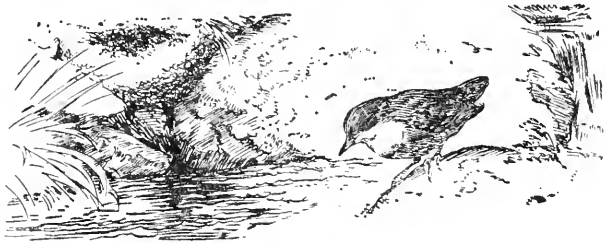
Crows also fix their nests to the bough with a firm foundation of mud; and this firm mud and wattle architecture is well devised against the gales of early spring. Rooks differ from crows both in using no mud for the foundation, and in lining the nest with leaves and grass instead of wool. Rooks' nests are less strongly and comfortably built than crows', and more often get blown down by the March gales; yet it is wonderful to see the bulky nest so often swinging unharmed among the small branches at the top of a tall elm. When massed on stronger boughs, the nests of an old rookery accumulate in a dense floor on which one can safely stand. The decaying sticks and grass-tufts make a sort of leaf-mould, in which grass seeds and grains dropped by the rooks shoot green in the moist spring weather. Among these old deserted homes are interspersed the newer nests, with sets of eggs or young. Again unlike crows and magpies, which seldom use the same nursery in a second season, rooks often patch up and reline their nests; but eventually the sticks grow too rotten to hold securely to the branches, and the old nest is allowed to sink into a flat platform, adorned with its springing herbs. The young birds find these old nests useful perches when they are fledged and flap abroad in May.

Heronries are peopled as early in the year as rookeries, and in mild seasons the full set of pale blue eggs is sometimes laid before the end of February. Unlike many other birds, herons are most gregarious in the nesting season. After they leave the heronries in late summer they are most often seen about the marshes and stream-sides singly; we

come on them standing silently in the woodland brooks in the August heats, or scattered far apart over the mud-banks of the estuary at low water. At most, they hunt together in small parties. But a heronry in March and April is a wonderful scene of noisy animation, as the gaunt birds straddle and trumpet about the nests in the oak or fir tops, and sail to and fro from the marsh. Herons with their long legs seem singularly awkward and out of place among the small boughs in a tree-top; and they have probably adopted this site for greater safety as marshes were drained, and they gave up nesting in low bushes or among the reeds like the bitterns. In Scotland and Ireland, where there are no tall trees in otherwise suitable haunts, they will build on rock-ledges or steep hillsides, like buzzards and hooded crows in similar districts. When floods fill the landscape under a grey March sky, and spring seems still far away, there is a great fascination in the noisy life of the heronry, and the nests full of large blue eggs. Herons' eggs soon lose their delicate blue when blown, and become a dull sea-green; and this colour is reproduced in many illustrated works, though it is not true to nature.

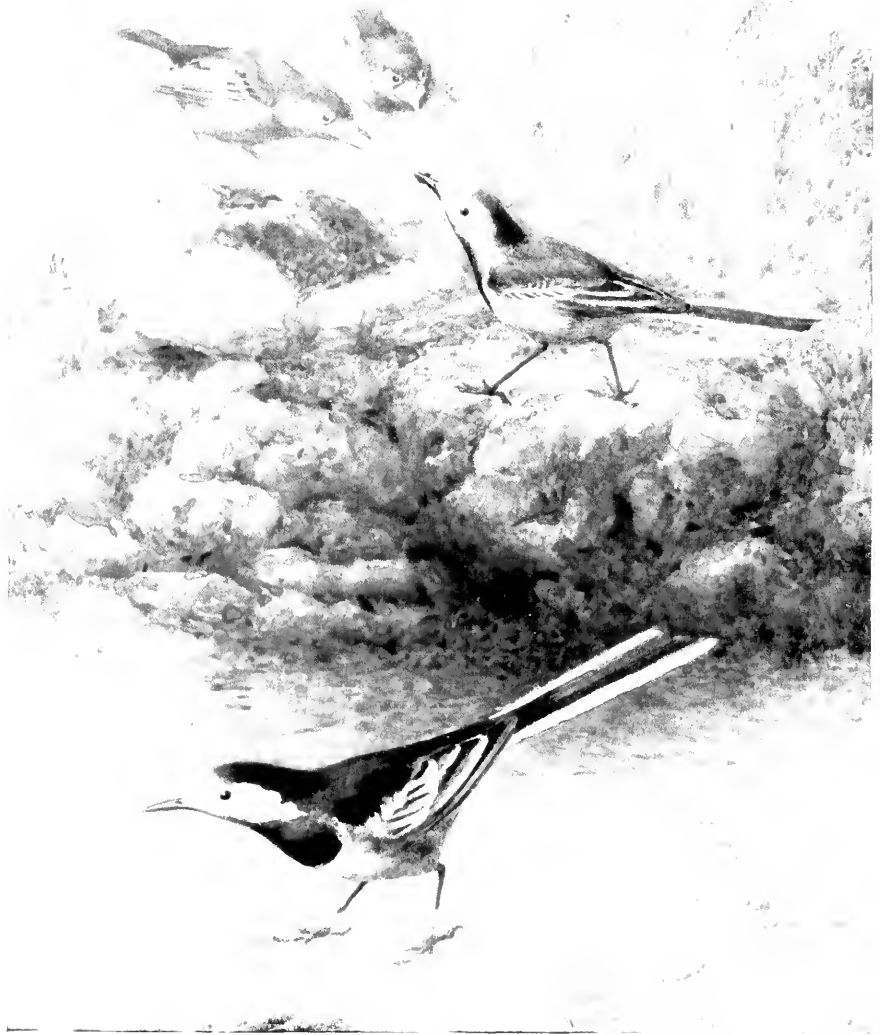
Wandering pairs of herons occasionally settle down in some wood near a stream or lake, and begin to build as late as mid-April. The contrast with the normal habits of their kind shows the advantage of a settled nesting-place. It is the same with several other birds which build by pools and streams. Moorhens which remain all the winter on a sheltered pool often have eggs in early April, and sometimes before the end of March; but many of them are still straggling from hedge to hedge across the country in search of fit quarters in mid-April, and do not lay until May. Moorhens are such an abundant species that there is always an overflow from the favourite nesting-places; and

little lonely pools in the woods are colonised by wandering pairs of moorhens right up to mid-summer. It is otherwise with the dippers and grey wagtails of the hill streams, which haunt the same spots in constant numbers from year to year. Each pair has its own chosen nesting-place, never very near another nest of the same kind, though occasionally a pair of each species will share the same bridge girder or mill wall. This exclusion of their own species and tolerance of the other suggests that the dipper and wagtail have separate food



DIPPER

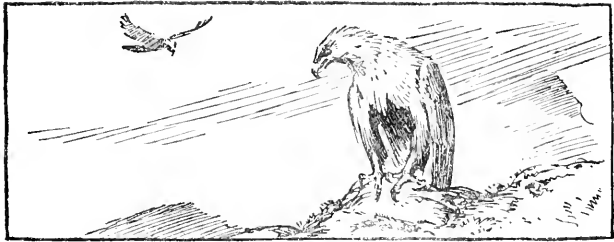
supplies. Grey wagtails seem unmistakably to be spreading as a building species in parts of the Thames valley, where until lately they were only known as winter visitors. They haunt weirs and sluices, and spray-cooled splashing places most like their favourite haunts on the hill streams. But on their older streams the same spot is peopled by a pair of grey wagtails year after year, and a fresh pair very seldom settles in any other site, for the whole stream is divided out into fishing-beats by the proprietary pairs. It is just the same with the dippers, or water ouzels, or water colleys, as they are called in different parts. Colley is a country word for soot, and a water colley means a water blackbird, just as a colley dog meant originally a black sheep dog, or possibly a dog kept to look after the blackfaced mountain sheep.



PIED WAGTAILS. COCK (LOWER FIGURE) HEN AND YOUNG.
By G. F. COLLYN.

They range over half a mile or a mile of water when hunting water-beetles and fly larvæ for their young ; and within that limit no other pair of colleys can be tolerated. Knowing their haunts so well, both kinds of birds return to it very early in the spring. Both dippers and grey wagtails have often eggs by the end of March, while the upbuilding of the mossy mass of the dipper's nest is one of the most delightful signs of spring's oncoming. Wagtails feed more above the water than dippers ; they wade a little, but do not swim or dive. Hence they are forced to leave in winter all but a few exceptionally sheltered corners of the upland streams. Dippers hunt out larvæ, and sometimes fish spawn, below the surface ; and they can thus hold their place at all times of year, except in the hardest frosts.





GOLDEN EAGLE

BIRDS OF PREY

SAD though the decline has been from the naturalist's point of view in the numbers of the birds of prey, it is probable that the number of hawks and eagles formerly inhabiting British landscapes has often been exaggerated. From their domineering ways and the destructiveness of their habits, it is impossible that many pairs of hawks could ever have been thickly crowded together at nesting-time, in the manner of sparrows or greenfinches. In the heart of spring, when all birds are settled in their nesting-places, it is easier than at other times of year to estimate how much ground each pair of each species needs for the bringing up of its young; and birds of prey are seen to need a great deal. In parts of the cliffs and inland mountains where buzzards and ravens are still protected by policy or neglect, it does not take many pairs—only three or four at most of each kind—to occupy the whole of a territory of several square miles, without leaving any spare room for newcomers. The intrusion of other birds of the same kind is resented, and it is evident that a pair of buzzards or ravens consider about a square mile of country by no means too much for their own needs. Golden eagles on the Scotch moors require a much ampler hunting-ground; and even kestrels, which are the poor relations of the lordlier

buzzard and peregrine, divide up the land between themselves with definite beats of considerable extent, and object to trespassers of their own species or any other that by the rules of the wild they consider their inferiors. Probably the surviving species are still as thickly distributed in some of the wilder mountain and sea-coast districts as they were many centuries ago. But although birds resent trespassers of their own species on their special territory at the breeding season, the prohibition does not extend in many cases to pairs of other kinds. Partly this tolerance may be due to the absence in such instances of conjugal jealousy. But it is largely due to the fact that birds of different species prefer different prey, even when they are of the same general habit; and thus there is room for a pair of buzzards and a pair of sparrow-hawks and a pair of kestrels on the same stretch of moorland and wooded dingles, though any single pair of the three species would require the whole or almost the whole territory for itself, if its rivals were of its own kind.

There was probably never a time when the sky over a Scotch deer forest or English woodland in summer was thickly peopled with eagles, hawks, and buzzards, as is sometimes represented in fanciful pictures of the past. The only occasion when birds of prey periodically appear in anything that can be called a flock is at the migration seasons in spring and autumn, when considerable numbers are going northward or southward at the same time, and they feed on the smaller birds, which are also massed in unusual crowds on the same errand. Exceptional abundance of some form of prey—as, for example, the field voles in the famous years when they swarmed in the south of Scotland—will also attract large numbers of birds of prey. But this is precisely an exception that proves the rule; the birds of

prey are distributed in proportion to the abundance of their diet, and when the prey shows an abnormal increase, the birds increase too. But although birds of prey can never have swarmed in ordinary seasons, from the very nature of their habits, yet there can hardly have been a single district in the whole of our islands where some kind of eagle or hawk was not a familiar dweller, and as well known as the swallow or the wood-pigeon. It is sadly different to-day. In many parts of the country even the appearance of a kestrel is a treat not to be seen every day, and a whole year may pass without seeing a hawk of any other kind. Even in the select districts where buzzards as well as kestrels are still plentiful, and peregrines not rare, the eye probably will look long before it sees the merlin, and may look as long as it likes before it falls on the sea-eagle or the osprey. The larger stars have fallen out of the firmament, and the lesser lights do not increase to fill their places.

A sort of private census of the rare birds of prey nesting each year in Britain is kept by many naturalists who do not publish information of the results, for fear of indicating some of the last refuges; and with a few exceptions, the annual story is still one of decline. Protection has set the golden eagle in Scotland well beyond the risk of extinction for the present, and it still lingers in one or two counties in Ireland. It is a bird which likes mountain scenery and a moorland diet, including grouse and hares, and probably never inhabited the lowland parts of England, though it was a regular dweller in the north. Sleepless protection in the nesting season has also saved the last kites in central Wales, and enabled them to increase their numbers to between two and three dozen birds. Eight or nine years ago these came within an ace of extinction, though only a century back they were still common in most parts of England. Montagu's

harrier has succeeded in nesting a few times in recent seasons in parts of southern England, where for a long while it was itself harried out of existence ; but here the last of increasing species comes to an end. The hen-harrier now only occasionally nests in England, though it still holds its own in small numbers in Ireland and the Hebrides. The marsh-harrier lingers on some of the Irish bogs ; but Ireland has lost the last of its sea-eagles, though they still maintain one or two eyries in Scotland. The osprey seems to have abandoned its last Scottish haunts ; the law as administered has

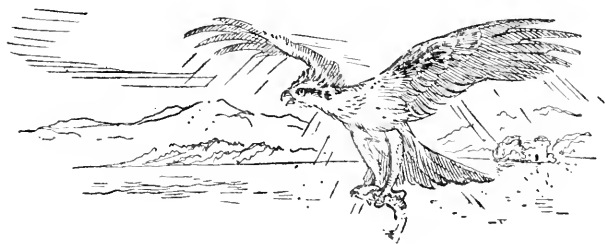


MONTAGU'S HARRIER

been impotent to protect the migrating birds from gunners as they pass through England. Some of the smaller woodland hawks have suffered equally with the great fishers. The honey-buzzard now only nests in England very rarely and casually ; it has been extirpated by the collector in its last regular home in the New Forest. Even the sparrow-hawk is unfamiliar to many people who watch birds constantly in their own districts ; though a little bird, as hawks go, it is one of the few undeniably mischievous and destructive species, and its misdeeds prevail against it, so that too few people show it a measure of mercy for its attractive and dashing ways. The balance has swung too far since sparrow-hawks and harriers were the daily robbers of the farm-wife's chickens and ducklings and the kite systematically

purloined the family wash. We want to see more of our wild birds again ; and their worst foe is not the gamekeeper or the hill shepherd, but the collector of British rarities.

By birds of prey we mean birds which spill red blood ; we do not call the robin a bird of prey for eating worms, or the flycatcher for ridding us of midges. A great part of the attraction of this group of birds comes from the savagery of their diet ; it gives a thrill to find the young peregrines lying amid 'bones and blood,' and this is distantly but undeniably akin to the hereditary fear of man for a man-eater. But this



OSPREY

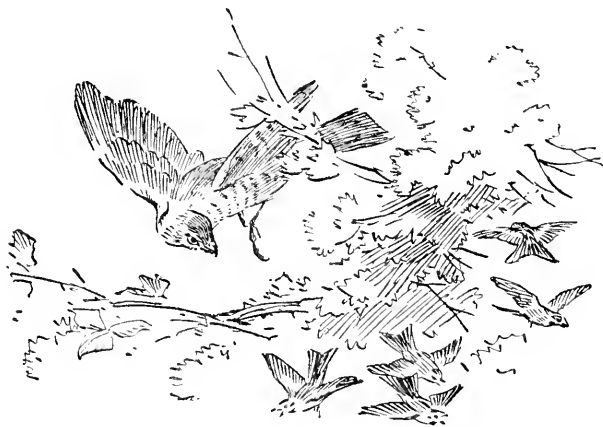
rather gruesome element in the habits of birds of prey is balanced by the grace and prowess with which they go about their predatory business. There are two main groups of hawks, which may be called the dashers and the soarers. Soarers include eagles, and vultures in countries which have them, buzzards, kestrels, and kites. These are the birds which wind a spiral up the wind, or ride on motionless vans by the same cunning opposition of their living planes to its current, or hover in the beautiful way of our own kestrel. Most of them belong to the broad-winged group ; but the kestrel, which is no mean soarer, is a long-winged hawk. Partly the soarers ride aloft to spy for food as from a watch-tower ; the soaring eagle or vulture commands a radius of

many miles in its bird's-eye view. But the habit seems to have passed on into an exercise of sheer pleasure; the buzzard spinning its slow rings over the cliff or the sea of tree-tops on a sunny day does so because it does it well, and enjoys it.

The hawks we have called the dashers are the most active if not the most buoyant fliers, and pursue their quarry by sheer speed of wing. The peregrine is the noblest of our hawks, except perhaps the almost extinct osprey, and in many respects is a finer bird than the golden eagle. The reputed king of birds is in actual truth a glorified buzzard and no true falcon. He has the buzzard's heaviness, except when fairly upon the wing, and the buzzard's weakness for carrion, which is no monarch's diet. The peregrine feeds exclusively on living game, and its skill, speed, and daring in chasing its prey made it the most prized of our native hawks for falconry. It sometimes seizes its victim in its claws and makes off with it, but its finest method of capture is to cut down the bird it pursues—grouse, pigeon, or whatever it may be—by a stroke of its talons. It then collects the disabled bird at its leisure. As with the kestrel and other hawks, the female or falcon proper is much larger than the male or tiercel. A recent observer of the peregrine's life states that this inversion of the usual proportions is accompanied by a partial exchange of the parental duties. According to his observations, after the young birds are a few days old the male stays at home and broods them, while the female hunts for prey. She is clearly the best fitted to play the part of hunter for a very hungry family; but it is difficult to find any original reason for the female being the stouter bird as for the assumption of the usual brightness of male plumage and the active functions of courtship by the females of certain species of Australian quail, and our own

phalaropes. Nature is ingenious in utilising her own peculiarities, but little primary purpose can often be detected in her variations.

Sparrow-hawks have almost as much spirit as peregrines in proportion to their size, though they hunt their prey of little birds in a more skulking manner. They flicker round thickets and along hedgerows on their sharp wings, and often snap up unwary birds in the first flash when they suddenly



‘SPARROW-HAWKS . . . FLICKER ROUND THICKETS’

turn a corner upon them, or find them perched. When they are not too shy to haunt the neighbourhood of farmyards, they have a knack of slipping round the corner of the barn, and making off with a chicken or duckling before the wariest rooster has time to give the alarm. But they do not wholly depend on tactics of surprise, and can often overhaul even so large, swift, and wary a bird as the wood-pigeon in fair chase. Here again the hen bird is much larger and more powerful than the cock, and can make a match with a stronger

quarry. While kestrels feed chiefly on mice, and have developed their characteristic hovering flight in hunting for them over the open field, sparrow-hawks are primarily hunters of other birds, and pursue them among bushes and branches. They are typical hawks of wooded and enclosed country, and would be much commoner under modern conditions if they did not excite the enmity of every gamekeeper and farmer by their predatory habits, and give frequent opportunity for its gratification by their characteristic hawk-like habit of building their nests in daringly conspicuous situations. They build for choice in conspicuous trees at the edge of woods or on the flanks of open rides, and with difficulty learn safer habits of stowing their nests in the shelter of spruce firs and other evergreens.

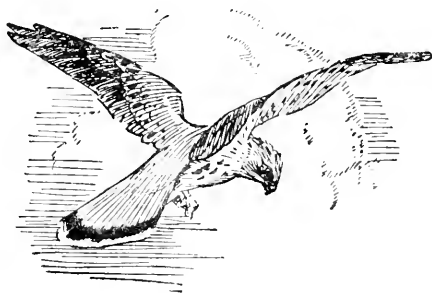
The nesting habits of hawks and eagles are in many respects peculiar. They are more varied than the habits of most other groups of birds, for while the eagles, the osprey, the buzzards, and other species make large and strong if not very neat or delicate nests, the harriers lay their eggs on the ground, and kestrels lay them either in other birds' old nests or in holes in rocks or buildings. The larger and more permanent nests of the tribe are called eyries; but as the word merely means 'eggery,' there seems no reason why it should not be applied to the nests of the other species as well. If an osprey builds an eyrie, it seems invidious to credit the buzzard with a mere nest. The more solid eyries may last for many years; and several species have a curious habit of having two or three in rotation. If their nesting goes favourably, eagles and buzzards may use only one of their homes each season; but it often happens that they are disturbed, and temporarily forsake the nest in which they intended to bring up their young, making their next attempt for the year in one of their other residences. They visit the

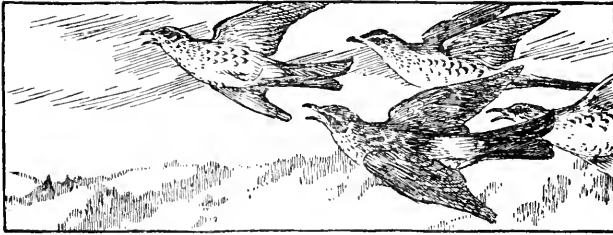
unused nests at times for purposes of rest or feeding. These fierce birds show frequent traces of artistic feeling—that is to say, they have pleasure in bright colour and in shapes that happen to take their fancy. When kites were common, they were notorious for stealing linen to prank their nests with; the kite took much the same pleasure in adorning its nest with dish-clothes as the chaffinch in systematic embroidery with bits of lichen. Newspapers and other conspicuous odds and ends are commonly found in kites' nests on the Continent. The honey-buzzard used to line its nest with green leaves and twigs; and these, too, were apparently chosen for their bright colour rather than for purposes of comfort. The golden eagle occasionally fixes a green spray into the walls of its eyrie in much the same way. In an old crow's nest in which a kestrel was sitting on six eggs, we have found a quantity of small grains of white and yellow quartz, which had also apparently been collected for their bright appearance. It would be hard to prove that hawks have an eye for the beauty of their own eggs; but many of them are among the most beautiful laid by any bird, with their bold deep red markings.

The nearest relations of hawks and eagles are the owls, which take their place as birds of prey after sunset, while the little owl and short-eared owl hunt by day as well. The harriers are the most owl-like of the hawks in the shape of head and eye; and they form an individual group, with nesting habits and eggs unlike those of the rest of the tribe, and much nearer to the owl's pattern. They lay their eggs hidden among rough grass and heather and sedges as the short-eared owl does, and their eggs are unspotted and nearly white, without the bold blood-stains which mark all the other hawks' eggs more or less conspicuously. The general rule that spotted eggs are laid in open situations

suggests that the kestrel's original habit was to build a nest for itself, like the sparrow-hawk, and that it first took to using old crows' nests and then, in rocky situations, to laying in holes in the rocks. Possibly the connecting link between the nest in the tree-top and the hole was found in the covered nest of the magpie, which is one of the kestrel's favourite homes. It very seldom nests in holes in trees, but when the country is wooded, looks out for the nest of another large bird. So far as its nesting habits are concerned, it is to be feared that the kestrel is rather a degenerate hawk. The energy of the species seems to have been concentrated on the perfection of its beautiful habit of hunting, which has given it the name of wind-hover. Most birds which are good soarers can hang almost motionless in the air at times, when the air current is light and of even strength; but the kestrel can moor itself, as it were, at a fixed point by rapid beatings, and maintain its position against a strong breeze. The amount of effort required to hold its own in this way is indicated by the sudden freedom of the movement, as of a spring released, with which it glances sideways into the wind at the end of one of these periods of hovering. It comes round on its curve like a skater on his edge, and takes up a fresh position over another part of the field. It is equally attractive to watch it catch sight of its prey in the midst of its hovering, and sink swiftly to the ground beneath it for the strike. Often the game eludes it, and it returns again to its work of hovering and wavering; at other times we see it rise again with its prey in its hanging claws, and make off to a secure spot to devour it. Kestrels, like buzzards and most of the larger hawks, have often some conspicuous knoll or rock where they make their meals with a clear view over the country round. The fragments of the feast, and the castings thrown up by the bird as they sit and

digest, are often thickly strewn about such a spot, and indicate the species of the hawk that uses it. The shining wing-cases of beetles usually distinguish the dining-place of the kestrel, for it lives largely on this kind of small game. Sparrow-hawks, with their more secret woodland method of hunting, have less formal table manners; they pluck their prey under any quiet hedge, and little heaps of feathers mark where the blackbird or chaffinch or wood-pigeon has made their meal. Feathers are seldom found at the kestrel's feeding-place, either strewn loose or felled in the castings, for the kestrel only occasionally feeds on small birds. It is only exceptional for it to attack young pheasants on the rearing-ground, though individual birds are occasionally guilty of this form of poaching. Most of the kestrels seen near pheasant-coops probably come in pursuit of the rats and mice which are drawn by the young birds and by their food.





FIELDFARES

THE GREAT MIGRATION

APRIL sees the departure of all the winter birds but a few stragglers, and the incoming of the great mass of the summer breeding species. Many of the birds of passage are also passing through the country on their northward way. The green sandpiper and the whimbrel are some of the best known of these spring travellers; the green sandpiper often haunts sheltered streams with oozy banks for many days together, and the loud call of the whimbrel falls from the sky in the spring nights. Many other birds of passage belong to species which also nest in ordinary English neighbourhoods; and these can only be guessed at, not certainly identified, by their restless movements and their departure soon after they appear. Even in the case of summer visitors, such as the tree-pipit or whinchat, there is often an interval of a week or more between the passing of the first parties, bound for more distant haunts, and the arrival of the nesting pairs.

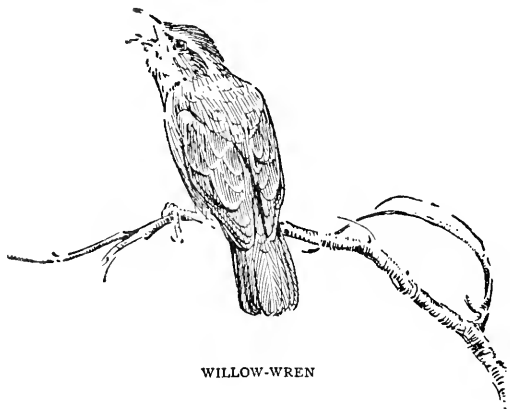
The departure of the birds of winter is far less noticeable than the arrival of long-looked-for visitors like the cuckoo and swallow; and it is apt to be entirely overlooked. Most of the winter visitors depart unobtrusively and early; but fieldfares on the eve of departure are often more conspicuous than at any other time. They gradually collect into large

flocks and work their way to the north-east coast, from which they take flight across the North Sea. They grow very restless and noisy, especially in the afternoons towards roosting-time. They will fill a wood with the same kind of abusive tumult that jays and blackbirds raise round a stray brown owl; but there is no owl or wandering cat startling the inhabitants of the wood; it is merely the fieldfares' spring fever. On their north-eastward way large numbers of fieldfares often follow the line of the Chiltern hills, which leads them out at last to the Wash; and sometimes in April huge flocks can be met with in the thick beech-woods that cover those hills, flying in loose skeins from hill-top to hill-top, or chattering in dark flocks in the boughs. The snow is thawing in the Norwegian spruce forest, and the impulse is on them to depart.

The fieldfare has a sweet song in his own home; but it is heard extremely rarely before his departure from England. As we usually see and hear him on the eve of his home-going, he seems but a rough and noisy harbinger of summer, even for the snow-torn Baltic forests. On the same spring walk, when we see the fieldfares' departing flocks, we are very likely to hear the notes of the first willow-wrens. All the contrast of winter and summer seems expressed in the willow-wren's soft cadence heard amidst the fieldfares' jar and chatter. The little bird's voice seems like a zephyr driving them home. Willow-wrens, or warblers, come very early in April, not long after their close relations the chiffchaffs; they seem inherent in the green moisture of the opening larch-woods, which in the south of England should break forth in the second week of the month. Where the exquisite aroma of the young larch-sprays breathes on the April air, we shall generally hear the soft dropping chime of the bird which the American naturalist Burroughs thought the best of all our English singers. He thought most English song-

birds too bold and noisy, and rather censured us for our garish taste for the lark. An Englishman may reply that American song-birds sing too little to create a healthy taste; but every lover of birds in the greenwood will be glad of this praise for the willow-wren.

Next to a budding larch-wood, the favourite haunt of the willow-wren on first arrival is an oak copse on a ridge facing

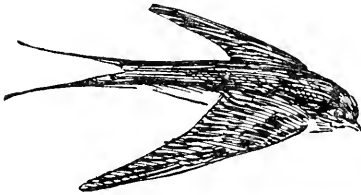


WILLOW-WREN

the south. It is fond of nesting in such copses later on, when the carpet of moss deepens on the bare earth, and it can half bury its nest in a sort of cell. But in April the attraction of the spot is equally strong for passing visitors; and it is due to their sunny aspect and the shelter provided by the dead leaves clinging to the oak boughs. Such wooded ridges are sometimes thronged with migrating willow-wrens for a day or two in April. Willow-wrens are an extremely abundant species, and are particularly plentiful in the moorland valleys of the north. To reach these haunts they must pass through the more southern counties; and the northern

birds of passage and southern residents together fill the copse with willow-wren's music till it is hardly silent for a single moment of the day. Their notes are almost equally persistent on any fine day in late April and May by the northern streams, wherever there are woods and bushes.

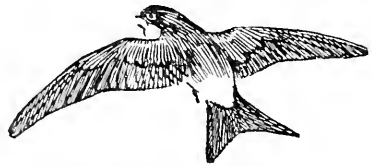
Except for a few prematurely daring swallows, which are detected by comparatively few eyes, the earliest visitor of



SWALLOW

the swallow tribe is in most places the sand-martin. Like the other swallows on their first arrival, they haunt rivers and sheltered water-meadows, where the still scanty supply of insects is most plenti-

ful; and where the river bank is bored with their holes, they can be seen slipping sluggishly in and out in cold weather and flying low over the wind-beaten stream. A few swallows soon join them; but it is often some little time before the house-martins make the family party complete. As they fly low over the stream sand-martins can be easily recognised by their grey-brown backs and wings and feeble, flut-



HOUSE-MARTIN

tering flight, house-martins by their back being half-white, and swallows by their dark, steely blue. When the swifts come later they are unmistakable from their large size and superior power on the wing, and the sooty dulness of their black plumage. As they sweep low about us by the stream-

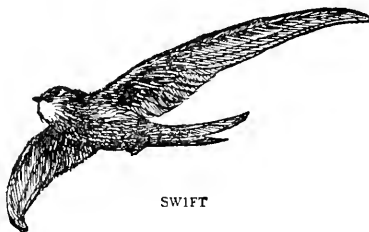


side, we can see the whitish patch on the throat which is missed in their airier circles. Swifts and swallows are so similar in appearance and habits that it was long thought they were true fellow members of one clan. Anatomy shows that the swift belongs to a different group, and is most nearly related to the nightjar. But they are constant companions of the swallow-tribe during their short summer season in England, which lasts little more than three months to the swallows' six.

Swifts have led us on nearly a month in advance; many new voices will be heard for the first time before the swift's screech on a May morning.

About the middle of April there is a marked increase of summer migrants, including several new kinds. Ring-ouzels return from abroad to their moorland haunts in the north and west, and are occasionally

seen lingering on ranges of hills in more southerly quarters, as if tempted to remain and breed. Yellow wagtails appear in small parties in the water-meadows and by the river banks, where they replace the equally brightly coloured grey wagtails which haunted them during the winter months. On some soft morning the brilliant cock redstart is seen quivering his ruddy tail on the yew hedge by the lawn, or the rough stone wall of the cow-yard, and sallying into the air or dipping to the ground in quest of insects, much like the flycatchers. The hen redstart is a duller bird than the cock, but has the same way of posting herself on little watch-towers and quivering her conspicuous tail. Redstarts are curiously fitful in their visits to many districts, especially in the south and



east of England, and are sometimes not seen for a whole summer except when passing inland in April or early May. Redstarts haunt the same damp or shady places as wagtails and robins; but whinchats, though closely allied to them, are birds of rough wastes and open commons, like stonechats. Both species leave the more exposed commons before the autumn gales and frosts; but the whinchat is purely



REDSTART

a summer visitor to this country, while the stonechat is only a partial migrant, and usually returns to his breezy furze-brakes by the end of March, before the whinchat reappears from its winter home in Africa. Many stonechats go no further for the winter than the sheltered valleys or the seashore. Both cock birds are gay of plumage and conspicuous

in their ways; but the whinchat's slenderer build makes it the more attractive of the two to watch, as it flits from spray to spray of yellow furze, or clings sideways to a stem of dead knapweed or fennel, that bloomed when it was last in England.

The same warm April days that bring the whinchat to the yellowing commons fill the lanes and overgrown hollows with the summer babble of the whitethroats. The common whitethroat or nettle-creeper is one of the most abundant summer birds in most English districts, as can be well judged even in winter from the number of the straw-twined nests revealed among the thorns and nettles by the falling leaves.

It is the colonist of hedgerows and roadsides, and the special song-bird of the wayfarer. Just when the nettles are shooting tall, and all the undergrowth springing among the bleached grass stems, the whitethroat returns to find his home made ready for him. Usually he waits a fortnight or so to nest, by which time the cover is thick and plentiful; but in very early Aprils there are sometimes whitethroats' nests with eggs by the end of the month. Whether he is in a hurry to nest or not, from the first morning of his coming there is no mistaking his passion for conversation. His notes are a kind of pleasant springlike small-talk rather than the passionate utterance of the lark or nightingale, or even the serious monologue of the chiff-chaff or corn-bunting. At times he is even a little ribald, with his guttural objurgations flung from the lee side of the thorns. His characteristic way of singing is to begin on one side of the hedge, toss above it in a broken song-flight, and vanish, still in casual song, among the leaves in the shelter beyond. The yellowhammer outlasts him as the song-bird of the highways in later summer; but he comes with a wonderful discourse of music to the hedges of April and May.



WHINCHAT

The song-flight of the tree-pipit is less familiar but more marked. In some of the Welsh valleys from the middle of April onwards the tree-pipits sing as perpetually as the willow-wrens; but in most English districts they are more thinly distributed. They come to us about the middle of April, and sometimes sing above the late spring snow, that

makes the fleece of the new-born lambs look dark already. In southern England they prefer park-land and well-grown groves, or fields with high timber and deep grass. Their song-flight is a very beautiful performance. They spring into the air from the top of a tree, flutter upwards a few moments in song, and then float downward on motionless outspread wings till the song ends, after an emphatic repetition of four or five high notes as they reach the tree again. Sometimes they sing without rising from the bough ;



WHITETHROAT

but flight and song together is their rule. The ear soon learns the emphatic notes towards the end of the song, and the singing pipit can then be singled out. Both the meadow- and rock-pipits have a song-flight of similar kind ; but the tree-pipit's is far the neatest and most fascinating, as neither of the others start and finish their flight with the same precision or from the top of a tree.

Spring comes slowly to the cold, wet soil of pools and marshes and river banks ; and there is still little sign of the luxuriant aquatic vegetation of later spring, when the first chiffchaffs call in March. By mid-April the willows are tasselled with vivid sprays, the flags and sedges and brook-lime are strongly shooting, and the smell of the mint is

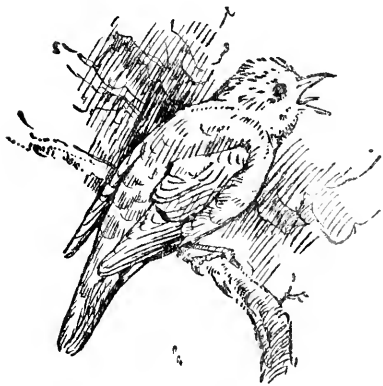
faintly caught in the south wind and sun. Then comes the welcome morning when the sedge-warbler's tireless babble is heard again from the screen of russet flags, recalling more memories of the past summer than the notes of almost any



SNOWFLAKE

other bird. For the sedge-warbler sings by night as well as by day, far into the dog-days when almost all birds are still, and the nightingale's music seems a dream of bygone spring. It is the most faithful of all the summer singers except the chiffchaff, which it far excels in the variety and surprises of its song. This is an extraordinary medley of sweet and harsh notes, poured forth with no discrimination, but with inex-

haustible vigour and zest. It recalls the guttural inconsequence of the whitethroat's strains by the highway, but is far more powerful and sustained. Later in the year the sedge-warbler imitates the songs and cries of many other birds; but on its first arrival it does not seem to be much of a mocking-bird, unless indeed its own song may be partly a *résumé* of notes caught in its winter home. Apparently it has not the long memory of the starling, which will imitate



NIGHTINGALE

in November the peewit's spring cry, not heard since May. From the time when the sedge-warbler comes to the watersides, they lose their earlier desolation, and spring flows onward rapidly.

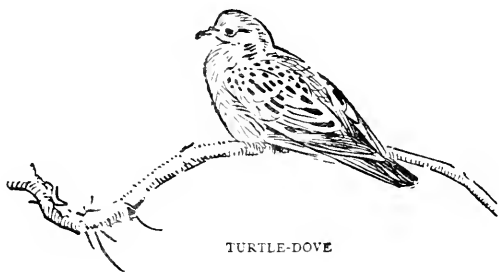
Sedge-warblers do not sing much after dusk in the early part of the season; the time when they are so often mistaken for nightingales is from mid-May onwards to August,

during most of which period the nightingale does not sing. Nightingales first arrive on the south-east coast about the middle of April, and by the end of the third week the earlier parties settle down in most of their haunts. Like other migrants, they sing very little on arrival if the weather is cold and windy; but the first hot morning or soft night brings out the music from the accustomed corner of the garden shrubbery, or copse or osier-bed. Nightingales are very constant to the same haunt year after year, if they are not disturbed and the undergrowth does not grow too rank and shady.

Two or three pairs will haunt the same garden shrubberies for many seasons, dividing up the territory into well-marked properties or spheres of influence, which each bird respects. But they are very fond of nesting in copses which change their whole aspect in half a dozen seasons, as they grow from one cutting to another; and when the copse grows too dark and tall, or when it has just been cut and gives scanty shelter, the nightingales move away. This is the chief reason of the great difference in the numbers of nightingales in the same place in different seasons. But the lost nightingales generally come back, unless the whole character of the district changes, as when old 'Nightingale Lanes' become absorbed in populous suburbs and industrial towns. They are one of the species which have greatly profited by the increase of pheasant-preserving, with the vermin-killing and exclusion of trespassers which it involves. One result of their increase of numbers is the gradual extension of their range into districts of Yorkshire, Cheshire, Devonshire, and the Welsh border where they used to be very rare or wholly absent. Taking the whole year round, our finest song-bird is the song-thrush. All country lovers owe much to this brilliant and indefatigable singer, which is in good voice from October or November to July, and is heard in every month. The nightingale's passion burns itself out in less than two months; but its voice is supreme while it lasts. The first soft April night when it is heard is one of the great landmarks of the year; through scents of growth and the dark air shimmering with new-born moths' wings it resounds with the fervour of summer life. The throbbing passion of the song is hardly less conspicuous when it is heard next morning in the midst of the general chorus.

Nightingales are one of the species which enter England across the narrower part of the Channel, landing between

Dover and the Isle of Wight ; and from this region they seem to distribute themselves northward and westward until the whole stock is provided with a home, and they push on no further. As they become more plentiful owing to game-preserving, or are displaced by building in such favourite regions as the fringes of Epping Forest, there is a gradual impulse to move forward, and they spread further into the north and west. The same extension of range is far more marked in the case of the turtle-dove. Turtle-doves also enter England chiefly in the south-east and spread north-



wards and westwards throughout May. Except the starling and the wood-pigeon, no inland bird has shown a more striking colonising power in the last twenty years. Turtle-doves are now common in many districts where they were formerly hardly known, and are steadily pushing further. Game-preserving has doubtless had much to do with it ; they are a natural prey of the sparrow-hawk, and they are specially fond of the belts of pheasant covert, which in the southern counties are often seen fringing the wide stretches of arable land where they feed. Farmers are apt to class them with wood-pigeons as one of their curses ; but a careful Hampshire observer states that the contents of their crops show that they haunt ripening wheat-fields

for the seeds of the charlock, and not, like the wood-pigeons, for the wheat. But neither game-preserving nor the increase in some districts of young plantations is enough to explain the turtle-dove's recent prosperity. There are tides in the affairs of birds which observation still cannot fathom; no one really knows why the starling or the ring-dove or the turtle-dove have been sweeping forward like the tide of settlement in the Canadian West, while the quail and the landrail decline. There has been a slight revival of the landrail during the last two or three years in some of the southern and eastern counties where it

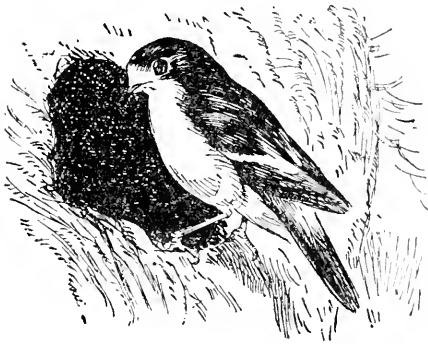


COCK BUTCHER-BIRD

used to herald the April grass-growth so persistently with its monotonous 'crake, crake,' fifteen or twenty years ago; possibly this was due, as has been suggested, to the wet summer of 1909, which delayed the cutting of the seed and clover crops, and consequently enabled the corncrakes to bring off their broods in safety. But the pleasant monotony of the corncrake's time-keeping note is still far less heard in the southern fields than one could wish, though it is commoner in many parts of the north and west.

When the double murmur of the turtle-dove is heard in the May elder-brakes and hawthorn-clumps, the season of migration is already far advanced, and the majority of the summer visitors are already settling down in their

nesting-places. Swifts sail high round the church towers, suddenly appearing as if they had always been there, and the interval since last August had been an illusion. Nightjars purr on the sides of the woods at dusk, or flit off like shadows, with their owl-like cry, 'Ke-wick, ke-wick.' Wood-wrens, with their curious shivering trill, become plentiful in the woods chosen by them for the season. Sometimes they will leave a haunt of many years' standing and form a new settlement elsewhere. The tall woods which wood-wrens



PIED FLYCATCHER

frequent do not alter like the nightingales' copses; their movements seem purely arbitrary. Lesser white-throats slip through the thorn-bushes, showing their slaty backs and pale bellies, and crying, 'lil, lil, lil, lil,' with none of the common whitethroat's noisy contumaciousness. Cock butcher-birds flit conspicuously along the quick hedges in search of their mates, spreading their tails wide, and displaying the white patches on their outer webs. In the valleys of Wales and the north the beautiful pied flycatcher flits restlessly in the oak-woods and shady gardens, passing on to his summer home not far away. Almost last of all our summer visitors, the spotted flycatcher comes back to the garden palings and the trellis by the porch where last year's nest still clings. He is a sad-looking little bird, far duller and quieter than his piebald brother of the Welsh valleys; but his delicate and faithful ways make him

frequent do not alter like the nightingales' copses; their movements seem purely arbitrary. Lesser white-throats slip through the thorn-bushes, showing their slaty backs and pale bellies, and crying, 'lil, lil, lil, lil,' with none of the common whitethroat's noisy contumaciousness. Cock butcher-birds flit con-

a favourite wild pet of English gardens. He is a song-bird who hardly ever sings; his few quiet song notes are more rarely heard than even the song of the butcher-bird. They are glad days when the summer birds return, and sing in soft spring weather; the birds busy themselves in their old garden haunts with a desultory activity that is still relief from the long journey, and pure recreation compared with the hard work of feeding the young a month or two



SPOTTED FLYCATCHER

later. The thought of their wonderful journeys enhances the pleasure of their return. The flycatcher long ago knew the sources of the Nile; and the swallow that seems glad to see our home again is fresh from lands of wonder that few of us are likely ever to see.

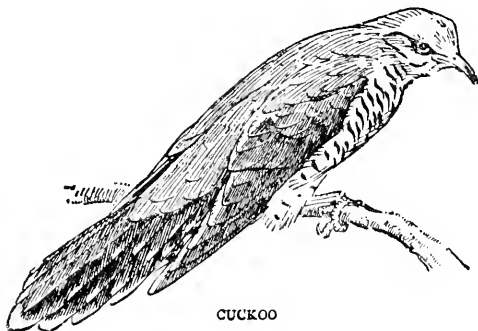
The following list of the summer visitors gives approximately the order in which they arrive in England:—

Wheatear.
Chiffchaff.
Ring-Ouzel.

Garden-Warbler.
Nightingale.
Sedge-Warbler.

Stone-Curlew.
Blackcap.
Willow-Wren.
Whinchat.
Sand-Martin.
Swallow.
House-Martin.
Sandpiper.
Tree-Pipit.
Redstart.
Wryneck.
Cuckoo.
Whitethroat.
Lesser Whitethroat.

Grasshopper-Warbler.
Wood-Wren.
Yellow Wagtail.
Landrail.
Swift.
Red-backed Shrike.
Common and Lesser Terns.
Pied Flycatcher.
Turtle-Dove.
Spotted Flycatcher.
Reed-Warbler.
Nightjar.
Hobby.
Marsh-Warbler.



CUCKOO



THE BUILDERS

SPRING advances like the tides, by the general onward movement of many rising and falling waves ; and long before the later migrant birds of summer have reached England, the earliest nesters have already sent their young broods into the world. Only the raven and crossbill and a few herons have entirely done with the upbringing of young birds for the year by the time that the swallow comes ; other early-nesting birds have second broods to follow, and will be still busy in May. None the less, the complexity in nature's broad movements is strikingly brought home on some pleasant April morning in the garden, when we hear the first indubitable cuckoo shouting at us where he flirts his tail among the elms, and see next minute the anxious mother thrush shepherding her round and fluffy young in the shelter of the laurels. Very few of the hen cuckoo's dupes have yet begun to build ; probably a third of them have not yet arrived in the country ; and yet for our own garden thrushes the season is already far advanced. They will bring up another brood of young among the light green leaves of the hornbeam hedge in May ; but they have already borne the brunt of the breeding season in the warm garden evergreens, among the winds and snowflakes of March.

By the beginning of April the first broods of song-thrushes are usually the only young birds of the year already fledged and abroad. In a few days the first missel-thrushes, black-birds and robins follow them; we find their nests already empty, and coated with the grey scales of skin detached by the sprouting quills. Soon we find nests with young broods of hedge-sparrows, blind and fuzzy and black; for in the warm haunts where they have lived comfortably all the winter these unobtrusive birds also build very early among the thorns and evergreens. About the same time we see the first rooks bringing food to the tree-tops in the village; they will be a fortnight or three weeks later in the outlying hedges and woods. In hollow trees the brown wood-owl and the stock-dove are sitting on their white eggs, now opaque and discoloured with incubation. Brown owls begin to lay almost as early as song-thrushes, but they sit for nearly twice as long before the first young hatch. Now and then we find ring-doves' as well as stock-doves' eggs before the end of March, and their young early in April; but this is an exception, and a mark of the general prolificacy of this rapidly multiplying species. Stock-doves nest in warm holes, and therefore can afford to begin early; but ring-doves build slight, uncovered nests in the open boughs, and do not normally lay their eggs until the second half of April, or even May, when the weather is milder. The same home-keeping habit which enables the resident thrushes and robins and hedge-sparrows of the garden to fall to building in March is also seen among a few of the moorhens on the pools. When they have spent the winter in peace and comfort, undisturbed by the necessity of migration, they too will be sitting on their large brown-spotted eggs very early in April. The earliest moorhens nest when the reeds are huddled and dead, the hawthorn-twigs above the sheltering stumps are still bare,

and only the evergreen fern-fronds curving from the soft touchwood yet wear the colour of spring.

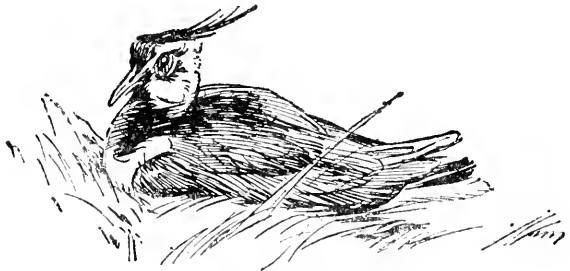
Once April is fairly begun, the nests of the resident species—not only of the resident individuals of those species—begin to multiply very quickly. Faster than the expanding leaves, green wisps of moss appear among the thorn and hazel boughs, and hint where a bird's home may soon be



MOORHEN'S NEST

established. These are hints, and not sure indications; for most birds are easily deterred by disturbance, or bad weather, or sometimes apparently by mere waywardness, and may abandon the nest in the early stages of building. Some kinds of bird, such as the wren and chaffinch and plover, and the blackcap a few weeks later, seem to delight in tracing half a dozen houses in outline before completing one. In the case of the plover and wren, there is a peculiarity about these unfinished nests which cannot be explained by any of the causes just mentioned. The shallow scrapes of the plover and the unfinished mossy shells of wrens' nests are

both called cocks' nests, and observations confirm the belief that in both cases they are made exclusively by the cocks. The cock plover forms scrapes in the ground while writhing and posturing in courtship before the hen ; and there is some reason to believe that the plover's rough nest-hollow may have originated in this way, and that the hen only later learnt to use it as a receptacle for her eggs. The hollow scooped by the cock plover appears to be a rude form of the highly decorated playground prepared by the Australasian bower-



LAPWING ON NEST

birds ; and the cock wren seems to carry the same process some stages further. He is not an earth-haunting bird, like the plover, and so he builds his bower among walls and roofs and trees ; and he makes a very neat and compact little abour, though it is only the shell of a regular nest. Here, too, it seems that the hen bird turned the cock's taste for rude nest-building to her own purposes and made nurseries of his bowers. Most 'cocks' nests' never get any further, and most true nests do not begin as 'cocks' nests,' but are built with every appearance of being meant to hold eggs from the start. But we have known a case in which a typical 'cock's nest' of the wren after remaining empty for more



WREN FEEDING HER YOUNG BY A. W. SLAEBY

than three weeks was finally completed by a lining of feathers, and was apparently ready for eggs when we left the neighbourhood. Probably there is no absolute distinction between the two kinds of nest, but the growth of the nursery out of the bower or playground is still recalled by occasional combinations of the two purposes.

All the first nests of the year either dispense with concealment as ostentatiously as the rook's or magpie's, or attain it by being built inside holes or thick cover. The stock-dove and wood-owl hide their white eggs in holes, and most black-birds and thrushes secure fair protection in an evergreen bush or in the fork of thick boughs. Others seem absolutely careless, and their eggs and young are usually destroyed by bird-nesting boys or animals, or by the fear of the bird itself to incubate in the publicity which it seemed to court when building. But soon nests appear which display an exquisite harmony with their surroundings, so as to elude all but the sharpest or luckiest eyes, and to delight them when they know the secret. Many wrens' nests are wonderfully elusive in situation and structure. Sometimes they are hung among dead bracken supported by brambles, with the nest half shrouded by dried fronds, and built externally of similar fragments of fern. Sometimes a few large growing leaves of the bramble are used to hide the nest in the same way. When the nest is hung among ivy, a few dead ivy leaves may be worked into the shell of moss, so as to assimilate its fabric to the surroundings; and when it is built in a crevice in a mossy stump, it is almost sure to be built of moss. In such cases as these, the protective resemblance is so close that it is hard to avoid the conclusion that the birds make their nests resemble their surroundings by pursuance of strong instinct, if not by conscious art. If such an instinct of mimicry existed, it would be due to natural selection having vigorously de-

stroyed the wrens that did not acquire this advantageous habit. But further observation shows that if this is the lesson which nature means the wrens to learn, they have not yet fully learnt it. Nests of moss can be found fitted into the crevices of a grey stone wall, where they are distinctly conspicuous; and by no means all the nests hung among creepers or brushwood are built of materials resembling their surroundings. It seems, after all, that the cases of close resemblance simply arise from the bird using the material which comes nearest. Thus nests among fern are often built of fern leaves, and nests among mossy stumps of moss.

As April advances, the beautiful nests of the chaffinch and long-tailed titmouse face us with the same problem in a rather different form. The large oval nest of the long-tailed tit is always brightly spangled with white lichens; and the hardly less beautiful cup of the chaffinch's nest has the same decoration, though not invariably. When either of these nests is built in the fork of a lichened bough, or against a hoary trunk, the protective resemblance is very close and effective. But we generally find long-tailed tits' nests hanging among the bare April thorns and chaffinches' among twigs not covered with lichen, or in the green branches of gorse or fir; and in such situations the coating of lichen makes them additionally conspicuous. Here, too, there seems to be no originally protective purpose in the birds' habit; the chaffinch and long-tailed tit appear to ornament their nests with silver lichens for the sake of their beauty, just as the bower-birds collect blossoms and shells to decorate their courting-places, and kites prank their nest with rags.

The long-tailed tit is the earliest nester of its tribe, and sometimes begins to build before the end of March. Other tits wait until the unmistakable week of spring which usually occurs about the middle of the month, when grass

and other green things suddenly make a great rush forward, and the summer birds flood in from the south. But occasionally a pair of great, or blue, or cole tits is reported building even as early as February, especially in town gardens; like sparrows and starlings and wood-pigeons they are among the birds which thrive remarkably in modern civilised conditions, and tend to change their habits in many respects. House-sparrows do not begin to build until the second half of April in secluded country places where their numbers remain within reasonable bounds. They join in the second great wave of building, which comes distinctly later than the nests of such early species as the robin or thrush or black-bird. But among the gardens of growing towns, and over wide tracts near London and other great cities which are strongholds of their kind, sparrows seem to observe no such rules, and begin nesting in a straggling way from Christmas onwards, if the weather is fairly mild. Exactly the same relaxation of habit is seen in the case of the starling, which is another fast multiplying species. Twenty years ago starlings' eggs were not to be expected until the middle or latter part of April, when all the starlings attached to a house and garden used to set to work simultaneously. Since the westward immigration of hordes of starlings from abroad upset the old distribution and feeding habits of the species, they nest almost as early and indiscriminately as the sparrows. The main body begin to build about a fortnight earlier than formerly; it is hard to say when one may not expect premature sets of the pale blue eggs.

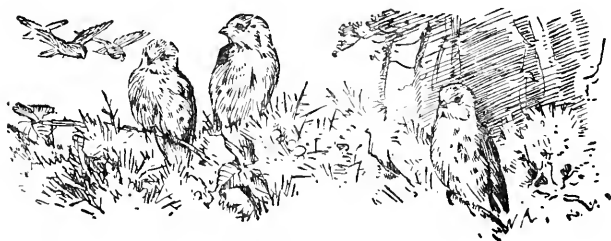
So even within the cycle of a score of seasons we can see change plainly at work in nature, under the stimulus of the artificial conditions introduced by man. The civilisation of the tramcar and picture palace infects certain birds and animals as well as humanity. The swallow, which was

man's primæval companion in holes and caverns, deserts his modern cities; and the sparrow and starling and wood-pigeon replace it as his companions amid industrial grime.

But when the new verdure breaks in April, it drives back the town for miles round its shabby fringe, and the new grass and young elm-leaves make faded suburbs seem the true country again. In fields once more green, the missel-thrush calls to the wind, and tries to nest; and though the glare by night and the noise by day banish him before he can settle down, the tamer song-thrush and blackbird rear a few weakly young, among many disasters. In the heart of the country, where the nightingales have not yet fled from the stir of new buildings and the multiplication of domestic cats and dogs, the birds returning to the thickening copses and hedgerows complete the renaissance of the year. Chaffinches are so abundant in every part of the country that the stir of spring life is greatly increased at one stroke when most of them begin building together, about the second week in April. Many of the early nests are destroyed by the wind; for the birds knit them to twigs springing from separate boughs, which tear the mossy cup when they whip apart. Linnets' nests appear among the furze-bushes and in thick thorn hedges by the side of arable fields; in the latter situation the favourite material for the outside of the nest is the roots of couch-grass thrown aside from the spring harrowing. Their earthiness gives a dingy appearance to the linnets' solid little nests; but the eggs are bedded on a thick cushion of wool that forms one of the best of all protections against the winds and cold April rain. Away from the wide plough-lands, among the furzy sheep-walks and commons, the place of couch-roots is taken by stained bent-grass and fragments of dead bracken. The greenfinch nests about a fortnight later than the linnet; and

the difference corresponds to the nature of the site chosen. The greenfinch does not show the same taste for snug shelter as the linnet, but builds higher in the windy shrubs and hedgerows; and it has the wisdom to wait till they become more habitable with advancing spring.

At the beginning of April the outlines of the earliest magpies' nests grow larger and denser, and others begin to appear in the naked tree-tops against the sky. It is easy to tell a new magpie's nest from an old one, even if it is unfinished and rather shapeless, by its light structure of fresh



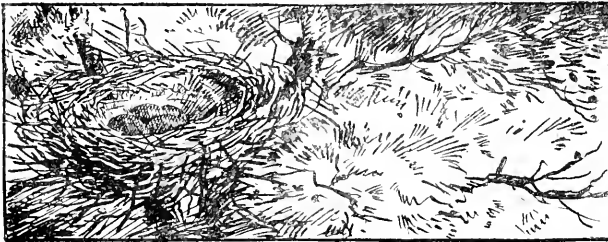
LINNETS

unbattered stems. Rooks and jackdaws often tear off live branches for weaving into their nests; but magpies with their less powerful beaks and frames do not seem to attempt this. Their thorniest and most formidable nests are built of clippings from a quickset hedge; with an abundance of straight, pliant shoots thickly set with spines, they weave a nest as prickly as a folded hedgehog. Their nests are shaped like wrens' nests, but with the roof lightly built of sticks, and the lower part a cup firmly compacted of clay. Most carrion crows begin to build in early April; but in London and its suburbs the effect of easy living displays itself as in the case of wood-pigeons and sparrows. In parks and suburban fields the crow is often seen building in

March. Its nest is a very warm and solid one, plentifully lined with locks of wool, instead of the grass-tufts and dry leaves used by the rook. Jackdaws nest about the same time as crows, in the middle of April, though their choice of holes instead of open trees might seem to warrant them in beginning earlier. The general rule that the darkest eggs are laid in the most exposed sites is well illustrated in this family of birds. Rooks and crows build open nests in the tree-tops, and their eggs are the darkest of the group, though pale varieties are not uncommon. The magpie's nest has a light roof of sticks, and the average colour of its eggs is considerably paler. Jackdaws nest in holes in rocks, buildings and trees, and their eggs are paler still. They betray, however, their connection with a family which chiefly haunts trees by being heavily spotted, instead of being pure white like those of owls and kingfishers and other typical hole-nesting birds. This seems to show that their habit of nesting in holes is a comparatively recent one; their eggs have not yet lost completely the dappled markings which were developed in open nests. A similar example is that of the puffin's eggs, which are laid in crevices and burrows, but retain faint spots or faded serpentine lines denoting their kinship with the razorbill and guillemot family, the other members of which lay their eggs on open ledges. Just as hawks' eggs are usually ruddy, and gulls' eggs olive or brown, all the members of the crow family lay eggs of some tint of green. A nestful of deep green crow's eggs forms a beautiful harmony of colour with the overhanging needles in the crown of a fir; and the theory of protective assimilation is on the whole borne out by the distinctly brownish shade of most rooks' eggs, which lie on a cushion of dead grass or withered leaves.

The pale olive-brown of the pheasant's eggs shows no

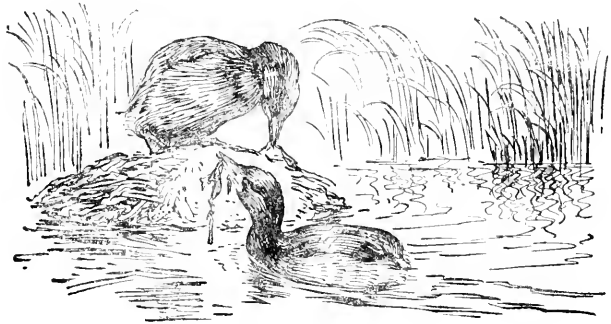
mere vague approximation to the bed of dry leaves which forms the nest ; the likeness is very close, and the protective effect cannot be doubted. Protective mimicry in birds' eggs reaches its highest development when the eggs are laid on the open ground ; and the scanty shoots or branches which usually overhang a pheasant's nest are almost a negligible screen. Pheasants begin to lay about the third week in April, two or three weeks earlier than partridges. The



'A NESTFUL OF . . . CROW'S EGGS'

various strains of wild pheasant now naturalised in England are natives of different Asiatic regions, in which winter and early spring are more severe than in England. This perhaps is one reason for their prompter response to the mild influences of the English seasons, just as the larch introduced from Norway and the Alps comes earlier into leaf than most of our native forest trees. But acclimatised birds after a few years usually acquire habits in conformity with our climate, unless there are definite reasons for maintaining their old ways ; and another and probably a stronger reason for the later laying of the partridge is that it makes its nest among the grass and grain crops rather than in thickets and woods. It therefore waits until the springing herbage has provided ample cover, as the whitethroat does, which so often shares with it some strip of grass and nettles by the roadside.

By the crowded third week in April, when so many new birds and new nests meet us on every fresh walk, the cold stream bank and edges of the pools are definitely beginning to shoot green. Moorhens begin to nest abundantly, coots build larger copies of the moorhens' nests, and the earliest dabchicks pull together their heaps of sodden water-weed. Where the drooping boughs of the willows are veiled with



DABCHICKS

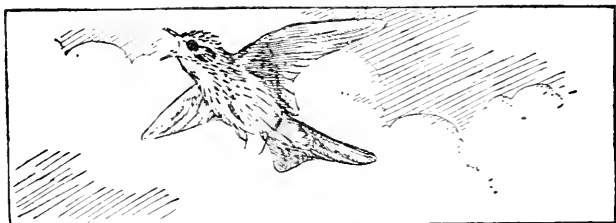
young shoots of green, the pied wagtails take to the air in pursuit of the insects hatched by the warmth, instead of searching in their winter way along the waterside. Now they build their flat, well-cushioned nests in the crannied willows and in holes in the cowyard walls ; they lay their first eggs about the time that the yellow wagtails or cowbirds arrive among the yellow kingcups in the wet meadows. Though pied wagtails often nest year after year close to the same spot, they are less constant to one site than the so-called grey wagtails, which build in late March or early April in their favourite haunts by some bridge or cascade on the western or northern streams. They leave the lower parts of

England before the yellow wagtails arrive, and they return in August or early in September, a little before their tenderer relations go south. They are larger and handsomer birds than the yellow wagtails, and no less conspicuously yellow, when they shake the bright patch beneath their tails in their gay and restless flights. Yellow wagtails are a species which flit about the cows in the summer meadows, in search of the insects which they disturb as they graze or lie at rest; and then they allow us to come near enough easily to distinguish the olive-green of their upper plumage from the grey mantle of the species which we see by the watersides, in the same pastures from August to February. Yellow wagtails winter in West Africa, and it is late May or June before they nest in their English haunts.



YELLOW WAGTAIL.

Pied wagtails are only partial migrants, and the home-staying pairs build in mid-April, though the majority arrive about that time, and nest about the end of the month. But most of our British grey wagtails go no further south in winter than our own southern counties; and their hardier habits enable them to return very early in spring to their upland streams, so that they are busy about their nests all through April. No group of British birds illustrates the nice gradations of the migratory habit more clearly than these three beautiful wagtails.



A P R I L

'Wanton with long delay the gay spring leaping cometh ;
The blackthorn starreth now his bough on the eve of May :
All day in the sweet box-tree the bee for pleasure hummeth :
The cuckoo sends afloat his note on the air all day.

Now dewy nights again and rain in gentle shower
At root of tree and flower have quenched the winter's drouth.
On high the hot sun smiles, and banks of cloud uptower
In bulging heads that crowd for miles the dazzling south.'

ROBERT BRIDGES, *April* 1833.

'Hark !

'Tis the early April lark,
Or the rooks with busy caw,
Foraging for sticks and straw.
Thou shalt, at one glance, behold
The daisy and the marigold ;
White plumed lilies and the first
Hedgegrown primrose that hath burst.

Thou shalt see the field-mouse peep
Meagre from its celled sleep ;
And the snake all winter-thin
Cast on sunny bank its skin ;
Freckled nest-eggs thou shalt see
Hatching in the hawthorn tree,
When the hen-bird's wing doth rest
Quiet on her silvery nest.'

KEATS.

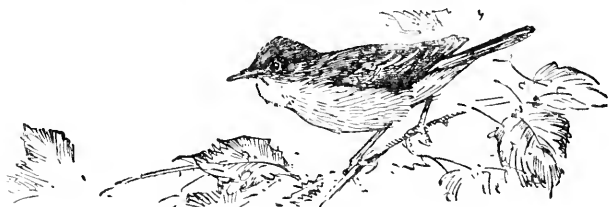


GOLDEN PLOVER

MOORLAND BIRDS

HIGH moorlands covered with grass or heather are peculiarly characteristic of the wilder parts of the British Islands, and their bird life is particularly interesting. The heather moors are the home of our one exclusively British bird; for the red-grouse is sufficiently distinct from the Norwegian willow-grouse to deserve a separate status without question, whereas the St. Kilda wren and all the numerous offspring of the latest scientific authorities are insular sub-species. Where the moorlands rise into rocky mountains, they are the home of certain Arctic species which have probably inhabited them since the glacial epoch, and of some of our rarest and finest birds of prey. The golden eagle has again become so abundant in certain parts of Scotland after some years of protection as to be removed from the protected list, though it has been extinct for many years in other parts of the kingdom. On the bare summits of the highest Scotch mountains, the ptarmigan and snow-bunting breed under the chill June sunshine in their subarctic plumage of splashed white. From these stony and lichen-covered summits right down to the tree-line in the dingles, and away to the enclosed fields lower still, moors where preservation is not too strict maintain a wonderfully fine and varied list of species, though the total numbers are not very large. Wide, windy wastes of grass and heather offer a too limited food-supply to attract a

very large number of birds. Almost all birds—even some of the hawks and falcons—depend more or less on a free supply of insect life in the nesting season; and at that time there is a far scantier choice of winged and creeping insects on the open moors than in the lower woods and the enclosed valleys. Insects become more abundant on the moors in August; but by that time the birds have done nesting, and many of them have already left the hills. This comparative scarcity of insect life is one reason why many of the most conspicuous moorland species are birds of prey, which feed their young on other birds or young animals, and not on the



WHITE-THROAT

insects or creeping things which fatten most other nestlings. But another cause of the peculiar interest of the modern bird life of the moors is the scarcity of the larger and wilder species in cultivated and thickly peopled lowlands. Ravens, buzzards and other birds of prey which once nested freely in woods and groves have now been banished to the sanctuary of the rocks, either on the moorlands and mountains or on the shore; and even such peaceable birds as peewits and wheatears find a more congenial haunt on the untilled slopes of the moors than on commons or rough fields in the plains.

Fascinating as it is to watch the bird life of the lower valleys in the May days when the cuckoo is calling every-

where, and the whitethroats are busy in the thorns and roadside nettles, there is a sense of freedom and a kind of natural adventure about a moorland expedition which makes it even more attractive. The best way to approach the birds of the moor is by following up one of the small streams that come tumbling from the hills. In the shelter of the slopes by such a stream, birches and alders and other wild trees and bushes mount considerably higher than on the bare slopes above. They thus tempt the birds of the lowlands to push up into the heart of the moor; and we pass in gradual transition from the group of birds which we see



'THE DIPPER WHIZZES ALONG THE STREAM'

among the fields and gardens of the village to the denizens of the naked hills. The dipper whizzes along the stream, following its windings or occasionally cutting across some low-lying spit of land, and carrying mouthfuls of water-insects to its young in the great mossy nest under some overhanging cornice of rock. Dippers are sedentary birds, and therefore early nesters; and their first broods of young are usually hatched by the third week in April, before most of the birds of the open moor have done much more than choose their nesting-place. But a sprinkling of dippers' nests may be found still building in May; and even in the warm May weather when sycamores by the hill streams are throwing off the scales from their bursting leaves, we can

watch the extreme ingenuity with which the growing circle of the domed nest clings almost with the adhesiveness of a house-martin's cradle of clay in some water-worn rock.

Grey wagtails flash their yellow tails by some conspicuous cascade; these birds seem drawn by the sound of falling water, and nest year after year, as many dippers do, by the same spray-dashed fall. Wrens search with their peculiar concentration and self-absorption among the mosses and along the waterline of the torrent's bank; and as far as the belt of rowans and birches and hollies climbs among the banks of bracken, the charming cadence of the willow-wren is heard from early April all day long. Willow-wrens abound in these upland haunts, as high as the trees extend; thousands upon thousands must be born each spring in the cool shaws and dingles of British moorlands, to penetrate a few months later to inner Africa. Stock-doves nest in increasing numbers in holes in trees and rocky banks in their woodland valleys; with them go the heavier ring-doves or wood-pigeons, lodging their open platforms



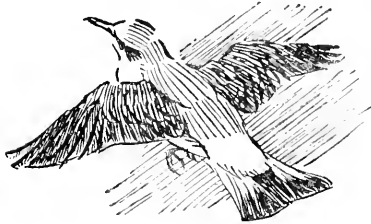
GREY WAGTAIL

in hanging ivy bushes, or among the thick horizontal boughs in plantations of spruce and larch. As the trees grow thin, and we come to the bare rock-ledges and slopes of heather, the pipe of the ring-ouzel may be heard from some lonely bend of the stream, and the cock bird with its white crescent on the throat may flit from one stone to another on the hill.

Ring-ouzels are rather unevenly distributed among the broken borders of the moors; they are abundant in some parts of the northern and western counties, but in others are quite rare. They nest on or near the ground, among the stones and heather, or in a chink in a dry-stone wall. After they return from the south in April, they fill their chosen haunts with a sweet if rather monotonous music much like that of the missel-thrush, which does not penetrate beyond the last sparse thickets of thorn. Blackbirds follow up the sheltered streams higher than one would expect from their fondness for warm hedges and gardens, and higher, as a rule, than the song-thrushes. They seem able to turn up some form of insect life from any sheltered corner among fallen leaves; but song-thrushes require in spring a steady supply of the larger kind of snails, and these they can only find in gardens, or among the low-lying hedges and copses. In mid-winter they abandon altogether the central valleys of the English lake district; mildly as the west winds blow up from Morecambe Bay, their song is not heard about the head of Windermere or under Skiddaw till well on in February. The titlark or meadow-pipit also leaves the higher and barer moors in winter; it is then that we often see the wanderers from the hill counties picking along the flooded margin of lowland rivers, or even on the banks of suburban reservoirs. But by May the little dusky piping birds are settled almost everywhere on the moors, inhabiting the dim wastes of greyish grass and black peat where no other bird will dwell. They nest under the rain-beaten tufts of grass, or in pockets in the cushions of dark green hair-moss; and the cup of dry grass keeps the dark mottled eggs dry and warm all through the long grey days of mist and rain on the uplands.

Titlarks haunt heather, or slopes of rough and shaggy

grass, but wheatears prefer the stretches of smooth turf cropped close by sheep and rabbits. The moorland is parcelled out between them, with the titlarks' share much larger than the wheatears'. Although the first travelling wheatears may often be seen before the end of March, it is well into May before the full summer population is settled on the shorn grass slopes, and busy with nesting. The wheatear nests in underground crevices or burrows; and its favourite place in the moors is where a heap of stones has half sunk into the turf, and connects a maze of winding



WHEATEAR

passages, or where a frost-split rock has shifted, forming a deep, snug crack. Since wheatears like smooth turf, they are apt to be found in sheltered hollows where the sheep gather and graze year after year, by the streams

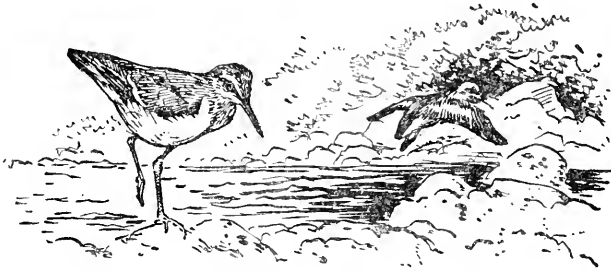
and the upland folds; and often where a lonely shepherd's cottage has tumbled into ruin, the only sign of life is the wheatear flitting with its conspicuous patch of white from the fallen wall, and perhaps a black magpie's nest stuck high in an old apple-tree by the gateway. In her narrow labyrinth among the stones, the wheatear can nest without fear of the wicked magpie, which otherwise might prove a too dangerous neighbour for her eggs and young. Magpies are fond of nesting in the clumps of thorns which nestle in the high hollows of the moors; they return to them in March, or even February, and by the time that the old hawthorns break into white blossom late in May, the nest is usually crammed full with a mass of pied fledgelings. The gravelly spits and



FORK-BILLED FLYCATCHER. UPPER BIRD, COURTING HEN.

B. A. W. S. '05.

bays of the stream in the level hollows where the old sheep-folds are often found are the highest nesting-places of the sandpipers. A May flood tearing down from the peat-hags will often wash away the four or five biscuit-coloured eggs laid on the gravel below high-water mark; and all through the month, and into June, first the cock bird will flit from spit to spit with shivering flight and shrill anxious chatter, while presently the hen will appear as if from nowhere and join him in tremulous alarm. Like most birds that nest in



COMMON SANDPIPER

the open, sandpipers are very cunning in leaving the nest; and since the colour of the back and closed wings is very like that of the grey-green pebbles of most hill streams, it is easy for the sitting bird to run invisibly for some distance, and then attract attention to a safe and unobjectionable quarter by a sudden display in flight of the white feathers of the wings and tail.

Lapwings and curlews are both well practised at the game of pretending that the nest is where it is not, or at any rate that it is not where it is; and hours of interest may be spent in the attempt to outwit them by the resources of scout-craft. The first requisite is a knowledge of the kind of

ground that each prefers. Lapwings are fondest of wet tracts of short green grass, generally interspersed with clumps of rushes. Curlews seek out on grass-moors the concave bights or 'slacks' which lie between the head and the shoulder of the hill, and are full of the pale tangled grass which botanists call flying bent-grass, and which makes what the keepers call 'white ground.' They also haunt gentle slopes of the same kind of grass towards the bottom of the hills—often within the walls of the lowest fields. If they see



CURLEW

a human figure come gradually into view at a distance, the hen birds of both species will slip quickly from the nest and run to a considerable distance before taking to flight, as though from the nest itself. Meanwhile the cock birds are wheeling and crying overhead; they endeavour to distract the intruder's attention from the nest by drawing him in a different direction. Sometimes the sitting birds can be spied at a distance with a field-glass, after approaching within a few hundred yards, under cover of rising ground, or in the shelter of some deep ravine. Without the aid of a glass nests of both species can be found by approaching some likely spot under cover, as just described, and suddenly appearing within a hundred and fifty yards or less of the

sitting birds. Taken thus by surprise, they will rise directly from the nest; and at least one nest can usually be marked down infallibly, while a sufficiently good notion can often be secured of one or two more, especially in the case of plovers mating in colonies, to make it not difficult to find them. If the hunter approaches over a gradually rising skyline, the sitting bird is almost certain to see him gradually looming into view long before he can see the small form crouched on the wide waste. Sometimes we may catch sight of the bird in the act of running from its nest; it will be distinguishable from other birds running on the moor by its stealthy haste and directness. Then the nest may sometimes be found by disregarding the bird further, noting the path by which it came, and following it backwards in a straight line. A year or two ago, in Wales, we saw a curlew run more than eighty yards from left to right across the line of our advance, before taking to flight exactly in the opposite direction from the nest; the nest, still empty, was thirty-six yards back from the point at which the bird was first seen running.

The curlew's nest is a shallow depression, as large as the largest dinner-plate; on many moors it is fairly thickly lined with the grass which makes the 'white ground,' and the four large olive-green eggs, with their darker spots, make a fine appearance in the nest. It is the rule with this whole tribe of waders and marsh-birds to lay their four eggs point to point, like a four-leaved shamrock. They pack neatly together, owing to their pointed shape; and as the young birds are hatched well grown and active, and the eggs are consequently very large for the size of the bird, it is possible that this symmetrical arrangement helps a small bird to brood and cover amply a large set of eggs. Yet the rule is not invariable; we have seen a plover's nest in which one of the four eggs was lying quite unsymmetrically, and had been

incubated long enough in that position to have pressed a deep print in the soil. When a second set of only three eggs is laid, they seem more often to lie just as they come than in the trefoil pattern, which is the nearest approach to the typical arrangement of the full set. Like farmyard chicks, which also leave the eggshell in the full possession of their infant senses, young plovers can often be heard piping within the shell if we lift the eggs to our ears when they are nearly hatching in May. The dull, opaque shell of the hardest egg

is smeared with the dried mud carried by the bird's feet in the April storms. It looks like dullest tortoiseshell, and has lost almost all the beauty that it had when freshly laid; but half-born within it stirs the note of coming life under the May sky.



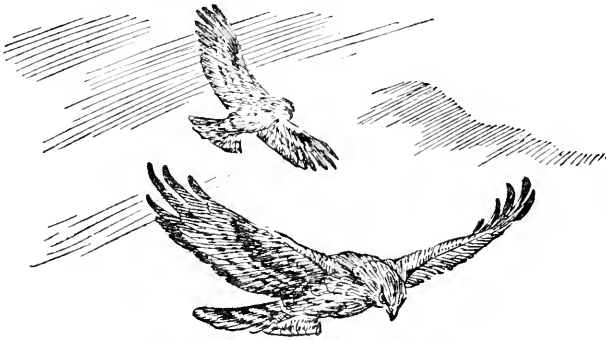
LAPWING CHICK

Golden plovers are later nesters than the green plover, peewit, or lapwing, and are often only settling down in their nesting-places in the first half of May, when the young lapwings are quickly hatching even on the high moors. Lapwings are, above all things,

quaint and delightful, with their antics on their crooked wings, their perpetual sham attacks above their nesting-places, and their wild spring hallooing. Golden plover are very different and far shyer. They haunt in spring only the higher or lonelier moors; a single pair can sometimes be found settled alone on some grassy summit overlooking half a dozen counties. Their pointed wings and clean flight are very unlike the broad vans and circling orbits of the peewit; and their most frequent notes in spring is not the liquid whistle which falls from their autumn flocks, but a

low anxious note like the mew of a small kitten. This plaintive sound is distinctive of the freest landscapes and the purest air in spring; it seems distilled from the living quicksilver of the spring wind and light. It sounds like the mew of a buzzard heard from a great height in air; and while we are looking far into the sky, it is often surprising to see the golden plover standing only a few yards away, conspicuous with his black spring breast, and uttering this subtle and almost puny cry.

Like the keener peregrine falcon and the sinewy raven



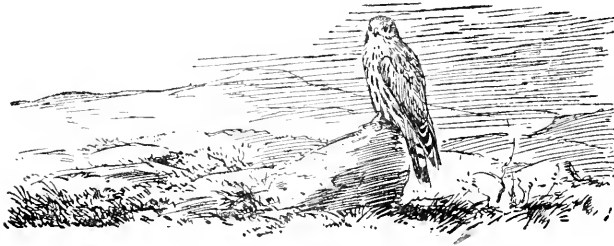
‘THE BROAD-WINGED BUZZARD SAILS IN WIDE CIRCLES’

the buzzard now only haunts moors where crags and precipices provide a refuge from disturbance; but ravens and buzzards still occasionally nest in trees growing among the rocks. Neither ravens nor buzzards are at all rare in most moorland or mountain tracks; they are not positively numerous, for each pair requires at least a square mile or two of country to itself, but they are well distributed, and make themselves attractively conspicuous. The broad-winged buzzard sails in wide circles above the hillsides, flinging down its querulous wail; and the raven often floats and glides on high

in very much the same way, though its curves are less prolonged, its wings are more often reset to the changing wind, and their comparative narrowness makes them distinguishable from those of the broad-winged hawk. Peregrines are true falcons, with pointed wings and dashing flight; they are far rarer in most woodland districts than the buzzards, and have to contend against greater prejudice owing to their skill in dispatching a grouse. Buzzards are content with dead sheep, and even beetles; and they have not the raven's merciless habit of attacking weak lambs and sickly ewes in the lambing season. The golden eagle is half a buzzard in form and habits, for all his lordly size. He, too, has a vulturine taste for carrion, though he also carries off grouse and mountain hares. It is very doubtful whether any golden eagle can carry any larger animal than a good-sized hare; and the various dramatic stories of sleeping babies being borne to the distant eyrie must be regarded with permanent suspicion, for none of them can now be verified. In England and Wales the golden eagle is only a very rare wanderer—rarer than the white-tailed or sea eagle, immature specimens of which visit the east coast and other parts of the country not very infrequently. But the golden eagle has grown fairly common in parts of the north of Scotland, after a period of protection under the law; and it is also said to survive in two Irish counties.

Of all British hawks, the most characteristic of the moorlands is the merlin, which is the smallest species, and one of the most truly hawk-like. The cock bird is often called the Blue Hawk, from the slaty-grey of its upper parts; and the name is vaguely applied to both sexes, though the hen is rather brown than blue. Where an outcrop of rain-beaten rock caps some summit of the Welsh or northern moors, the merlin chooses a perch, and sits there for a long while to-

gether, half watching for the movement of small birds, on which it preys, and half in mere enjoyment of life. From this habit it is also called the Stone Hawk. But not every hawk that is seen perched on a rock on the moors is likely to be a merlin. Buzzards have a similar habit of choosing a lofty perch for the digestion of their meals; and where merlins and buzzards are both scarce, the kestrel has the same picturesque habit. Merlins lay their eggs in May in a bare hollow among the grass or heather. More rarely they



MERLIN

choose an old crow's nest, which is a common practice of the kestrel's. Buzzards and ravens both build a large nest of sticks or heather stems; young buzzards are hatched in May, but the raven is an earlier nester, and its young are then beginning to stray from their nest among the neighbouring rocks. Hawks as a tribe have rather vague and casual habits of nesting; and the kestrel lays its eggs indifferently in a hole in some rock-face, like a jackdaw or stock-dove, or in an old nest in a tree—generally a crow's. In some lonely ravine among the moors, there may be only two trees clinging to the bare slopes for two or three miles; a bulky carrion crow's nest may fill the top of one stunted rowan or pine, and where its half-ruined predecessor of last

spring hangs in the top of the other, the ringing cry of the kestrel from some neighbouring rock tells us that it, too, is tenanted. The extreme conspicuousness of such nesting-places illustrates only too clearly one reason for the diminution of the birds of prey.



BUZZARD'S NEST

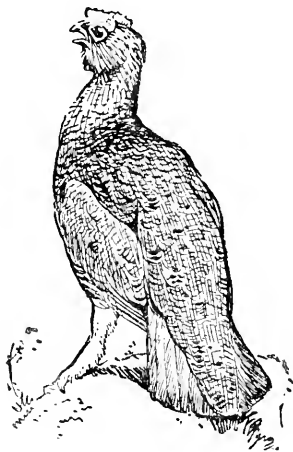
tion of the birds of prey.

The wheatear in its burrow and the wary curlew on the wide waste bring up their young in safe concealment; but the black nest of the crow or magpie is often the most conspicuous object on the whole of the May moors. The rowans and ashes leaf late, and the nesting marauders do not wait for them; the shepherd's boys pocket the kestrel's red eggs and the crow's green ones, or the game-keeper destroys the whole brood by a charge of shot from the hillside close at hand. The grey or hooded crow

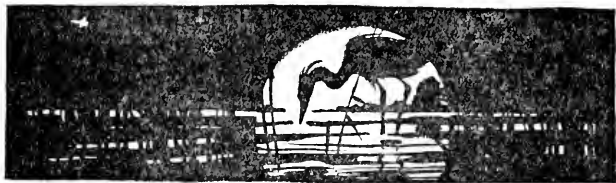
takes the place of the carrion crow in the north and west of Scotland, as well as in Ireland; and where trees are absent, it builds its nest on some slope of rock, or even among the flat heather on some little islet in the lonely Hebridean lochs, where the thin song of the omnipresent titlark contrasts with the harsh cries of goosanders and herons.

Partridges haunt the grass-moors to a considerable height, and old cock pheasants of wild and wary habits dwell in the wooded dingles that mount between the bare shoulders of the hills. Their cry blows over the open crests with a distant association of oak leaves and mossy shadows. Where a mantle of alders and birches clings loosely to the sides of the hills, just above the highest oat and barley fields, black game harbour on the edge of the desert and the sown. They are distinctly birds of the rough moorland scrub, and are midway in habit between the capercailzie, which haunts the pine-woods, and the red-grouse of the open moors of heather. The nearest relative of the red-grouse is the Norwegian riper or willow-grouse, which in summer has its grouselike plumage conspicuously splashed with white, and in winter turns white almost completely, and is then common in the poulterers' shops under the guise of 'ptarmigan.' Heather is scarce in Norway, and the chief haunt of the willow-grouse is among the dwarf willows and little dark green creeping birches which clothe miles of the mountain slopes. Our grouse is the willow-grouse adapted to a milder climate, where snow is only intermittent on the slopes which it haunts, and the white has accordingly almost vanished from its plumage. It survives only in the white spots on the birds from certain localities. Grouse pick up part of their living from many moorland plants, and a few insects; but the staple of their diet consists of shoots of heather—not the bell heather, which is included among the mere pickings, but the paler starry ling. It is curious that there is apparently no trace of its ever having existed in a natural state on the great heaths which cover wide tracts of north-west Germany, especially as it now appears to be doing well in several places where it has been introduced into both Germany and Belgium. Not even the little dark heather linnets, or twites,

are so thoroughly characteristic of the heather-clad moorlands as the grouse. The twite is hardly ever found in spring or summer in the south or west of England, and is scarce even in the north; it does not become common until we reach the Scotch highlands and islands. But the grouse are the true 'moorfowl,' as they call them in the north; and the cock grouse has all the habits of proprietorship. His peremptory cry of 'Go back! Go back!' sounds a challenge like the bark of the raven, as he mounts to some heathy knoll to face the intruder; and it rings as pleasantly in the ear from the heave of the moor close at hand, as the bubbling spring cry of the curlew, scouting round the distant crests.



RED-GROUSE



NIGHTS ON THE WATER

NIGHT hours in woods or stackyards discover much life that is obscure in the daylight; but it is by mere and river that the evening and night are most prolific of strange sights and sounds. It is a common practice of Norfolk naturalists to spend nights on the broads; and there are few experiences more full. Soon after sunset the great noctule bats, looking strangely large to those only accustomed to the commoner pipistrelle, are usually to be seen in the early days of May. They come out to feed and flitter in the twilight, screech shrilly, as they wage war on the night-flying beetle, often dropping sharply with half-folded wing. When some great coleopterous creature has been caught, you can distinctly hear the scrunch of its shelly covering as the animal's long sharp teeth break into it. By blowing into a small key you may produce a whistle sharp enough to bring a response from the bat, which may flutter so close to your head that the puff of a wing-beat may be felt as it passes.

The redshanks nesting on the marshes have ended their piping. In the day they broke the silent task of incubation by a foray after ditch prawns and other 'shrimps' and creatures on the muddy margins of the river: or if the tide was high, by a hunt along the ditch-sides where the little shrimps and side-swimming gammarus swarm, and where a host of species of water-beetles circle and dance.

The lapwings, whose mates are still sitting in their 'scrabs' on some low-lying marsh, or in some rut of a clover meadow, flit down to the lower marshes at nightfall. The so-called sportsmen, now happily debarred of free access to the marshes, used to call these movements 'flighting,' and these well-marked lines of flight 'leads.' The strange squeal heard on a dark night or across the beauty of the moonlight, leaves one with a sense not only of the loneliness of the wide plateau, but with a certain feeling of companionableness also.

The kine lie lazily around at night-time, and the sound of their cud-chewing makes the strangeness familiar. Where a few scrappy clumps of reeds spring up in the 'cut,' saving an utter rigidity of margin, a sedge-warbler chatters out his love tale. In the clump on the 'low,' a stone's throw off, he has a little nest fixed like a New Guinea nigger's hut, upon a scaffolding: as the reeds grow upwards that nest will go up with them, and by the time the baby birds have made their way into the world, they will be swinging in a bed-cradle to the lullaby of the night winds. The swallows that flitted around in the daytime at night roost in the old pump-mill, on a projecting nail, or rough oaken beam edge, or on a cog-wheel. In niches in the wall where soft bricks crumbled, their nests are stuck as half-circles or less, or even as saucers in shape, as caprice prompted. When the little ones come to be feathered, and make their first essays at flight, one now and then errs in approaching the oily cogwheels, which enshroud them with misfortune as with bird lime. In the daytime they flitted around the reed-patches, whipped up insects struggling on the stream, and toyed merrily high aloft. The sand-martins dropped in on a friendly call, for a share in the common prey of moths and flies and other abundant species, that danced around the rank thistles and

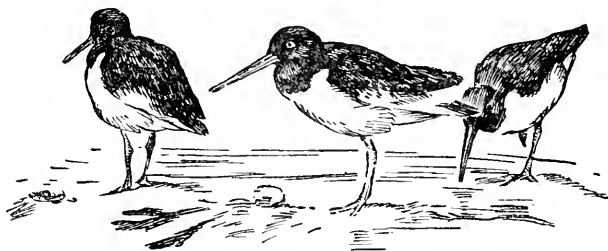
chenopodiums and reeds and sedges. The duckweed-thickened ditches teem with life. Even small roach, many a fat eel, and here and there a stunted pike flash among the crowded horsetails, water-plantains, hornwort, and other ditch plants: all of them enjoying life the more for taking it. Frog and stickleback are engulfed in the trap-jaws of hungry pike; mayflies and many another May insect emerging from their pupæ-cases are food for little roach or passing swallow, martin, and wagtail, whom the chirping meadow-pipit joins to help in the general slaughter.

At nightfall the cuckoo, who even finds out the swinging cradle of the sedge-warbler, has retired to a tree branch to rest; the goatsuckers come to the old willow on the other side of the 'wall.' Ghost moths do not heed his churning warning, and with many another night-loving insect go down his wide jaws.

There creep out from their burrows in the 'wall' the furry little water-voles. These plunge into the shallows, thick with watercress, and undoubtedly sample any small insect, floating moth, and struggling dragon-fly, busily pulling itself out of its glove of a pupæ-case, just as the water-shrews 'plumped' in and seized others by daylight. But here the water-voles take by choice the long, thick grass stalks, cutting them off with gardener-like deftness with their large yellow incisors. Then sitting up, 'waist deep' on the margin, they nibble them up to the merest remnant, passing the succulent blades through their handlike fore paws as might their relatives, the squirrels.

Such sights and sounds may any observer enjoy who loafs through the long warm day, and continues his vigil through the silent night hours, until the marsh mists vanish in a new day's sunbeams, when the sky in the east turns from deepest blue to palest green, when the stars grow dim,

and streaks of golden break above the horizon and change from fiery red to paler yellow, even until the full glory of the day appears. The least shuffle of the feet sets all the little sedge-warblers off singing their rough ditties, whilst moorhen croak notes of astonishment, and the grebes hard by cluck their annoyance at the disturbance. There are other cries—there is the crake of a water-rail, the screech of an owl in the wood yonder, the call of a night-prowling heron that breaks harshly on the ear like the wail of a ghostly wanderer.



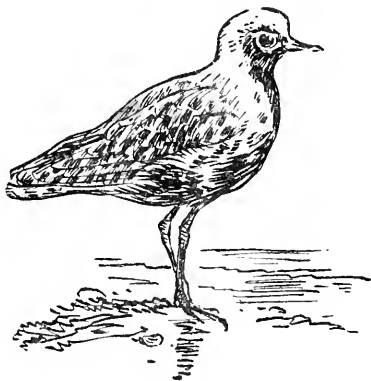
OYSTERCATCHERS

Those who have attempted sleep during a night on the broads will certainly be awakened by such strange night noises.

Otters are much more likely to be heard than seen, though their traces are evident. You might see now and then the tail end of a big tench, or a bit of an eel,—they are fond of big eels—you might even observe the sedges trampled where they landed, but so wary are they, that even the marshmen can seldom catch sight of one landing. In one place where a pair had three or four young at a litter it became a standing marvel how they managed to bring them up in secret; and the anglers who grumbled about the number of fish killed in the neighbourhood never penetrated the secret. When day first comes how many birds are seen

here which are seldom seen elsewhere. A clamber through the gap in the sandhills brings the watcher to the beach, where he will find the ringed plover mournfully piping to his fellows, the sanderling with his freckled gorget round his chest and the gay turnstone almost tumbling over the stones in search of the sandhoppers on which he feeds.

The oystercatcher drops in and hunts for a stranded mussel, on his way to join his comrades on the muddy shores



'GREY PLOVER, WITH VEST OF BLACK'

of the Wash, where mollusca are much more in evidence. The gulls are not so numerous as in other days, for the larger species have gone south to breed; and only stray blackheads, holidaying an hour or so from their duties further inland, break the dull sea level with dots of white. In spring there are many birds occasionally to be met with—the grey plover, with vest of black, the grey godwit in suit of red, the dunlin with shirt front of deepest black, and the tern with pearly mantle, on its way north to nest. On the sandy slopes and marram-tufted knolls the wheatear flecks his tail, and the

stonechat and whinchat make themselves at home among the furzy clumps and the prickly sea-buckthorn that breaks the wild and otherwise bare broken sand-dunes. Below in the hollows behind these dunes the restharrow touches the slopes with pink, and the cranesbill with yellow. Other touches of colour are dotted here and there where bustling winds dropped in the seeds of foreign plants that took root and made the best of the untoward circumstances.



TERN



MAGPIE INQUISITIVE.

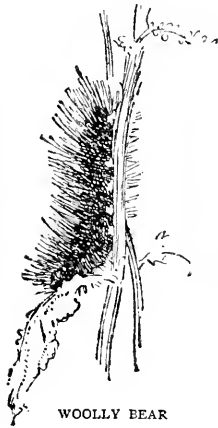
By G. E. COLLINS.



THE CUCKOO

Cuckoos' cries are so deeply associated with the first warm spring days that the earliest reported occurrences of the bird always need to be treated with considerable caution. Rustics, especially children, have an ingrained instinct for crying cuckoo to signalise the first soft, bright weather which feels like the genuine cuckoo-time; and their imitations are often so accurate as to deceive even practised ears at a little distance. Nor are many of the statements that a cuckoo has been seen in March, or even February, any more trustworthy than reports of its being heard. Even birds seem to be deceived by the likeness of the cuckoo to a hawk; and it is perhaps not wonderful that human observers are apt in spring to mistake a sparrow-hawk sneaking along the hedges, or even a kestrel, for the bird they expect to appear. Both eye and ear being so fallible, the only certain proof of the arrival in England of a cuckoo before its normal date in April is for it to be both seen and heard cuckooing by a thoroughly trustworthy observer, or for its body to be produced, freshly shot. This latter test may no one satisfy; and though there seems no definite reason why cuckoos should not occasionally arrive in February or March in years when the weather over western Europe is exceptionally mild, there is little

evidence that one has ever reached us before April. March cuckoos are so far 'not proven,' while February cuckoos are still more open to suspicion. Cuckoos feed chiefly, if not entirely, on the hairy caterpillars, such as drinkers and woolly bears, which first appear on emerging from hibernation in mid-April. If they come before these caterpillars are about they are likely to starve; and though some migrant birds—



WOOLLY BEAR

for example, swallows and martins—do starve when they reach England in cold springs before their natural food is forthcoming in sufficient quantities, nature generally avoids such a fiasco. Moreover, a starving bird is very unlikely to have vigour to shout in spring song, which is the expression of overflowing vitality; and a February or March cuckoo is very unlikely to be heard cuckooing. Cuckoos are reported as having been heard before their usual time much more often than as having been seen; and the improbability of these aural records makes the remaining body of evidence very unsubstantial.

Cuckoos arrive in England along the eastern half of the south coast—from Hampshire to Dover; but unlike the nightingale, which chooses the same point of entry, they spread over the entire country, even to the Outer Hebrides and the Shetlands. They do not reach their remotest haunts until the end of May, or even early June. When they arrive they have always the perfect double note, which they usually keep until June; and this is another reason for doubting the authenticity of very early records. It would be more in accordance with the gradual stages by which most birds build

up their spring song for cuckoos very early in the year to utter rough and broken notes, like their cries towards the end of the season. We hear in England the gradual decay of the male cuckoo's song, but nothing of its growth. It first calls to us in the clear and lusty notes which vary in musical interval in the case of different birds, but not in the completeness of delivery. As the season goes on, we hear the cuckoo resolve its clear call of April noons and May dawns into its primitive elements. 'In June it changes its tune,' says the country rhyme; and this is true in the main, though sometimes the double note becomes threefold even in May, while in other seasons we may hear a perfect double call as late as we hear the bird crying at all. Usually the 'cuck-cuck-oo' of early June rapidly deteriorates into a hoarse guttural gabble, and that into habitual silence. When greatly excited, even in the heyday of its song in April and May, the cock cuckoo will sometimes utter the hurried threefold notes, and inarticulate guttural cries. These cries are to be heard when two or more cocks are agitatedly obeying the call of a hen; and then, amid an extraordinary storm and volley of mixed cuckoo cries, we have the opportunity of distinguishing the hen's peculiar note. This is a loudly repeated bubbling noise, of the same curious kind as one of the spring cries of the curlew; it also recalls the spring cry of the dabchick. Perhaps no three birds ever make a more confused noise and excited din than is produced by a hen cuckoo calling up two jealous cocks, which alternately approach and retire from her tree-tops, and shout till the meadows ring.

As such a scene suggests, the hen cuckoo is polyandrous, and this not only fits in with the general looseness of her parental habits, but suggests a clue to the curious pattern of her eggs. From the evidence of dissected specimens in the laying season, each female cuckoo is believed to lay from five

to eight eggs. She lays an egg on the ground, and then carries it in her beak to the nest, which is often placed in such a situation that she could not deposit the egg in the ordinary way. The egg is very small for her size, though usually rather larger than those of the foster-parents. The nests most often chosen in this country are those of the hedge-sparrow, meadow-pipit, pied wagtail, sedge-warbler, and reed-warbler; but three or four times as many species are occasionally vic-



CUCKOO'S EGG IN HEDGE-SPARROW'S NEST

timised. The cuckoo's egg does not as a rule present an extremely close likeness to the eggs among which it is laid; in some cases there is practically no resemblance. Blue cuckoos' eggs seldom if ever occur in this country, though they are said to be met with on the Continent; and cuckoos' eggs placed

among the blue eggs of the hedge-sparrow are of a freckled green. There is no reason to believe that the cuckoo inspects her egg and then chooses a set of other eggs to correspond, as is sometimes said. But although the cuckoo's eggs could not often be mistaken for those of the bird among which they occur, the eggs found in the nests of each species which frequently act as host do approximate to a definite type of colour, and there is a very rough approximation between this typical colour and that of the eggs of the host. Cuckoos' eggs from reed-warblers' nests, for example, have usually a deep bronze-green ground, with the freckled markings

darker than usual ; and this does conform in a very imperfect way to the pale green eggs of the reed-warbler, with their dense, dark green spots. It is most probable, though it is not yet proved, that the hen cuckoo puts her eggs in nests of the same kind in which she herself was brought up. The same principles of natural selection which control the colours of the lawful eggs in the nest therefore influence to some extent those of the intruding cuckoo. But the cuckoo's eggs never become very like those of the host, because when two cuckoos mate there is often an admixture of blood from a different class of cuckoos, contributed by the cock. Though the hen cuckoos of the reed-warbler cuckoo clan are faithful to the nests of the reed-warbler, the approximation of their eggs to the reed-warbler's eggs is perpetually hindered by their mating with the hedge-sparrow or meadow-pipit or pied wagtail clan, which perpetually introduce the blood of a different stock. It is worth noting that the indecisive colour and markings of cuckoos' eggs are just the result which we should expect from a confusion of many types. Cuckoos' eggs are found so rarely in certain nests—as, for example, the swallow's and chaffinch's, and even the dabchick's—that it seems clear that the right instinct of the mother sometimes breaks down, and that she puts her egg in the first nest she can find. If the attachment to the nest of a certain species were absolute, it would also be difficult to explain the occurrence of cuckoos' eggs in nests of the marsh-warbler, which is so scarce and local in this country as to provide a very uncertain foster family for cuckoos depending on it. Yet cuckoos' eggs do turn up in marsh-warblers' nests, and it



seems most probable that they are strays dropped by hen cuckoos which usually frequent the nests of sedge-warblers or other birds nesting in the same thicket.

When two cuckoo's eggs are found in the same nest, they have probably not been laid by the same bird. There is plenty of room for two cuckoo's eggs and four or five other eggs in a nest, but none for more than one young cuckoo. Being so small when hatched, it has to grow very rapidly, and therefore needs much food; it can afford to tolerate no rivals, and has a very short way with them. When still blind and naked, and usually before it is forty-eight hours old, it works itself under the other young birds, one by one, scrambles up the side of the nest with its stumps of wings raised to keep the victim in place, and empties it over the edge. Its back is unusually flat and hollow, which appears to be a special adaptation for this bloodthirsty performance. It does not always accomplish its blindfold task the first time. The other little bird sometimes falls down inside the nest; then the cuckoo rests a little, and sets itself savagely to work again. It is not long before it reigns alone, and before it is fledged it fills the whole nest, and pecks savagely at the hand which attempts to touch it.

Unnatural as the acquiescence of the foster-parents may appear, they are only acting according to their lights. Their instinct bids them find young birds hatched in their nest; and they obey their nursing instinct implicitly, indifferent to the fact that there is only one young bird left, and that a completely naked and copper-coloured little creature unlike any chick of their own. This active co-operation of the foster-parents in a process which can only lead to the reduction of the numbers of their species is an illustration of the fact that not every acquired habit in nature is necessarily beneficial, as some extreme supporters of the theory of

natural selection hold. There is a certain margin of freedom, and a disadvantageous habit may be outbalanced by other beneficial ones. Birds will usually brood an inserted egg of about the same size as their own; it is quite easy to get a nestful of young song-thrushes hatched and reared in a blackbird's nest, though the eggs are very distinct in colour. Sometimes the owner of the nest does resent the arrival of the cuckoo's egg, and covers it up with a little more lining. Though the parasitic habit is clearly a disadvantage to the foster-parents, it is harder to decide whether it is an advantage to the cuckoo. Obviously it saves parents an immensity of trouble; but the avoidance of trouble is usually not a good principle in the long-run either for men or birds. The highest birds—judged

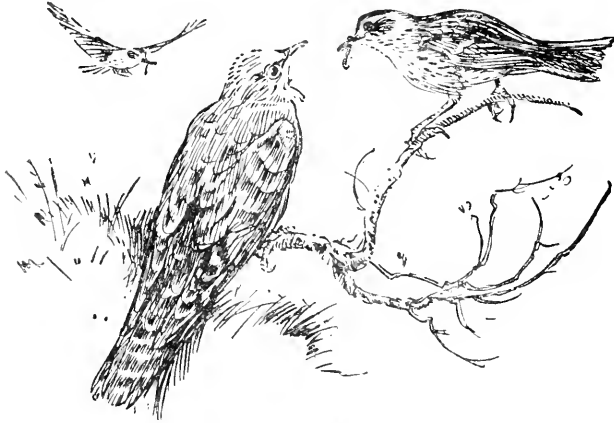


by standards of intelligence—are not only monogamous for the nesting season, but for life. By all the moral rules, cuckoos ought to be a declining species; but it must honestly be said that they are not. They are numerous in every type of landscape, only avoiding towns. We are left to presume that they exist in spite of their peculiar habits rather than because of them, as is certainly true of the foster-parents' share in the story. Not all cuckoos are parasitic, and we find certain American members of the tribe building nests of their own, though very poor ones. It would throw much light on the question of the help or harm-

fulness of the cuckoo's parasitism if we could be sure that these rude platforms represented a struggle towards a decent family life on the part of former polyandrists and infanticides. But it may be just the other way round. These American cuckoos may be losing the habit of building nests, and the next stage may be to put their eggs in the nests of other birds, as our cuckoo does. Starlings sometimes lay an egg among those of jackdaws; and pheasants will also lay in other pheasants' nests. But we have never heard of a young starling being hatched and brought up among a brood of jackdaws, and the strangest acquisition of all is the young cuckoo's innate impulse to throw out its foster-brothers.

Undetained by family cares, old cuckoos migrate early in August, when the hairy caterpillars on which they live are getting scarcer. The young remain a month or six weeks later; and in their case, at any rate, there can be no question of the migratory habit being due to the example of their parents. Though in late August and September there is no such profusion of hairy caterpillars as in the copses of June, the large caterpillars of the buff-tip moth are in the boughs until September is far gone. Earlier in their history the young cuckoos live on more diversified fare. They are naturally fed on the food which their foster-parents give their own young, and since they are brought to the light in the nests of seed-eating as well as insect-eating birds, it might be thought that in such cases they would be given very unsuitable food. This is avoided by the provision of nature, which arranges that even the seed-eating birds are fed in the earliest weeks of their life on caterpillars and other insect food. The diet proper to a young chaffinch thus suits the young cuckoo as well as that of a young hedge-sparrow; the only difference is that he requires four or five times as much. For

some time after they leave the nest the young of all birds are attended with almost undiminished care by one or both parents; but this solicitude of the old birds for their fledged offspring is doubly conspicuous in the case of a young cuckoo owing to its large size. The strangeness of the whole situation is emphasised afresh when we see a pair of diminu-

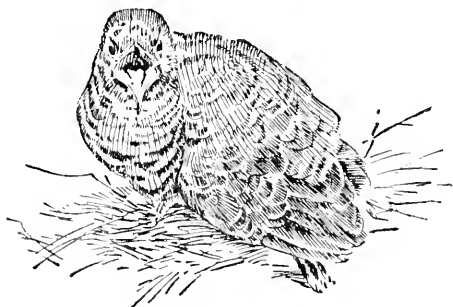


'A PAIR OF DIMINUTIVE MEADOW-PIPITS'

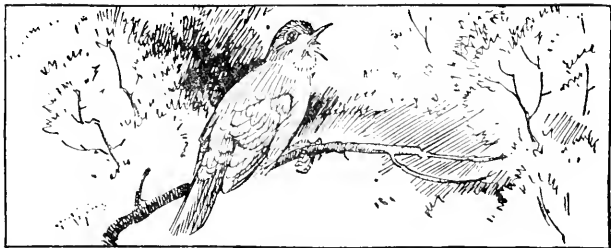
tive meadow-pipits, worn and shabby with the labour they have already gone through, busily ministering to a full-grown but clumsy and dependent young cuckoo on the July moors. The young bird is now many times their own size, but still keeps a thin nestling cry, which recalls in its disproportionate shrillness the notes of young gulls at the same time of year. The extreme hunger and helplessness of the young giant seem to keep the nursing instincts of the parents active beyond their normal time, so that the devotion of the foster-parents of a young cuckoo appears greater than they display towards their own brood in more fortunate seasons. Next year they

may be mobbing the same bird with an antipathy as fierce as their present affection for it.

The idea that cuckoos become hawks in winter is a fallacy of rustic natural history which dies hard. It proves how easily the cuckoo and the smaller hawks can be mistaken for each other, when the familiar cry is not available as a means of distinction. A half-convinced believer in the old fable will ask if the cuckoo is ever seen in foreign countries, still clinging to the notion that it dwells all the year in Britain, and merely goes through a peculiar metamorphosis in spring. Devoid of the knowledge accumulated in books, which guides and stimulates accurate observation, few countrymen take the trouble to test their traditional beliefs about wild life. And until the story of its life was pieced together by careful observers, the metamorphosis of the adult cuckoo into a sparrow-hawk would certainly seem no more incredible than the actual process by which the new-born bird gets rid of its legitimate rivals.



YOUNG CUCKOO



NIGHTINGALE

THE FULL CHORUS

MAY is the great time of the singing of birds ; every one of our song-birds sings during this month, and most of them sing so well, or so long, in no other. The nightingale sings all through May, as compared with ten days or a fortnight in April and rather less in June. The latest group of spring migrants, such as the turtle-dove and nightjar, are not often heard before May comes in ; and although neither has a song in the full sense of a thrush or a skylark, their contrasted murmurs lend much of their beauty of sound to the May days and nights. The reed-warbler and rarer marsh-warbler are fluent and brilliant singers which do not arrive in their wet haunts till well on in the month. These later visitors are all as vocal in early and middle June as in May ; but by that time there is a great diminution in the total volume of song. Even in the last few days of May the hatching of innumerable broods silences a very large proportion of singing birds ; and the second and third weeks are the time when the daily chorus is at once most varied and fullest. A few early or rather half-hearted singers, such as the missel-thrush and wheatear and stonechat, often cease singing for the season very early in the month ; and for them we must listen, if by any chance we have not noticed them earlier, in the days when

we first hear the turtle-dove and before the marsh marigold petals drop from their beaked seeds.

Where are we to draw the line between song and a mere cry? It must be a rather arbitrary one, unless it is false to nature. To speak of a rook's song would seem absurd; yet no one can watch the rooks tossing in airy column with varied utterance on a soft October day, or solemnly chorusing in the April elm-tops, without feeling that their cawing notes are song, almost if not quite as much as the thrush's music at



JAY

the same opposing seasons.

The name of song can only be denied to the very harshest cries with which birds express their intense inner vitality, such as the yelp of the sea-gull or the squawk of the moorhen on the pond. Even the scream of the jay—perhaps the only absolutely discordant cry of any British bird—is

full of that joy of life which is half of nature's music. The jay has a faint and seldom-heard song as well; but most of its high spirits in spring seem to run to screeches. Nor is there any absolute distinction between the song of birds and their so-called alarm-notes and call-notes. They will sometimes burst into song at moments of anxiety or pain, as when they flutter round the disturber of their nest, or have been injured by a stone-throwing boy. Keen emotion of any kind may produce song; but usually it is due to their vitality and high spirits. Their blood is much hotter than that of most other quadrupeds and bipeds; their normal temperature is that of high fever in man. Their song is a sort of soul

delirium. Very often their high spirits lead to combativeness; the vitality of thrushes or robins leads them to sing against one another in rivalry, much as schoolboys tumbling out of school will snatch off one another's caps or flog one another with their satchels. The common statement that the cock bird sings to win the affections of the hen mistakes the consequence for the cause. The hen does not listen and compare the songs like a judge at a musical contest, and proceed to award herself as the prize, but is captivated by the vitality which causes the cock to sing and enables him to beat off a rival by force of beak and wing.

Yet, although there is no definite point at which the utterance of birds becomes musical, or their cries may be said to develop into song, the most marked difference in the songs of our English birds is between those which consist of a single set phrase or ditty, and those which consist of a long, flowing strain. The chaffinch and blue-tit are two of the most conspicuous singers of set ditties; the skylark and blackcap have two of the most perfect songs of the freer kind. The missel-thrush, with its three wild notes endlessly repeated, is a phrase-singer of a more rudimentary type than the chaffinch; the chiffchaff or cuckoo, with only two notes, is cruder still. The two notes of the corncrake are indistinguishable, and so grating that the bird can be deceived by stroking the teeth of a comb; yet its cries are as pleasant as music in the peaceful May nights, and the bird itself seems to take endless satisfaction in them and to be singing in its own mind like any dove. The churring and whirring monologues of the nightjar and grasshopper-warbler have a very slight change of pitch from time to time, but otherwise are as monotonous as is possible for any sound produced by vocal chords; yet these, too, are the characteristic expression of the birds' vitality, as much as the chattering music of the sedge-warbler

that vies with the grasshopper-warbler in the evening sunshine, or the nightingale's music that overrides the corncrake and nightjar when dusk has fallen.

Besides the chaffinch and blue-tit, the yellowhammer, willow-wren, hedge-sparrow, and all the pipits have well-marked formal songs. Between them, they carry this type of music from the heart of the copses and gardens to the bare moors and mountains and spray-dashed ocean crags, where the meadow-pipits and rock-pipits nest. The chaffinch's song makes up a great part of the whole May chorus, and when we analyse the volume of sound on some warm May morning, and credit each strain to its singer, we realise how abundant a bird the chaffinch is. Even among all the babel of May, their voices are constantly dominant, and they add much to its gaiety. For sheer sunny cheerfulness, the song of the chaffinch cannot be excelled. Cheerfulness is supreme in the skylark's music, pouring from the sky; but there is something curiously vague and indistinctive about it, and the chaffinch's song seems to be far more expressive of earthly spring. The stream of skylark music suits best the vast spaces of bare down or moor, when it falls around us, as all-pervading and impersonal as the sunshine; but chaffinches are attached to special trees in the garden, and have a sense of home, like man, that gives a more human quality to their music. The blue-tit's is one of the quieter spring voices, like the willow-wren's; and as the blue-tit is a good deal less abundant once May has begun, it is apt to be regarded as exclusively a singer of early spring. The hedge-sparrow sings on persistently over his second nest; his ditty is cheerful enough, but does not run with the easy sweetness of the chaffinch's. Its formal pattern is sometimes almost disguised, and the song then seems as freely flowing as that of the wren, though always of a fixed length. The yellowhammer's song is distinctly

plaintive. Part of the charm of the pipits' songs comes from their habit of uttering them while rising and falling in the air, as if borne on an invisible fountain. The titlark or meadow-pipit rises from earth and returns to its tussocks of grass again, the rock-pipit wavers from crag to crag on the cliffs, and the notes of both sound plaintive in their vast surroundings. The tree-pipit haunts clumps and avenues of timber and well-grown hedgerows, tossing into the air from their boughs, or sometimes singing on a high perch; and perhaps it is only the more cheerful environment of green pastures and budding May boughs that gives a gayer note than that of its kindred to its rapid ditty ending with an emphatic 'See, see, see.'



TREE-PIPIT

The free and flowing songs make a great contrast with the set ditties, and the difference between the two types provides one of the best means of learning to distinguish our different song-birds. As we pause at the edge of the beech-wood on

a May morning, and listen to the varied web of music, the repeated ditties of the chaffinch or tree-pipit seem to be weaving a standard pattern on the underlying fabric of more flowing melody. We distinguish gradually the low, long rippling melody of the garden-warbler, the harsher mixture of the whitethroat's music, and the clear and varied warble of the blackcap, with its ampler compass and pure, high notes that the garden-warbler cannot reach. Garden-warblers and blackcaps are often said not to haunt the same copses; but this is by no means always true. Whitethroats are very abundant in the thorny undergrowth that the garden-warbler



BLACKCAP

loves, and also along most thick hedgerows. All these species are closely allied, and their song betrays the relationship. The garden-warbler's is sweeter than the whitethroat's, and the blackcap's more varied than either; but a good whitethroat's song may easily be mistaken for a poor garden-warbler's, and a poor blackcap's for a good garden-warbler's. Careful watching for the singer may result in a surprise for the naturalist who is most confident of his ability to distinguish the three songs. Typical songs are easily identified, but there are deceptive variations.

Goldfinches often haunt the same high boughs which the blackcap likes, but they are also fond of quiet gardens. Linnets are less domestic, loving above all a wild furzy common; but they also haunt hedges and garden shrubberies. There is a family likeness in the songs of both these dainty little finches, and the goldfinch, by its greater vivacity, is the more popular. But there is a sibilant harshness in its song which is less pleasing to many ears than the softer and more plaintive



COCK FINCH IN SUMMER PLUMAGE (UPPER BIRD) AND HEN

BY A. W. STAY

music of the brown linnet. It is gay, but lacking in sweetness. Both songs are unmistakably of the flowing type; they run on indefinitely, whereas we know exactly when and how the chaffinch's will end. Out in the open fields the skylark's reeling and unbroken song makes an even more striking contrast with the notes of the tree or meadow pipit, which it closely resembles in plumage. A skylark's full song usually lasts between two and three minutes; but there is nothing in its structure to show when it is coming to an end. In this it is like the bagpipes; both lark and piper know the right time to stop, but it is not apparent to the hearer.

As the freest and most flowing songs are the furthest removed from such elementary repetitions as the notes of the corncrake or chiffchaff, it might seem logical to regard them as the most perfect kind of bird music. But this would by no means be true. Many of the finest singers, such as the nightingale and song-thrush, largely make up their song of set phrases much like those of the chaffinch or pipits, but they have a far more varied repertory, and they mingle them with flowing passages. A song-thrush in full music will repeat some phrase of two or three notes five or six times, and a nightingale as many as twelve or fifteen. Most birds of either species have many phrases in common. The 'Jug, jug, jug' of the nightingale and 'Is it? Is it?' of the song-thrush are characteristic of almost every singer; and they have many other phrases hardly less characteristic. Where one thrush or nightingale varies from another is in the number of the phrases at its command, and in its own individual variations. With these will also go a greater fulness and richness of execution. One spring, a thrush that sang in a Berkshire churchyard had a clear, hard whistle like the cry of a marmot; it sang on for the season, but was not heard again. A rare, though well-known accomplishment of some

nightingales is a long, deep note lasting for several seconds—it sounds like half a minute—and steadily *crescendo*. It has a positively startling effect, interrupting, as it seems, the previous flow of song; and we know of no other bird except the woodlark which has this power of dwelling on a long note with increasing emphasis.



NIGHTINGALE

The blackbird's song is strictly intermediate between the flowing and formal types. There is a most characteristic run of six notes, four rising and then two falling, which is almost as fixed as many phrases of the song-thrush and nightingale; but the lazy ouzel does not always care to sing them, or plays all kinds of golden tricks with them, so that they become something different, or blend into a free run of song. Blackbirds in May have an effortless mastery of music which makes the goldfinch seem fussy, the skylark tiresome, and the

song-thrush peevishly anxious. Such comparisons are felt to be ungrateful, when we remember how bravely and sweetly the lark and thrush sang in February or November, when the blackbird would not try, and how busily the goldfinch will cry on among the swart August leaves in the heavy silence. But if fruition is better than hope, then the blackbird's enjoyment of spring is better than the thrush's prediction of it. In May nature lives for the time, and the blackbird knows the maxim *carpe diem* too well to labour it in his song.

Some birds have a way of picking up phrases from the song of other species, and weaving them more or less completely into their own music. When the junction is smoothly effected, and the tone and rhythm a little changed, it is often hard to be sure how much of the song is original and how much imitative. The most intelligent English mocking-bird is undoubtedly the starling. A starling has not much song of his own; subtract the obvious imitations of thrushes and blackbirds and other species from the cheerful noises which he utters on a chimney-top or elm-branch on a May morning, and there is nothing left but a few disjointed pipings interspersed with curious hissing and simmering sounds, and the sharp clattering of his beak. But most starlings add imitations of the songs and cries of the commonest birds in their neighbourhood, and the whole mixture is lively and spring-like enough. The imitations are delivered in a casual and indifferent way, and usually in a lower tone than the original, but are often so close as to deceive. They sound like the genuine cries at a little distance, when their real author is performing just above our heads. Some starlings pick up the three characteristic notes of the missel-thrush to perfection, and deliver them for a long while together with the missel-thrush's own persistence. The song-thrush and blackbird are the commonest models, as they are the most conspicuous singers in most of the places which starlings haunt. But in moorland regions starlings pick up the cry of the curlew and peewit, and in London squares they imitate the long-drawn squeal of the cab whistle. In repeating their cries they often show a long memory, which is the foundation of intelligence in birds and animals; they will repeat in autumn notes which their models only utter in spring. They thus display their kinship with the crow tribe, which is the keenest-witted group in the whole kingdom of birds.

In marked contrast with the starling's disjointed utterances is the fluent and almost interminate song of the sedge-warbler, which reaches its height in May, though it is heard from mid-April till far on in July, or even August. The sedge-warbler's personal contribution to its song consists of a hurried insistent babble of sweet and harsh notes confusedly mixed.



SEdge-WARBLER

We hear it poured out among the sedges and willows of the waterside with an intensity and volume which make it conspicuous in any company. When the sedge-warbler first arrives there is little trace of an imitative admixture in its song; in April and early May we have its own bitter-sweet mixture unadulterated. But as the season goes on it picks up the commonest cries of the waterside, and when the nights grow warm it pours out the characteristic notes of day in the dark-

ness. The 'Pink, pink' of the chaffinch is one of the most usual foreign elements in the sedge-warbler's song, and it seems to have a natural sympathy for the scurrilous bickering and chirping of the sparrows that haunt the streamside willows near towns and villages. A less familiar mocking-bird is the wheatear. In April or early May on the downs it is a fascinating sight to see a cock wheatear flitting from one tussock or juniper stem to another, with wings half

expanded so as to display the conspicuous white patch beneath their tips, and pouring forth a curious medley of repeated phrases with a voice like a weak and imperfect song-thrush's. The cries of the chaffinch and partridge and the low twitter of the lark are among the notes which can be heard in their song; and there are many other resemblances, some of which are probably imitations, though others may be merely due to accident or kinship. The wheatear is a near relative of the thrush, and its general method of song is much like that of the song-thrush. Both birds have a varied repertory, but like to repeat a passage several times before passing on to another. The wheatear knows the greater number of phrases, though the thrush is a stronger and more brilliant singer.

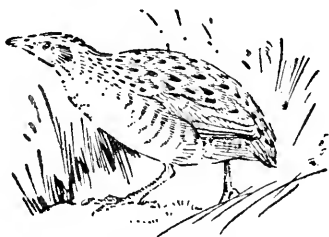
In fine May weather very few hours of the day and night are quite songless. The last nightingale usually falls silent a little after



CORNCRAKE

midnight; the corncrake has been quiet a little time before. Then there is a little interval of peace, before the earliest stirring of the new day. In open places the skylark is the first bird to sing; it rises and pours down its song from a sky scarcely grey with dawn. In gardens the blackbird sings one slow, clear strain, and is quiet again. Then, just before sunrise, when there is light enough to see the dew on the leaves, all the birds break out in one tremendous chorus, so that in a bird-haunted place one voice can hardly be distinguished from another. The intense cooing of the wood-pigeon and turtle-dove throb through the din of higher notes with a curious distinctness. This great outburst lasts for less than half an hour, and is succeeded by

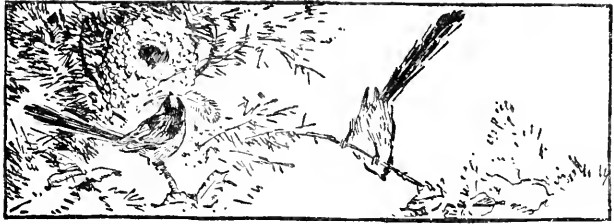
almost as striking a silence. The birds are now busy at their morning meal, and dispersed about their feeding grounds with a boldness which they lose later in the day. Then, if it is still early in the month, and there is nest-building to be done, they fall to work and finish the greater part of their day's task before the sun is high. Soon the first thrushes and blackbirds are singing again; and by eight or nine o'clock the nightingale and the whole army of birds are in full tide of song, which dies down but little until the late afternoon. From about five o'clock to sunset there is comparative quiet, though the blackbird's and a few other voices strike sweetly through the mellowing light. Now the birds are busy feeding before going to roost; and since the finches and sparrows, with their lively songs and cries, keep earlier hours than most other birds, the voices of the birds at evening are more restful than those of noon or the early day. As the last rays of the sun slope down, the nightjar takes heart to increase his rare and occasional soliloquy of midday for his full evening murmur. Now, too, the nightingales throb forth in the thicket, as the air begins to smell of cool grass and gathering dews; their passion outlasts the sunset and the evening song of the thrushes, and they answer one another far and near in the renewed silence of night.



CORNCRAKE



SONG-THRUSH



LONG-TAILED TITS

‘PROCREANT CRADLES’

IN spite of the great skill and precision which many birds show in nest-building, none of them has any natural tool specially framed for this purpose. Their bills are their chief instruments in shaping their nests, and these are developed exclusively for seeking food in the bird's own way. Nest-building is a by-product of the bird's activity, and seems in many of the highest instances to be an expression of overflowing vitality, and an indulgence of the sense of order and beauty, rather than a habit shaped by a direct practical advantage. The rough and clumsy nests of the wood-pigeon and turtle-dove nurse as large a proportion of young to maturity as the carefully plastered nests of the song-thrush and the wren's feathery globes. The tits with their soft nests built in sheltered crevices are rather notable for producing addled eggs; and the slight benty structures of the blackcap and whitethroat, though they allow many eggs to perish in wet seasons, are none the less woven with extreme delicacy and skill, and take a high place in the scale of workmanship.

The best nests are not always built by the birds with the most suitable bills. The fine curved beak of the tree-creeper would seem to be a far more suitable instrument for weaving

a nest than the short, thick bills of the chaffinch and goldfinch; and yet the nests of these two finches are almost the most perfect of those built by any British bird, while the creeper's felty couch is by no means of a high order of architecture, though comfortable enough, no doubt, when sheltered by the walls of the deep crevice in which it is usually placed. Some birds, such as the petrel and guillemot, dispense with a nest altogether. They simply drop their eggs in a hole in the rocks, or on a ledge. In the most primitive forms of



nest-building the breast plays as important a part as the bill. A hole is pressed in soft earth or gravel by the bird's breast, and rounded by the pressure of its muscle and down. Then the beak may be used by the bird resting in the hollow to pull tufts of grass or other litter lying within reach and to pack them round its body. So the heap of material grows larger and warmer as the period of incubation goes on. Plovers add grass stems to the original bare hollow of their nests, and by the time that the eggs are hard set they usually rest on a fairly substantial mat. Gulls on their sunny ledges can be seen drawing seaweed and dry mallow-leaves and tufts of sea-pink up to their white breasts with yellow

beaks on the warm May mornings. Some shaping of the material with the breast is almost inevitable, if the bird is to lie comfortably upon it and keep the eggs safe during three weeks or more of incubation; and from mere uneasy shiftings and rollings it is an easy growth to deliberate brushing and shaping with the softly rounded breast, which plays so large a part in the construction of nests of the higher types.

The first strong impulse to improvement in nest-building arose when birds found it convenient to put their nurseries in the branches of trees. The wood-pigeon's and turtle-dove's nests are only scanty platforms of dry sticks and bents, lined with a few roots; but they mark a considerable advance in structural skill on the mere mat of the stock-dove's and rock-dove's nests, which are placed in holes, and perpetuate the original family pattern. Slight as it looks, the wood-pigeon's nest is firmly braced among the twigs, and is seldom forced out by wind or the whipping of the boughs. Even the clumsy wood-pigeon has learnt something of the art of wattling or basket-making, which is employed by all birds that build among boughs and form their nests of twigs and branches. Nests of this kind are analogous to the wattled huts supported among the trunks of trees which are built by some savage tribes. The strength of some of these wattled nests is remarkable. A raven's nest built of old burnt heather stems will cling together for many weeks even when torn from its place and thrown among the waves on the strand of a loch. A man of average weight can safely stand on a crow's nest in the top of a tree; and an old rook's or heron's nest will often last for years in boughs exposed to every storm.

At some lucky moment it occurred to a bird wattling its nest in the boughs to fix it by the use of mud. This was a great convenience, and considerably increased the available

nesting-sites. The support of lateral boughs could be largely dispensed with, and the nest firmly clamped to the foundation of one or two large branches, with few or no supports at the sides. Song-thrushes' and missel-thrushes' and blackbirds' nests often grip the branch with a divided clay foundation like the fangs of a double tooth, and the clay will stick to its place till all the twigs and grassy material have vanished with the wear and tear of the seasons, and all that is left is one hard clod. Besides the three birds just named, only the ring-ouzel and the magpie habitually use mud in this particular way. The nests of crows and rooks and ravens are built without it, though after a few months the dead wood and earth on the grass-tufts which they employ decays into a clay-like mass. The use of mud is a convenience rather than a necessity. In the wattle-and-daub cottages built by men clay is used to stop the interstices in the woodwork. But birds do not need it for this purpose, as they keep out wind and rain from the sides by a warm lining of grass or leaves or wool, and rely on their own bodies to keep the eggs and young warm and dry above.

Weaving is only a finer form of basket-making, and the delicate nests of the finches and warblers differ in detail and not in principle from the solid cradles of the crow and heron. Felting rather than weaving is the human process nearest to that of the smaller birds; for they do not spin material into strands, and then intertwine it with a regular warp and weft, but twist fibres with their bills and pack them with their breasts into a close mass. Most of them build on a framework; and a lady naturalist has recorded that the first outline of a golden-crested wren's nest was laid in cobweb. But sometimes a chaffinch's or a long-tailed tit's nest resting on a single bough is built up without other support, and grows like some delicate fungus or chalice of madrepore. The

growth of such a nest is very beautiful to watch. The edge is almost as smooth and rounded through the whole process of building as when it is finished, so that the nest seems to grow from beneath, rather than to be increased from above. In nests of this type there is no preliminary framework, and



GOLDCREST'S NEST

they are entirely felted. Cobwebs, and the cocoons spun by spiders for their eggs, very fine moss, rabbit's fur, and the down of ripe willow and poplar catkins are the chief materials used in all the finer and softer nests. Even sheep's wool is too coarse, except in very small quantities. Externally lichens and occasionally little scraps of paper are added, for adornment rather than for protective effect, or for any structural purpose.

Chaffinches and goldfinches and long-tailed tits build the highest type of the woven or felted nests which can dispense with any lateral support, and are furthest from wattling or basket-making. The reed-warbler's nest is the most perfect and regular example of dependence on a living scaffold. This bird spends most of its time straddling on a reed stem above the water, and it builds its nest in the same situation, stringing it to a group of reeds—generally from three to five—which pass through the sides of the nest when it is finished. These nests have no support at the base, all their

strength coming from the reeds at the sides; and they are therefore twisted or woven to the reeds, just as the chaffinches' nests are felted from a solid foundation. Long threads from the reeds' own plumes of the previous year are the usual materials used by the reed-warblers for knitting the stems together; but they

are very glad to use threads of cotton when they can find them, and it would evidently be a great advantage to them to be able to spin threads for themselves. This, however, no bird can do; the preparation of material in this way involves more far-sightedness than they are capable of, even if they could find any method of twisting thread without the human opposable thumb. The even growth and elastic substance of the reeds allows the wind to swing them all together



REED-WARBLER AND NEST

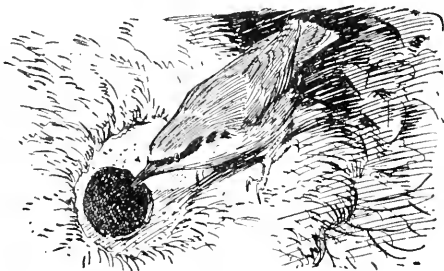
without tearing the nest apart, as is sometimes the fate of a chaffinch's nest when it is attached to stems of varying degrees of resistance. Deep and almost tubular in shape, the reed-warbler's nest never spills its eggs as it leans to the pressure of the wind. Sedge-warblers' nests are sometimes attached in a similar though rougher manner to blades of sedge and flag; and marsh-warblers hang their nests in much the reed-warbler's way to stems of osier and meadow-

sweet, though the whole style of building is less compact and precise.

A ruder but more laborious type of nest is built of mud by the swallow and house-martin. Neither the swallow's open saucer nor the house-martin's enclosed hemisphere has the delicate workmanship of the goldfinch's or long-tailed tit's nest, but both need as careful labour. The collection of the mud, little by little, from the ponds and puddles is not more troublesome than the similar task of the magpie or blackbird; the critical part of the task is working the pellets into a tough mud crust, which will cling to a wall or beam, and support the brooding bird and the young. To add to the nest too rapidly would destroy it by making it top-heavy before the foundation was dry; and the birds seem to know this well, since they are dilatory builders. A few fine straws are mixed with the clay, like cow-hair in old-fashioned mortar, but the strength of the fabric is chiefly due to the slow building and the way in which each pellet is moulded with the beak, and the line kept true by the pressure of the bird's breast. The nests of these two species are the most highly developed examples of mud-building among British birds, though neither of them approaches in ingenuity the wasps' nests built in a somewhat similar way out of wood gnawed and chewed into a pulp. Zealous use is made of mud in a different way by the nuthatch. Alone among our birds, the nuthatch has the habit of blocking up the mouth of a hole to a convenient size for its own exits and entrances. It is the same safeguard for the eggs and sitting bird which is developed to an extraordinary extent in the case of the African hornbills. The cock hornbill walls up the hen on the eggs, only leaving a small hole through which he feeds her. The hen nuthatch is left free to come and go; but the entrance is made too small to admit larger enemies. Nuthatches choose a bright

sandy loam for their own plaster work, of different quality from the viscid brown mud preferred by swallows and martins. The instinct for stopping holes sometimes runs to extravagant lengths; on occasion they will not only fill up the actual opening of their nest-hole to the desired size, but plaster every superficial crevice and chink in the trunk or bough. Like the swallows, they sometimes work a few hairs or feathers into the mass. This plaster work is the most peculiar and important part of their nest-building; but it is distinct from

the actual nest. This is a heap of soft material packed at the bottom of the hole, like a rather roughly compacted tit's nest. Several birds



NUTHATCH

show a curious individuality in their choice of nesting material; and the special fancy of the nuthatch is for scraps and strips of the soft inner bark of the birch. On this couch inside their queer clay stopper the little nuthatches are nursed in much comfort and safety.

To some extent the nuthatch is a wood-borer in its nesting operations, but vicariously. Like tits and starlings, and also bats, it often adopts the holes scooped out for their own nest in the previous season by green woodpeckers. For their disregard of opposition, the nesting of the three woodpeckers deserves the prize among British birds. Sometimes they dig their hole in decayed trunks, when a nice skill is required rather than strength and endurance; but

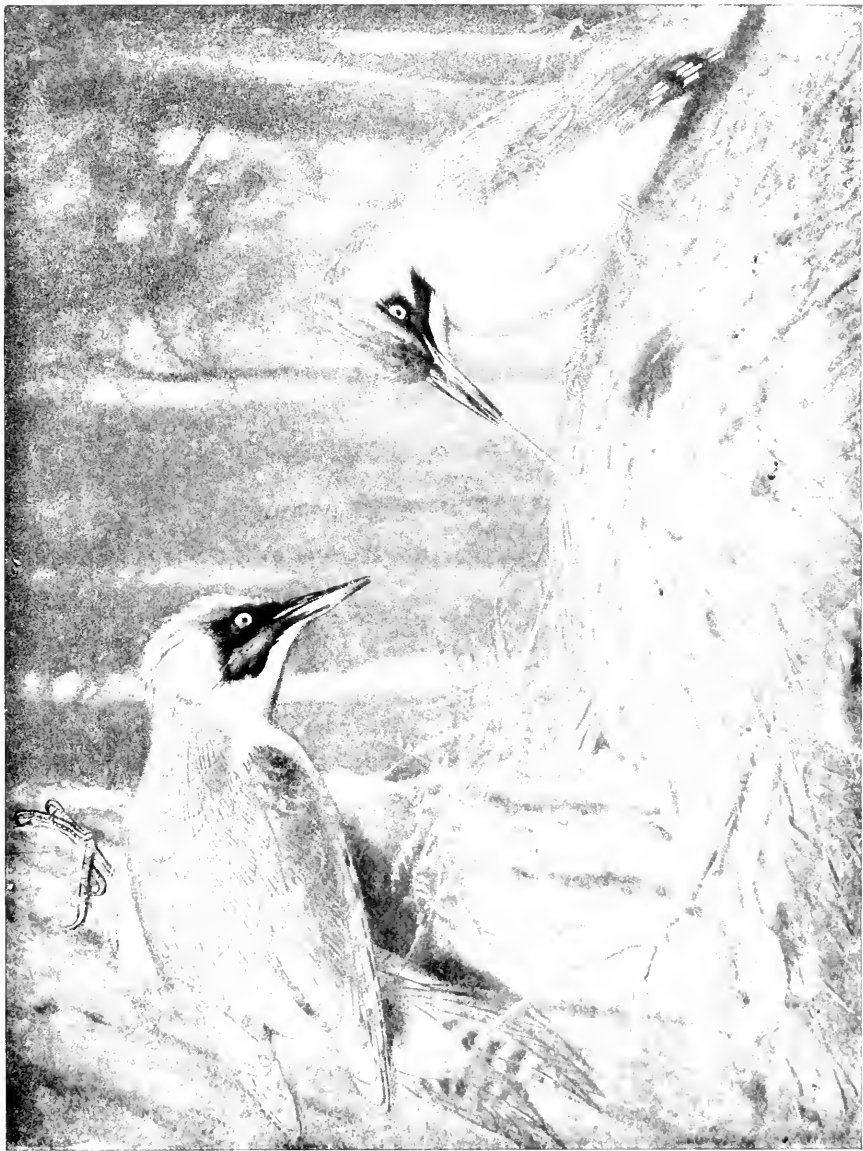
the green woodpecker, at any rate, sometimes bores his nesting-shaft in a perfectly sound oak. In a typical nest, there is a horizontal tunnel about three inches wide and five long, which then turns downwards for about eighteen inches, and widens into an oval hollow. The excavation



GREAT GREEN WOODPECKER

of this gallery is achieved by the power of a beak and body framed for similar though less exacting feats of wood-hewing in the pursuit of beetles and grubs. The bill of the woodpecker is shaped like the sharp end of an anvil, and is set in a head and neck of strength well sufficient to wield it. The bird grasps the bough with its 'zygodactyle' feet, in which one pair of toes turns forward and one backward, and props itself with the stout quills of its tail. It lifts its bill like a

mattock, dashes it into the wood, and repeats the blow with the whole force of muscle working on a fulcrum until the white shreds drift one after another down the wind. The opening of the hole is beautifully circular, and the perpendicular shaft expands evenly into the bottle-shaped chamber where the eggs lie on a few fragments of wood. The woodpeckers are hole-hewers pure and simple, and make no nest. The two smaller spotted species work in the same way, on a smaller scale. They more often drive their galleries in a

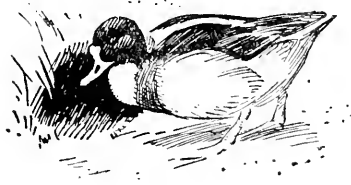


GREEN WOODPECKERS. MALE LEFT AND FEMALE THE FATHER
PROUDLY HER FINGER TO CHILDREN. BY A. W. S. 1903.

dead bough; and the great spotted woodpecker, which is about the size of a starling, sometimes chooses so small a branch that great precision must be needed to keep the tunnel straight in the wood, and prevent it bursting through the thin surrounding wall. The opening of the lesser spotted woodpecker's nest is a small neat orifice looking as if a field-mouse had burrowed into a tree.

Both the kingfisher and the sand-martin are familiar examples of birds which excavate burrows for nesting in banks of sand and loam; but they perform the work with implements of very different type. The bill of the kingfisher is sharp, strong, and straight, resembling on a small scale the beak of the heron, and is used for catching fish in much the same way. It looks an effective pick, if an indifferent shovel, and the kingfisher has probably no great difficulty in boring its nesting chamber in a bank of loam or marl by the riverside, which is the situation usually chosen. The soft wide bill of the sand-martin, on the other hand, appears a very weak tool for burrowing a hole two or three feet long in sand which must always be compact and firm, or the tunnel would cave in and imprison the worker. Yet the sand-martin accomplishes it with great nicety and considerable rapidity; and it is surprising what firm and gritty beds it often penetrates. Both birds as a rule bore a fresh chamber every year; the sand-martin uses an old nest-hole rather more often than the kingfisher. Two more beaks of burrowing birds of very different types are those of the puffin and the burrow-duck or sheldrake. Both are fond of choosing a burrow ready prepared by a rabbit, if they can find one, as is also the habit of the stock-dove on sandy shores; but, unlike the stock-dove, they are able to burrow holes for themselves. The broad bill of the sheldrake is very different from the beaks of both the kingfisher and the

sand-martin, for the feeding habits of the three birds are absolutely dissimilar; and yet they are all successfully turned to the work of delving in its season. The puffin has the strangest beak of the whole party, and indeed of all British birds. It is a liberal organ at all seasons; but the male bird adds in the spring an exaggerated horny sheath like the false noses sold to children in toyshops. The Scottish fishermen



SHELDRAKE

call the bird the 'coulteneb,' and it might be supposed at first sight that the additional beak is designed by nature as a positive aid to the bird in digging his nuptial chamber and nursery. It

is much more probable, however, that it is purely an adornment, acquired at the breeding season, like the crest of the green cormorant, or the ornaments of many other birds at the same season. The puffin also assumes at breeding-time a tag of coloured skin on the eyes, which is certainly of no help to it in digging its burrow; and this is an additional indication that the enlarged bill has no practical purpose of this kind.

One of the cleverest feats of nesting birds is to fix a foundation in unlikely places and of unpromising material. When they laboriously pile up their nests under the eaves or on the rafters of the cowshed, the martin and swallow at least use a naturally adhesive substance. But the dipper will make its nest cling to the slightest hollow in the face of a rock by a stream, though it builds the foundation of no more cohesive a substance than wet moss. The nest when perfect seems partly to depend for its security on the prin-

ciple of the arch, each part of the curve supporting the rest, and all propped on the rock. But when the growing nest consists of a mere ring on the upright and almost smooth rock, it is impossible to get much support from the thrust of any part of it on the rocky surface, and all depends on the skill with which the dipper packs the wet moss firmly into place. The growth of a dipper's nest in such a place is a remarkable sight. Wrens, which build a globed nest much like the dipper's, also have great skill in hanging it to a slight foundation. They can twine the foundation to a support not very much less smooth and forbidding than the dipper's rock, such as a shallow hollow in the trunk of an oak-tree, or the side of an earthy bank. Even the blackbird sometimes displays a successful persistence in lodging a nest on a sloping surface where the force of gravity is very unfriendly to the enterprise. Such a position is provided by a horizontal rafter with a surface sloping outward at just such an angle that a few straws will rest upon it, but a mass of them fall off by their own weight. When this happens, the blackbird tries again; and with a glimmer of mistaken intelligence, it usually tries not in the same position—'That was a bad place' it seems to say—but a foot or two further along. Sometimes there are half a dozen half-built nests collapsed in a row before the blackbird succeeds in getting one to stick—not as it fondly seems to imagine, by the superior retentiveness of the site, but because chance or skill led it to bring more suitable materials or place them more wisely. If the blackbird used mud for the foundations of its nest, instead of for its central stiffening, the task of fixing it to a beam might be as simple at the beginning as the swallow's. But blackbirds and thrushes lay the foundations with twigs, bents, and locks of wool or moss, adding

the mud a little later; and the unsuccessful blackbirds' nests collapse before the stage of adding mud is reached.

Houses built against cliffs so that they are really only the halves of houses are curiosities sometimes seen in



NEST OF SPOTTED FLYCATCHER

mountainous countries and by the sea. Birds often accommodate their building in this manner; it is one of the ways in which they display an adaptable intelligence. Robins habitually leave out the back wall of their nests, fitting them into holes, where the outer layers are not required on the sheltered side. The inner cup is shaped perfectly, though the lining is often very thin at the back. Blackbirds adopt the same design when they build, as they often do, against a bank or tree-trunk or wall. The mud nests of swallows and house-martins show another application of the same plan. The little felted cradle of the spotted flycatcher is often hardly more than a crescent of cobweb and moss, when it is lifted out of the garden trellis or off the ivy bough after the birds are gone. But the irreducible minimum is perhaps reached by the tree-creeper, when it nests, as it occasionally does for some years in succession, under the tiles or slates of an old roof. The nest which it builds in such a situation is

mountainous countries and by the sea. Birds often accommodate their building in this manner; it is one of the ways in which they display an adaptable intelligence. Robins habitually leave out the back wall of their nests, fitting them into holes, where the outer layers are not required on the sheltered side. The inner cup is shaped perfectly, though the lining is often very thin at the back. Blackbirds adopt the same design when they build, as they often do, against a bank or tree-trunk or wall. The mud nests of swallows and house-martins show

a little curved fence or dam, to prevent the eggs running down the slope of the tile and getting lost. They lie against the wall of moss and down on a few straggling threads, and hatch in a warmth radiated by day from the tiles, as if they lay in an incubator.



TREE-CREEPER



THE HEART OF THE COPSE

NATURE runs riot in the copses of May with a peculiar profusion and beauty. Copses occupy large tracts in most of the southern counties, and are a peculiar modification of the original wild growths of the spot. Their strict designation in forestry is 'coppice with standards,' and the meaning of the term becomes obvious when we examine a wood of this kind. Coppice or copsewood means wood that is cut, from the French *couper*; and the ash and hazel rods and the other young stems in the copses should be cut under a proper system of management at regular periods, varying with the productiveness of the soil, on an average five or six years. Among the lower copsewood stand dotted at intervals a number of sturdy young oaks. These are the standards, and oaks were chosen for cultivation in this way because they gave the most valuable timber when mature. Other trees were most profitable when encouraged to send up a bunch of saplings every few years from the old stools. This small copsewood was formerly in demand for many different purposes. It supplied wattles for farm hurdles, ties for thatching, hoops for tubs, casks and grocers' boxes, and fuel for bakers' ovens and cottagers' hearths. Nowadays the demand for all this copseware has greatly declined. The decline in corn-growing, the use of Dutch barns, and the scarcity of thatchers, have

made thatching scarcer and less elaborate, so that we seldom see now a row of corn stacks, criss-crossed with a pattern of hazel ties like an open jam tart. Sugar and other groceries are imported in vessels of smaller bulk, so as to save re-packing; and the bonds for the repacked parcels are wanted no more. Cottagers use coal more, and wood less, and the rural exodus has made skilful copse-cutters scarce, and their labour dear. As the upshot of all these changes, copses are in many places an unprofitable form of culture, and would be turned to other uses if it were not for the great labour and expense of grubbing them up. In the meantime many of them are not cut in the proper season, and are let run wild. It might be thought that a copse which had run wild would be richer in natural life than one which was regularly tended; but this is not so. Properly managed copses are fuller of wild life than the woods out of which they were formed, and into which they relapse. The regular removal of the young wood when it gets tall and shadowy, makes a copse a perpetual garden of all the flowers, birds, animals, and butterflies which love an open and sunny thicket. Luxuriant in all the late spring and early summer months, such copses are fullest of life in May.

Bluebells, apple-blossom, and nightingales are the three most beautiful features of the May copses and spinneys, and turn their thick solitudes into an exquisite garden of delight. Beautiful as bluebells and crab-blossom are severally, they intensify each other's beauty when the rosy boughs lean down to the blue carpet beneath them, and the wind sets the petals falling in the May sunshine. The earth seems set free of time and its punctual cares; the random breezes in the boughs mark the passing of the hours at their own will. The scents of both masses of blossom mingle as freshly sweet as their two colours. Through all this exquisite

garden rings the voice of the nightingale in his heyday. Nightingales abound in these copses, and there are few hours of day and night in May when they do not sing. They delight in the chequered shade of the copsewood from about its third to its sixth season; then they nest on or close to the ground among the flowers, and sing on the tops of the saplings or on the lower branches of the standard oaks.

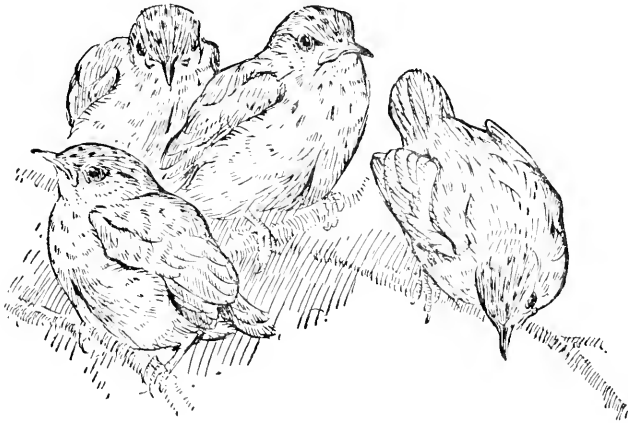


BLUEBELLS

Nightingales' nests are almost invariably built of dry oak leaves pressed together, and are rather scantily lined with horse hairs and a few fibres of root. Sometimes the mass of leaves is as large as a blackbird's nest, but usually about the size of a hedge-sparrow's. When it is built on the ground among the thick stems of bluebell and red robin and woodspurge and stitchwort, it is often very closely concealed; it is easier to find when it is raised a foot or eighteen inches above the ground in a thick patch of brambles, or sheltered in the midst of the green shoots springing from an old bole. When the birds are anxious for their nest or young, they jerk nervously

from bough to bough uttering the low croak which they retain after the end of the singing season, and also a low, plaintive pipe. Sometimes the hen bird goes through the palsied motions of ineffectual flight which have been taken to be a deliberate attempt to draw off the intruder from the nest or young; but in the case of the smaller birds which practise it, it appears to be chiefly involuntary. When the

young nightingales leave the nest they are spotted with dull yellow, like young robins ; and the close relationship of the nightingale and robin is shown in the figure and the large intelligent eye of the adult bird, and also in the nest and eggs. The outside of the robin's nest is packed together out of dry leaves in much the same way as the nightingale's, and it is also lined with hair ; it is a nightingale's nest cut down



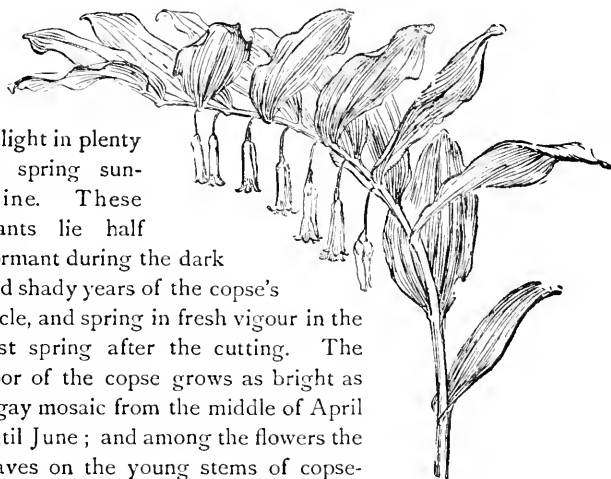
'YOUNG NIGHTINGALES . . . ARE SPOTTED WITH DULL YELLOW'

on three sides to fit a hole. Most nightingales' eggs are uniform olive-green or olive-brown, and vary little in shade ; but some show traces of a buff ground under dense and almost confluent markings of yellowish brown. These resemble the darkest type of the robin's egg. Occasionally nightingales' eggs occur of a pale sea-green ; but this colour is merely an indication of weakness or disease in the bird which laid them, like the pale green or blue eggs sometimes laid by blackbirds, chaffinches, linnets, and several other

birds. Bluish green seems to be the normal colour of an atrophied egg-shell in the case of most species ; such eggs are usually very thin shelled, and often yolkless or infertile.

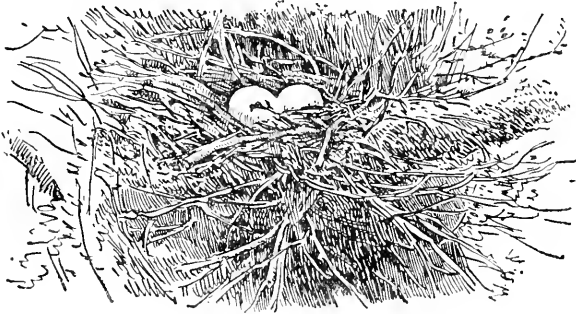
When the copse has just been cut, and is too low to give the nightingale shelter, it is the great flowering time of the primroses, woodspurge, red robin, and all the plants which

delight in plenty of spring sunshine. These plants lie half dormant during the dark and shady years of the copse's cycle, and spring in fresh vigour in the first spring after the cutting. The floor of the copse grows as bright as a gay mosaic from the middle of April until June ; and among the flowers the leaves on the young stems of copsewood shoot vividly green. Bugle raises its blue spires by the turfy ruts, drawing the rare bee-hawk moths to hover at the blossoms ; herb-paris spreads in some copses its four large equal leaves, with one fringed purple blossom sitting in their midst. Commoner than the herb-paris, but local, is Solomon's seal, with its drooping arch hung with a long row of little greenish white bells. Blue speedwells abound in the grass, and here and there broad beds of wild garlic or ramsons exhale a rank breath when the wind stirs the white blossoms and glossy



SOLOMON'S SEAL

leaves. A garlic bed, when the flowers have withered, has a deceptive resemblance in all but smell to a patch of lilies of the valley. Yellow pimpernel opens its golden blossoms at the edge of the grassy rides, and the larger moneywort creeps with its blossoms like rock-roses over the damper and barer soil in the denser shadows. In sunshine and shadow alike, bluebells are sprinkled among the vivid blossoms and herbage; when the copse grows dark, and most of the other flowers die down, they spread their misty carpet far and wide, as in



NEST OF TURTLE-DOVE

the perennial woods. Partly owing to the colour of the blossoms and partly from their being hung loosely on tall stems, a sheet of bluebells is more unsubstantial and aerial in appearance than any other carpet of blossom. It has the lightness of the vapour rising from a lawn on an autumn morning, and the colour of the spring sky; the oak trunks seem to wade in a blue mirage. In the latest years of the copse's cycle, when even the bluebells grow sparse and lank in the shadows, the cloistered depths become the sanctuary of the brooding turtle-doves. Their slight black nests are lodged at a height of five or six feet in the hazels and alders,

and the eggs shine with the paleness of ivory in the gloom. A glint of white shell often shows through the twigs of the nest from below. The hen birds sit brooding through the late May days, with their russet backs crouched low along the platform of twigs. The silence is filled with the murmur of the cock's double coo; it is less lively than the spring chant of the ring-dove, but sweeter than the musical groaning of the stock-dove, which we hear in spring among old hollow oaks. When a turtle-dove is disturbed from the nest, a



TURTLE-DOVES

couple of others will often spring up from neighbouring nests in the same clump of copsewood; then the white fans of their tails gleam in the twilight of the underwood. But these shy birds easily desert the nest, and it is best to move slowly past the watching mother without frightening her away by pausing, or by any sharp movement. Once the eggs are hatched, there is no longer any fear of her forsaking; then there is no risk in examining the pair of squabs, which have the curious ugliness of all young pigeons.

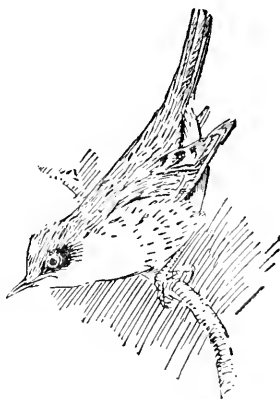
By May the female catkins of the willow and poplars are shedding showers of down-wrapped seeds. Some of the later birds catch up this drifting material from the leaves when it falls, and weave it into their nests. The later

broods of chaffinches are often reared in a nest largely built of poplar or willow down, and redpoles sometimes build almost exclusively of this soft fluff. These showers of down in late spring are a regular feature in the copses on wet soil, where aspens and poplars often replace to a great extent the oaks grown as standards on drier land. They come when the last marsh marigold blossoms are fading in the overshadowed ditches. In drier copses the female willow sheds a denser down, which falls closer to its lowly boughs than the wefts from the tall white poplars. Since most copses are merely old woods modified by culture, there is a considerable variety in the trees that compose them on different soils. Wet copses largely consist of alder, of which the stems are allowed to grow to a considerable thickness, and are then used chiefly for rails. Aspens and white poplars rise singly or in clumps above, while a part of the copse is often set aside as an osier bed. Sandy and gravelly copses chiefly grow chestnut and birch and scrubby oak, while alder buckthorn also occurs most frequently on this kind of soil. As usual, a chalk soil is the richest in various species. Besides the staple growths of hazel and ash, which make the most useful form of undergrowth wherever they will grow, the copses are brightened in May by many wild flowering shrubs. The common guelder-rose or wayfaring tree and the water-guelder spread their large disks of flower on slender stems, and the white-beam blossom opens on more substantial boughs. Wild cherry blooms on tall trees and shrubby bushes; the two varieties are often regarded as different species. Crab-trees are commoner on a chalk soil than elsewhere, though they are less restricted to it than several other flowering shrubs. Common buckthorn blooms in thick clusters of yellowish green blossoms, and spindle-wood in duller green stars. Elder is weeded out of well-tended copses, as its spreading

boughs take up much room, and its pithy wood is useless; but it often clusters thickly in the hedges bordering the copse, and blossoms abundantly in early June. Honey-suckle is another beautiful weed of the copses; its winding stems grip the stems of oak and beech saplings so tightly that they often constrict them into the pattern of a twisted balustrade. Sometimes the climber bites so deeply into the stem that it is hidden, but lives on encased in the wood, and throws out a flowering head in the sunshine above. A beautiful shrub confined to the woods and copses of the north and west is the bird-cherry; this is quite distinct from the common varieties of wild cherry, which have given us our cultivated fruit. Bird-cherry forms a small rounded tree with leaves of vivid green and pyramidal clusters of white blossom, which often droop like the pink flowers of the garden ribes or flowering currant. The bruised foliage gives out a strong odour of prussic acid, like the laurel; and the blossoms have an aromatic smell, unlike the sweet scent of the more familiar cherry blossom.

Next to the nightingale, the most characteristic song-bird of luxuriant copses on loamy soil is the garden-warbler. Blackcaps are also common in such spots, but they are fonder of tall timber than either the nightingale or the garden-warbler, and prefer on the whole the mixed trees of an open wood to the copse with its undergrowth and standard oaks. Blackcaps and garden-warblers are very closely related species in every detail; both build among the thick thorn-beds and verdant undergrowth, and their nests and eggs are somewhat difficult to distinguish without a clear view of the parent bird. Then there can be no doubt, for the cock blackcap has a sharply defined black cap, and the hen a russet-brown one, while the crowns of both garden-warblers are of the same brownish grey as their backs. Garden-warblers build a

rather larger and looser nest than the blackcap's neat cup of bents, and usually place it lower and in thicker undergrowth. In nest and life they approximate more closely to the habits of the common whitethroat. The lesser whitethroat builds a slighter nest higher in the bushes, like the blackcap. All these four birds may be found nesting in one part or another of a copse on a good loamy soil. Such a soil is more productive than sand and gravel, and fosters the rich verdure and varied timber which suits their slightly varying tastes. But the garden-warbler is the true copse-bird of the family, and on a warm day in May its sweet and fluent warble is seldom silent among the young green leaves. It often sings hidden in the thicket, but sometimes mounts to the boughs of the oaks as the nightingale does. Blackcaps wander more freely among the upper boughs as they sing; and the common whitethroat winds restlessly among the thorns and herbage. Lesser whitethroats are equally restless

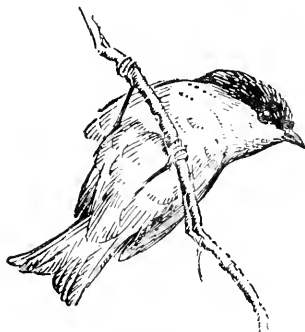


LESSER WHITETHROAT

little birds, but wander higher in the bushes. Blackcaps winter less far south than garden-warblers—some, indeed, spend the winter annually in the south-west of England—and we hear them regularly on the first warm days of May, while the garden-warbler is often a few days later. But the nests of both are common by the middle of the month, when the nesting season is at its height, and the apple-blossom shines pink against the sky.

In dry gravelly copses the number of nesting birds is more limited, and the species rather different. Flowers and green undergrowth are scarcer; the ground is covered with

a thick felt of dry mosses, and occasional patches of heather. Among the oak-scrub which forms a large part of the copse-wood there are many old hollow stumps; and the holes in them are tenanted by three or four kinds of tits, which can find very little accommodation in the more luxuriant copses, where almost all the wood is too small and too sound for their purposes. Great, blue and coal tits' nests are fairly common in the old oak stumps, and the marsh-tit sometimes



MARSH-TIT

builds in them also. The marsh-tit often prefers to bore its own hole for itself in crumbling wood, or sometimes in the dry earth round the roots, like a mouse, though the other three species occupy existing crevices. Willow-wrens are also very fond of these dry copses; they form cell-like nests in the carpet of moss, or build them among the tufts of heather. About the middle of May the foliage of the trees in the copses begins to abound with the

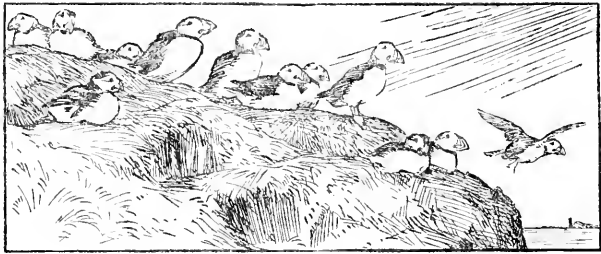
caterpillars of several common geometer moths, and other varied species; and from this time until midsummer we see the tits turning nimbly with their hard seed-eating beaks to the work of caterpillar catching. Caterpillars are the chief food of their numerous young; but the thousands of larvæ thus destroyed make no visible impression on the multitudes still thronging the leaves. The tits and other foraging birds preserve the balance of nature, and that is enough. But sometimes the pest outstrips all their efforts. The minute grubs of the little green oak moth sometimes strip the crowns of the standard oaks in dry seasons, so that by the beginning of June they look as if they had been scorched with fire. With this



SEDGE WARBLER
B. A. WEST.

pest no birds seem to deal effectually ; the only real check is a few sharp showers in May, which drown the little caterpillars in their tents of rolled leaves. Tits, chaffinches, chiffchaffs, willow-wrens and many other birds are prompter in dealing with plagues of geometer caterpillars, which sometimes attack trees in much the same way. The game is larger, and presumably better worth catching ; and an infested copse is often alive with a diverse throng of birds picking off the caterpillars from the leaves, and diving through the air at them as they hang on their oscillating threads. On a breezy day the air below the trees is full of small caterpillars dangling in the wind. They have the power of returning on their own threads, packing them up between their forefeet as they climb. But the ascent is very long and laborious, and when once the tits and chaffinches have been spurred on to caterpillar hunting by the sight of plenty, there are very few which ever regain the boughs.





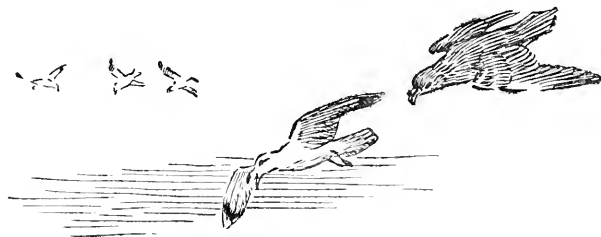
PUFFINS

SEA-CLIFFS IN NESTING TIME

Its wealth in sea-birds is the most distinctive feature of British bird life, and the cliffs of the British archipelago are one of the chief nesting-places of the sea-fowl of the northern hemisphere. Birds of several distinct families are included in the great company of birds which visit our rocky coasts and islands during the breeding season. The largest family is that of the gulls, of which six different species nest in Britain, on almost all portions of our coasts. Then comes the family of the auks, now represented by the guillemots and razorbill and puffin; for the great auk is of course extinct in Britain and everywhere else, and the little auk is only an irregular winter visitor to this country. This family corresponds in the northern hemisphere to the penguins in the southern seas. They are perfectly distinct in origin and relationship, but have acquired a curious similarity of appearance and habit by dint of fishing under water. Distinct, again, from the guillemot group are the family of cormorants and gannets, which are allied to the pelicans. Another independent and well-defined family is that of the shearwaters and petrels, which are among the most interesting species on some of the wilder and remoter sea-birds' haunts. Terns and skuas are not strictly birds

of the sea-cliffs, since they prefer to nest on more level ground; but they are usually found in close company with various species of gulls, to which family they are closely related. These varied species give a wonderful wealth of interest to the bird life of our rockier coasts in spring; and in certain favourite haunts their numbers are almost incredible.

Broadly speaking, it is the west and north that have most of these sea-birds, and the east and south that are poorest in them. This naturally follows from the com-



SKUA AND GULL

parative flatness of the south-eastern coasts of this kingdom, and from the greater density of their population. On flat and marshy shorelines the place of guillemots and cormorants and most kinds of gulls is taken during the breeding season by shore-birds such as the ringed plover, and by the terns. But the black-headed gull is an exception to the general habits of its family, and prefers the more level parts of our coasts, as well as similar sites on inland lakes and marshes. In this respect it approximates to the habits of the terns. Of the true cliff-breeders the most persistent in clinging to the south and south-east coasts is the herring gull. It still nests in considerable numbers on the chalk cliffs of Kent and Sussex, and at various points westward

along the south coast. On the steep face of the South Foreland, near Dover, these large and beautiful gulls may be seen sitting and preening their feathers among the grass and rock plants from a very early date in spring, though they do not actually nest until the end of April or beginning of May. As the weeks go on, they separate more exclusively into pairs, and haunt the particular shelf where presently they will begin to pull together grass and the dry leaves of the plants about them for their large rough nests. Adult herring gulls are easy to distinguish in any assemblage of their kind by their large size and light grey backs. The same general pattern of clear grey and white is worn by several smaller species; but the only other common species of gull of anything near the herring gull's size are the greater and lesser black-backed gulls, which are easily distinguishable by their much darker plumage. The lesser black-backed gull has bred once or twice in recent years on the beaches of Dungeness, but this is quite exceptional. Under the protection of the Acts, most kinds of sea-birds are increasing very rapidly, and in many cases forming fresh colonies; and it seems that the lesser black-back is pushing eastwards. Even in Devon and Cornwall it was until lately a scarce and local species compared with the herring gull; but for some time it has steadily been growing commoner, though it is still far outnumbered.

The lesser black-backed gull is actually rather smaller than the herring gull, and the great black-backed gull considerably larger. When seen singly it is often hard to estimate the sizes of birds, especially at an uncertain distance; and frequently it is easier to identify the two black-backed gulls by the colour of their dark cloak. Neither is absolutely black; but the great black-back is very nearly so, at any rate as seen from some little distance.

while the smaller bird is a dark slaty grey. All gulls are keen and voracious birds; but the greater black-back, or 'cobs' as they are often called locally, are almost if not quite as fierce a foe to young birds and even young lambs as the raven. Like most cliff-breeding species, it is much commoner in Scotland than in England; and there it is bitterly hated by the farmers and shepherds of the coasts and islands where it nests. Its range runs from Dorset and Cornwall, where a few pairs breed among the colonies of herring gulls, right round the west coasts of Britain and Ireland as far as the Forth. It also breeds by a few inland lochs, generally on secure islets, in solitary districts near the sea. With its fierce eye, dark mantle, and hooked yellow beak, the male black-back is one of the boldest in appearance of all our birds, and is a true bird of prey. It has the same fine habit as most hawks of choosing a commanding situation for its nest, and drives other birds away from it with the vigilant fierceness of the raven.

Of the two remaining species of gulls nesting in these islands, the kittiwake breeds on comparatively few cliffs south of the Scottish border, and the common gull only very occasionally in that wonderful preserve, the Farne Islands. During a week on the Farnes the writer saw no common gull amongst the hundreds of herring and lesser black-backs all sitting. The common gull's name is rather misleading, so far as concerns its distribution at the breeding season, and its numbers at any time; but in winter it is widely distributed in small numbers along all our coasts. Guillemots, razorbills, and puffins are generally less widely distributed than the gulls, but are amazingly abundant in many of their favourite summer haunts. Between the chalk cliffs of Flamborough Head and those of Kent there are no suitable breeding-places for these crag-loving species,

and they probably never nested along this part of the coast. The guillemot nested until recently on the South Foreland, but it is doubtful whether it still does so; and the razorbill and puffin have both vanished from their last Kentish haunts. But all three species still breed in the Isle of Wight, and as one goes westwards and northwards they become more and more abundant. In some of their Scottish haunts the numbers of the common guillemot and puffin are astonishing. The black guillemot is a much smaller and considerably scarcer species which is now found south of the Border only on the cliffs of the Isle of Man. Besides these two well-defined guillemots, in most breeding-places of the common species there are a considerable number of a variety which has sometimes been ranked as a distinct species under the name of the ringed guillemot. In these birds the eye is encircled by a white line, which is prolonged backwards into a stripe. The collection of guillemots' eggs forms a regular industry at Bempton on the chalk cliffs near Flamborough Head, where the climbers, or 'climbers,' are lowered by ropes to hunt the ledges. The eggs are chiefly used in confectionery, as are many black-headed gulls' eggs. The only other spot where the colonies of sea-birds are now regularly utilised for human food is on the remote island of St. Kilda. This is the chief, though not now the only nesting-place of the fulmar; and several thousand young birds are now caught and salted for winter consumption.

Gannets are now confined at the breeding season to six or eight large colonies on rocky islands off various parts of our coasts, but all on the western side except the famous station on the Bass Rock. Lundy Island was long inhabited by them, but they have deserted it since disturbance became more frequent, and they have now no English

station, and only one in Wales. The common cormorant is found in greater or smaller numbers on all suitable parts of our coasts, and the green cormorant, or shag, becomes commoner as one goes westwards. The shag does not breed on the south coast east of the Isle of Wight, while on the west coast of Ireland it is considerably the commoner species of the two. It is a little smaller than the common cormorant; and the two birds can be distinguished when in full plumage in the early spring by its crest, which is large, and points forwards. The cormorant in early spring

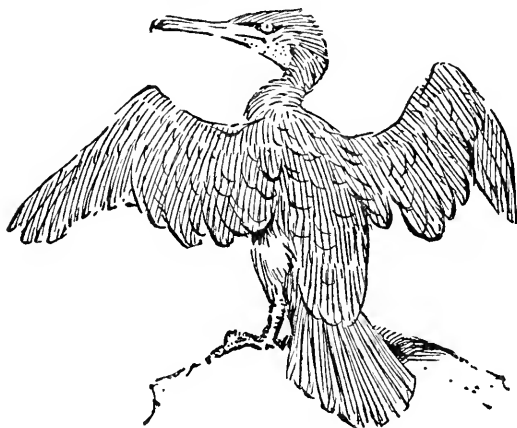


SHAGS

has less conspicuous crestlike plumes, which point backwards in the usual way. The metallic gloss of the cormorant's plumage is partly green, but in the shag it is a good deal greener.

The two cormorants and the gannet are birds singularly full of a wild individuality, and add greatly to the attraction of any tract of sea-cliff where they occur. Their appearance and manner of fishing are very different. Gannets appear snowy-white at a distance, but for the black tips to their wings; and old cormorants look coal-black, though there is a greenish gloss in their plumage which is more pronounced in the case of the shag. Cormorants fly low and heavily close above the water, and spend much time in swimming

with bodies half immersed, or in long dives in chase of their prey. There is something sinister and uncanny about their whole appearance; with their long snaky necks and lean bodies, they seem very close to the primæval flying lizards out of which our modern birds developed. Milton's simile of Satan sitting 'like a cormorant' on the Tree of Life, 'devising death to them who lived,' is as illuminative



CORMORANT

of the bird as of the fiend. Cormorants love to spend long hours sitting upright on a reef with their wings spread out to dry in the sun. Their wings in this attitude look like a cloth waved as a signal; and a crew of fishermen have before now launched a boat at sunrise, and crossed a bay to rescue a supposed castaway, only to find themselves confronted with the familiar and detested bird. There is not even the slightest possibility that the cormorant would enjoy the joke; no creature alive is obviously so incapable

of a wholesome smile. The voracity of the cormorant makes it hated by fishermen; and in estuaries where the supply of fish is restricted, it may become a serious nuisance, and does not deserve unqualified protection. Voracious birds need to be kept within reasonable limits, though their voracity is not an excuse for their extermination. Gannets are larger and shyer birds than cormorants, and seldom haunt waters where their daily diet can make any difference to the available fish supply. Their method of fishing is far



GANNETS

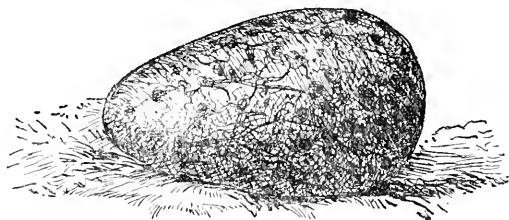
more attractive to watch. They float and soar in air, while the cormorants hunt beneath the water; then they plunge headlong to the sea, striking the surface with a resounding smack. Occasionally they feed on dead fish afloat, with gulls; and then it is curious to see how in spite of their large size and great pointed bills, the gulls will drive them away from the most attractive tit-bits.

Guillemots and other members of the auk family are even more thorough sea-birds than gannets and cormorants, and in some ways more so than the petrels. Gannets spend most of their time soaring and floating in air; and the cormorant loves to bask and rest upon its favourite rocky

seat. Petrels and shearwaters are also very buoyant fliers, and spend most of their time upon the wing. But the auk family not only avoid the land, except at nesting-time, as do the gannets and petrels, but spend by far the greater part of their time either rocked on the waves or diving beneath them. Their wings are small in proportion to their size, and are as useful for paddles in swimming as for flying. In the great auk the atrophy of the wings had gone so far that the bird could not fly at all; and then it paid the penalty by extermination at the hands of its human enemies. The other members of the family fly swiftly enough, with the straight whizzing flight of the dipper or kingfisher on inland brooks; but they have none of the gull's power of circling or easy floating, and are, in fact, poor performers upon the wing. Their real home is the water, and they only repair to land because they cannot nest upon the face of the waters, as the halcyon was fabled to do in the old Greek stories. As soon as the young can swim, and before they can fly, the troops of birds begin to leave the coasts, and they are not seen at their nesting-places between late summer and the time of their reappearance in spring. They keep clear of the immediate neighbourhood of the shore, and wander far out at sea, except when stormy weather occasionally drives them inland.

In their nesting habits these cliff-birds vary greatly, and the diversity of their nests and eggs increases the interest of their contrasted plumage and movements in and on the water. Guillemots and razorbills make no nest whatever, but lay their eggs on the open rock-shelves, or among broken boulders and in crevices. Common guillemots and razorbills lay only one egg, but the smaller black guillemot has two or sometimes three. The eggs

of all three species are very handsomely marked, while those of the guillemot are the most variable and some of the most beautiful laid by any British bird. Almost endless as is the variety of their colour and markings, they are easily recognisable by their peculiarly long and pointed shape. The relative smallness of the little end makes them revolve in a circle when disturbed, instead of rolling forward as a rounder egg does; and this is often quoted as a specially developed provision, by which the eggs are prevented from rolling over the precipices when the birds take wing on



GUILLEMOT'S EGG

a sudden alarm. Some eggs are no doubt saved in this way; but it is very doubtful whether they owe their shape to this selective process. Many of them are laid in safe crevices; and the same pointed shape and consequent circular movement are found in the eggs of the snipe, peewits, and the whole tribe of waders, which lay their eggs safely on the flat soil.

Puffins have adopted a different plan, burrowing like rabbits in the layer of soil that caps the cliffs and islets. After they have departed in late summer, it is singular to see their clustered burrows riddling the sandy shoulder of a cragstack as thickly as a colony of sand-martins' nests, but without a sign of life. At the end of these burrows each

puffin sits on a single white egg, clouded with a few faint greenish stains. This atrophied marking is very interesting, as it suggests that the puffin's burrowing habits are comparatively recently acquired, and that it formerly laid its eggs in the open, like the razorbill and guillemots. The eggs approximate to the plain whiteness which is usual with eggs laid in holes, but have not yet quite lost their outdoor markings. Petrels and shearwaters, which nest in similar subterranean holes and crevices, lay pure white eggs, and only one apiece. Cormorants and gannets also lay white eggs, but build a bulky nest of seaweed, sticks, or various seaside plants; and in this case the white eggs seem to represent the primæval colour of those of the lizard-like ancestors of the race. It seems probable that all birds' eggs were white to begin with, like those of crocodiles and snakes; and cormorants', gannets', and grebes' eggs have never got beyond this stage. All are covered with a rough calcareous wash, beneath which the inner shell is pale green. But this greenish hue is less a definite colour than the absence of one; many birds—for example, chaffinches and nightingales—lay malformed or infertile eggs with pale bluish or greenish shells, and this seems merely to represent an imperfect stage of development. Gannets lay only one egg, common cormorants two or three, and shags three or four. Three is also the usual number laid by gulls, though two in a set are not infrequent, and four are now and then laid by the smaller kinds.

There is a general tint of olive-green or light brown, or 'stone colour,' running through the ground of gulls' and terns' eggs, which clearly distinguishes them from those of other sea-birds. On the other hand, they are often very hard to distinguish from each other, except by size. When the eggs

laid by two different species are practically of the same size, as is the case with the herring and lesser black-backed gulls, the only way to identify them certainly is to see the sitting bird rise straight from them. This usually demands much careful stalking, in the course of which many beautiful little scenes of wild life are often witnessed. Male herring gulls watch proudly and peaceably by the side of the sitting hen on a lonely ledge, girt with pink sea-thrift and shadowed with wild cabbage in yellow bloom; and only a stone's throw away from their airy terrace, but divided for wingless creatures by a gulf paved by the sea, a long hanging slope is dappled with the pure grey and white plumage of the brooding and nesting birds. Sometimes the whole colony may be lapped in silence and the sunshine; but generally, even when they are quite undisturbed by intruders or visible alarms, some of the cock birds will be stretching their throats



SEA-THRIFT

and uttering their loud barking cries. Scattered here and there, and generally on the outside of the settlement, the dark slaty back of the lesser black-back contrasts with her snow-white head as she sits. Beyond another chasm, where a narrow green chine runs from the cliff-top down towards the sea another black-back catches the eye, nesting in the

lee of an upstanding pinnacle; and presently the male great black-back struts slowly over the curve of the ridge, and gazes menacingly at the world on this side.

Gulls' nests are strewn about the cliffs from just beneath the summit to the lowest ledges occasionally splashed with the spray. They are loose beds of various kinds of vegetation, differing considerably in size and in the materials of which they are built. The birds seldom carry material from any great distance, but pull together the nearest stems, blades



GREAT BLACK-BACKS

and tufts of that they can find. At the bottom of the cliffs the nests will be largely built of dry seaweed; further up, grass and rock-plants will predominate, and sea-thrift and campion blossoms will be worked into its sides. Cormorants and shags chiefly build in caves and crevices of steep rocks overhanging the sea, and except on small islets, can seldom be seen from landward. In a few spots, as on the famous Bird Rock on the River Dysynni near Towyn in Merioneth, they breed on rocks some miles from the sea; and in some parts of the west of Ireland they even build in trees. Now and then, where a steep face of rock stands obliquely to the sea, a cormorant or shag will build on an inaccessible

ledge overlooking the easier slopes where the gulls breed. Then the strange bird writhing her long neck from her nest makes an odd contrast with the white troops of sitting gulls.

Guillemots and puffins spin to and fro between their breeding-places and the waters ; and the hollower indentations of the cliff-face have often a pair or two of rock-doves, which skim across the gulfs with the familiar flight of house-pigeons, and nest with the shags in the caves. Hawks of more than



RAVEN

one kind add another contrast to the bird life of the seaside crags. Kestrels nest in small caverns screened by rock-plants and overgrowing ivy ; buzzards sail on broad wings round the pinnacles and over the cliff-tops, mewing above the murmur of the sea ; and the rarer and fiercer peregrines may skim in strong flight about the rock-faces, hunting for rabbits and young birds. Pairs of lean ravens guard their peculiar haunt among the crags, and drive off every other bird that comes near, in the early weeks of spring before their young are flown. The red-billed chough still breeds on some of the Irish cliffs, and lingers here and there in Wales and England ; but in most places its haunts are now filled by crowds of cackling jackdaws.

Small birds seem scarce upon the cliffs, by comparison; but the sheltered hollows have their own little groups of settlers. Wrens push busily among the brakes of wind-clipped black-thorn, and climb the ivy-covered rocks; stonechats toss from spray to spray of the furze-thickets, and hedge-sparrows live the same quiet searching life on the edge of the precipices as in inland gardens. But the most characteristic small bird of the sea-cliffs is the rock-pipit. It is larger than the common meadow-pipit or titlark of moors and commons, but has much



ROCK-PIPIT

the same appearance and restless ways. It breeds among the hanging rocks, hiding its nest behind some screen of white-flowered campion, or among the cushions of pink sea-thrift; and it hovers with a wavering song-flight in the blackest gulfs. In the warm climate of Cornwall and other parts of the west, the sea-cliffs are bright in spring with a wealth of flowers and vivid verdure. Thrift stains whole headlands pink with its clustered heads; sea-campion clings in broad white masses, and bluebells cover acre after acre of the hanging slopes. Gorse burns golden in the hollows; and

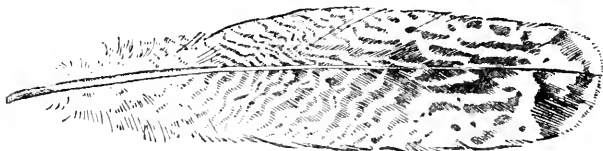


LESSER BLACK-BACKED GULLS AND HERRING GULLS (RIGHT) AND
ICELAND GULL (LEFT) BY A. W. STABY.

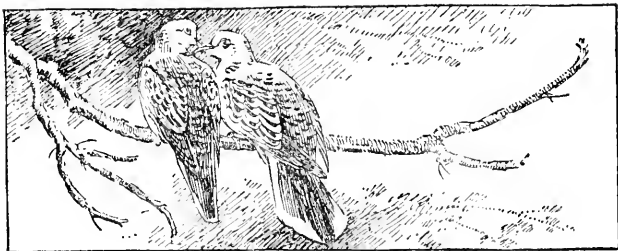
may-bushes on the upper ledges gleam almost as white as the restless surf below. The young leaves of the ivy spread a vivid mantle over the rocks; and beds of wood-sedge and iris fill the gaps between the clipped thorn-beds where the rabbits breed. The same cliffs later in summer, when the spring flowers and leaves have faded and most of the sea-birds have gone, give a poor idea of their wealth and brilliance in May. Of all the young life of spring, almost the only trace is a few fledged gulls, full grown, but wearing the mottled plumage of immaturity, and still uttering the thin nestling cry that seems so disproportionate to their size.



IVY-COVERED ROCKS



IMMATURE GULL'S FEATHER



TURTLE-DOVES

M A Y

'Flower upon flower expands :
May reigns in hawthorn lands.
Gone are the saffron daughters of the snow.
Sweet Summer tells her son
The daffodils are done :
Spring takes his mother by the hand to go.

The sedge-wren tells her note,
Dim larks in ether float,
The uprolled clouds sustain their pageant dome.
In velvet, sun-shine-fed,
Spire up the bulrush head,
Where rock the wild swans in their reedy home.

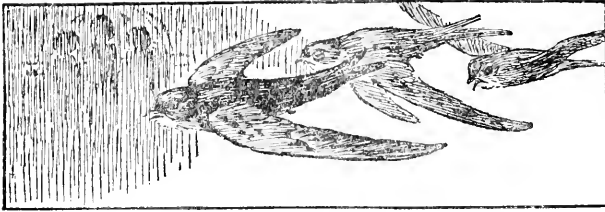
Summer eternal, born
From year to year, as morn
Is born from day to day—reviving glows :
Her breath the scented gale,
Her voice the nightingale,
Her form incarnate in the queenly rose.'

LORD DE TABLEY, *Auguries of May.*

'Oh were my love yon lilac fair,
Wi' purple blossoms in the Spring,
And I a bird to shelter there
When wearied on my little wing.

How would I mourn when it was torn
By Autumn wild and Winter rude !
But I would sing on wanton wing
When youthfu' May its bloom renewed.

ROBERT BURNS.



SWIFTS

SWALLOWS AND SWIFTS

AMONG all our smaller birds the swifts and swallows have the finest gift of flight ; and their constant activity in the air is in many ways more impressive than the kitelike soaring or floating of birds of prey and of gulls. These often rest upon the air, with no more muscular effort than is required to adjust the planes of their wings and tails to the changing air-current ; but swifts and swallows travel at high speed, even when their wings are doing least work, and their muscles seem almost tireless. Their glorious flight and constant activity in the air make them the most birdlike of birds ; they are doubly welcome when they appear in spring, and most missed when they leave the autumn sky

Swifts, as we have said, are not really members of the swallow tribe, but of a rather isolated family which have become swallow-like through similarity of habit. They show their different affinities by only laying two eggs, while swallows and martins usually lay five. By continually hunting insects in the air, all these birds have acquired in common thin wings, spare bodies, and a wonderful power of flight. Seldom perching, their legs and feet become atrophied ; they neither hop nor walk, but shuffle clumsily on the ground, and always seem glad to fling themselves free into the air. The shrews and field-mice are a familiar example among animals of

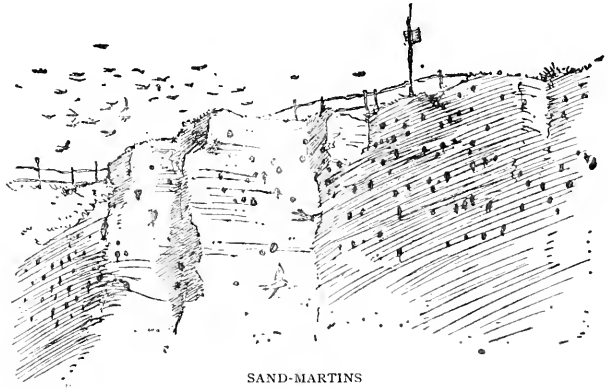
two very different families which have acquired in the same way a similarity of appearance by dint of similar habits. But the swift has outdone the swallows in the graces which we regard as peculiarly swallow-like—the marvellous speed and agility of flight, and tireless joy in flying. It is more swallow-like than some of the swallows themselves; for the fluttering buoyancy of the sand-martin is a rather poor imitation of the true swallow's dash on the wing. Swifts and swallows will always be regarded as members of the same natural group, though they descend from two very different stocks. In some respects swifts differ from the whole of the large family which includes almost all our small birds, and come closest to the nightjar.

Besides their great power of flight, this fascinating group of birds has another special appeal to human interest in its attachment to human dwellings. This voluntary domestication has reached its height in the case of the common swallow, which now hardly ever nests in this country except in or upon some edifice of men. The habit is not much less marked in the case of the swift and house-martin; and even the sand-martin occasionally leaves its cliffs of sand and loam to burrow in air or water pipes, and crevices in masonry. The original nesting-place of both the swift and the swallow and house-martin was on cliffs or in caves. Here swifts collected their slight nests of a few straws or feathers compacted with the saliva of which the eastern swifts' nests used for bird's-nest soup are exclusively composed. Swallows fixed their mud nests in cavities, and house-martins to more exposed outer faces of the rock. So there must have grown up a companionship between man and the birds in the primæval days when man lived as a hunter in caves, before he was either shepherd or tiller of the soil. When at last he built houses, it is possible that the swallows were partly drawn by this habit of old companionship, and were not

terrified at the human figures haunting the new artificial caves. At any rate, they took very readily to the new nesting-sites, and in most civilised and well-populated countries have almost abandoned the old ones, though they still faithfully preserve traces of their old distinctive preferences. Swifts harbour in dark holes under the eaves and narrow crevices, which give them the same kind of shelter as their clefts and crannies in the cliffs, where they still occasionally breed.

The house-martins' characteristic nesting-place is more open; they cling beneath the eaves and window-frames on the outer walls, just as the most conservative remnant of their kind still build under jutting cornices near the top of the Cornish cliffs. Swallows are intermediate between the two; they avoid wind and weather more than swifts, but less than martins, and habitually nest inside out-buildings and cow-sheds, which provide the closest imitation of a cave. The nests of swallows and martins correspond to their site. Martins' nests, built to keep out wind and weather, have only a small hole; in swallows' nests, the mud wall is not carried up so high, and there is a considerable space all round. Sometimes, indeed, a swallow's nest built in a well-sheltered place is no more than a segment of a mud saucer, clinging to a beam or joist; but when it is in an unusually exposed position, the walls may be built up till they are nearly as complete as those of the martin's nest. And when a martin builds in some swallow-like place, as under the glass roof of a station platform, the nest may be so flat and widely open at the top that it might almost be taken for a swallow's. Though colonies of house-martins' nests are not very uncommon on tall cliffs, both inland and by the sea, swallows' nests are very rarely indeed found in caves, though the habit in England is not yet quite extinct. Swallows are less gregarious than martins in the wild state; and this characteristic is preserved in their

half-domesticated life. A single martin's nest is the exception on any house, and when there is only one, this isolation can generally be traced to persecution by sparrows, or to spring storms which decreased the bird's numbers. But one pair of swallows will often settle in some lonely byre; and they seldom or never build a cluster of two or more nests, as the martins do. The differences of the nesting-sites are reflected, as is generally the case, in the colour of the eggs. Swifts, house-martins, and sand-martins lay pure white eggs, like



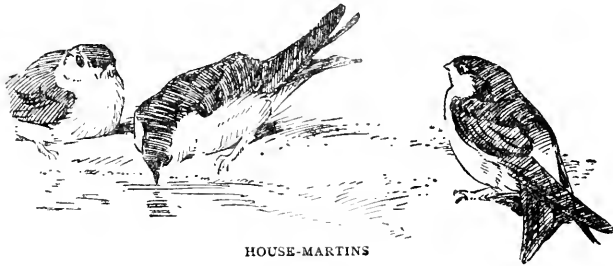
most birds which incubate in a deep and sheltered hole. The artificial cavity of the house-martin's nest gives the same protection as the holes burrowed by the sand-martin, and the crevices frequented by the swift. But the eggs of the swallow are well spotted with dusky red, and thus conform to the general scale of density in marking which characterises eggs laid in open nests, but not so excessively exposed as to need a highly protective pattern. The insecurity of the swallow's eggs as compared with those of its relations is shown in another way. It would be quite impossible for a cuckoo to

place her egg in a sand-martin's nest, and very difficult for her to get it unbroken into a house-martin's; but it is not very rare for a swallow's nest to harbour a cuckoo, though the swallow is not one of the cuckoo's usual victims.

Our British swallows and swifts spend the winter in various parts of tropical and southern Africa; some of them also occur in winter in India, but these are probably birds from northern Asia. Very early in the spring the three species of swallow and martin begin to work their way north. They follow the wave of spring warmth which brings out the insects on which they feed. There is thus a considerable difference in the date of their reappearance in south-west France and southern England, or even in the south of England and Scotland. By early April, when the single pioneers that proverbially do not make summer are seen in a few scattered districts, swallows are already abundant among the meadows and vineyards of the Loire; and they settle about the farms of the Thames and Severn valleys at least a month before they reach their furthest haunts in the north of Scotland. The house-martin and sand-martin usually arrive a little earlier than the swallow. Since they depend entirely for food on flying insects, and cannot pick among the boughs for larvæ or pupæ like most of the summer warblers which arrive about the same time, the swallows have a peculiarly pitiful appearance when, as happens every few years, a bitter spell of April frost and east wind greets them as soon as they arrive. They are seen flying feebly and dispiritedly above sheltered waters, and are often found dead in or beneath their old nests. The impulse which urges them to return to the summer home has no power of warning them of unsuitable weather there; they migrate because it feels like spring where they are, and they are always liable to be trapped by the treacherous spring changes of the English climate. If

the following summer favours their nesting, the numbers cut off in spring may be made good by the time of the autumn journey. All the swallows like a warm and genial summer, profuse in insect life; but the barn-swallow and house-martin particularly benefit from mingled showery and sunny weather in May and early June. This is because their curious nests, compacted of many hundreds of beakfuls of tempered mud, present some of the most difficult tasks accomplished by any of our birds in the nesting season. In cold, damp weather the pellets dry so slowly that progress grows very tedious; while in a spell of spring drought there is a scarcity of mud. House-martins especially like to collect mud from the puddles in the roads, and in dry weather there are no puddles. Cold and droughty weather added to the birds' rather desultory and idle method of building often postpones the first of the two normal layings of their species until midsummer. Then, if July is wet and stormy, there may either be no second brood, or it may linger so late that the young birds perish in the early autumn frosts and storms. House-martins, again, are terribly plagued in their work by the piratical house-sparrows, which wait till they have built part or the whole of their nest, and then drive them out of it. The open swallows' nests do not take their fancy so well, and they seldom attack them. Occasionally, however, a similar trick is played on the swallow by the wren, which fits its own domed nest into the cuplike foundation of the swallow's nest before the swallows arrive. We know of no instance of a struggle between the wren and the swallow, such as often takes place between the sparrows and house-martins, and is always won by the sparrow. But the wren, though so tiny, has an even more persistent character than the sparrow, and it can well be believed that the shy and timid swallow has to yield.

All these vicissitudes at nesting-time help to make the numbers of the swallow tribe fluctuate from year to year, and other accidents befall them on the two long migrations and in their winter home. But if we look at the country as a whole, it is very doubtful whether there is any such general diminution of swallows and martins as is sometimes asserted. The proved return of marked swallows to the same place in successive years give a strong indication that this fidelity is characteristic of their species, as it probably is of many of our migrant birds. If the number of swallows and martins about



HOUSE-MARTINS

a certain group of buildings decreases in any year, it might therefore be argued that many of them have perished. But just as nightingales or chiffchaffs are not quite constant to the same haunts, so it seems likely that many swallows are not averse to shifting their quarters from year to year. If they invariably revisited old haunts, it is clear that new outlying buildings would never be populated by them. When it is said that the number of swallows and martins in any spot has declined, the comparison is often unconsciously made, not with the general average of a series of years, but with some year of unusual numbers in the past. And since a considerable proportion of the birds are not wedded to one spot, they may often increase in new haunts at the very

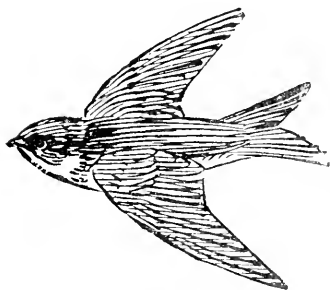
time when their decrease is being lamented in some of their old ones. This has undeniably been the case in some recent seasons with nightingales; and the diminution of favourite birds is always likely to attract prompter attention than their increase. Gilbert White's writings make it clear that the attacks of sparrows on house-martins are no new act of aggression; sparrows persecuted the martins in Selborne Street much more than a hundred years ago.

Swifts most plainly show their distinctness from the swallow tribe by the much shorter time which they spend in these northern climes. Like the nights of their own mid-summer season, they come tardily and vanish soon. Their season in Britain lasts for little more than three months; they arrive in the first week in May, and leave in the second week in August. These are the usual dates when they are first noticed and missed; but their main body arrives a little later than the first detachments, and they are still pouring out of England up to the beginning of September, while stragglers can occasionally be seen as late as mid-October. A fortnight after they have vanished from the towers and cottage-eaves of their summer homes, the amassed remnants of their hosts may still be seen veering in stormy dawns over the southern headlands fronting the English Channel. They are less ready than the swallows to seek food close to earth; they delay to come to England until the lengthening sunlight generates the swarms of insects that haunt the higher air. The indrawing chills and darkness of late summer once more depopulate the heights, and the swifts depart. Sweetly as the robin sings again in August dawns, it is the signal of the swifts' departure, and the rushing ardour of their flight is soon lost from the summer sky. Clear summer mornings have no more exalted note than the scream of the high-flying swifts; and their delight expresses itself again in the hottest hour of

early afternoon in June or July, when the silver in the thermometer rises towards eighty degrees, and the heat grows drowsy on the lower levels trodden by men. They scream about our heads with a note of triumph in such sunshine, and betray the ties with the south that call them so early away. They have a still more characteristic flight in the serene and windless evenings when the afterglow pervades the height of the sky, and the glow-worms burn to their very reddest under the hedges. Then the swifts float in troops high in air, until the gathering darkness hides them; often several descend close to earth in pursuit of each other, and again shoot upwards into the vault like scraps of charred paper in the draught of a great fire. Since they often ride so high and so equably in the falling night, the idea prevails that they actually rest all night on the wing, gliding with the minimum of effort against the light currents of summer air. But this is merely a fancy, bred of their buoyant flight, and the fact that they are not seen to return to their nesting-places under the roof. There is little doubt that they slip quietly in after it is too dark to see them descend.

If swifts slept or rested all night on the wing, we should see them afloat above us as soon as it grows light on mid-summer mornings. But this is not the case; they do not begin their noisy morning flights until the sunlight is strong, and the veil of mist is melted. They are not nearly such early birds of a morning as the swallow. Swallows are often astir before sunrise, in the same dewy hour of twilight when the industrious bumble-bee makes a buzzing on the fringe of the scabious or the lip of the honeysuckle where he bivouacked under the sky. Then the chuckling song of the swallow often streams down from the ridge of the roof, or the vane of the stable weathercock, or some bare and jutting twig of a walnut or apple tree. Heard thus in solitude, it sounds

sweeter and more skilful music than when we catch it more brokenly among all the other voices of day. Swallows perch more readily on trees than martins, which seldom venture to settle on anything less rocklike than the roof or eaves, except when they perch on the telegraph wires, which are the favourite resting-places of this family. But even the swallows choose branches without many leaves, which might entangle their long folded wings, and prevent them flinging themselves freely on the air. So they prefer dead limbs to live ones, and are fonder still



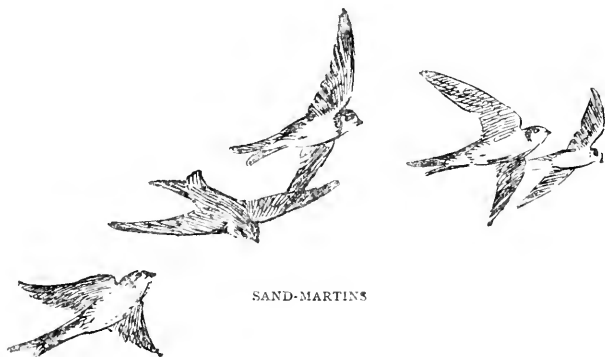
SAND-MARTIN

of some bare wooden perch like the handle of a plough, or a hayrake leaning over a wall.

These long pointed wings and the strongly forked tail serve with the stronger and more sweeping flight to distinguish swallows from either kind of martin when seen in the air. Not till late summer, when the young swallows

with their shorter tails become common, does this easy mark of distinction begin to fail. The flight of sand-martins displays an odd mixture of the true sweeps and circles of the swallow tribe, with a weak mothlike fluttering. Swifts are distinguishable from swallows by their much larger size and greater rapidity and power. When the birds can be seen at close quarters in a favourable light, their difference of marking is conspicuous. The little sand-martin is mouse-coloured, like the crag-martin, which stoops and flutters about the grass-fields in Swiss villages. Swallows can be distinguished from house-martins by their patch of russet on the throat as they sit on a perch, and by their dark upper

surface as they fly. House-martins are pure white between the wings and tail. Swifts are dull sooty black all over, except for the faint whitish patch on the throat, which reveals itself when they sweep close past us over the surface of the wide meadows. In the great Alpine swift, which now and then wanders with the common species to this country, the white patch is large and conspicuous, and the plumage is of the colour of a coffee-bean, instead of sooty black. Even our own swift sometimes turns paler towards the end of summer, as its feathers grow worn with creeping into the nest, and bleached by the sun of the dog-days. Loth as swifts are to walk or to settle on any surface from the edge of which they cannot dive easily into the air, they are of course not 'footless,' as their latest scientific name declares with threefold emphasis; and, contrary to what is often said, they can rise, though awkwardly, from the level ground, unless they have been injured or partly stunned by flying against some obstacle, such as a telegraph wire. Much like an aeroplane, they can move just enough on earth to launch themselves into their proper element.



SAND-MARTINS



THE LONÉLIER HOURS

THE glories of summer nights are earth-born, and their lights are warmer and nearer to us than the splendour of the winter moon. All night at midsummer the colour of daylight hardly fades out of the north if the sky is clear; and on wet or cloudy nights the dusk is full of earth's perfumes, and obscurely lit with flowers still gleaming in the unreal darkness. There is seldom a really dark night in June or the first half of July; the sun's path still creeps so near the horizon that light is reflected from all light objects, and even from the upper clouds. The earth on a June night seems plunged in a conscious rest more refreshing than sleep; its spirit seems etherealised rather than sunk in torpor. Cries of half wakeful birds continually suggest how light is the veil of unconsciousness; most creatures hibernate in some degree like dormice or bears, and expend in summer wakefulness the energy they accumulate in long winter sleep. The summer twilight of England is one of the happiest features of its geographical position. The soft veil of the June night is a more exquisite gift of nature than the positive daylight prolonged by the midnight sun.

Sheer daylight prevails in the June nights even in England; we can watch the cool grey stain contending with the stars of the north. In July as the nights grow a little

longer, this white light is often replaced in fine summers by deeper glows still joining the sunset and dawn. Night becomes stiller and more solemn than at midsummer, but hardly darker; and it is often fuller of colour. A glow of rich orange or living cornfield gold illuminates the northern sky and defies the darkness; night is filled with the essence of sunshine poured in the July day. The afterglow of sunset is prolonged by exceptional causes, and the nights become a festival of the sun, yet with the sense of repose shed by its absence from the sky. The afterglow is caused by the rays of the descended sun reflected from lofty clouds or invisible vapours above us, but an ordinary afterglow fades about an hour after sunset. The remarkable nocturnal glows which last on almost till dawn may be due to an unusual volume of floating particles in the higher atmosphere, such as the dust-clouds expelled by a volcano or lifted by a tornado from a desert. Sometimes they may share the principle of the mirage, and be the afterglow of tracts to the west transmitted round the earth's curve by refraction, as travellers see the image of towns or ships projected in the air overhead. The product of earth's own atmosphere, these summer glows give a sense of the fullness of summer unlike the alien brightness of moonlight and starlight.

On cloudy summer nights the earth is lit with its own moons and stars. Elders and wild-rose bushes frame constellations of blossom in the dusky hedges, and a little later white heads of clover shine in the pastures like a Milky Way. White campion flowers gleam opaquely pallid on the grassy banks, and privet blossom stars the shadow of the thickets. The motionless lamps of these blossoms are mingled with other moving lights. Glow-worms set their signals at dusk by roads and rivers, and the white ghost swiftmoths of midsummer vibrate in their fantastic

dances over the grass stems where their golden mates sit hidden.

This dance of the ghost swifts is one of the most ecstatic of all flights. No bird and no other insect combines so intense a movement with so marked a rhythm. While the

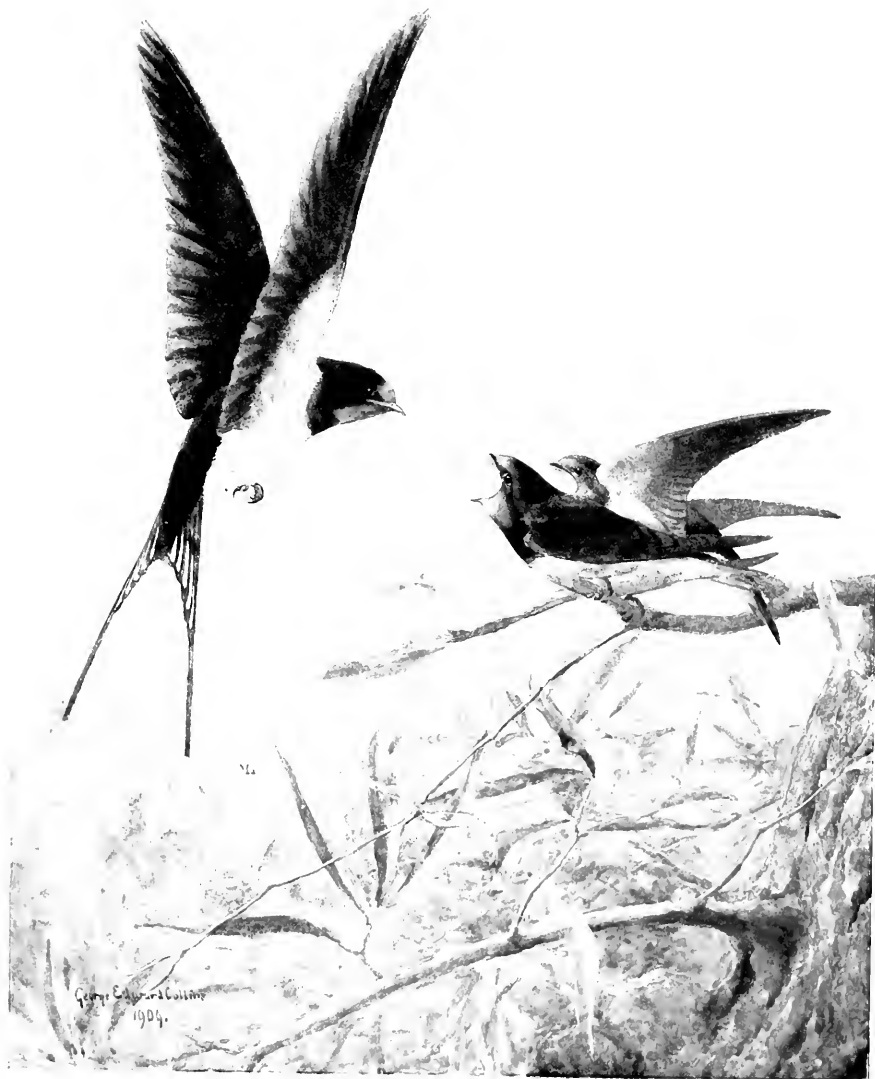


WHITE CAMPION

moth's wings whirl with such rapidity that it is a mere nebula in the twilight, it flings itself backwards and forwards on a track a yard or so wide like the weight on the pendulum of a clock. A pasture or hay-field after dusk at midsummer may be covered by dozens of these large white moths absorbed in their passionate exercise. It gives an intense sense of the vitality pulsing in the earth at this midsummer season. The dance seems intensely exhausting, even for a moth with such long and powerful wings. After each bout of frenzy, lasting for one or two minutes, the dancer rests on

a grass-stem, looking a little denser and whiter than the surrounding clover flowers.

The analogy of the displays of birds suggests that the exhibition of speed and glittering whiteness is designed to win the admiration of the female moth. Certainly she is often to be found resting in the grasses over which the male moths dance; but it is hard to be sure in the dusk whether



SWALLOW ABOUT TO FEED YOUNG.

By G. E. COLLINS

the dancers deliberately perform before her eyes, or whether the dance is simply an outlet for exultation in her company. As the last glow fades the dancers rapidly desist, and the whole display is over before midnight.

Songs of the summer nights mark audibly the change that comes over the season between the springlike opening of June and the autumnal ripeness and gravity that tinge the dewy August dawns. For the first ten days of June the nightingales are still in song before midnight, though they are rapidly declining; song-thrushes sing late into the white twilight hour, and the cries of plovers and water-fowl show how lightly they are dipped in sleep. The deep and passionate song of the nightingale seems in accord with the scents of evening, and the warmth of the early night. Nightingales stop singing, as a rule, when the air begins to grow chilly towards one o'clock; they are not among the earliest singers of the dawn, in the keener air of the new day. After the nightingales have fallen silent, and before the first larks rise, comes the wind of dawn that runs round the world in advance of the sun, and divides the old day from the new one. The change is palpable; the cooler air has lost the scents and languors of the outworn summer day, and has the renewed freshness of morning. About two o'clock, before it is light enough to see the larks rise in the sky, they can be heard in a great singing company, soaring into the grey morning vault. Sometimes the music comes from the ground; they seem often to utter their first hymn to the coming day before it is clear enough to draw them into the sky. Blackbirds sing a few brief strains, and then fall silent again for nearly an hour. When the light is already clear enough to see the dewdrops hanging on the grass blades, then bursts forth a universal pæan to the sun. In a wood or garden where birds abound,

this song before sunrise in early June is amazing in its vehemence. It does not give a perfect display of the song of any one species, for the din of music is so confused that only the most individual voices can be followed. Blackbird and blackcap and nightingale and a dozen other species are mingled in a chaos which can only be likened to the buzz



BLACKBIRD

of voices at a dinner-party; and through the tumult we can only distinguish clearly the measured rhythm of the ring-dove, and the turtle-dove's hollow double note. This burst of song lasts for about twenty minutes; then it suddenly ceases, and the sun being now well over the eastern woods the birds fall keenly to feeding.

There is a great change in the night by about the middle of July. It is still

unmistakably summer. None of the peculiar dampness of autumn, with its subtle sense of vegetation beginning to decay, yet hangs in the coolness of dusk or the filmy mist of dawn; there is not yet apparent that first presage of autumn's oncoming, the drenching August dew. But the night is far more silent. The nightingale's music is long over; except in cool upland regions and dales of the north, the evening strain of the song-thrush is

also past; and as the deep glow fades into real darkness only the babble of the sedge-warbler by the river recalls the full nocturnal music of early June. The sedge-warbler is peculiarly associated with July nights; not because it does not sing as readily by night in earlier summer, but because other singers are silent, and leave it to chant alone. There is something strangely conversational in the sedge-warbler's voluble monologues in the July night. They are half scurrility like the bickering of the house-sparrow, and



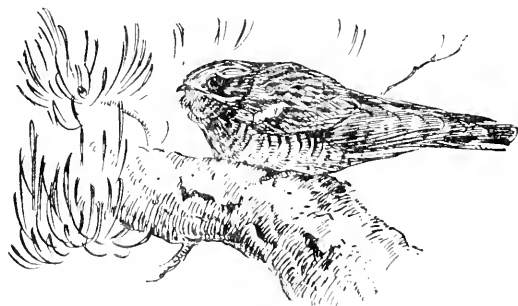
SEdge-WARBLER

half sheer beauty; and the bird seems singing for itself for company, in the loneliness of the night. The ear is struck with notes that recall the day; it is the sedge-warbler mimicking the cries of the birds that haunt the streamside under the sun. Now comes the sharp call of the chaffinch, now the sibilant signal of the water-wagtail, and presently the chatter of the sparrows that practise fly-catching under the noonday willows. A veil of sleep half dulls the sedge-warbler's vigilance; the song becomes a softer babble in the reeds, like the song of a swallow on the weather-cock

in the early dawn. A moorhen calls sharply in one of its nocturnal alarms, and instantly the singer is awake again, pouring a loud recitation into the darkness. The song dies away after midnight, when the confines of the new day are near; but even as late as August a sudden disturbance by the river at any time of night will sometimes draw a burst of song from a sedge-warbler hidden in the reeds.

Sedge-warblers, like nightingales, are day-birds which also sing at night; but the nightjar is a true bird of dusk, though it occasionally murmurs its curious music while the sun is high. It does not begin to flit abroad till its prey of moths appears in the darkening air; but it will rise about sunset to some bough in the quiet copses, and reel out its music actively until it is time to feed. It is a strange bird in many ways, but the reeling murmur which it pours forth in the dusk is the feature which has most struck popular imagination in this country. Hence comes its names of nightjar, evejar, and evechurr; while its other common name of fern-owl suggests its owl-like flight and plumage and nocturnal habits. The nightjar's murmur is emphasised by the growing stillness of the July nights, like the songs of the sedge-warbler; and it is more deeply in accordance with the ebb of summer vitality which adds solemnity to the summer darkness. It is a low and monotonous sound compared with the songs of May. In May, indeed, it is apt to be overlooked or neglected; but now it sheds a soothing sound in the night, and suggests the full but calmer current of the ageing year. Unlike the cry of the corncrake to many ears, it does not become wearisome, because its monotony is never absolute. From time to time the jarring is slightly changed in tone, like the distant sound of an autumn threshing-machine, which it often recalls. In the stillness of the night the delicacy of these modulations is emphasised; they fascinate the ear by their slowness and the precision of their effect.

In proportion to its gentle pitch the distance to which the sound will travel is remarkable, but much energy must go to its utterance. Close observation in the early twilight has shown the lower mandible of the bill intensely quivering while the sound was being produced, and there is the same hint of force in Gilbert White's record of how the Selborne summer-house quivered when a nightjar perched and murmured on the roof. It seems clear that the song, like the sedge-warbler's, is prolonged after the breeding season,

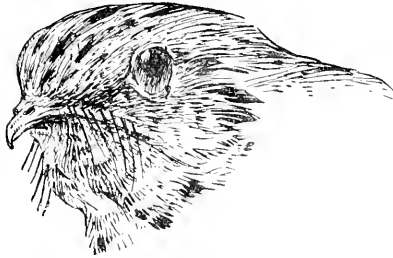


NIGHTJAR

though nightjars are late nesters. Depending like swifts and flycatchers on a diet of summer insects, they do not arrive till May, and their eggs are often to be found in the middle of June. In the earlier weeks of their stay, when the cocks are probably seeking their mates, a reduced half-whispered jarring is sometimes to be heard uttered from the ground on ferny commons and in the woods. The same tentative murmur is sometimes heard early on a June morning a little before sunrise, but the shades of evening and the early night form the song-time for this nocturnal bird.

It is rarer to see the nightjar hunting than churring, because of the increasing darkness; but it will sometimes reap a harvest of the little moths that buzz on warm even-

ings round the crown of the oaks, and its flight can sometimes then be watched against the half-lit sky. It is extremely rapid and skilful, and the activity of its mazy motion is emphasised by its silence. The nightjar flies as silently as an owl; though moths and beetles cannot be alarmed by noises, like rats or mice, yet a harsher flight might set up disturbing currents of air which would be equally effective in scaring the prey. Very owl-like, too, is its cry of 'kowick, kowick,' which it occasionally utters on the wing.



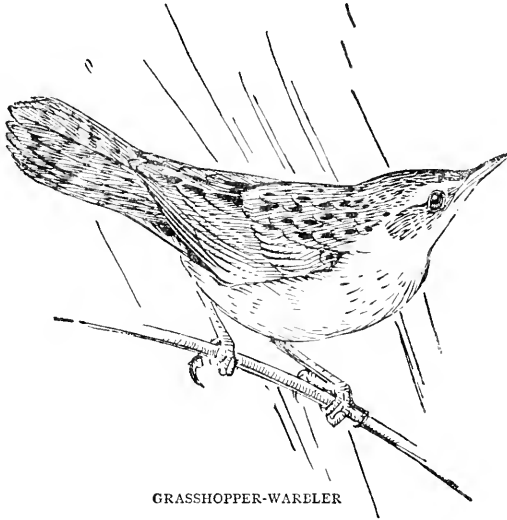
NIGHTJAR

It gathers its food in its huge mouth, guarded with bristles to prevent live insects from escaping. The bird's wide gape gave colour to the widespread legend that it sucks the milk of goats, which is perpetuated in various languages by

the name of goat-sucker. There is no other explanation of this ancient slander, except that the rough, dry goat pastures in many parts of Europe are a favourite haunt of this lover of warmth and dryness.

The grasshopper-warbler sheds another subtly changeful murmur into the air of summer evenings. Though it usually ceases in the later dusk, about sunset this creeping mouse-like bird is almost as vocal in the river-meadows as the nightjar a little later in the copses. Its voice is shriller and more chirping than the nightjar's, but there is no very close likeness between the irregular and fitful scraping of a grasshopper and its steady reeling cry. It is much more like the sound of a fisherman's well-oiled reel, and as the bird haunts the same banks as the fisherman at his favourite evening

hour, one can easily be mistaken for the other. The grasshopper-warbler's song—for it takes the place of a more musical ditty—possesses nearly as conspicuously as the nightjar's the delicate change of pitch which averts monotony and adds a characteristic attraction. In the case of the nightjar the change is said to take place when the bird ceases



GRASSHOPPER-WARELER

to draw in breath and begins to expel it; but owing to its habits of concealment the grasshopper-warbler is one of the most difficult of all birds to observe, and there is no evidence of the same cause in its case, though it is at least probable. The corncrake's note in the June mowing grass constantly varies in intensity, but has no change of pitch; and the alternating softness and loudness of its cry is simply due to its turning its head in different directions while it calls. In early May, when the grass is still short, it can sometimes

be plainly seen lifting its head above the green pile of the meadow, and calling in different directions, apparently seeking a mate. In the south of England the corncrake usually falls silent in June; but in the valleys of the north and west, where it remains more abundant than it has been of late years in the south, it calls in the late-mown hay-fields far on into July, when the bilberries are ripening on the hills.

One curious feature of the early hours of a summer morning is the boldness of the beasts and birds. Before five o'clock very few people are stirring, and wild creatures do



PARTRIDGES DUSTING

not take man into account. They lord it in their own domain, as once in Eden; and except for the trim roads and well-tilled fields telling of daily care, the human explorer of the June morning might almost feel himself a survivor on a planet from which mankind had flown. The roads are occupied by the birds for courting, preening, fighting, bathing in the dust, feeding and exercising their young, and for every purpose that a smooth and wheelless terrace naturally suggests to a bird's mind. If it were not so natural and unconscious, there would be something actively contemptuous in this annexation of a country highway as a promenade of infant partridges and amorous yellowhammers. When the explorer approaches the birds show little of the

timidity which they display towards mankind later in the day. They gaze at him indifferently, and are little disposed to give him room. The yellowhammer goes on tracing his golden semi-circles about his hen; thrushes stare from the middle of the road as if they were half ready to break out in noisy abuse, but preferred to treat the intrusion with silent dignity; and shyer birds appear so numerous about the road and hedges as to give a new realisation of their fugitive and elusive lives in the hours when man is king.

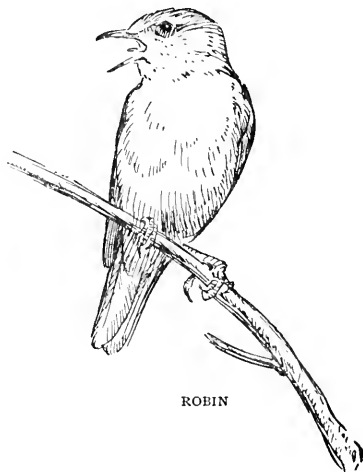
Even the shy hare on its way back from the cottage garden looks twice and three times at the rare apparition before deciding that it must be a man; and the wilder stoat, which will sometimes attack a man in defence of its young by broad daylight, gazes at him in the hour of dawn with the true look of the wild animal—half insolence and half sheer bloodthirstiness. All this hostility and indifference on the part of the familiar beasts and birds of an English village gives a curious jar to man's instinctive sense of his own predominance. We have only to get up three or four hours before breakfast to



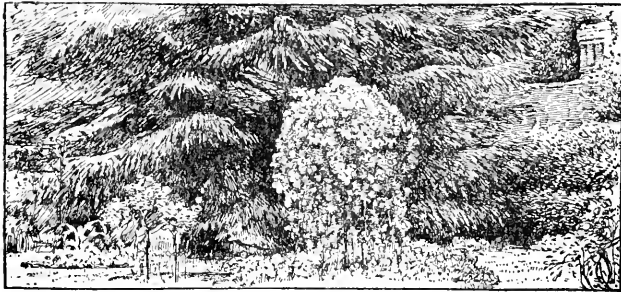
find a world in which we are still of small account; and it is positively comforting to human self-esteem to find a friendly welcome from the old cart-horses in the pasture, pushing their hairy faces over the palings and expecting to be led off to work for their masters. At least we have tamed the horse if we are flouted by the common jenny-wren.

The first note of summer verging towards harvest-time is heard in the stillness of the June night, when the green horse-chestnut or tassel of plane-seeds falls to earth with a single sudden tap. Though the unripe seed falls with a miniature sound, there is the warning of all autumn in it.

The nightingale soon breaks out singing again from his thicket, and the dawn has its jubilant cries; the impression is quickly eclipsed, but returns with gradually increasing frequency as the summer goes on. July dawns are mistier than those of June, and far more still; instead of the chorus of all the birds, we hear little but the chirp of the sparrows presaging heat, the faithful crooning of the ring-dove, or the deep and rasping caws with which the rooks at this time of morning post from tree to tree on their way to their feeding-grounds. August dawns break later and mistier still; and now, in the weeks of deepest silence by day, the piercing warble of the robin is lifted to the earliest stain of light. It is his autumn song renewed; the birds' moulting time, which forms the only real break in the circle of the English seasons, has intervened since he lifted his voice in the pæan of the midsummer morning, and this song already tells that it is passing.



ROBIN



JUNE

'The pinks along my garden wall
Have all shot forth their summer stalks,
Thronging their buds 'mong tulips hot,
And blue forget-me-not.
Their dazzling snows forth bursting soon
Will lade the idle breath of June ;
And waken thro' the fragrant night
To steal the pale moonlight.
The nightingale at end of May
Lingers each year for their display ;
Till when he sees their blossom blown,
He knows the spring is flown.
June's birth they greet, and when their bloom
Distresses, withering on his tomb,
Then Summer hath a shortening day ;
And steps slow to decay.'

ROBERT BRIDGES, *Garden Signs*.

'Where the bee sucks, there suck I ;
In a cowslip's bell I lie ;
There I couch when owls do cry ;
On the bat's back I do fly
After Summer merrily.
Merrily, merrily, shall I live now,
Under the blossom that hangs on the bough.'

SHAKESPEARE, *Ariel's Song*.



YOUNG PARTRIDGES

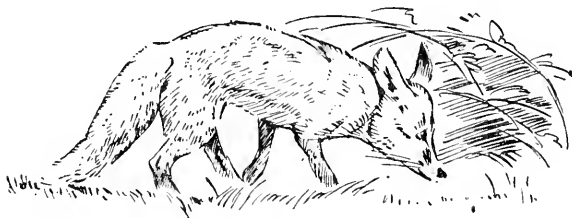
DANGERS OF THE GROUND

EVEN in midsummer weather, perhaps chiefly in midsummer weather, the solid earth is one of the most dangerous of places for birds' nests, though it is quite the best place for concealment. Probably the safest nests are the highest and most conspicuous, but in all cases a risk is run. The rooks' nests are thrown down by a gusty wind. In one case such a fallen nest was found to have been twice used by other birds than the maker. A great tit and a starling had both hatched broods in its interstices, and both for the first time faced a danger quite new to them. The conspicuous nest of the colony runs also risks from neighbours. Just as penguins spend a great part of their time in robbing one another of stones, the rooks will from time to time, though not often, steal from any unlucky neighbour who for some reason has not pleased the flock. There is also another little known danger. When at all pressed for food squirrels will climb to the nests and carry away young birds. But when all is known the rook in the colony is as safe as he could well wish to be. Compared with such a bird as a partridge his state of security is complete. For the ground bird is never safe till the young can fly almost as well as their parents. When the country naturalist sees descend

one of those sudden June thunder-storms that gives us vastly more rain to the minute than any storms of the year, one of his first thoughts is apt to be of the young partridges. Every year, or almost every year, scores of young birds are killed by such rains. It is not that they are drowned right out, though this may happen. It is that they cannot dry their fluff. The oil-glands do not work. Though there may be bouts of sunlight sufficient to dry birds in the open, they are caught in the corridors of the corn or the tall grasses, which drip and rub the moisture on them long after the storm is over. Rheumatism and all manner of pains oppress them. They dwindle and die. Even insect food, which is their chief diet at this date, may be hard to come by in stormy weather. It is by way of escape from such dangers perhaps that often the old bird takes her dapper little brood to the roadways, which serve as warm and smooth promenades, where everything is provided that a bird in search of health could well desire. It is a little dangerous perhaps if traffic is frequent; but the spry chicks even when very young manage as a rule to skedaddle into the gutter of the roads even if the approaching motor is fast, and pedestrians who may now and again pick up the young usually replace them.

In fear perhaps of the dangers of wet, partridges often prefer the bases of the hedgerows for their nests, but here they lose the security of the open field. The hedges are the roads of all sorts of vermin, of rats and weasels and stoats. Foxes, moreover, accept the hedgerow as their proper hunting-ground. They go out bird-nesting, and their nose and eye is so keen that they will on occasion destroy every single nest along a mile or more of hedge. Out in the fields it is comparatively rare to find a nest destroyed by vermin, however obvious the place; but along

the line of any hedge or fence the destructions are innumerable. In one case that the writer watched, a rat began a strangely ingenious and secretive attack on a partridge's nest, but quite failed for some reason to proceed with it. The nest was a scooped hollow in some rather rough grass alongside a line of chestnut fencing, at the bottom of which was stretched some mesh-wire. A rat, presumably by design, tunnelled under the fence, coming up in the very nest, but rather to one side of the centre. Into the hole he



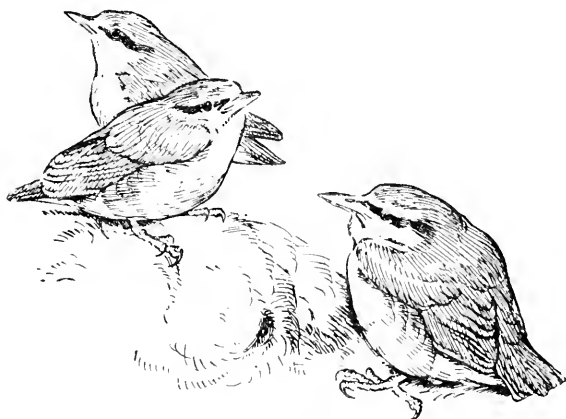
took, or there fell, three of the eggs. It was thought that the partridge had deserted, as the remaining eggs were cold. But two days later, when the nest was visited, the nest-end of the hole was quite covered, indeed half blocked by some very coarse bents of crested-dog's-tail grass. These were also spread about the rest of the nest, which looked generally redecorated, and the eggs were half concealed by grass. The rat made no further onset, for the very good reason—such at least was the plausible inference—that the vermin itself had fallen victim to other vermin. At any rate within twenty yards of the nest a dying rat was found terribly mauled by a stoat. Thus did the partridge, after touching the razor-edge of danger, maintain her place.

All these ground-nesting birds suffer from the increased thoroughness of cultivation, although some of them, par-

tridges especially, flourish most on the best-farmed lands. They rejoice, both for nesting and for refuge, at other times in any piece of waste ground; and where these waste bits have yielded to cultivation the ground-nesters have shrunk in numbers, except under special and artificial preservation. They do more than lose their proper haunt. Among the standing crops, that after all resemble in some respects the rough growths of untilled land, they suffer from the scythe and the mower. The corncrake has quite vanished from many old haunts. The valley of the Huntingdonshire Ouse is one. One of the delights of warm June or July evenings, spent in a boat along reaches that encircle a great plain known as the Port Holm, was the strange mingling of sounds, of which the corncrake's ventriloquial note was the most insistent. The wind kept up a rustling whisper, a secret sibilant mutter among the great banks of reeds. The reed-warblers, by this date rather chattering than singing, fluttered in and out; and among the ranker grasses the running corncrakes kept up a burr that recalled a frog or a murmur of distant machinery or some vast grasshopper. But the sound has been mute for many years, probably owing to the greater precision and earliness with which the grass is cut. The ground-nest, though immeasurably hard to find if you desire it, could not compete with the blade on the chariot wheel. So the south is in great measure robbed of this quaint and pleasing summer visitor, though happily it is still not less common in the far north.

All nests, being in some degree cups, are liable to flooding. One wet June a nuthatch's nest was found flooded out, and the young dying of wet. They were rescued, the nest drained, and the birds replaced, when some of the brood survived; but their plight showed that even a tree-hole, carefully selected and at some altitude, is not quite storm-

proof. But in general the builders in holes are tolerably safe, certainly safer than other small birds which choose the ground or a spot close to the ground. Treading feet must always be a menace, especially in gardens and places which men frequent. How often one has watched, with almost daily anxiety, a nest of a garden robin or chiffchaff escape a succession of threats; and then, just when safety seemed at



YOUNG NUTHATCHES

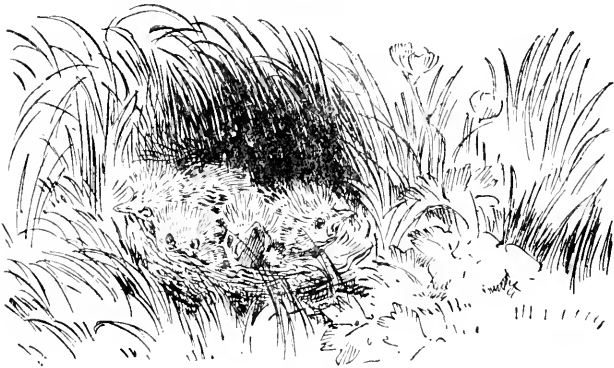
hand, catastrophe has fallen. The chiffchaffs used to build for example in the gardens of south London, especially Dulwich. A few no doubt survived; but some watchers, at any rate, found not once or twice that just as the young were nearly fit to fly they fell victims to a prowling cat. The dog is not, as a rule, though exceptions exist, a bird-nester; but in its restless and inquisitive wanderings it will destroy out of pure frolic many a robin's nest.

Yet some small birds are most singularly successful in rearing their broods. Stonechats and whinchats, which are fond



STONECHAIRS, COCK SINGING, AND HEN WITH A SMALL
LIZARD IN HER BEAK BY A. W. SNEY

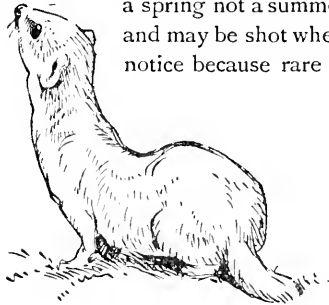
of nesting just beyond the shelter of a furze-bush, will defy the most prying eyes, though the neighbourhood of the nest is obvious enough. Larks, which build without protection in the open, suffer very little from weather, and are seldom pounced upon, thanks to a subtle sense of protective selection; and their fondness for very dry commons is no little protection against the rains of June. How snug the chats sit under a diaphanous canopy, that keeps off rain but



LARK'S NEST

not the sweet air. There is enjoyment as well as caution in the round-about approach to the nest, and ecstasy in the quick final run down the pathway passage. The common is a safe and lovely place for all the family: for the cock who sings lustily on the top spray, vaunting his fine colours that all the world may see; for the hen, quick with the thoughts of maternity in the soft nook the two have chosen and selected; for the chicks when they come to growth and hear the parent birds scuttling along the private path, secret from all intruders' ears and eyes.

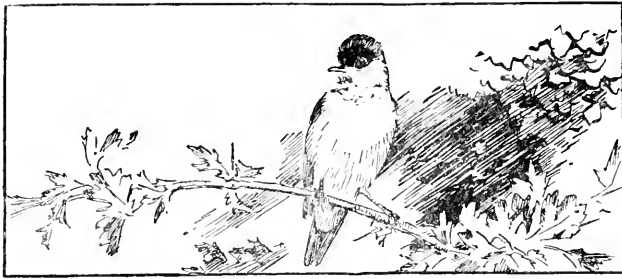
Those birds of the common, which dislike wet, suffer very much less from summer downfalls than the water-birds themselves. It is unexpected, but ducks which delight in water, whose young are water-proof, as it were, at birth, and lovers of the stream, suffer much from heavy rain and wet weather, overwhelming the feather walls of their nests. It is not uncommon on this account for the duck to build in the hollows of waterside trees; but more often they nest on the ground, some yards from the water, and during this time suffer as if they were land-lubberly partridges from flood. But this is a spring not a summer story. The duck are flying



WEASEL

and may be shot when August begins. It is worth notice because rare that pheasants will now and again give up their ground-nesting habit. In one instance a pheasant's nest was found, safe from flood beneath or rain above, in the upper part of a thick spruce, her eggs laid on the flattened deserted nest of a squirrel.

As numbers increase, and nesting-sites become fewer, naturalists begin to note a tendency among bush-nesting birds to seek the ground. Thrushes are certainly more fond of the ground than they once were. We have found their homes well concealed in the midst of high kexes in a spinney. It may have been no more than accident, but the nests were in such case rather slighter, as if the bird was beginning to come into line with the ground-nesters which naturally prefer a hollow in the earth to a manufactured cup. Will the weasels and rats drive back this company of earth-lovers to the bushes they have deserted?



BLACKCAP

SONGS AND MUSIC

ONLY in June may you hear all the songs and notes of birds, young and old. There is more of the zest of spring in many May songs; and in the middle of June other birds than the cuckoo change their tune for the worse before descending into a croak or to silence. But the opening of June is the only time perhaps when the chorus is quite full, when the turtle-doves croon behind the leaves, and the pied flycatcher ripples on his garden perch, and the swifts scream in the high air, and the corn-bunting gurgles his few rough notes, and the robin calls fussily to its young. There are at any rate more noises, if not more song, in early June than at any other date. This is the time when a real knowledge of song and note tells. Earlier one has at least a chance of watching the singer, though it is hard enough even so to mark his identity. A silhouette against a skyline can give as little information as any object of sight, but it gives some. In June the bulk of the songs and sounds come from mysterious depths of green. You may spend a day in seeking the singer, and at the end have scarcely caught the glint of his wing. Even the nightingale, which loves a low perch and is not very shy, is hard to watch with any distinctness. A wry-neck is virtually invisible.

As one listens to the songs of these invisible singers with an enjoyment that is quite inexplicable, and tries at all to analyse the charm, one at once realises that the songs are not in any strict sense music. What are the most notable singers? Probably if a competition were held for the finest singer among birds five candidates would take the votes: the nightingale and the blackcap from the migrants; the blackbird, thrush, and lark from our home birds. Perhaps a few would maintain the cause of the missel-thrush and the willow-warbler.

Of all these the blackbird is the only one which can be called musical or tuneful in the sense that one generally gives to 'music' or 'tune.' He almost, perhaps quite, whistles an air. The notes are clear, and succeed one another with a recognisable connection. The tone is fluty; and when this early morning singer breaks through your sleep, you might mistake him for a cheerful boy whistling



odd bars for sheer lightness of heart. Some people can only admire the blackbird among birds. They can find no harmony to which their ears can respond in other songs. To their sense the robins and thrushes merely make noises, which are perhaps some addition to the sense of gaiety in things, but not sufficiently interesting or musical to warrant the trouble in distinguishing. 'I know the robin's song only because it stops so suddenly,' or 'That must be a thrush because it is saying "Pretty Dick, pretty Dick"'—their perception of the points of the many songs does not go further than this. At the other end of the scale we find ears so finely tuned to the notes of birds that every song can be remembered as well as recognised. Mr. Hudson,

whose ear for song amounts to genius, could recall to himself, after twenty years' absence from England, the song of all our birds save three or four; and probably the finest passage in any book of natural history is his account of the towering songs of the great American birds in one of his books.

The strangest thing about the welcome given to birds' songs is that people may be within range of a particular song year after year and never consciously hear it. One day a naturalist says to them, 'Listen to the golden-crested wren in the cedar,' or 'That is a girl bunting in the elm'—and for the future the songs of the two birds, previously unnoticed and unknown, take their proper place among the pleasures of the garden. No doubt a surprising number of people are absolutely deaf to song. The trill of the grasshopper-warbler—a wonderfully accurate reproduction of the noise of a fishing-reel, though pitched higher—is wholly inaudible to some people of moderately acute hearing. The song of the blue tit and the lark disappears from the list of audible sounds at the very first approach of deafness; and hundreds of country people never seem to have heard the pretty little whispered piece of the goldcrest.

If music proper be the test the blackbird comes first. Those seven or eight clear notes that he whistles at sunrise and again after sunset also carry farther than the song of any bird, even than the thin, pleading cry of the nightingale beneath the stillness of summer stars.

As you loiter near a singing nightingale the force of the guttural throat most astonishes and thrills you. But, as the distance from the singer increases,

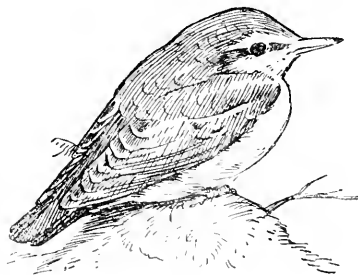


NIGHTINGALE

one part of the song after the other falls away till you can only hear that one lone and thrilling cry. The notes of the blackbird, very often in a sequence of seven, are describable in music. They differ a good deal, but the consecutiveness of the notes and the liquidness of the tone form the most unmistakable and cheeriest of all songs. Of the strains given in Witchell's wonderful book the following, though more monotonous, is, so to speak, the foundation of the song,



with the exception of the final note, which is the same as the penultimate. Witchell, however, gives this as the alarm note. But we must not judge birds' song by any of our musical standards. Sounds in nature, whether made by animate or inanimate things, please us because they are



WOOD-WREN

consonant with the mood and form of the world at the moment: 'The moan of doves in immemorial elms and murmur of innumerable bees' are harmonious for more esoteric reasons than—may one say?—the music of those two famous lines of the young Tennyson. The tinkle of thin ice, the

chromatic moan of the wind, the sucking whisper of the receding surf, are not musical sounds, but each has the power to stir Celtic sense of 'old, forgotten, far-off things' as powerfully as the triumphant harmonies of Teutonic masters. Birds' songs

have such a quality. The most musical are not always the most pleasing. Few can give more pleasure than the high crescendo ripple of the tree-pipit as he makes a sharp gable of flight above an oak, or—to give a personal preference—the first bell of the wood-wren, to be heard year after year, much about the same date, from a neighbouring group of beeches. It has no music and little variety; but yet it could ‘beget the golden time again,’ as did the cuckoo’s song, for Wordsworth ringing gently like this :



a moving mystery of sound now from one place, now from another, penetrating the leafage of the wood where he lay on just one particular sunny day.

The secret of the charm of the more real singers is much the same as of the cuckoo. In the lark’s song is contained all the sense of surrounding things, as catalogued—if one may say so—in Meredith’s ‘Lark Ascending,’ one of the great poems of the century. Much of the nightingale’s supremacy is due to the night and quietness, and if the poets had been early risers we should have heard as much of the blackbird.



The blackbird apart the best songs are least expressible in music. It is quite impossible to give in musical notation the song of the lark, which, with a very few exceptions, may be called the one continuous singer among birds. Scotsmen have compared the song with the music of the pipes, and the resemblance is quite perceptible. Whether this is an argument for or against the musical nature of the song is a question that may be left undecided. But the majority of

songs are little set pieces of more or less constant length and time. They are more easily expressed and learned. The chaffinch or the yellowhammer are good types of the set



song. The chaffinch in captivity and under instruction will learn to lengthen out his piece by a bar and more, but in nature the rippling trill,

suggestive with the tinkling rise in the last two notes of a fountain, is generally of an even length. An excellent reproduction, so far as pause goes, of the yellow-bunting's song is given by Witchell, thus :



But certainly many buntings do not ascend in the first notes of the song with this regularity. Most, we should say, do not rise at all, in the first four notes at any rate. The subject of birds' song and its relation to music is doubtless worth study ; but to the field naturalist the more absorbing pursuit is to separate the call notes, alarm notes, and songs, and to read in them the language of birds. The more you listen to birds at nesting-time the more clearly you discover how wide is the range of expression, one might say, of conversation. In their songs, which most arrest our attention, lies but half their power of articulate utterance. But the learning of birds' songs and, so to speak, words, is only easy and fruitful in the early morning. For the rest of the day, with the exception of a period of evening ecstasy—very different from

the morning domesticity—the language of most birds is more or less pedestrian. Especially do the spring migrants exult in the morning hours. It is more necessary for the observer to be up with the blackcap than with the lark, one of the few midday singers.

The morning too is the best hours for hearing all those bird conversations which are almost as attractive as the songs. As great attention has been paid in recent years to



YELLOWHAMMER

the 'call notes' and 'alarm notes' of birds as to their songs, but from all classifications escape a host of half-whispered notes which are not song or call. The hen-bird does not sing, but she undoubtedly speaks and whispers. We have heard the hen stonechat make a singing noise; and if you are quite close to young and parents at feeding-time some summer morning, you will hear eager sounds and soft endearments that suggest a power to talk as well as to sing. Some cock-birds have a sort of croon which is quite different from song. You may, for example, hear from the cock bullfinch a

nest-side song which is very little like the spring song ; and the golden-crested wren sings songs which are only recognisable as his because of the tone. The sequence of notes has no set pattern at all. Perhaps in marking all the minor songs and calls of birds it is the quality of the voice, if one may say so, that makes recognition less difficult. The sibilant goldcrest, the soprano robin, the rough whitethroat, the hoarse corn-bunting, the liquid wagtail, the squeaky tits—have all a sort of voice that is recognisable, as well as a sort of song. Even when birds mimic to perfection, as the starling mimics the thrush, the quality of voice betrays them. This quality abides even when the song is sweet and the chirp harsh. Larks and pipits, for example, have calls that are perhaps harsher than any song-bird's. They sound more akin to the jackdaw than the thrush ; but it is still a lark's note, only it needs wide skies and a place in continuous sequence before it can achieve its charm.



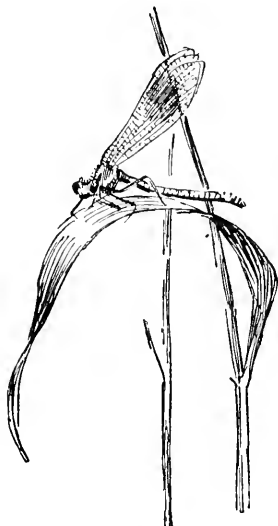


ALONG THE RIVER

A STRANGE and luxuriant vegetation runs riot by the margin of lowland rivers at midsummer, and fosters abundantly the life of insect and bird.

Most dragon-flies are graceful in form and colour as well as fleet of wing, but the most exquisite species haunt the watersides from early June. The larger species that rove freely through gardens, lanes, and clearings in woodlands in later summer are excelled by several smaller kinds that haunt the watersides. Dragon-flies are badly off for English names; 'horse-stinger' is crudely misleading, and 'demoiselle,' which is sometimes confined to the smaller species, is not really English. There are scientific Latin names for use at need, but they seem stiff and out of place while the living insects float by the June waterside. But it is as well to know that the two commonest varieties—one with wings broadly splashed with metallic purple and the other with rusty red—are the two sexes of one species, and that when

they sail together in courtship nature is not planning some singular hybridisation, as the unlikeness of the two insects might seem to indicate. Their lazy, flapping flight is in harmony with the ease of the summer river; but the little sapphire dragon-flies that drift in shoals among the sedges have the nimbleness of the minnows in the water-world,

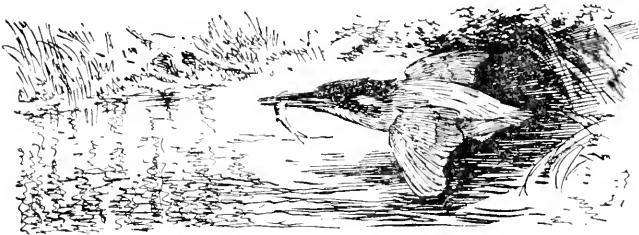


DEMOISELLE

where life has a crystal lightness unrelaxed by the July heats. Light plays in their slender bodies as in a jewel, and almost as jewel-like is a delicate crimson dragon-fly of the same size, which is more rarely seen by the stream. Both sexes of this species are of the same brilliant red, but the female of the small sapphire dragon-fly is dull yellow, with darker stripes.

The kingfisher's back as it shoots down the arcaded channel has the same sapphire gleam that harbours in the bodies of the dragon-flies. Compared with the brilliant blue of its back, the ruddy chestnut of its breast seems almost dusky; and even its back loses much of its brilliance as the bird comes to rest upon a willow-bough, and the light ceases to play on its metallic feathers. As it sits and eyes the stream below, waiting for the chance to plunge upon a minnow, the two white patches on the neck are often its most conspicuous feature, though we seldom notice them in flight. The kingfisher is heard three or four times by the

practised ear for once that it is seen; its thin but piercing pipe is very distinctive among the cries of the riverside, though it occasionally suggests one of the varied notes of the common sandpiper, which haunts the Thames and other lowland streams for some time on passage in late spring. Sometimes when the elfin piping is heard, we look up and catch a glimpse of the kingfisher spinning like a nebulous blue meteor in and out of the curves of the stream, or swerving directly across the meadows to the shelter of the willows; but often it flies so low behind the sedge-screen that we only hear it pass. Kingfishers sit motionless on their perches,



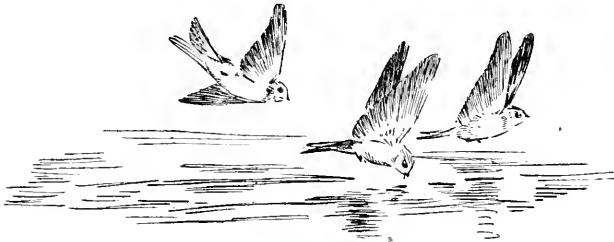
so as not to scare their prey; but their plunge, when it comes, is decisive. They strike the stream with a sounding smack, and usually fly back to their perch at once before tossing the minnow upright in their beak for convenience in swallowing it. If they have young to feed, we see the fish glittering in their bills as they spin off in the direction of the nest. More rarely they hover over the stream before plunging; and this is the most beautiful of all their displays, as the fanning wings multiply the shimmering iridescence. Thanks to steady protection, kingfishers are now by no means rare on the Thames water-system and many other southern streams. They are scarcer by the rocky torrents

of the north and west, for there are fewer calm pools suitable for their minnow-fishing; but they are found sparingly on many such waters, and also in rocky harbours and estuaries by the sea. The common situation for the nest-hole is in some vertical loamy bank of the river, or a bordering ditch or backwater; but occasionally they choose a bank some hundreds of yards inland from their fishing-grounds, or even a crevice in a quarry. The hole is much like a water-rat's, but more evenly oval; it leads into a gallery about two feet long, at the end of which the round white eggs are laid. The birds usually dig a fresh gallery each year, and the condition of the kingfisher's nest at the end of the season is certainly not attractive to any but an exceptionally dirty bird. Since they are nursed in the security of this deep hole, the young birds can afford to develop in their first plumage the conspicuous family dress; and the same influence determines that the eggs shall be white, since in their position of safety they have no need to mimic their surroundings.

Sand-martins also nest here and there along the little earthy cliffs of the river, though the favourite site for one of their colonies is in some inland sand-pit. By streams lacking dry and friable banks, but otherwise attractive to them, they have been found, nesting in narrow drain-pipes built into a stone embankment, and even in galleries bored in the soft wood of rotten willows. Sand-martins are as gregarious as kingfishers are solitary, and flutter like clouds of Mayflies above the midsummer stream. House-martins fly more strongly, and in more sweeping curves, and swallows more boldly still; but the swift is the lord of the swallows by right of swallow-like flight, though he is no real swallow. One of the delights of the streamside meadows in summer is to watch the swifts rushing past so close and low that we can

see the dull white patch on their chins ; and notice, as summer goes on, how their sooty feathers get worn by rubbing in their roosts, and bleached in the strong sun, until they gain the same transparent greyish look at the edges that we see in the ruffled plumage of the black swan, or the dowdy black moth—dressed in insects' bombazine—which is known as the Old Lady. This large dusky creature is also common in boat-houses and other buildings by the waterside, but not until July or August.

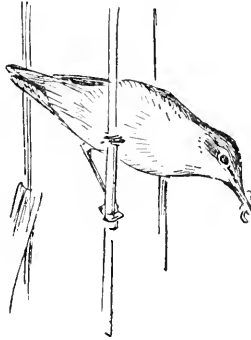
By midsummer the water-wagtails and most of the small



SAND-MARTINS

singing-birds of the riverside have finished nesting, and are in charge of dwindling troops of inexperienced young. But moorhens and dabchicks seem never to grow tired of the nursery, and go on nesting into August ; and midsummer is the height of the nesting season in the scattered colonies of reed-warblers. The reed-warblers sling their nests over water on supporting stems, and prudently make sure that the vegetation is ripe for its purpose before they trust to it. Exceptionally they hang their nests to willow and lilac twigs in withy-beds and gardens by the water ; but the traditional prop of their house is the true reed, with canelike stem and blue-grey flowering head, which grows in belts and beds not too commonly by the edge of the river. Like all river-

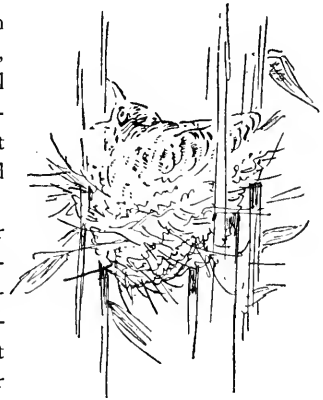
plants the reed springs late, and the reed-warblers wait till it has formed a dense cover to hide them building.



Unlike the sedge-warblers they usually nest in colonies, and this is clearly due to the scarcity of their favourite reeds, which concentrates them in the spots where the reeds grow. The reed-beds ripple at midsummer with the reed-warblers' babbling song, which recalls the sedge-warbler's, but is more silvery. The number of singers in one place is also apt to attract attention even from those

ramblers who are not on the watch for reed-warblers or the brakes which hold them. Then, if we watch closely, the smooth and slender little birds in their russet coats can be seen slipping from reed to reed, and resting on their vertical stems in a characteristic attitude, with the upper leg bent and the lower one stretched to its full reach.

Perhaps because their colonies are easy for a wandering bird to discover, reed-warblers are very often victimised by cuckoos. The surest way to find a cuckoo's eggs or nestlings is to search in a colony of reed-warblers' nests. More meadow-pipits' are utilised by cuckoos than reed-warblers'; but it is not so easy





KINGFISHER FEEDING HIS YOUNG.

By A. W. SEABY.

to find the same number of meadow-pipits' nests in a short time. Cuckoos' eggs found in reed-warblers' nests are suffused with a peculiar tint of olive green beneath the usual vague freckles; this rough approximation to the colour of their brother-eggs is noticeable if we compare them with the greyer cuckoos' eggs to be found in the pied wagtails' nests in the willows, or the browner type which are usual in the sedge-warblers' nests among the bushes and undergrowth. The young cuckoo is naked and copper-coloured, and squats at the bottom of the deep conical nest like a toad in a hole. Its task of murdering its mates is even more remarkable when it is born in a reed-warbler's nest than usual, for the sides of the nest are unusually steep and high. This is of no apparent effect in discouraging the murderous instinct of the little changeling; its effect is to prevent the legitimate eggs being blown out when the reed-beds dip deep to the stroking wind. The nests are usually bound to the reeds which support them by strands of reed-flower of the previous year; but reed-warblers have a sharp eye for other and more convenient materials, and use thread for binding their nests when they can find it.

Except for the placid swans, which seem to take pride in their favoured position as tame birds, the water-fowl of the river are shy and elusive. We have to keep a sharp lookout for a glimpse of the dabchick between its dives, and when we hear its loud bubbling laugh it comes usually from the midst of a thicket of water-plants, where the bird is invisible. Its nest is as elusive as itself. It needs some little practice to distinguish it from merely casual heaps of water-weed drifting on the surface by a shade more of design in its moulding. It is a round sodden pudding, out of which the end of one of the dirty white eggs occasionally sticks like a large almond out of batter. After the first or second egg is

laid, the dabchick drags the wet weed over them whenever she leaves the nest, and this soon changes their original chalky whiteness to a muddy brown. The eggs of coots and moorhens and most water-birds are exceptionally thick-shelled, which may possibly serve to protect them from being addled by temporary flooding of the nest. But the dabchick's nest is always soaking wet, and the thickness of the eggs is apparently not enough to safeguard them against chills when the sitting bird is away. Therefore she covers them with a blanket of weed, and the heat of this decaying vegetation

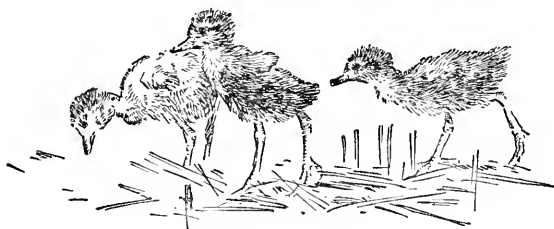


DABCHICKS

protects them, and probably helps to hatch them. It is clear that the object of covering the eggs is not primarily to hide them, for the first pure white egg is often not covered up; and later, when the eggs are covered, they are stained so deeply as to be very inconspicuous on their bed. The dabchick is most easily recognised by its quick and constant diving, in which it excels all the birds of the coot and waterhen tribe, and also the surface ducks like the teal and mallard. Its head and beak look impishly large for its body as it floats low in the water, with its back almost submerged; and its neck in the breeding-season is ruddy, where in winter it is

pale. Careful watching may show the young dabchicks riding on their parents' backs, or even taking a trip beneath the water, held beneath their wings.

Moorhens' nests abound in the reeds and rushes in June, and change their character as the season advances. Their nests of spring are substantial dishes of dry flags; in the warmer summer weather they often build for the later broods slighter nests largely composed of green flags and sedges of the year's growth. But these later nests built to hold eggs must not be confused with the slighter platforms, also formed

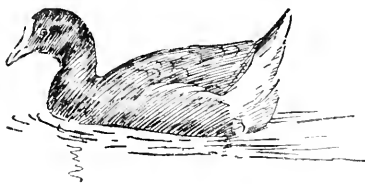


MOORHEN CHICKS

of green blades and stems, which the old and young birds build among the reeds simply to rest on. And all these structures of the moorhen are distinct from the platforms made by the water-rats, on which they sit upright like squirrels, and nibble the soft white stems of water-plants with incisors shivering in the rodents' familiar manner. So does a tame rabbit munch a cabbage-stalk, though he has not the skill to lift his food in his paws. Moorhens' and water-rats' platforms can be easily distinguished, for the rodent gnaws the stems into lengths, while the bird packs and twists them into a rough circle. Besides moorhens and dabchicks and coots on some slower and wider streams, a fourth species of water-bird seems to make its appearance in June and July.

It runs about as large as a dabchick, and is dingy greyish-brown above, with a paler throat and breast. These are the hobbledehoy moorhens, children of April and May, now mewing their youth by the waters of midsummer and the dog-days. In August we shall see the cleaner greys and olives of the adult plumage gradually replacing their indeterminate shades.

Dabchicks are street-arabs in all their moods and gestures; but moorhens are an extremely respectable race, with the air of being genuinely shocked at any violent or irregular conduct by the waterside. They seldom err, and



MOORHEN

if occasionally they wander into gardens and eat such strange meat as tomatoes and hens' eggs, this is surely a mistake of inexperience. Even the dull-looking elder

brothers are said to help their parents in bringing up the younger broods; and it may be suspected that the greener and slighter June nests are often of their building, since the architecture closely resembles that of the platforms which they make among the reeds. The sharp, shocked cries of the moorhens break out by the side of the river all day, and irregularly through the night. They are a fearful race, and their underworld is full of sharklike pike. Another harsh and persistent cry is often heard nowadays by southern streams where it was unfamiliar twenty years ago. This is the anxious note of the snipe with young, calling 'kek-kek-kek-kek' endlessly from the sky above, as some intruder wanders over the water-meadows, where the young are hidden. The snipe's more familiar drumming is sometimes

heard as late as June, but the note of anxiety gradually replaces it. Like redshank, and the ruff and bittern in one or two haunts, snipe are distinctly re-establishing themselves. This is largely due to increased protection; but in the case of snipe and redshank it is probably owing also to the spread of sewage farms, which form for marsh-birds a safe and congenial, if a rather unsavoury, asylum.

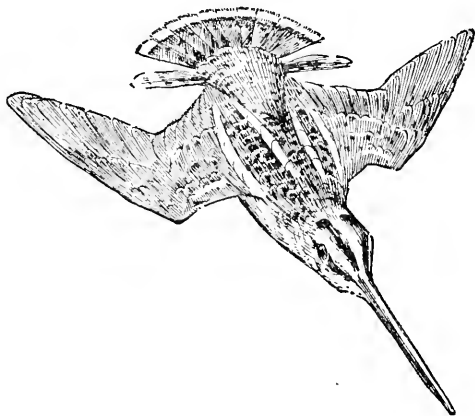
The touch of fen country associations suggested by the snipe calling above the level meadows is renewed by many



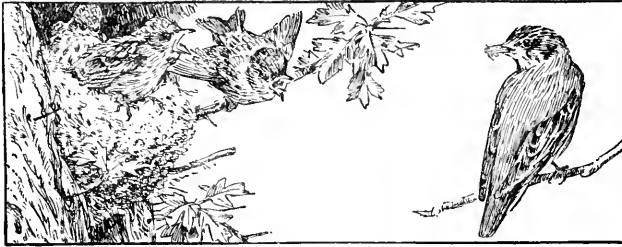
YOUNG SNIPE

peeps of landscape along the larger rivers. Sometimes the river diversifies a prosaic region of mildly undulating pastures, and sometimes woods drape the cliffs, steeply falling to the shore; but often between the stream and the nearest hills there is a mile or half a mile of green East Anglian scenery set in alien surroundings. A group of poplars dominates the level meadows, where a straight dike catches a stripe of brilliant colour from the sunset sky; or across the green expanse, with its true fenland note of composed dignity, the eye rests on the nodding gable of an old white wooden mill. Only a few hundred yards away the scene may change to

steep chalk or sandstone cliffs, or hanging woods of oak and beech ; but the strip of fenland scenery is complete in its own narrow limits, and adds to the borders of the summer stream a richness and variety of landscape like its wealth in flowers and birds.



SNIPE DRUMMING



SPOTTED FLYCATCHERS

LEARNING TO FLY

As song dies down in June the abundance of bird life increases; and in the last three weeks in the month the garden shrubberies and other favourite nesting-places are more densely peopled than at any other time of year. The wave of birth has risen to its full height, and the forces of destruction are only beginning to make away with the annual superfluity. In a garden where many birds build, there may easily be twenty-five times as many birds present at midsummer as at the beginning of the nesting season in March and early April. The resident birds have been reinforced by many visitors and migrants, and the parents are outnumbered by their young. The first young thrushes and blackbirds of the April broods are now as large and almost as active as their fathers and mothers; and the stock of the young birds of the year ranges from these lusty marauders of the fruit-beds to the last young wrens.

But owing to the inertness of most young birds even after they have left the nest, it takes some time to realise how thickly the bushes are peopled, and how unseen eyes are gazing from every tree and tussock of undergrowth. They are gazing, but not as a rule watching us; and this vagueness of attention is one reason why the bushes can

be so full of young birds without our noticing them. If the younger fledglings had yet learnt fear of man and domestic animals, they would fly from us, and all the copse would be in a scurry, and the thickness of its population be manifest. But when a young thrush or greenfinch or water-wagtail leaves the nest without disturbance, it still regards man without alarm; anxiety is left to its parents, which often do their utmost in vain to wake it to a sense of the perils latent in gardeners and exploring house-dogs. While they screech and flutter a few yards from the object of alarm, the young bird sits perfectly calm within a few feet of it. Silence is eventually restored by the departure of the intruder, if it is dog or man, or often in a more disastrous manner if it is the cat. Young birds seem to have no such instinctive fear of cats as monkeys are said to have of snakes; they will wait quite placidly for their doom. This is not the numbness of fascination; it is merely



the absence of perception. When our attention is attracted to a young robin by a sudden cry from some bough close to our head, it is often evident that the little bird has a very vague idea of what we are, and sometimes overlooks us altogether. The round staring eye does not focus a moving figure, or appear to distinguish it from the surrounding shrubbery; it sees men as trees. If the bird is half startled by the noise of a body pushing through the bushes, it will shift its position on its perch, or sometimes flutter to a new one, but still without discovering the intruder by sight. It is curious to watch the sudden dawn of consciousness in the eyes of a young bird when it does first appre-



FIELD WARBLER, M. H. S. C. I.
R. G. I. C.

hend us as a detached and coherent body, distinct from the surrounding scenery. Even then it usually displays a spectator's curiosity rather than any kind of alarm.

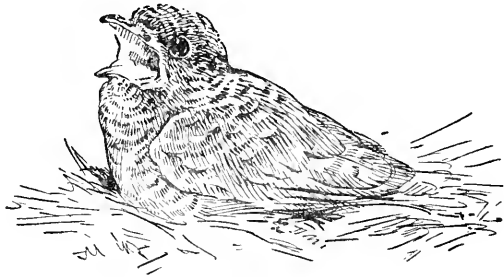
The sudden explosive calls which burst intermittently from the inner shades of the garden shrubberies at midsummer are not expressions of fear, but a blind demand for food—the primitive germ of all language. Young thrushes and blackbirds utter a metallic squawk; young robins a kindred but shriller cry. Before they leave the nest broods of young starlings utter a rhythmical strident chorus which rises as they hear the parent bird's approach, and dies down again as it departs with its low note of satisfied activity. Broods of white owls under the church roof raise a louder and harsher tumult of the same kind; sparrows in the ivy cheep more shrilly; and young martins in the eaves make a murmuring stir. Some of the noisiest of all woodland birds as they gain their feathers are



YOUNG GREAT SPOTTED WOODPECKERS

little woodpeckers. Young green woodpeckers shout from their hole, in some rotten beech or oak bough, so loud that they can be heard for a hundred and fifty yards. Their cry is more like that of the adult great spotted woodpecker, or the wryneck, than the free laughing note of their parent. One of the brood often climbs to the mouth of the hole, and

peers in the entry as it calls. Young great spotted woodpeckers make a loud but more confused din, more like the burden of the starling's brood; it is curious to see the boldly pied woodpecker cling beneath the hole, and feed the young heads clustering in the door. Young cuckoos pursue their puny foster-parents with a petulant cry too thin for their burly bodies; it seems as though they had stolen a young hedge-sparrow's or meadow-pipit's voice, as well as its heritage. The more we listen at midsummer, the more the whole world simmers with the voices of callow nestlings



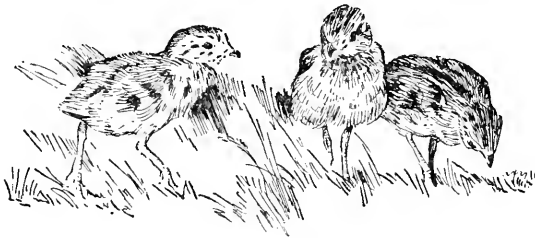
YOUNG CUCKOO

and fledglings; life rises in them to hymn the longest day, and only too quickly dies down as the light declines.

Nature quickly sets to work to select her chosen few from the multitude of her offspring. Among nearly all birds the worst enemy is stormy weather. In a wet, cold May and June so many eggs and young birds perish in the nest that their numbers are more than decimated before the time for the general emergence upon the world; and then the flood of life at midsummer is greatly reduced, and the garden shrubbery may miss that haunted week or fortnight when every bough has eyes. Cats, rats, and owls

destroy myriads of young birds every year ; but still more perish through wind and weather. Hunger combines with cold and wet to starve them, for the insect food which predominates in the diet of most nestlings and fledglings is scarce and hard to come by in stormy weather ; and even the most active parents can bring them least to eat just when they need most.

Young birds, such as partridges and moorhens, which leave the nest almost as soon as they are hatched, are far more alert than the vacuous little thrushes and robins, but



YOUNG PARTRIDGES

they have not much more fear of man. We have seen a little dabchick paddle straight across a river to a man standing on the bank, much as a very young lamb will run to a stranger, from the impression that anything alive and moving must be friendly. Besides terrestrial enemies young water-birds are exposed to the greed of pike. Each pair of moorhens probably produces an average of about twenty young in the season ; for they nest from March to August, and in that time bring off two or three broods, and lay from six to thirteen eggs. Yet the moorhen, though an abundant, is not an increasing species ; and the residue over the annual wastage of the adult birds is sacrificed annually to cold weather and predaceous enemies. There is no percep-

tible relation between the number of eggs laid by any species of bird and the obvious risks to which it is exposed. Pheasants may lay a dozen eggs or more, plovers lay four, and the nightjar only two. Yet all these eggs are laid on the open ground, and young nightjars are born more helpless than either young plovers or pheasants. Young birds nursed to maturity in holes, in banks, or trees would seem to be safeguarded against half the risks of infancy. Yet the kingfisher lays eight eggs, the blue tit ten or a dozen, or



YOUNG NIGHTJARS

even more, against the woodpigeon's pair; and while tits are stationary, and kingfishers perhaps declining over the country as a whole, woodpigeons have prodigiously multiplied within living memory.

The education of the midsummer fledglings goes on apace; they soon become worldly-wise and distrustful of humanity. Before the mock orange-blossom has ceased to drench the walks with its heady odour of the solstice, the eyes have vanished from the bushes. Already thinned, the nimbler troops of young fare forth with their parents to wider feeding-grounds; and so, like the faintest movement of the

ebb-tide in a brimmed sea-channel, the autumn migration is already distantly begun. Mixed troops of old and young birds appear in the new-cut hay-fields, pecking at the seeds of the fallen flowers, or feeding on the insects laid bare in the swaths and stubble. Plumage grows hard to distinguish, though not so hard as when the old birds are in full moult in July; and some of the young ones wear curious and freakish liveries. Young willow-wrens, for example, flit among the currant-bushes in suits almost as yellow as a tit's or wagtail's; and in spite of their insectivorous reputations they do not always spare the fruit. It seems more natural to see young blue and great tits in bright suits of yellow and green. With



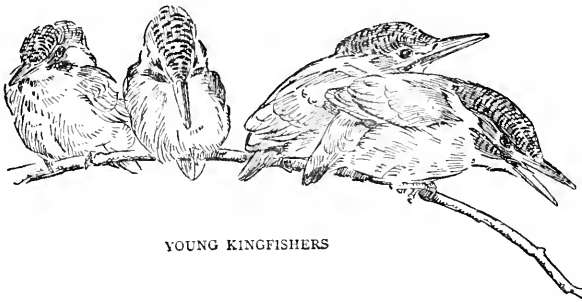
YOUNG GREAT TITS

them the chief point worth notice is that they adopt their parents' gay colours so early, whereas many other young birds do not gain the full adult plumage for months or even years. The first plumage of young robins is a dull brown, flecked with tawny spots, and few of the young birds which are brought up in open nests, whether in boughs or on the ground, present a close likeness to the adult plumage in their first summer. More uniformity is observable in the case of birds which nest in holes. Even the young wagtails, which are usually nested in open and unsheltered cavities, have a plain family likeness to their parents. The little pied wagtail newly

strayed from the nest is fascinating in its immature part-coloured suit ; though it has the blurred markings and rather impure colours which are characteristic of all young birds. The young blue and great tits are like smudged copies of the adult birds, though the likeness does not bear exact comparison ; and young woodpeckers and kingfishers also wear the bright colours of their clans. In a broad way we seem to see here the working of a principle of natural selection, which weeds out bright colours among the young hatched in more exposed situations, and allows them finer development when the little birds are nursed in sheltered holes. The same principle roughly holds good of the hen birds. Hen tom-tits and kingfishers and woodpeckers are nearly as bright as their mates, but there is a great difference between the sexes of blackbirds and pheasants.

Young kingfishers appear from the nesting-holes at very different dates during spring and summer, but most often towards the end of June. They sit solemnly in a row on a rail or outstretched bough by the waterside, and wait to be fed with the same vacant self-absorption as the young robins and thrushes in the shady garden shrubbery. All about them in fine June weather the boughs and sedges of the river teem with life. The air swarms with insects, and with birds busily devouring them. Life and death jostle each other with doubly concentrated fierceness at this time of year. If happiness depended on length of days, it would be a dark world for the majority of these young birds and dancing flies ; but mankind is too apt to view nature by his own standards, and to demand for all alike the fullness of his threescore years and ten. The little kingfisher which perishes in a rainstorm after a week of bright June weather by the waterside is no fit object of pity because its day was so brief. It saw the sun, and felt the stir of life, albeit per-

haps quite unconsciously, and its existence was not in vain. Most of the pity evoked by the natural incidence of death among animals is really a form of egoism. Men are reluctant to recognise that their personal views and tastes are not a universal law; and this intellectual pride is often reinforced by the objection to face death in nature because it hurts our own feelings. We sometimes read letters in the newspapers demanding the removal of tramps and beggars from the streets, not out of any consideration for the welfare of the vagabonds, but because it is painful to passers-by to



YOUNG KINGFISHERS

see them in their wetness and rags. This is simply selfishness in a thin veil of philanthropy, and it often finds its counterpart in the attitude of men towards nature. We cannot huddle the forces of death out of sight, as we can the broken men and women on the Thames Embankment; but we invest them with a sense of horror and injustice which is not truly theirs.

Such thoughts rise naturally in the heart of the June day, but do not cloud it for any one who has learnt to face them fairly. If the best use of life is in busy activity, as we mostly now hold, young birds, at any rate, do not long waste their time. Day by day the sandpipers follow their parents

more nimbly, skimming by the midsummer stream, where the water-grasses rise tall around the sand-spits; and the young finches, watching on the bough, grow fewer, and turn into busy hunters in the fields. Gradually the young birds learn to feed themselves; usually they seem to learn readily after the first few days, by imitating their parents, but sometimes the children are backward, and the old birds have to coax them to peck at some insect tit-bit, instead of feeding them from beak to beak. Birds never appear in a prettier light than when the fledgling is itself old and clothed enough to be pretty, and the parents still feed the spoilt child which follows them, and begs with trembling wings and body. The quarrelsome and vulgar cock-sparrow becomes a tender father, chewing up the cake-crumbs that we throw him at tea-time on the lawn, and so softening them before he gives them to his young. It is noticeable that only one young sparrow is as a rule tended by the old birds in this affectionate way. This helps to explain why the young one depends so long on its parents, since it monopolises the parental care which would have been distributed among a larger family, and becomes rather 'spoilt' and helpless. But it also illustrates the swiftness with which the forces of destruction act upon nestling and fledgling birds. Broods of young sparrows usually run from three to six; and yet, by the time that they should have been fit to fend for themselves in the outer world, we often see only a solitary survivor.

Birds' flight is by some regarded as an instinctive gift, while other naturalists have given fanciful accounts of the care with which young birds are taught to fly by their parents. The truth seems to lie between the two views, and the readiness of young birds to fly seems much greater in the case of the smaller species. Every field naturalist or



W. S. STARR

POULD LE TO ACHER ENBRENG LE YOUNG TO LTY BY A W STARR

bird-nesting boy must over and over again have startled a fledged brood of blackbirds, or linnets, or water-wagtails from the nest for the first time, and seen them flutter in all directions from the bush or stump. They are ready to fly, and fly they can and do, though not far or strongly; and this may be fairly called an instinctive power, though it needs practice before it is perfect. Practice chiefly comes in the case of these smaller birds by imitation of the parents; as the water-wagtails flit from stone to stone, and beach to beach, in finding food for the young, the young ones follow them. We seldom see small birds coaxing their young to fly, by fluttering before them in the air, or taking flight just ahead of them, and looking back to see if they are following. But from time to time we do see little devices of this kind among larger birds, which seem to know that they are heavier, and have the same instinctive fear of a fall as men and other flightless animals. Alpine choughs can be watched making many cackling attempts to lure out a brood of young from a precipice hanging above a snowfield; and though the adult choughs frequent the top of the Matterhorn for scraps from the climbers' lunches, the young ones show little readiness to take to the air. The efforts of the old birds to make them fly may fairly be described as teaching, though of a rather clumsy and helpless kind. The larger the bird the more it seems to need the stimulus of example, if not of deliberate parental encouragement, to learn to use its wings. After one has watched many birds the impression is gained that while the smaller kinds, such as thrushes and finches, would learn to fly if they were left entirely to themselves—if they were suddenly deported, say, to some desert island—the larger species would not, or at least would proceed by very slow stages, and would take more than one generation before they reproduced their

ancestors' skill. Vultures are among the finest of all fliers; but an interesting account of the difficulty with which a young adopted vulture learnt the art was contributed to a French journal by the late Captain Ferber, who was himself killed while flying. It is worth quoting at some length, as one of the best of the observations on this subject, conducted by men with



ALPINE CHOUGHS

a personal acquaintance with the problem: 'Some time ago my friend, Captain Detroyat, wrote to me: "My brother-in-law, M. Sala, and myself have just succeeded in catching a young vulture in the Pyrenees. He is less than six months old, and the spread of his wings is already 2.2 metres. But he is quite unable to fly, and he is not even come to the point of

progressing by flighty jumps. What shall we do? Shall we tie a string round his neck, and train him on Archdeacon's principle by towing from a motor-boat, or shall we push him into the air from the 'pylon' of the Aero Club?" I replied (says Captain Ferber) as follows: "The case is a most interesting one, and I should imagine that what is the matter with the bird is that he has not had an opportunity of being taught by his parents. You be his father and

photograph his attempts. But don't tie him to a motor-boat. It might be bad for his health. You might push him off the roof, and if he flies it will show that his instinct suffices. If he does not fly, it will be plain that he needs a rational course of instruction."

'Captain Detroyat did as recommended, and the result of his observations was as follows: "On the 15th of September the vulture, who answers to the high-sounding name of Coco, weighed 9 kilogrammes, and measured 2·2 metres from tip to tip of his wings, with a maximum width of '5 metre. This is approximately a square metre of surface. According to the shepherds who brought him in, and by plotting out a curve of the rate at which his weight increased, it was probable that the date of his birth fell in the previous April. He is unable to fly, and can hardly toddle.

"'Coco' is not altogether wild. Indeed, he is so little wild that it is impossible to frighten him enough to make him run. At the end of September he tried his wings several times, very much like a recruit going through his 'extension motions,' on the top of a pot full of flowers to the very great damage of the latter, but without daring to fly to the ground. One day he was sufficiently venturesome to attempt gliding from the top of a table or seat with his wings spread out like a parachute. After that his progress was made by practising flying jumps. This period was very long. In spite of the efforts of his adopted father, he could not be induced to start and practise gliding from the top of a 2-metre wall which surrounded a field. He was so unenterprising that he was finally pushed off a roof, but to every one's great surprise it was then found that 'Coco' really *could not* fly. He fell like a lump after having spread his wings in a vague and undetermined sort of way. I was

unable to believe that this was really the case, so I tried again. The second time he fell head down on the gravel just about five metres from the spot vertically under the point at which he started. Unfortunate bird! I heartily begged his pardon, for he was really very much afraid, and in consequence he had a heart attack, and was very ill the whole evening afterwards.

“ By the 4th of October he was getting on nicely, and was practising from the top of a hen-house, where he tried his wings for a long time, and ultimately glided down from the eminence to a distance of 15 metres, where he landed like a big chicken. Next he was taken out into the middle of a big field without trees and incited to run like Santos Dumont at Bagatelle, during which time he got gradually more courageous.

“ He commenced by jumping on his feet and beating his wings at the same time. These jumps became more frequent, and increased in length and speed without greatly increasing his height according as the speed he got up permitted, till finally he got up sufficient speed in his last jump to leave the ground definitely, and to continue gliding along at $1\frac{1}{2}$ metres above the surface. In this way he covered 30 metres at the run, and then 100 to 150 metres flying, exactly like Santos Dumont. He had come to the point at which he was proceeding from flight to flight.

“ Another series of experiments which he carried out consisted of jumping into the air 3 or 4 metres. To induce him to do this, we placed him in a small yard which was walled in on three sides by buildings, the fourth being closed up by a wall of $2\frac{1}{2}$ metres in height. He disliked remaining in this little courtyard, and, after two or three jumps and beating with his wings, he succeeded in rising high enough to get on the top of the wall, from which he glided down into the field.

How did he get out of this narrow space when he found it so difficult to rise from the ground in an open field? Possibly some current of air between the buildings assisted him, or perhaps necessity made his efforts more violent. The point has not been decided.

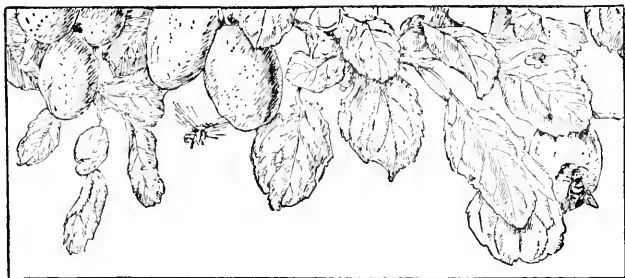
“‘Finally, on the 13th of October he had become a ‘master.’

He flew 200 or 300 metres through the air and returned to his point of departure, *i.e.* his pen, without allowing himself to be tempted away by his wild brothers in the mountains. At this date he weighed 10 kilogs., while the stretch of his wings was 2·55 metres. Gradually his absences from home increased in length, but he always came back without becoming in any way wilder.

“‘Unfortunately, he had not the dread of mankind possessed by his wild brothers of the mountains, and one of those brutes with a gun, who must kill everything they can get near, succeeded in approaching him as he was sitting on a rock, thinking no harm of any one, and shot him dead. The ‘sportsman’ was rather astonished on approaching the dead vulture to find a rose-coloured ribbon round his neck.”’

The comparative unreadiness of the large birds to take to the air as compared with small ones is very interesting when taken in connection with the fact that the biggest birds do not fly at all. The archæopteryx, or earliest fossil bird that can fairly be called a bird and not a reptile, is about the size of a crow; and we must take it that from this stem birds increased in size, as well as diminished, until they came to a point at which their young could not be got to fly at all. We usually speak of the ostrich or the great auk as having ‘lost’ the power of flight, but it would probably be truer to say that they failed to acquire it. The explanation of the flightlessness of the largest birds is not easy. It does not seem to be due to the mechanical difficulty of supporting a given

weight by a physically practicable wing surface; expert opinion holds that the problem ought theoretically to be easier with a larger bird than with a small one, since in the smaller bird's wing there is so much more waste margin to the area. One plausible explanation is that since the power of the living engine must be supplied by food, it would be impossible for an ostrich to eat enough to make good the waste of the extremely powerful muscles which depress the wings of birds in flight. The failure is thus one of the digestive processes, in spite of the fact that the ostrich's digestion is not upset by bits of metal. But the reluctance of the young vulture, and even of the young choughs, to trust themselves to the air suggests that the real reason of the flightlessness of the largest birds may be found in the familiar perils of the law of gravity. The danger of falling is greater for big birds than small ones while the newly-hatched duckling can drop safely from a tree, such a fall kills the young rook. Possibly there came a point in the development of the larger species when they feared to practise flight at all, or when all those who did try it in their unskilful youth perished, and the remainder became hereditary pedestrians or divers. It may be some consolation for the loss of human life in learning to fly that it is not always a safe or simple process even for birds. Birds, indeed, are too intelligent and adaptive a race to possess the sort of security that comes of living by instinct.



JULY

Doves of the fir-wood walling high our red roof
Through the long noon coo, crooning through the coo.
Loose droop the leaves, and down the sleepy roadway
Sometimes pipes a chaffinch ; loose droops the blue.
Cows flap a slow tail knee-deep in the river,
Breathless, given up to sun and gnat and fly.
Nowhere is she seen ; and if I see her nowhere,
Lightning may come, straight rains and tiger sky.

GEORGE MEREDITH, *Love in the Valley*

In early summer moonlight I have strayed
Down pass and wildway of the wooded hill,
With wonder as again the sedge-bird made
His old, old ballad new beside the mill.
And I have stolen closer to the song
That, lispèd low, would swell and change to shrill,
Thick, chattered cheeps that seemed not to belong
Of right to the frail elfin throat that threw
Them on the stream, their waker. There among
The willows I have watched as over flew
A noctule making zigzag round the lone,
Dark elm whose shadow clipt grotesque the new
Green lawn below. On softest breezes blown
From some far brake, the cruising fern-owl's cry
Would stay my steps ; a beetle's nearing drone
Would steal upon my sense and pass and die.

RALPH HODGSON, *The Sedge-Warbler*.



YELLOWHAMMER

DYING MUSIC

WHEN summer is at the full song scarcely ceases for any hour in the twenty-four. 'The earliest pipe of half-awakened bird' is very early in the morning. Which bird is the very first to hail the morn is under some dispute, if the barn-door cock be ruled out of the competition. But to some of us there seems little doubt about the question. The most famous of the singers is, at any rate in normal places and occasions, as early as any. While darkness lives below, and dawn is no more than a glint of hidden gold in front of fading stars, the larks are high above the tree-tops, and at no other moment does the sound fall so softly in so gentle a cascade. Heard from quite close the separate notes of the lark may be called harsh and rough. The morning notes descending from unseen singers on the edge of dawn are liquid with the music of another world, where no night is. Meredith must have heard the lark at these hours, though there are some lines in his 'Lark ascending' which suggest a well-risen sun.

For singing till his heaven fills,
'Tis love of earth that he instils,
And ever winging up and up,
Our valley is his golden cup,

And he the wine that overflows
To lift us with him as he goes :

He sings the sap, the quickened veins ;
The wedding song of sun and rains
He is, the dance of children, thanks
Of sowers, shout of primrose banks
And eye of violets while they breathe :
All these the circling song will wreath.

A very early bird which has much more music than he is often given credit for is the starling. Soft whistles and whisperings and little bouts of song, imitative of thrush and lark, may be heard in the hollow elms well before dawn, and in many English homes the tune is the most characteristic of waking songs. For the starling enjoys the neighbourhood of houses only less than the sparrow, which wakes us at any hour when light is once indicated.

When dawn is obvious the whole choir starts ; but notice is given, the gong is rung, by blackbirds and that most humble persistent little singer the hedge-sparrow. But these two early birds differ as widely as any two so far as seasonal singing goes. You may hear the hedge-sparrow as early as the first week of February. The blackbird is as late to begin as any native bird, but when he does begin he is supreme and dominant. There are houses even in the nearer London suburbs where sleep to the deepest sleepers is quite impossible after a certain hour in the morning. The Jubilate of many blackbirds is much too jubilant for that. Of course all birds are morning singers. They prefer the dewy hours just after dawn for their activities. They build then and feed then and sing then with the greater energy. But singing is general till sunset. After sunset a few of those we may call the day singers still refuse to take the hint of twilight. The thrush is the 'longest' of our singers

in most ways. It sings in November and in July. It begins in good time in the morning and takes few rests during the day. Often you may hear its still energetic song an hour, sometimes two hours, after most of the rest are silent. It sees the stars up as well as the sun down. It is in the choir at vespers. Its rival is the robin. But the robin's song at these late hours has become little more than a chirrup on two notes, a song sung only to show that the singer is awake. Between the robin's last call and the thrush's good-night halloo there is no interval of silence. The night singers are already at work, and their company is not limited to the nightingale. The swallow often sings in the dark, and the sedge-warbler and the cuckoo are as regular at night as the owl, if song is allowed to describe the wild tu-whit of the barn-door or the monotonous cry of the little owl.

When summer opens some birds in song may be heard all round the circle of day and night. But the period is soon over. It ends almost abruptly. The night songs first cease, then the midday songs, and finally a robin's chirp, or a short impetuous burst from the large-hearted wren, are the only birds singing in the garden; and you may travel a hundred miles along the road without hearing any other note than the depressed monotonous refrain, 'Little-bit-o'-bread-and-no-cheese' from the yellowhammer, or a very wheezy and short bar from the corn-bunting. We notice this ending of the song-time less because another music takes its place. As the birds drop into silence, the hum, the murmur, the buzz of insect wings, and the grating of the grasshoppers' legs take their place. 'The poetry of earth is never dead,' wrote Keats, and the sound that set him to writing that admirable sonnet was the scrape of the grasshopper and cricket. Almost like the insect note is the croon and murmur that may be heard from a few of the birds. The

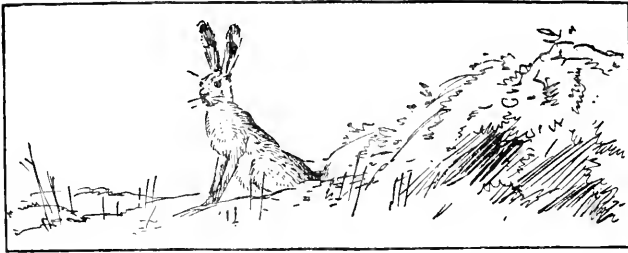
turtle-doves in the elms seem to utter a noise that suggests some organ very unlike a throat, if it is not quite an insect noise. But Tennyson quite appropriately connected it with the

'Murmur of innumerable bees.'

The insect hum is no substitute for the music that is stilled, but it keeps at bay the silence which is one of the most unsummer-like of attributes. Music, in the strict sense of the word, is not to be found even in birds' songs, much less can it be extracted from the hum of insects. Nevertheless, we get great pleasure from the unmusical murmur, which especially belongs to summer evenings. A summer night would hardly be a summer night without the sound of some great bold cockchafer dashing out on his thunderous course, regardless of obstacles. We may call him a night-singer, like the nightingale. He takes up the chorus dropped by the bees. Among the bees the latest is the bumble. Long after the hive-bees are at home, the bumble is abroad foraging, and making, it seems, a double noise now that she is alone. With great punctuality she waits as a rule for about an hour after sunset, rolling about till then in her clumsy way over the thick rose-petals or any flower she fancies. She will sometimes tumble into a poppy-head, and roll there with a high-pitched angry buzz, till she is covered with the slaty pollen, against her will. Her rather slow and vagrant course and sleepy hum at this hour is in strange contrast to her fine intention when the hour for departure has struck, when the condensing dew or darkening light announce the end of day. Then she shoots off with a deep and purposeful hum, as determined on a rapid and straight course as the cockchafer or the migrant bird.

All these insect sounds have their distinctions, very

apparent when you listen for them. The hive-bees themselves have many notes. If you put your ear to the hive you may catch the note of domestic work, low and even and murmurous. The angry note is high and sharp and quick. The morning murmur of the workers busy about the flowers is like neither of these. There are day sounds and night sounds. But in late summer the bulk of the music is of one quality. The season's sounds are not vocal but mechanical, if that may be considered a true contrast; and to some ears seem almost as if they came from another kingdom, from things that grow with roots in the soil. There are, of course, birds which make mechanical music almost indistinguishably from vocal. The snipe's tail feathers are an Æolian harp responsive to the tempest of the bird's descent. No one has yet fully decided how the lesser spotted woodpecker makes his trill, but even these sounds are different in quality from the grating of the grasshopper's leg, which serves him for fiddle-bow, or the vibrant shriek of the gnat. When August comes a sort of mechanical murmur has quite taken the place of the liquid jollity of the first spring music. You might now almost mistake the drawling greenfinch and the monotonous bunting for tree and hedge insects, if not for the grating of a bough.



THE ENDED TRUCE

FOR six months the game-birds have had freedom to build and breed unmolested. The sound of the gun has been rare. It is true that even in May rifles, if not guns, are busy here and there. It is still a common form of sport to shoot the young rooks soon after they make their first tentative crawl along the elm boughs; and rabbits, which breed at most times of the year, are shot in most seasons. But for the most part the spring and summer make a six months of truce, regarded more or less faithfully towards most birds and many mammals. In summer the truce is deeper than in spring in some regards. In the rough hill countries a May fox will be killed now and again; and the harriers and beagles are so often afoot in late spring that a protest against the hunting of heavy hares may be raised with pardonable iteration. In mid June foxes and hares, and some of the vermin, are tolerably safe from man. But in August the truce is formally broken. Happily many birds are now protected all the year. We are their permanent friends; and in England the list of these perpetual allies is steadily increased by the County Councils who concern themselves with the subject. Perhaps it would be better if in almost all respects the truce were longer. The duck, which are the first victims in England, and may be shot on August 1,

are now protected in the United States during nine months of the year; and each day has its periods of truce. You may not shoot the birds before dawn or after sunset. By this means the sport we know as 'fighting' is abjured. Since sport is and will be, and perhaps ought to be, it is difficult with logic to say much against 'fighting,' which is a poor man's sport. It takes its votaries to wild places, and it can only be practised with success by those who study the habits of birds as well as the swing of the gun. It needs a good eye and a shrewd sense of nature. But the 'fighting' of duck and birds of their sort is a daily migration to and from feeding-grounds and sleeping-grounds; and on this head is open to the protests made by those fine naturalists and sportsmen, Mr. Millais and Mr. Selous, against the shooting of caribou in Newfoundland. The sportsmen, so-called, sat on the line of migration and shot unhunted animals in cold blood. Such killing is not of a sportsman's sort. The evil of 'fighting' is that it interferes with the instinct of the bird and its scheme of life; and because it does this, it drives the birds from their native haunts, if frequently indulged. Yet there are strange wild places even in England where some sort of 'fighting' is a real sport. Even as early as August you may feel that the real hunting time has come if you stand some evening with a gun behind any slight obstruction on one of the South Welsh marshy moors. The curlew with their wild call come sailing in from the sea, and as they pass you can see even after sunset their long bent beaks clear against the violet sky. The heron calls. The green sandpiper rises with a snipelike call. A shot from the far end of the water sets a group of coot on the wing. They fly over you with the straight directness and impetus of a bullet before they swing on the first arc of a circle that will take them higher and higher, till they are

above the reach of shot. You had not thought the slow and sleepy coot—a sort of moorhen, after all—would make such pace and reach such height. Here the peaceful summer is clean forgot, and a wilder season begun, though elsewhere August is heavy with heat and summer sleep.

But this is not the scene of which most naturalists and sportsmen think when August comes. By what strange calculation the 12th became the day of the grouse no man can tell; but it is a better day for the shooting of grouse

than the 1st of September for shooting partridges. It is very seldom that the grouse are not strong on the wing, and few birds seem to develop wing-power quite so quickly. Pheasants are hatched a month before partridges, and



YOUNG GROUSE

are not strong fliers even by October 1st when they may be shot, though they seldom are. They are the slowest to develop. Young partridges top the grasses in low flight at as young an age as the young moorhens slip over the surface of the water as if they were balls of fluff blown by the wind. But the grouse are even quicker than the partridges to attain real power of wing; and, of course, the young are very early fliers. One of those sights, not in themselves perhaps remarkable, which make a permanent impact on the mind, and remain ineffaceable, was a grouse's nest almost alongside an eider-duck's on a little isle in a West Highland loch. The young from the one crossed the water, and the young of the

other took the water as if they were akin to air and water from their birth. The shooting of grouse is one of the most attractive of all sports beyond doubt. It is amazing at a first experience to watch the coveys, flying as if they were in a picture with set wings, appear over the heather ridge, grow to a vast size in your eyes as if on a sudden, and then vanish behind you like a streak as if they had been dissipated into the moorland, and returned to the heather from which they were created. As so seen you are conscious chiefly of a shape endowed with singular momentum tearing past you like a shell in action. You note no colour. It is very different to flush a cock grouse as you walk across a moor with or without dogs. Every colour on his handsome body leaps to the eye, and you think what a splendid bird he is, too splendid to kill, belonging like the heather indissolubly to the hill. He does, in fact, so belong in a very real sense. The red grouse is the one exclusively British bird. The one food on which he flourishes is the purple heather, and if the succulent shoots are not there at the due season he dies, as the young wild-duck die, when hatched before the insects have multiplied. He seems, too, to keep something of both the rich and dusky colours of the heath: he is subdued to that he works in. The willow grouse of other countries and the ptarmigan, that love the heights, change their heather colours for the snow colours. But the grouse is always constant to the tawny shades of the moor.

No signal of the seasons is obeyed with such headlong promptitude as the coming of August. Under the dark and grimy canopy of glass on a North London terminus you may infer the season with more certainty than most expert naturalists in the country. The war with the grouse is the occasion, but no one who has ever escaped from the stale



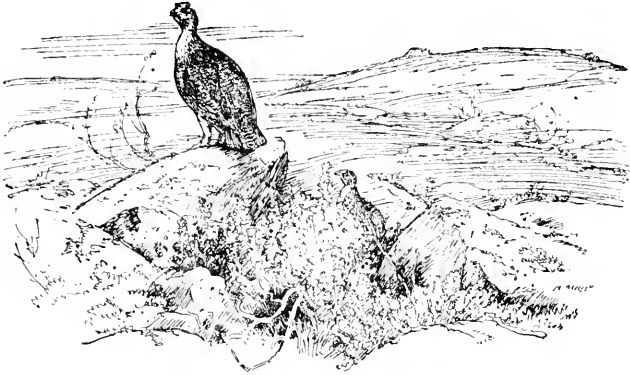
TELL ME ABOUT TO TELL HIS NESTLINGS

BY A. W. S. '03

heat of a big town one August day, and awaked the next morning within call of the grouse, will believe that sport is the master cause of this exodus.

‘What is it steels the sportsman’s heart?
It is the conscious pride of art.’

No one can with honesty deny the power of sport over English people; and grouse-driving probably comes first in attractiveness and reputation. But August is a period when



an elemental force drives us away from towns to the sea or the moor, which has the scope and range of the sea. And the pleasure of a first day in the haunts of the grouse, whether the birds be few or many, is like no other change. Everything is changed and the scale of things is brightened. We may see a golden eagle ranging the slope, and happily the eagle is becoming once again a frequent bird. You may see the red deer, the wildest and shyest of all animals in the world. The tiger is tame compared with him. The smell of the bog-myrtle, where the dry moor degenerates in a hag,

sets going by its single influence a new train of thought. The moors are the right place for the human tribe in August; but they are perhaps even better worth a visit in July, and without a gun. The few birds that live in coveys are peculiarly worth observation; and you may see such a struggle for life and survival of the fittest as does not appear in the south. The grouse no doubt flourishes very much more than the partridge, which only preservation keeps alive. But the grouse has to exert more intelligence. She may, as we know, be forced to the device of carrying water to her young in the sponge of her breast feathers. The broods are hunted by the eagles as no partridge is pursued by sparrow-hawk or owl. An eagle, and indeed any mountain hawk, hunts with much method and persistence. You may see them quartering a hillside in a pattern of flight that would make a parallel diagram. They have the 'eagle eye,' yet even so they will pass within a few yards of a grey hen on her nest and not distinguish her from the inorganic stuff in which she disappears. But the eagle is a bitter enemy. His natural prey is the grouse, and a good many fall victims, yet the toll is very small; and if the year is free from disease, and that little parasite of the heather not overmuch encouraged by the weather, the multiplication of the coveys is amazing. Doubtless vermin are rarer in Scotland, as in England, than they were. In the country-houses of the north you will often find stuffed specimens of the wild cat, a real tiger of a cat, distinguished from its tame descendants by the even rings of the tabby tail. But it is some while since a real wild cat was seen in the Highlands, save for one or two in their last retreat. The marten is as rare as the polecat, which has disappeared in the south with astounding completeness during the present generation. The stoat is still busy, and when he becomes ermine, as

he does not in the south, he accounts for the death of not a few mountain hares, disguised for defence as he is disguised for attack. But the eagle is more destructive, and perhaps harder to avoid, even than the stoat; and native himself, he chooses in preference the native bird for prey.

To a naturalist, at any rate, there is no change of air so stimulating as a change of flora and fauna; and did the grouse flourish in Surrey, as Lord Onslow and others hoped



they would, the 12th would not be the 12th in Surrey as it is in Skye. One desires to be 'up to the hips in heather,' as Christopher North says; and to get the taste of the season there is no better recipe than his.

'But let us off to the moor! . . . Towards what airt shall we turn our faces? Over yonder cliffs shall we ascend, and descend into Glen Creran, where the stony regions that the ptarmigan love melt away into miles of the grousey heather, which, ere we near the salmon-haunted Loch so beautiful, loses itself in woods that mellow all the heights of Glen Ure and Fasnacloigh with sylvan shades, wherein the

cushat coos, and the roe glides through the secret covert? Or shall we away up by Kinloch-Etive, and Melnatorran, and Mealgayre, into the solitude of streams, that from all their lofty sources down to the far-distant Loch have never yet brooked, nor will they ever brook, the bondage of bridges, save of some huge stone flung across some chasm, or trunk of a tree—none but trunks of trees there, and all dead for centuries—that had sunk down where it grew, and spanned the flood that eddies round it with a louder music? Wild region! yet not barren; for there are cattle on a thousand hills that, wild as the very red-deer, toss their

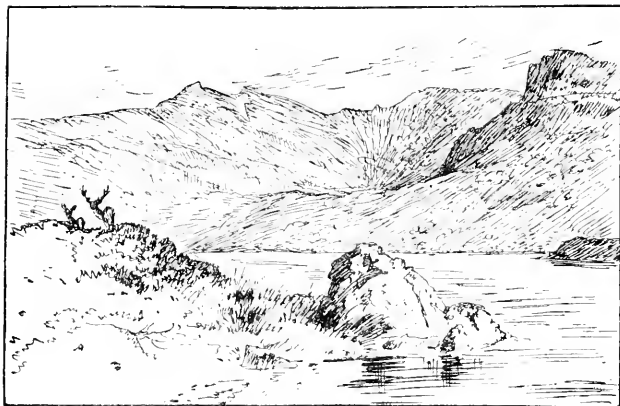


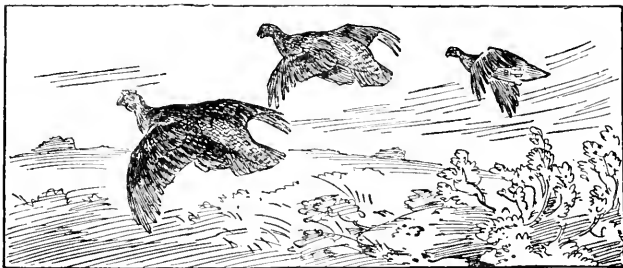
‘THE STONY REGIONS THAT THE PTARMIGAN LOVE’

heads as they snuff the feet of rarest stranger, and form round him in a half-alarmed and half-threatening crescent. . . .

‘. . . All these are splendid schemes—but what say you, Hamish, to one less ambitious, and better adapted to Old Kit? Let us beat all the best bits down by Armaddy—the Forge, Glenco, and Inveraw. We may do that well in some six or seven hours—and then let us try that famous salmon-cast nearest the mansion—(you have the rods?)—and if time permit, an hour’s trolling in Loch Awe, below the pass of the Brander, for one of these giants that have immortalised the name of a Maule, a Goldie, and a Wilson.’ How

much naturalist and nature-lover, how much mere sportsman, went to inspire Christopher North to his ecstasy, who shall say? And such mixed feelings drive most people on the northern migration.





AUGUST

'Yonder in the heather there's a bed for sleeping,
Drink for one athirst, ripe blackberries to eat ;
Yonder in the sun the merry hares go leaping,
And the pool is clear for travel-wearied feet.

Sorely throb my feet, a-tramping London highways,
(Ah ! the springy moss upon a northern moor !)
Through the endless streets, the gloomy squares and byways,
Homeless in the City, poor among the poor !

Oh, my heart is fain to hear the soft wind blowing,
Soughing through the fir-tops up on northern fells !
Oh, my eye's an ache to see the brown burns flowing
Through the peaty soil and tinkling heatherbells.'

ADA SMITH, *In City Streets.*

'The red grouse is scattering
Dews from his golden wing
Gemm'd with the radiance that heralds the day ;
Peace in our Highland vales,
Health on our mountain gales—
Who would not hie to the Moorlands away !

Far from the haunts of man
Mark the gray Ptarmigan,
Seek the lone Moorcock, the pride of our dells,
Birds of the wilderness !
Here is their resting-place,

'Mid the brown heath where the mountain-roe dwells,

J. W. C., *British Sport Past and Present.*



A CHANGE OF DIET

ONE of the most novel of local migrations among birds is the evacuation of the towns by sparrows just about the same date that society likes to leave. Our towns are a protection, organised on a vast scale, for certain species of birds. The suburbs encourage starlings and carrion crows, among others, but both town and suburb breed sparrows in almost appalling quantity. The seven million of inhabitants in greater London are a handful to the sparrows of greater London; and the comparative number of sparrows is even greater in the Midland towns. But the town birds are not quite faithful to the towns. They have learnt to nest in the towns in any sort of site. They have even taken to living at this season in flats, like 'intensive chickens.' More than once one of those lumps of untidy hay and straw and string and feathers in which the sparrows' eggs are laid has been found to contain two or more nests. Sometimes these strange erections have fallen by their over-weight of untidiness added to the natural burden. Occasionally mere vexation at the spectacle of the bad art will cause such a nest to be overthrown. The cock sparrow is either more irritable or more tidy than the hen. On one occasion he showed such irritation at the protuberance of a long straw from his nest, built on the side of a

house in Kensington, that he tugged and tugged until, amid the laughter of a group of observers, he pulled the whole structure in ruin over his head, and the two fell in avalanche together. The towns provide sufficient building sites, and on the whole sufficient food. But when the young are well fledged a certain desire of fresh fields comes over a considerable proportion of sparrows, especially those in the Midland towns. Whether food grows scarce or whether they desire fresher food is not clear, but when August comes and the corn is whitening to harvest the birds flock to the country. They go a-harvesting for a summer holiday.

This marauding expedition is on a great scale. The birds are as thick as midges about the edges of the fields, eating grain with a greed hardly less than that of the trout at Mayfly time. It is one of many severe charges brought by the country against the town that the streets breed these birds to the destruction of the staple industry of the country. The habit appears to be new, at any rate in its present dimensions. It is a result of the progressive dominance, in mind and fact, of town over country.

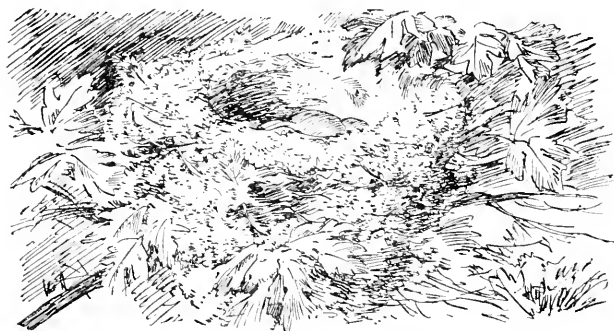
But apart from this particular migration of sparrows it is remarkable, though not very much remarked, how the food of birds alters with the progress of the seasons. This is largely, of course, a matter of necessity. You cannot have woolly-bear caterpillars at Christmas or ripe corn in June. But instinct and physical needs work in co-operation with the seasons, and our own birds are those which have the instinct and the bodily adaptability to obey the almanac in their dietary. Even the sparrows in spring enjoy animal food. All young things seem to need insect food, and to grow faster the more of it they can get. But as the young reach their full growth in summer the desire dwindles in those we call the grain-eating birds. Sparrows do not eat insects for

more than about a month. Partridges begin to prefer grain about the same time as sparrows, but they excel the sparrow in adaptability. When the grain is gone they take to an exclusive diet of green stuff, so that one could tell tolerably closely from the contents of a crop what was the date of the year.

The country as such is not popular with sparrows. In thinly populated grass country you may search some while before finding a sparrow. They are, for example, singularly scarce in the Isle of Wight at a short distance from the towns. In any country place the numbers will be in close proportion with the nearness to houses and stackyards. If you walk along a hedgerow between two fields you will find bullfinches, blackbirds, thrushes, and in summer the warblers, a hundred times more numerous than sparrows. Indeed, you will probably have trouble to find a single sparrow or a sparrow's nest, old or young. In spite of its lustiness the bird seems absolutely to depend on man. Its food is on the road, or by the house, or in the stackyard. Fortified by the grain and bread that it finds there in quantity, it is master of almost all birds that are.

Within the stackyards it has one almost invariable companion, the greenfinch, a bird as lusty, and if anything more voracious. The bird is probably one of the three or four most numerous in England. All those who have looked for birds' nests in east and middle England will have felt from time to time a growing irritation at the quantity of greenfinch nests. The rather untidy basins of moss and bents, with the rather dull eggs, are as obvious and many as blackbirds' and thrushes' nests in an earlier month. The bird is bolder in some ways than the sparrow. The writer has more than once fed the old bird while sitting on the nest. They will not dream of leaving the nest though a group of people

stand talking and laughing within a foot or two, and the nest is little hidden. But if you would see this finch in real multitude you should watch seed-crops in East Anglia when the ripening hour is near. One has seen them on mangold seed as thick as starlings in winter, and those who shoot to protect their seed find that the slaughter of several hundred, even on a half-acre plot, makes no apparent difference to the army. They seem to have a peculiar affection for mangold



A GREENFINCH'S NEST

seed, as captive bullfinches for hemp or sparrows for wheat. There are growers of seed who would like to see the greenfinch exterminated if that were possible, as there are apple-growers who have the worst opinion of the bullfinch. But let these destroyers once see the greenfinches at work earlier in the year on an oak-tree devoured by green caterpillars, and they must grant that the one form of greed cancels the other. The seed, which is the later form of food, is the reward for the earlier work of scavenging.

We are blessed in England with an immense multitude of birds which probably increased by thirty or forty per cent.

between 1895 and 1914, thanks partly to protection, partly to a wider interest in birds, partly to a series of mild winters. But as numbers have increased feeding habits have a little changed. More birds certainly now turn their attention to fruit as summer merges into autumn. Sparrows and blackbirds will peck small holes in apples, probably for the sake of the moisture. The blackbird always has a tendency to fruit-eating. He is as devoted to strawberries and raspberries and currants as the greenfinch to vegetable seed or the goldfinch to thistle or corn-flower seed. But this apple-eating habit is perhaps on the increase.

As the rooks grow over numerous they become more grain-eating than is their wont. Early in the summer a common sight is the rooks' hunt of the daddy-longlegs emerging in quantity from the grasses. They will hunt grubs of all sorts in the cornfields, and eat a certain amount of seed-corn. But when they are in overwhelming numbers they will now and again, but more often on the Continent than in England, deliberately fall to work on the corn, and even develop the taste of the carrion crow for young birds. The ill effect of excessive numbers is seen markedly in wood-pigeons, but both species are essentially useful even in considerable numbers; the rook for his destruction of larvæ and the pigeon for his happy taste in buttercup bulbs. The sparrow's taste is permanently perverted in some places by excessive numbers. In one particular village the sparrows have acquired a taste for the flowers of the wistaria. In most towns they fall upon the crocus petals in spring, and intermittently snip off pieces of any sort of flower. But that perhaps is rather an act of wanton damage, the sport of a restless creature rather than a form of mawkish appetite.

It is sometimes not easy to find the reason for some

eccentricities of diet. Many visitors to one orchard were shown as a marvel of growth a line of plum-trees which had come out into fresh green leaf in August instead of in May. Many conjectures were offered. The real one, only known to the owner of the trees, was that every single bud, leaf, or flower, had been quite cleared off by finches, not as one might have expected by tits or bullfinches or haw-



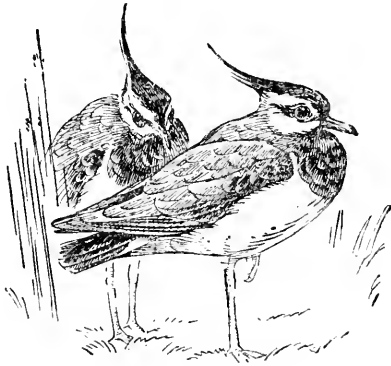
'THEY RIP UP THE PODS'

finches, all of which have at times a natural taste in buds, but chaffinches. It was feared that the trees would die, so complete was the clearance. In May they were as winter trees, robbed of all leafage by the sudden unexpected onset of these finches. Were the birds overcome with desire for green food, or were the buds infected with some insect plague? It is a question unanswered in this case, and in most of the instances where finches still attack fruit-buds.

Doubtless a garden interferes with the feeding instinct of birds. These exotic and artificial tit-bits are a disturbance of wild ways. In one part of the Isle of Wight the egg-sucking, bird-killing jays descend every year upon the rows of peas. They rip up the pods, and are so fond of what they find inside that they can scarcely be frightened off the rows even by sight of a gun.

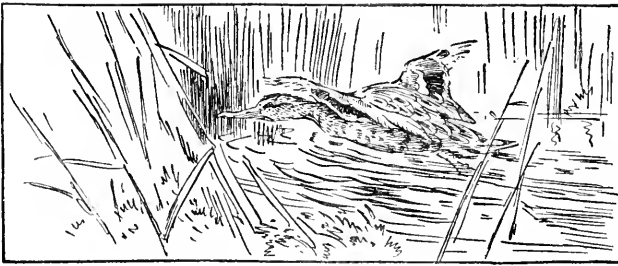
A more steady unbroken instinct possesses the summer visitors, indeed all the migrants. The warbler and swallows, the cuckoo and flycatchers, leave us first and foremost

because the insect food grows scarce. With less constancy the fieldfares and redwings and some other winter visitors come for particular berries. Our own birds must live by their wits, taking the foods in their seasons, and, when competition is very keen or temptation strong, trying new sources. But whatever they try, all of them perhaps do more good than harm, if all do not confer the inestimable benefits of the green plover, which we may take to be the prime benefactor.





HERON



'THE MALLARD . . . MUST HIDE'

SUMMER LIVERIES

THE glory of colour which fills our world in spring grows gradually blurred as summer advances. Doubtless colour is born at the same time that colour dies. The roses are red when the leaves are brown, and on the common the gold of the gorse is succeeded by the purple of the heather. Nevertheless, things do take a sober colouring under the passage of the suns. But not only leaves so decline. It is easy to see that feathers lose colour no less than leaves. Some birds change out of all recognition, so drab is the later livery and so bright the early. They become 'eclipsed,' to use the word invented years ago by that fresh and vigorous naturalist, the polemical Waterton.

Even a Cockney may notice this change that summer brings to the birds within his ken. When the chestnut leaves in the parks grow sullied and brown on the lower boughs, and the trees look as if they were wearing skirts of two colours and two lengths, the town birds more or less follow suit, and take their cue from the trees. Indeed, the towns house three species which undergo a peculiarly well-marked change—a spring change, and consequently also a summer change. The sparrow, the pigeon, and the starling all suffer

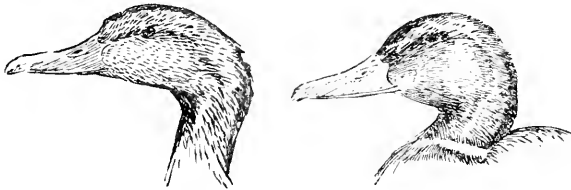
like the chestnuts, though in a less obvious degree. It is common knowledge, thanks to Tennyson, even to the urban mind, that 'in the spring a livelier iris changes on the burnished dove,' the dove in this case being the wood-pigeon of the variety that struts and coos in the parks. But none of Tennyson's illustrations—not the crested lapping, nor the red robin, nor the prismatic pigeon—change more notably than the cock-sparrow. By the time he begins carrying straws in the spring and fussing about the untidy lumps in the trees that he uses for nest, he has changed from a dull brown bird, scarcely more conspicuous than his sober mate, into a gorgeously liveried creature. The washy dabs of dark colour on his throat have grown and brightened into a deep black, most finely and conspicuously denoting his sex. He has not moulted in the proper sense, though there are birds which moult twice and even three times in the year, but has rubbed off the protective nap which hid his native colour. By such process does the chaffinch and others, too, make themselves glitter finely in the spring. But the livery does not keep its salient freshness very long. As summer advances, the cock-sparrow that had been 'peacocking' in gorgeous superiority to his mate steadily sobers down till the difference, though obvious, is not striking, and neither is very much superior in looks. Such a blurring is quite visible even to the casual eye on the cock-starling, and to a less extent on the pigeons.

When the change begins to come over these birds they do not conspicuously lose vitality, as birds do in the moult, though they and all birds show a diminution of energy when summer succeeds to spring. A more thorough and overwhelming experience befalls a bird which also may often be watched in towns more easily than in the wilds of nature. The mallard, or male wild duck, is the outstanding example



RIGHT GREY PLOVER, ADULT AND IMMATURE. LEFT WHIMBREL. BY A. W. SEABY.

of 'eclipse' plumage. The wedding feathers of the male are very splendid. The green is more brilliant than the laurel leaves, and the white flashes stand out more distinct on wing and neck than sprays of bloom. Head and wing, and breast and back are all burnished. Male and female might be members of different species. With the growth of fine feathers he is strong on the wing, and enjoys long bouts of flight. But the duck nests early; and when summer comes the young are already capable movers. The mallard then suffers a sort of collapse. He moults in thorough



fashion. His fine feathers drop, and with this loss he loses power of wing. It may be, it is the theory, though one cannot tell, that the loss of colour is a protection necessary to a creature that has lost vigour. The mallard, being more or less helpless, skulks, and must hide as best he may, in beds of reed and rush. He must use his webbed feet instead of his tough wings. So now he becomes almost the double of his mate, and they remain in this likeness till the autumn is on its way.

In all these changes are many mysteries. Volumes have been written about the meaning of the change and about the process; but for most of us the fact is enough. The tide of energy rises and sinks; till the heyday of the year the males 'play the peacock,' as indeed do the flowers. Nevertheless, the puzzle is attractive. For a little

while the whole family of the ducks are very much of a pattern. The young almost exactly resemble their mother when the close season ends, though at the end of August you may without difficulty pick out the cocks, and by November the full male plumage is in evidence. Is the change just a growth and fall up to and down from that ecstasy of energy, palpable in all the being of the birds at spring? or is there a purpose in the particular hues of summer and winter as well? Is the male colour a developing distinction, or a disappearing distinction? And what can we argue from the colouring of the young? They are supposed to carry in their feathers or coats the history of the race; and many young develop the male colours rather late. Men with theories begin to believe that once in all species male and female and young were similar in colour; and that colour, appearing first in the male in spring, developed later. In some cases—the partridge, for example—it is being assumed by the hen as well as by the cock.

Nevertheless, the summer loss of the 'crest' and 'livelier iris' of spring, most sudden and salient in the ruff and the plover and the dunlin, is rather different from the mallard's collapse into drab colour and weakness of flight. The black grouse or blackcock, when the breeding time is over, falls into as helpless a state as the mallard. He loses a number of his wing feathers and several of his tail feathers simultaneously, so that flight is quite or nearly impossible, and skulking is the one road of safety. Even the red grouse, our one native game bird, at this season suffers severely in vitality as he alters in appearance, and becomes an early victim of disease—indeed, a much easier victim than the hen which does not go through these abrupt changes. It seems that all these birds which moult at what would seem to be a rather unseasonable hour, suffer in some degree

from the oppression of summer coming between the twin rigours of spring and autumn. That this summer eclipse is something more than the first stage in a preparation for the spring splendour is suggested by the ptarmigan, which is one of the few birds that has a separate dress for spring, summer, and winter. Both the summer duskiness and the winter whiteness seem to be in some degree protective. They help to hide both birds, which are indeed pursued by a great number of enemies from ermines to eagles. But how much of what is held to be protective is more or less accidental? Is there any bird at any season more glaringly conspicuous than the cock pheasant, which suffers no eclipse in summer, yet now and again one sees even a pheasant strangely disappear into the autumn hues of a wood, as if he were especially adapted to avoid human enemies when the sport of shooting begins? The male and female partridge, which one must hold in the hand to distinguish from one another, have a constant colour, very beautiful but not salient. They are very conspicuous in spite of their brownness on the close-cut stubbles. On the light plough-lands of Surrey they are perfectly fitted to their surroundings, but are quite fairly distinguishable on the chalk ploughs of Berkshire. What is one to infer?

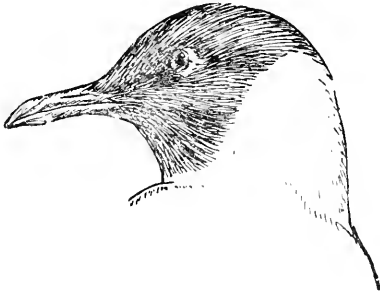
The fact is, most hunted birds and animals consent in colour with their surroundings. Stripes and dots are hard to pick out. Some are said to stand in poses that help their colours. Mr. Pycraft, one of the specialists on colour, says that the snipe stands with head down and the bittern with tail up, each so that he may use his particular pattern of soft stripes of grey and brown to the best advantage.

But, as it seems to the writer, birds are not growing better and better fitted to their surroundings, but worse and worse. The livery of most young birds, when once they

have left the nest, is more protective than that of their parents. Young blackbirds are a charmingly evasive speckled brown, showing, we are told, their affinity to the thrush from which they have separated. But to-day, at all times and at all seasons, nothing could be better calculated to challenge attention than the cock blackbird. That mass of unbroken black draws the eye, almost as much as if he could compass all the colours of a parrot. How the young robin with its pretty speckled brown breast disappears into the shadows of a bush where the yellow-brown back or red breast of the parent would challenge attention. The young cast off their baby clothes at very different dates. In perhaps the majority of cases the male begins to put forth his peacock colours about the time that he is growing strong on the wing, and needs less protection of colour. Sometimes you come upon well-grown birds, thrushes, for example, on which the pretty down of their infancy still clings oddly to the grown feathers, and occasional instances have been noted of a persistent down. Those who notice the partridges shot in September will find a fair number still distinguished by the pointed feathers that are rounded off in most birds by the time they are strong on the wing. The livery is doubtless associated with maturity in other more essential forms. Many gulls are not mature till their third year; and the townsman again has the chance of observing this belated change of livery in the black-headed gulls that crowd up the Thames and flock in the parks and reservoirs. In summer birds of the previous year are still spotted with odd patches of colour, appearing quite promiscuously; and you can sometimes often detect the third-year bird from the second, especially the males in spring.

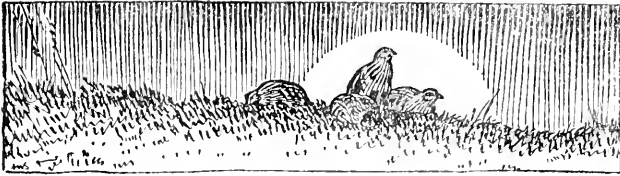
In these young, at any rate, there is no suggestion of

protective colourings. Their livery has no obvious purpose; and generally the theory is extended too far. From time to time any observer must come across examples of adaptation to environment which resemble a parody on the theory of protective mimicry. We have quoted several elsewhere; but the writer has always felt a certain scepticism since he saw one summer day a barn owl roosting on an apple-bough up into where had grown a bush spiræa. The owl's body was a most perfect match to the blurred white flowers, of which, till you looked close, the bird seemed a floral extension. However, birds' feathers are very often consonant with their surroundings, especially when they are young, and the mother's livery is less conspicuous than males for protective purpose or with protective effect.



BLACK-HEADED GULL





FAMILY PARTIES

'THE First' means always and everywhere in England, September the 1st, not New Year's Day; and its coming seems to interest English people who have never shot off a gun, hardly less than the sportsman. And indeed the First begins a new year, heralds change as definitely as any date that can be named. Our games alter. Cricket ceases, shooting begins. The face of the country is new, and what was hidden is now open.

It is true that the fixing of the limits of the close season for birds, and yet more for fish, has been rather haphazard; and not all the dates are the best dates. Five times out of six September 1st is too early for shooting partridges. The corn is not all cleared; and it 'goes against the grain' in more than the proverbial sense, to be abroad shooting partridges when men are sweltering and 'swinking'—if that fine old word may be revived—about the stooks. The seed clover is just approaching ripeness. Half the purple heads perhaps have been fertilised by the bees, and have fallen limply downwards while the seed is forming, and out of the brown mass the remaining unwedded flowers stand up sparse and erect, like bright-headed pins in a pincushion. Every man who walks through the field scatters a deal of seed, and without exception it is the most valuable crop that grows on the farm. It is among the most beautiful too. There is no scent like the scent of a great acreage of clover in flower.

There is no busier sound, out of a factory, than the hum of bees over it. There is no pleasanter sight to a farmer than a stack of it well got. Of all forms of cover it is the closest and most thorough. The wildest coveys, even the barren pairs, will lie close in it, and the temptation to follow them is more than most sportsmen care to struggle against.

But the cardinal argument against the fixing of the First, as the end of the close season for partridges, and almost all other birds, is that the young are not yet mature. Never a first goes by but a number of 'squeakers' are shot; and



PARTRIDGES AMONGST THE STUBBLES

though of course the good sportsman does not shoot the small bird, the number of them generally seen on the First may spoil the pleasure of his shooting. The Twelfth—just a month later than the grouse—would be a more suitable date in most years. But the First will remain the First. Our English acres are in these days shorn so close that no cover is left on the stubbles sufficient to hide a corn-mouse. The reapers cut close and regular; and there is a tendency to reduce the size of hedges and clear up rough grass fields. Those who would walk partridges and not drive them will get within range of very few birds if they do not begin as early as they may now begin. Even so the birds are wild enough.

For the rest the First is as near to a real beginning of the

year as any day that could be fixed. On either side of it are two very diverse pictures. Except for the game-birds, the young birds of every species are strong on the wing, are ready to fly overseas, covering a hundred miles at a stretch. But in England, unlike France where any bird is game, we only think of the close season as affecting game-birds; and it is perhaps the most noted of days because it begins a month where a new year opens in the business of town and country, not less than because it begins the break-up of the coveys. The change is very marked in the appearance of all birds as soon as the pairs congregate and the families grow up. But among autumn families that of the partridge is of peculiar interest. There is no bird in Britain, the grouse excepted, which fulfils with such devotion maternal and indeed paternal duties. The very tone of solicitous affection is suggested by the strange ventriloquial call of the birds, heard everywhere towards sunset over English acres. The scattered and broken coveys are hallooing good-nights or summoning the lost members as they collect and prepare to sleep or 'jug' for the night. The call rings over the fields in the ears of sportsmen returning in the dim light most pitifully, most plaintively. Often the birds sleep together in a quite compact mass. One of the reasons why they have almost disappeared from many parts of Wales is that the fields are small, and a poacher who watches the birds may wipe out a covey at one shot. It is indeed a boast among some of these native hunters that not a single bird of a covey has escaped one of these foul shots. The instinct that helps to their preservation against other enemies proves their ruin among men.

What may be called the 'covey system' is very rare among birds, rarer than one would expect. The grouse and the partridge remain in coveys until pairing time, but only

one of the smaller English birds shows this family affection. Of all the pictures of birds that one ever saw, the gambols of a family of long-tailed tits remain most intimately on the mind's eye of the writer. Out of a rough hedgerow rose an old and decaying ash-tree. As one approached its hollow trunk seemed to throw up a slight and sparkling fountain. The drops of water were young long-tailed tits, still small enough to be distinguished from their parents. The sun was bright, having just conquered an autumn mist; and it



LONG-TAILED TITS

lit the colours of these light and tiny creatures into the very tints of a great bubble escaped into the air. They danced and flirted up and down, more in the way of gnats marking time under a hedge than in the progressive ways of birds. When the dance was over and the music stopped they fell back on to the tree as the fountain drops to the bowl. So you may see them throughout autumn and winter moving in a family party leisurely along the hedgerows, always keeping close together, often, as seen that day by the ash-tree, playing together like children. Presumably the prime reason of the family party, as of the great congregation of birds, is mutual help in finding food and protection from enemies.

But these formidable economic reasons are joined, we may allow, with a vital joy in companionship. Birds play as well as eat, laugh as well as fear. Perhaps their start in life tends to comradeship. In the way of snugness and close packing there is no nursery to compare with the interior of that deep beautiful bowl of lichen, moss, and down in which the tit houses its young, who are often a dozen or more in number. You would say the thing were impossible till you handle one of these tits. They make a very fair show of size to the eye, but are in substance imponderable. They are no more than bits of down themselves; and when they first leave the nest, a puff of wind sends them astray like a single feather.

Except in their family affection, no bird could be less like the partridge, which is very heavy for its size, like most birds which either run well or swim well. One cannot imagine the long-tailed tit on the ground. One can imagine the partridge never leaving it. Indeed the French or red-legged partridge very often fails altogether to leave the ground. In districts of heavy clay-land in the midlands, scores of partridges are caught on the ground from inability to raise themselves with the adherent clay that their running exercise had accumulated. On a horse one can hunt them down if the fields are at all big and the hedgerows not over thick, according to a recognised form of sport practised in certain parts of India.

The parental instinct of partridges has been very closely watched owing to the attention of keepers who have to spend much labour in preserving the nests from foxes. It is evidence of the quick observation—for 'love has eyes'—arising from this instinct that for many years it was found impossible to design a nest egg which should deceive the partridge. The birds will sit so close that they will face death in very many forms. In foul weather you may find

them dead on the nest from cold and wet. They have been killed by mowing machines, and the mother bird is not uncommonly caught on the nest by a fox.

In comparing the social habits of birds, no attribute differs so much as the part played in the family by the cock bird. Among some of the terns the whole care of the family is given over to the cock. Polyandry, of a curious sort, prevails. The hen bird takes a new mate and starts a new



SITTING PARTRIDGE

family—*ab ovo*—before the first clutch is off and away. The father has therefore to serve for both parents. These terns are at one extreme. At the other is the cuckoo; and between them are birds of every degree of family affection. Some help to build; some to brood; some do nothing but feed the mother, surrendering even this duty as early as may be. The cock partridge takes as full a share as any in all duties. He is astonishingly watchful of the family after it has grown up. How often has the bird suffered from rising first when the covey is flushed. Even in their mating there seems to be some stronger, one might almost say more mystic affection than with other animals. It is at any rate certain that scientific breeders, especially in France, have

had quite extraordinary success since they have adopted a principle of natural selection ; and mated their captive birds according to the birds' own sense of affinity. The difference in productivity has been remarkable, as compared with the older way of casual mating.

In their curious breeding establishments advantage has also been taken of the parental zeal of the cock bird in taking care of the covey. If a cock bird is caught up and kept in confinement until a clutch of eggs is hatched artificially or under a hen, he can be quite safely trusted with the youngsters. He adopts them at once, shows every sign of parental fussiness, and when released with this adopted family continues to cherish them as attentively as would their own mother.

It is the custom on some estates, adopting what is known as the Euston system, to put into a wild bird's nest as many



PARTRIDGE CHICKS

as thirty eggs which are on the point of hatching. The bird has previously been supplied with boiled eggs of ancient date to induce her to remain sitting. When this vast family is hatched, both birds will on occasion 'mother' the brood. Keepers have seen the two sitting head to head—a real *lête-à-lête*—to keep the thirty warm. It is an instance of the extreme courage of the bird when the family is expected that she will permit the keeper to push her with a stick from the nest, and will not move off more than a yard or two.

A small personal experience will illustrate the affection of the parents. A whole brood of partridge chicks were found

by some children huddled into the gutter of a Hertfordshire lane. The birds were brought home in a felt hat, were kept for some hours, and then taken back to the place where they were found and put just over the hedge. Almost in an instant the old birds found them, and with a busy chuckle of delight led the family down the gold corridors of the level corn which made their palatial home.

Whether birds suffer pain or pleasure, as we use the words, may be left to theorists. It is certain that these birds during their hours of loss suffered alarm and anxiety as real as reason itself could discover.

With partridges, more clearly than any other bird, you may see from day to day how sharp is the fight with enemies. In any county where keepers are few or incompetent, almost every covey will lose members quite apart from the havoc of the guns. In the quiet, almost domestic countryside of England the enemies cannot be numerous, as they are for example in Donegal or Scotland, where the peregrine and the golden eagle are added to the 'vermin.' Indeed the enemy must be on the ground, with one or two exceptions. One new flying enemy has been more or less recently introduced. In a Cambridgeshire district, where partridges were very strictly preserved, a full-grown partridge was caught in the open field by a small Spanish owl, one of that exotic tribe imported by Lord Lilford, about which there is much to be said. The little owl in this case, though looking rather larger than its victim, was



LITTLE OWL

in fact nothing like so heavy; and only the hunting spirit, abetted by that marvellous weapon, its prehensile claw, could have accomplished such a David and Goliath feat.

The stoat is doubtless one of the most dangerous enemies, though even his ravages are exaggerated. In our recent experience a stoat, carrying a full-grown partridge as if the weight had been nothing, almost ran into a pedestrian on the open road, before he saw his danger and left the partridge for his enemy's meal.

It has been feared that the partridge was gradually disappearing from England, except where preservation was, if one may use the word, intensive. The stocks were certainly almost annihilated on some of the clay-lands, where shooting is in the hands of the farmers, and keepers are unknown. Probably, too, its multiplication is a little checked by the mechanical precision of farming operations, and the want of good cover, but one favourable season restores the numbers even in some of the less congenial neighbourhoods.

There is one other enemy of the partridge, and indeed of several other birds, which must be mentioned. One windy day in 1911, a body of sportsmen saw a covey, which had not been shot at, fly straight into the wires along the road from Huntingdon to Cambridge; and four fell dead. Along one mile of railway in this neighbourhood, Mr. Alington, one of the greatest authorities on the partridge, calculated that some 100 birds were killed by the wires every year. There are poachers who deliberately make use of the wires. A certain farmer in Westmorland, in his unregenerate days, made many a good bag out of a new line of wires running across the moor. He would wait till dusk when the grouse were jugging; and then flush them from close quarters with his dog. In their alarm and blindness, they would dash straight into the wires, and it was a rare evening when he did not pick up several victims.

Probably partridges, like wheat, would die out over great areas of the country, if left to themselves, and if keepers dis-

appeared. Vermin, once in considerable variety and plentiful, have been reduced far below the natural level. In 1870 pole-cats were quite common throughout the midland counties. Fifty years earlier than that, they were so common on an estate within twenty miles of the Marble Arch, that the keeper made a small fortune out of a bonus on all he killed. In the accounts of an estate, which was characteristic of others at the beginning of the nineteenth century, the number of stoats killed in the year exceeded the number of rats killed. One would infer from the lists that stoats and weasels were the commonest of all animals on the estate. The wild-cat survives only here and there in the north of Scotland, though stuffed specimens are quite common objects in the country houses.

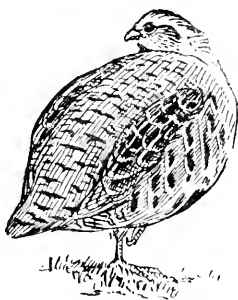
A near relation of the partridge, with many of its qualities, has, one may say, quite disappeared. Once quail-hunting was quite a favourite occupation in autumn fields in England. The quail did not usually nest in England, but it was a common migrant, so common that the quail-call was an article of commerce. Many sportsmen have in their career shot quail in Britain. Several coveys were seen throughout autumn and winter even as far west as Pembrokeshire in the late seventies. Those who have watched the short low flight of the quail must have wondered that a bird which appears tired by the effort of topping a hedgerow should be one of the world's most famous migrants. The herds cover vast distances; and the armies starting for the return autumn journey over the Mediterranean, south and east, are a marvel worth any man's journey to watch.

But the ground-nesting birds, whether or no they nest in England, grow fewer in England. The corncrake, another migrant that appears scarcely able to raise itself from the ground, has almost vanished from many of its favourite



CURLEW CHASING A RAVEN FROM ITS BREEDING PLACE. BY A. W. SHERMAN.

haunts. Along the valley of the Ouse, twenty years ago, you were seldom out of hearing of the cicala-like call of the corncrake, mingling strangely with the chatter of the reed bunting and the rustle of the reeds. It is now an event if you hear it. Probably its disappearance is due to closer agriculture. One hopes, at any rate, it is not due to the dictum of a famous gourmet, that it is the best bird that comes to table. And one may expect a return both of quail and corncrake. A distinct revival of the corncrake was noticed in Surrey, where several nests were found and protected in 1911. It is a stalwart hope that under proper protection quantities of our vanished birds, from the bittern to the quail, will adapt themselves to new conditions and flourish again almost as they flourished in the days of Hereward the Wake.



PARTRIDGE



GOLDFINCHES

BIRDS IN FLOCKS

ONE of the most characteristic signs of gathering autumn is the congregation of many kinds of birds in roving flocks. A gregarious existence seems natural to the majority of birds, except in the crisis of the nesting-season, when they are driven asunder partly in order to have sufficient territory for the collection of food for the hungry young, but mainly to satisfy the overmastering instinct of jealous independence which most creatures feel with regard to their mates and young. At any rate, with most of our familiar English birds the season of separate households and a settled domicile lasts for little more than a third of the year, and for nearly two-thirds of it they roam far and wide in company with others of their own and kindred species. As surely as we see in September the first leaves dropping from the lime-trees, and the first golden boughs shining in the crowns of the elms, we hear the flocks of linnets piping in the cornfield hedgerows, and the mixed cries of the jackdaws and rooks and starlings as they rise in a loose cloud from the tanned and tufted pastures. The birds' family life is merging day by day into the communal existence of the great winter packs. Species forgothers with species, and a different conception of

existence seems to spread among them as the vital sun declines.

Though this change becomes unmistakably conspicuous in September, its beginnings are visible long before. Just as the new song of the robin and the new thrusting of the leaves and buds of the primrose seem to reach forward from autumn to spring, so even in June or early July the first gathering of small flocks and parties of birds gives a sign of coming autumn to the watchful eye. The date of the change depends a good deal on the weather. If there is a sudden spell of wet and cold, even as early as the second or third week of June we may see the first party of five or ten plovers, perhaps attended by a few starlings, or fraternising tentatively with half a dozen jackdaws. They appear in pastures where they have not been seen during the breeding season; and they seem to regard the spell of wind and rain as a sign that autumn is already coming, and that the time for the old kind of life is past. Once they have begun to pack, they do not break up into family parties, or attach themselves definitely to a single spot, even though, as often happens, the weather soon turns fair again, and the hottest part of the summer is still to come. The casual association of a party of plovers with one of jackdaws or starlings may be merely the accidental consequence of meeting on one feeding-ground, and species may part company from species at a slight alarm. But once the instinct of flocking is reawakened, it does not slumber; and week by week the wandering parties of rooks, jackdaws, starlings and plovers become more frequent in the pastures, and on the shorn hayfields, and in the green salt marshes by the sea and tidal rivers. Early in August wood-pigeons begin to appear in these mixed flocks; they are later breeders than the other species, and are busy with eggs or young until long after midsummer. Curlews which have

bred on inland moors begin to gather on the marshes outside the sea-wall, and flights of dunlin and redshank pipe and wheel across the ooze-beds threaded by the tide. Sparrows form flocks in July, and migrate from towns to feed on the ripening grain. As the berries ripen and the corn is carried, the silent woods are quickened with the cries of wandering titmice, and flocks of linnets begin to mass on the weed-filled stubble. The change is least visible in the garden, where many of the robins and thrushes are still to be seen in their



DUNLIN

old corners, and the wood-pigeon croons on with its old summer note among the shadows swinging wider on the lawn. Garden birds are far more stationary than most of their kindred in the woods and fields; they have shelter and a more constant food-supply, and do not need to roam. But even through the trees of the garden the flights of wandering titmice come flitting in autumn unrest; and sometimes a troop of starlings will sweep over the tree-tops, as if to settle, but rise again and seek the wider fields.

Linnets may sometimes eat the corn spilt among the stubble at harvest-time; but they chiefly visit the cornfields in search of the seeds of cornfield weeds. The presence of these flocks in September and October is one of the most constant and characteristic features of any corn-growing district at this time. They range from small parties of a dozen or twenty to great bodies of several hundreds, or sometimes

even thousands ; and their ways are very fascinating. They are in constant movement from the hedge to the field, or from one part of the field to another, moving with a simultaneous flash of wings, and a jerkier and more erratic flight than the ordinary wheelings and long glissades of the starling flocks. They seem responsive to a hundred thrills of impulse for which we can detect no obvious reason ; but probably it is their fine sense of hearing which gives them so many superfluous alarms, and often prevents them from feeding quietly for more than a few seconds together. We remember watching a large flock of hen chaffinches feeding one winter day in a stubble-field on a high wooded hill above some weirs on the Thames, which were murmuring loud in flood. The noise of the river came beating up through the woods on a gusty breeze, and the birds were continually flying up from the field into the shelter of the surrounding beeches. At last a sudden tremor seized not only the chaffinches on the stubble, but a long-tailed tit searching in a bush close by us ; and a moment later a flaw in the wind brought up the noise of the weir in a deep roar. It seemed that the birds had caught the vibration of the approaching sound before it became audible to human ears ; and most of the sudden movements of birds feeding in flocks are probably due to subtle sounds or cessations of sound, which are unperceived by the human listener, but are perfectly perceptible to their acute and watchful senses.

In the silence of the golden September afternoons in the stubble-fields even our own heavy hearing becomes keener, so that it is easier for us to conceive of the acute senses of birds and wild animals. If the field is empty for a while of wandering flocks, the silence at first seems absolute, when we stand still or lie down on the faintly aromatic haulm. Gradually our ears are opened ; we can hear the far-off

murmur of the threshing-machine—a sound more deeply in harmony with autumn stillness than the throb of the old flail, now seldom heard—or an occasional faint cry from the distant village, or a dog barking at a farm. Then the stillness is invaded by the lilt of a party of linnets, or perhaps the still sweeter call-notes of a flock of goldfinches, as they flit into view in loose order with their springing flight. Goldfinches seldom settle close to the earth among the stubble, as linnets do; while the seeds sought by linnets grow on low weeds, or are strewn on the ground, the goldfinches are hunting for the seeds of thistle and knapweed, and other tall plants, which in stubble-fields are only found by the hedgerows, or by the side of a raised footpath. The goldfinch is one of the birds which have unmistakably profited by the Wild Birds' Protection Acts; and the beautiful sight of a flock of goldfinches flitting among the autumn thistle-heads is commoner in many parts of the country than it was twenty years ago. But the flocks of linnets make the familiar autumn music in the stubble-fields, combining single notes and brief scraps of their true spring song into a gentle melody that harmonises with the deep sunshine and drowsy fields. In sunny weather linnets spend as much time softly singing in the hedges as in feeding; and sometimes a large flock will burst suddenly forth into a surprising volume of half-articulate song.

Skylarks also begin to haunt the stubble-fields in September in small parties, though the larger flocks come later in the season, and chiefly consist of foreign birds. They now feed on the seeds of cornfield weeds, like the linnets, and are undoubtedly beneficial; the destruction of these troublesome seeds must not be forgotten when they are accused of pulling up the young corn later on. Skylarks occasionally sing all through the autumn on fine days; but

their most familiar note in the stubble-fields is the soft chirrup which they utter as they flit up with their drooping white-edged wings. While skylarks keep to the open field, and linnets haunt both the stubble and the hedgerows, the strings of wandering titmice are to be found in the hedgerows alone. It is a mistaken idea that tits never perch on the ground, but at this time of year their booty is chiefly to be found among the boughs of trees and shrubs, where pupæ of summer insects are numerous, and the kernels of the seeds and berries are ripening. Mixed parties of several species, sometimes accompanied by a goldcrest or two, push from tree to tree through the woods with chirping cries, searching the twigs and crevices in acrobatic attitudes, and constantly pressing on. At the end of a wood they follow the hedge leading down a field; and at the corner of the hedge they jerk across the open space where the larks and linnets are trooping on the stubble, and twitch their way up the hedge on the other side. The great contrast with the ways of the same birds in the nesting-season is that there is no anxious concentration about a certain point—the position of the nest or the young—which was then so conspicuous. The nests that held the young in May are now downbeaten and neglected, or haunted only by nocturnal field-mice; the birds have no care either for them or for the wood that held them, but wander as vaguely as the thistle-down in the autumn air.

In the shortening September evenings the starlings begin to form their great winter congregations. Rooks are gregarious at all seasons of the year; and starlings also nest in colonies on situations such as cliff-faces or old buildings, which provide them with plenty of convenient holes. But from early autumn until the following nesting-season most of them collect to roost in hosts which far outnumber the flocks in

which they feed by day, and form some of the most remarkable spectacles in bird life. The flocks of starlings are usually by far the largest. A little before sunset on September evenings we often see flights of starlings, ranging from several hundreds to parties of ten or a dozen, collecting from all quarters on some small wood or conspicuous group of trees. Every minute fresh flocks fly in, till the trees are black with them, and the lesser boughs nod with their weight; and all the while they utter a chiding murmur which becomes louder and louder as the swarms increase. Suddenly they spring swiftly into the air together with a roar of wings which is sometimes as loud as the early growlings of a thunder-peal, and vanish swiftly towards their roost. They choose for this some dense plantation of rhododendrons or other evergreens, or a close-grown thicket of thorns, or sometimes a large reed or osier bed. The scene at this central meeting-place when the contributory flocks come pouring in from all quarters is almost indescribable. The surge of the incoming armies is almost continuous, but it is half-drowned by the tumult of the birds settling to rest among the boughs. High above the thicket the starlings check their flight, and plunge headlong downward with the wild motion of a broken kite, checking themselves just in time to alight safely in the branches. As twilight deepens the tumult ceases, and the host of birds falls asleep. But it is long before they cease to stir and rumble in the heart of the thicket at any slight alarm; and the least disturbance produces a murmur in the almost solid mass which is extraordinarily impressive in its suggestion of teeming life. The odour of these roosting-places indicates them plainly by day; and evergreen thickets are sometimes stripped half-bare of their leaves by the pressure of the innumerable birds. These roosting-places are abandoned by the great majority of their winter inmates when the flocks

break up for the nesting-season. In most years starlings are paired and distributed in their breeding-places by early April; but after the heavy snowfall at the end of April 1908 huge evening flocks were still to be seen in the first week of May, when all the spring flowers were coming out together in the sudden warmth.

Rooks congregate in their winter roosting-places about the same time in autumn as the starlings, but in much smaller numbers. The dignified passage of seven or eight hundred rooks across the sunset sky has a very different kind of interest from the rallying of the starlings. There is something overwhelming and almost appalling in the starlings' enormous hosts; but the rooks' flocks are large enough to be impressive, without verging so uncomfortably upon infinity. After the end of May, when the young are fully fledged, rooks often desert their rookeries more or less completely, and for the rest of the summer choose other quarters, where they roost in fair-sized flocks. In September or early October they collect for the night in larger bodies in a roost which is often chosen in a large and sheltered wood. Henceforward, until the beginning of the nesting-season, their daily movements have almost the regularity of the sun. Soon after it is light they can be seen passing high overhead to their feeding-grounds on some broad belt of cultivated land; and while the sunset sky is still red, they troop home again on the same steady path. Their movements before settling to roost are often much like those of the starlings, but are less remarkable and defined. They collect with busy clamour in the trees or on the grass not far from the roost, and sometimes plunge to the tree-tops in the same remarkable flight. Starlings roost alone in their great winter congregations; but rooks often forgather with jackdaws and sometimes with smaller and more stationary parties of starlings which

do not frequent the great public dormitories of their kind. It seems not unlikely that the inmates of the great winter starlings' roosts are chiefly or wholly immigrant birds, and that those of our home-bred starlings which remain with us during winter keep to themselves and roost near the places where they build. Though rooks and jackdaws and starlings can often be seen feeding together in the winter fields, starlings do not join the two larger species in their homeward flight. They go early to roost, like sparrows and finches; and by the time that we watch the rooks and jackdaws sailing home through the autumn sky, and listen for the querulous cry of the daw among the rooks' graver voices, they are already snug for the night.



SEPTEMBER

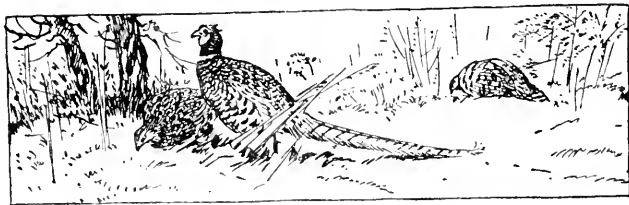
'Thy shield is the red harvest moon suspended
So long beneath the heaven's o'erhanging eaves ;
Thy steps are by the farmer's prayers attended.
Like flames upon the altar shine the sheaves ;
And, following thee, in thy ovation splendid,
Thine almoner, the wind, scatters the golden leaves !'

LONGFELLOW, *Sonnet on Autumn*.

OCTOBER

'The day becomes more solemn and serene
When noon is ended : there is a harmony
In autumn, a lustre in its sky,
Which through the summer is not heard and seen,
As if it could not be, as if it had not been.'

SHELLEY, *Hymn to Intellectual Beauty*.





YOUNG CUCKOO RESTING ON ITS JOURNEY SOUTH

THE SOUTHWARD FLIGHT

THE departure of the summer birds first becomes conspicuous in October, though it has been in progress ever since the flight of the parent cuckoos in July. Most of the summer migrants live so silent and elusive a life after the young are hatched that it is difficult to trace their movements; and when some bird has been familiar to eye or ear for many weeks, we are apt to overlook its departure, and only later to realise that it has been missing for an indefinite time. Old cuckoos are able to slip away so early because they avoid bringing up their young; but the young cuckoos do not go until late August or September, and thus receive no guidance from their parents on the journey. The exact processes of migration are still so imperfectly understood that we cannot tell whether the young cuckoos are guided to their winter homes in Central and Southern Africa by transmitted habit or 'instinct,' by the direct influence of the changing weather in more northern climes, or by following other migrants. Next to the parent cuckoos, the first birds to leave the country are the swifts. Their usual time of departure is the second week in August; but it is not very uncommon to see one or two stragglers as late as the beginning of September. The swift is one of the latest birds to come, as well as the earliest to go; a bare three

months is its whole sojourn in this country. It seems probable that its early departure is due to the diminishing supply of insects at the lofty levels where it prefers to feed. By the beginning of August the nights are already growing far longer and more dewy than they were in June; and the period when Britain is habitable for the swift seems to lie within six or seven weeks on either side of Midsummer Day.

As September goes by, we gradually miss several birds from their accustomed haunts, if we keep a careful daily watch.

Some warm day in the garden we notice that the spotted fly-catcher is no longer perched in its favourite position on the tennis-post or the corner of the porch; and in the evening twilight we miss the nightjar flitting noise-



NIGHTJAR

lessly down the clearing in the copse. Both these birds are late-comers, and obey the same general rule as the swift in being quick to go. For them too, with their need for an abundant insect diet, the English climate sets an early term of departure. But still we can hardly feel that the summer birds are really leaving us, so long as the days are full of sunshine, and the empty places are so few as compared with any week in the quiet time since June.

By October there is no mistaking that the southward migration is in full swing. It is most visible in the case of the swallows and their kindred, which migrate by day. The concourses of swallows and martins on roofs and telegraph wires are not only larger than when they first began in

September, but much more restless and shifting. If we keep close watch, we shall find that sooner or later, when some party rises and circles in the air, it does not come back to the perch as it did after its former sallies, but vanishes in the southern sky. An hour or two later, the church spire or barn roof may be once more thick with swallows or martins; but they are a new contingent. The same quiet coming and going of smaller parties may be seen on an October day over sheltered pools and rivers, or warm meadows in the lee of a wood. The swallows sweep so regularly over the water or past the boughs that they look like the regular summer residents; yet, ten minutes later, they may be gone, leaving the surface of the pool spread empty between its orange sedges. This quiet but constant stream of travel is even more impressive than the great simultaneous movements of the larger flocks. It suggests far more vividly the elusive secrecy of the movement which has been depeopling our copses and gardens for weeks past, till we awake to find them almost desolate, or occupied by restless strangers. For sheer impressiveness of numbers, the first place is easily taken by the collection of a large flock of migrating swallows in a roost in some reed or osier bed. They plunge downwards almost as wildly as roosting starlings; and it was the sight of the swallows plunging so quickly towards the water on some autumn evening about the time when they were seen no more which most helped to foster the belief that they slept out the winter at the bottom of the rivers and ponds. They also roost in crevices about the buildings which they haunt by day.

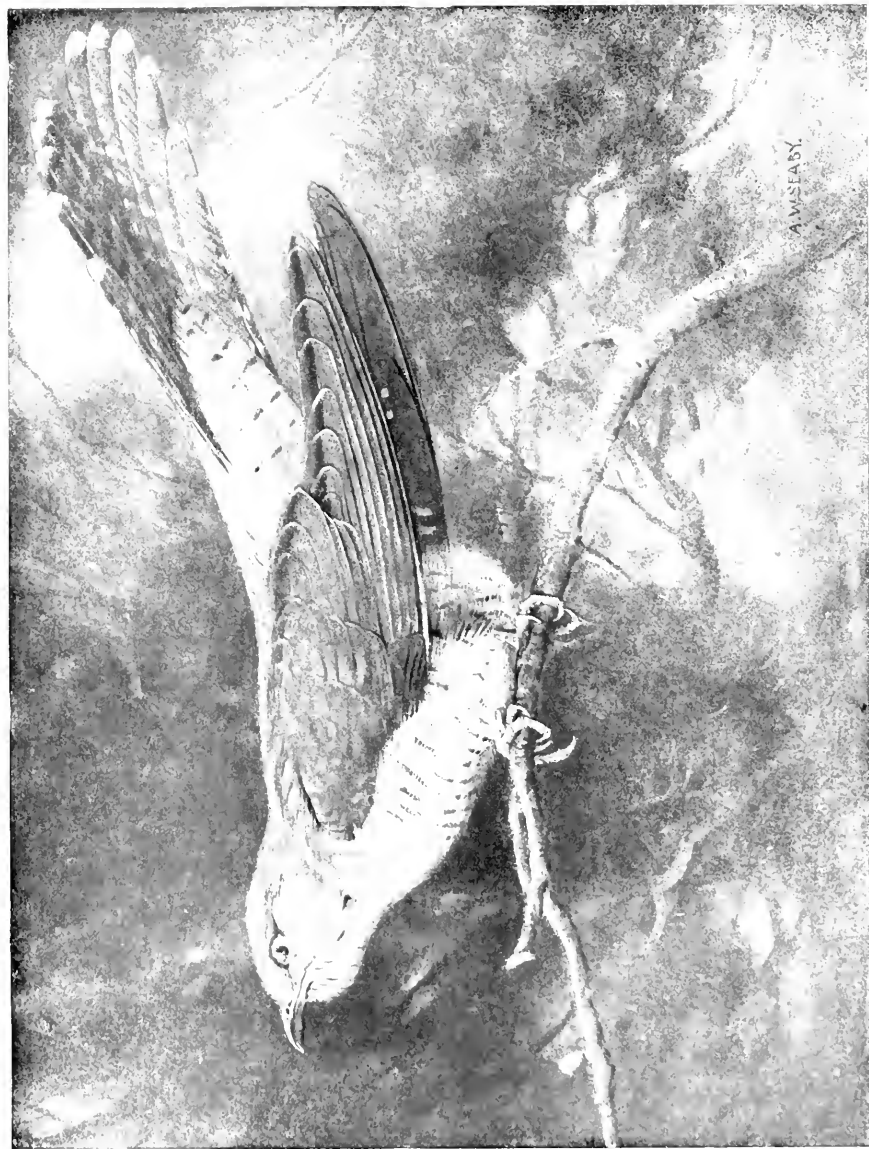
The distance travelled by migrating birds in autumn varies enormously with different species. Marked storks from Denmark, Germany, and Hungary have been identified in the winter months in Syria and various parts of Central

and South Africa; while a still greater distance is travelled by several species of waders which breed in the far north of the Russian Empire or in Greenland, and winter as far south as Cape Colony. Some of these birds, such as the little stint and curlew-sandpiper, occur in Britain only as passengers for some weeks in spring and autumn, on their way between their southern and northern homes. Other species, such as the knot and sanderling, are also winter visitors. Most of them haunt the sea coasts, especially the oozy estuaries, which supply them with the most extensive feeding-grounds. But a typical bird of double passage, often seen along inland streams in spring and early autumn, is the green sandpiper. It can be easily distinguished from the common sandpiper with a fieldglass, or even with the naked eye, by the tail being transversely barred with white, instead of being merely edged with it. The green sandpiper nests in the Baltic and Arctic basins, and winters in Africa and southern Europe.

As birds which cross the equator on either passage secure two summers in each year, and no winter, there seems no reason why our birds should not breed twice a year, once in either hemisphere. But all the most trustworthy evidence at present indicates that they nest only in the northern hemisphere; no certain case has yet been reported of any bird which nests in summer in the far north of Europe or America also nesting in South Africa or South America. Some of these birds of double passage are believed to travel as much as eleven thousand miles in each direction annually. From these vast journeys the scale of distances traversed on migration descends to the few yards which part the nesting-quarters of a robin or pied wagtail in the shrubbery or by the farmyard pond from its winter haunts in the sheltered

part of the garden or by the back door. One great route of migration in autumn runs from the west of England through southern Ireland or north-western France, and thence to the sunny coastal districts of Spain and Portugal, where many birds from northern Europe find a winter home. Two plovers marked in the nest near Stirling have been found in Portugal, and five others in Ireland; a song-thrush from Aberdeen and a black-headed gull from Argyllshire were also found in Portugal. But in spite of these and other instances showing the importance of this route, other birds of the same kinds have been found in winter not many miles from their nesting-quarters. In the case of many of the hardier birds, the migratory movement is plainly very irregular, and may be regarded as almost optional. Sometimes they are even found migrating the wrong way, that is, towards the colder quarter. A song-thrush marked in Berkshire in April was found in November near Norwich—having migrated in exactly the opposite direction to thousands of thrushes, and larks, and plovers, and rooks, and many other kinds of birds which come over from Germany to England at that time. Even more striking was the eastward journey of a starling marked in Berkshire in February, which was found in Kent before the end of the month. Because the east of Europe is colder in winter than the west, the usual line of autumn and winter migration is south-westerly, and sometimes even north-westerly, and not, as might be thought, direct from north to south.

To a considerable extent—exactly how much we cannot yet tell—migrating birds follow definite routes, such as a river valley like that of the Thames as it leads northwards past Oxford, or the line of the seashore. The rarity of certain birds of double passage in spring as compared with autumn, or vice versa, indicates that they do not all follow



CUCKOO-PHEASANT HIS NOBLE BY A. W. SIMS

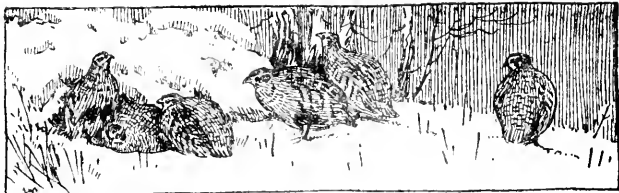
the same route on both journeys. At least one striking case has been discovered in which the spring and autumn tracks lie far apart. The American golden plover flies straight across the sea in autumn from Nova Scotia to the coast of South America—a distance of about 2,500 miles; but it returns in spring by a more circuitous route to westwards, through Mexico and up the Mississippi valley.

There seems to be an obvious reason in the failure of the food-supply why birds of passage should depart southward in autumn to milder climes. But it is not so easy to understand why they should want to return in spring. It might be thought that they would be well enough off where they were, like the resident species of tropical forests, without daring the long journey over land and sea to reach some distant corner of the British islands, or some haunt even further to northwards, within the Arctic circle. The key to this movement is probably to be found in their general habit of scattering in pairs in spring, to bring up their young in privacy and with an ampler food-supply than they need when there are only their own mouths to fill. They would thus naturally tend to spread outwards from their winter home; and those birds would thrive best which pressed further and further to northwards (or to the south, in the southern hemisphere), and so gained the advantage of longer daylight and a longer period each day in which they could hunt for food. As they settled in a new home, inherited habit would tend to attach them to it by a strong bond; and so the great double migration would grow up, at the times of year when the seasons most sharply change. Marvellous as the length and adventurousness of their passage seems, it has after all to be remembered that birds are winged creatures, constructed by nature with supreme powers of locomotion; and that they do sometimes perish

on migration in great numbers. But the waste of life from storm on passage or untimely and exceptional cold on arrival is probably more than made up by the advantage of rearing their broods in the most favourable circumstances.

Just as all existing species of birds are the result of a continuous chain of evolution, of which many of the connecting links have not been preserved, so the great movements of the migrants between their summer and winter homes are probably the outcome of a gradual and tentative process of migration, which has been fixed on its present lines by the survival of the fittest. Most birds live in flocks for the greater part of the year, only separating for the comparatively short nesting-season; so that gregariousness seems their natural and earliest habit. As they broke up for the breeding-season, and at first spread evenly outwards from their gregarious haunts, they would come sharply into competition with other birds expanding outwards in the same way. Gradually the struggle for life would settle which group of species was the strongest in each region; those species which were best adapted to its peculiar conditions would prevail, and those which were less well adapted would tend to die out within this area, but would have a better chance to the north, where fresh lands lay open each spring. Their migrations would further tend to be controlled by their power to endure the winter climate of their new homes. If they could pick up a living there in winter as well as in summer, they became resident species; if not, they became what we call summer migrants. Winter visitors—a term which is used more often than winter migrants, but precisely corresponds to it—are the summer migrants of more northern regions, viewed from the winter end of their journey. Such are the redwings and fieldfares, which usually arrive with us in November; these are summer visitors to Norway and

Sweden, like the nightingale or swallow in England. Our birds of double passage, like the green sandpiper, are summer and winter migrants in other parts of the world. The woodcock in Great Britain is chiefly a winter visitor, but to a small (though increasing) extent a resident species. In Austria it is a bird of double passage, though much commoner in autumn than in spring. In central Germany the robin is chiefly a summer migrant, and only occasionally a resident. Such examples show how hard it is to get a true understanding of the habits of birds if we only consider their habits in our own islands, from our local point of view. We should always think of them as essentially migratory creatures; though there are more or less definite exceptions. The Dartford warbler and the Cornish chough are among the more resident British species; and their scarcity and very local distribution show how unprofitable it often is for a species to become too much wedded to one locality. The case of the extinct great auk is another famous instance in point. Even such common resident species as thrushes and robins would fare ill if the majority of their individual members were really resident. Probably not one in fifty of the song-thrushes which breed in England find safe winter quarters within a mile of their nesting-place; and the rest are migrants. Often on an October morning we may see the lawn harbour, for a short rest, one or two yellow wagtails, or a larger party of pied wagtails, running with equal grace and activity over the dewy grass. According to the traditional distinction framed from a local British standpoint, the yellow wagtail is a summer migrant, and the pied one a resident. But most pied wagtails migrate, and both the pied and the yellow that alight on the lawn in this way are migrants on autumn passage from England.



DECEMBER

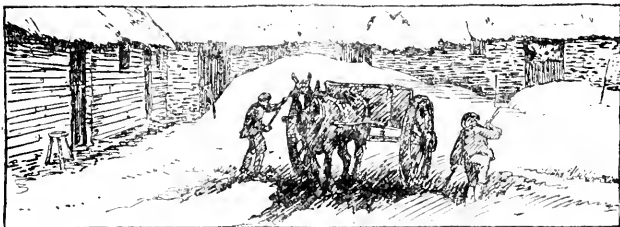
'Thou saw the fields laid bare an' waste,
An' weary winter comin' fast,
An' cosie here, beneath the blast,
Thou thought to dwell,
Till crash! the cruel coulter past
Out thro' thy cell.'

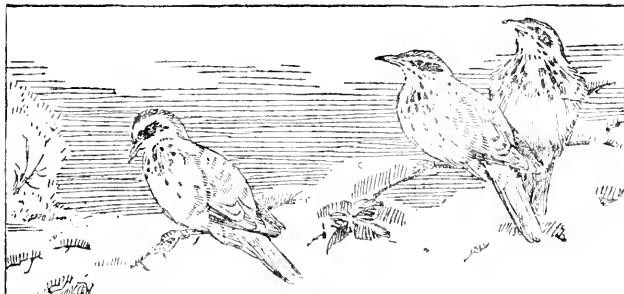
BURNS, *To a Mouse*.

JANUARY

'When biting Boreas, fell and doure,
Sharp shivers thro' the leafy bow'r;
When Phœbus gies a short-li'v'd glow'r,
Far south the lift,
Dim-dark'ning thro' the flaky show'r
Or whirling drift.'

BURNS, *A Winter Night*.





REDWINGS

WINTER BIRDS OF PASSAGE

To most people in England the arrival of the winter migrants is signalled on some cold clear November morning by the harsh clack of the fieldfare heard overhead. The date of the fieldfare's arrival varies a good deal according to the weather; and the weather in its summer home in Russia and Scandinavia has more influence on its coming than the warmth or coldness of the season in England. But its summer quarters are near enough to our islands to be affected by many of the same changes of wind, and we usually see and hear the fieldfare when the wind has been blowing keenly for twelve or twenty-four hours from the north or north-east, and the morning has been white with rime. Fieldfares are gregarious even in their summer nesting-places in the northern pine forests; and we see them much less seldom in England singly or in small parties than in considerable flocks. When we hear these big thrushes clacking in the tops of the hedgerow elms, or stringing high overhead with their careless, dropping flight, it is one of the great turning-points of the year. Their harsh notes and grey backs tell of winter, with its bare boughs and bracing chills, and its sense of multi-

tudinous restlessness in bird life. The nests in the garden that were the centre of so much busy life have been deserted and sodden for months past; but now the regret that they inspired is effaced by the fresh purpose of a new epoch. The drowsy period of late summer and early autumn is past, and the loss of the summer birds is more than half made good by the coming of the roving winter flocks.

Redwings arrive at much the same date as fieldfares, but are less conspicuous, and therefore less likely to attract immediate attention. The fieldfare resembles the larger and wilder missel-thrush, the redwing the smaller and quieter song-thrush. Both are gregarious birds, but redwings less frequently break up into small parties. Their flocks pass hurriedly overhead with an occasional single piping note and a flight only slightly undulating; fieldfares flit with a loose, flapping flight, rising and falling in careless motion, and constantly uttering their characteristic note 'chak-chak-chak.' Redwings prefer to feed on the open turf of the pastures, where they collect a prey of insects and slugs; but though fieldfares also feed in the grass fields, often mingling with starlings and jackdaws to pick a living, they are fonder of the hawthorn and holly berries. They will descend on a red hawthorn bush in November and keep rising and settling in alternate appetite and alarm in much the same way as smaller parties of missel-thrushes raid the ripe berries of a mountain-ash or garden cotoneaster in October. They can be distinguished from missel-thrushes by the conspicuous slaty patch on the lower part of the back; where the missel-thrush has a patch of pale brown, and by the dark grey wing-feathers, which contrast sharply with the lighter patch. The cries of the two birds are also quite distinct, though manifestly belonging to the same family. The irregular jarring screech or chatter of the missel-thrush is easily dis-

tinguishable from the clearly articulated 'chak-chak' of the fieldfare. Redwings can be most easily distinguished from song-thrushes by their smaller size, plumper, more robin-like build, and by their habit of keeping in flocks. These features are plain at a considerable distance; at close quarters or through a fieldglass, we can tell them by a well-marked pale stripe over the eye, and by the reddish patch on the flank, uncovered by the wing as they fly. They are tenderer birds than fieldfares, nesting in lower and more sheltered woods in Sweden and Norway, and suffering much more severely from hard weather in English winters. In this too they agree with song-thrushes rather than missel-thrushes; the song-thrush also lives chiefly on worms, slugs and insects, which it cannot obtain from frozen soil, while the missel-thrush's diet of berries is available in any weather, so long as it lasts.

Bramblings or mountain-finches migrate from the same regions as redwings and fieldfares; but their visits are much more irregular, and they haunt much more limited areas during the winter. Their great resort is a beech-wood where the ground is well strewn with fallen mast; and in a district where beech-woods abound their flocks can be found in most winters when there has been a good crop of beech-nuts. They are of much the same size and general habits as chaffinches, which also come in flocks to feed on the beech-mast; but they can be distinguished by their conspicuous yellow markings upon the wings, and a pale patch above the tail which catches the eye when they fly. The siskin is a smaller and more beautiful member of the finch tribe, which sometimes appears in winter in parties and flocks, feeding with linnets and chaffinches, or in the large mixed flocks of sparrows, finches and yellowhammers which haunt the ricks and stackyards

in frosty weather. It is a smaller bird than the linnet; and the general effect of bright golden-green in its mottled plumage makes it very noticeable in a flock of various species. Its golden feathers are more evenly distributed about its body than those of the yellowhammer; and it is also much smaller. The crossbill is yet another species of the finch tribe which appears irregularly in Britain from the continental pine-forests in winter. Its visits are exceedingly irregular; sometimes very few crossbills are seen in this country for many winters, and then our island shares in a great migration extending over a large part of Europe, and probably extending to the Siberian forests beyond the Asiatic boundary. The last great migration of this kind took place in 1909, and was repeated to a smaller extent in the following season. Flocks of crossbills were seen wandering in the Alpine valleys as early as July; and a few weeks later the arrival of these fascinating birds was reported from many parts of Britain, as well as from most other parts of Europe. Both crossbills and siskins breed irregularly and in small numbers in this country, and since the 1909 migration, the stock of breeding crossbills has been considerably increased. But the vast majority of the crossbills which have haunted fir and larch woods in recent winters have departed before the spring. In old cock birds the prevailing colour of the plumage is red; but they are greatly outnumbered in most flocks by the hens and young birds, which are chiefly green. Besides this conspicuous colouring, a flock of crossbills is likely to attract notice on the wing by their eager, jerky movement, and a chattering note which seems to correspond to their flight. Their motions are equally restless as they search in the tops of the firs or larches for the cones, which they dissect with their remarkable beaks. The tips of the curved mandibles cross when the beak is closed and

at rest ; when it is open and in action, it serves as a powerful forceps for wrenching open the obliquely inserted scales of a fir-cone, and extracting the seed at their base. Sometimes crossbills feed on haws and other hard seeds like hawfinches or greenfinches.

The arrival of hooded crows in winter is more regular than that of the three birds last named, but is confined more



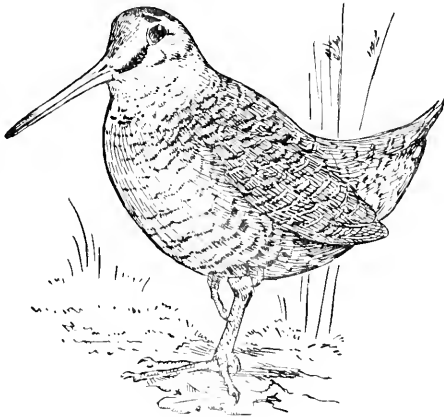
HOODED CROW

strictly to certain districts. Considering how common the hooded crow is each winter in the eastern counties and along a considerable stretch of the south coast, it is remarkable that it is an almost unknown visitor to districts but a few score miles distant. It seems to migrate on a very definite plan which no new influence disturbs. It is scarce in Surrey, though common along the coasts of Kent ; but in autumn a few birds may be seen under the southern slopes of the North Downs, apparently working their way along from the gap of the Medway estuary ; and they reappear

on the return migration in March. In many parts of East Anglia the grey or 'Royston' crow is as familiar in winter as the robin by the kitchen door. But its manners, though equally intelligent, are wavier; it haunts the open country, and particularly the marshes, where it picks up an abundant living on the flats bared by the tide, and along the belts of drift cast up along high-water mark. It will eat almost any animal substance, either dead or killed by itself; and it prefers the marshes and estuaries because many forms of aquatic life are found there in addition to the birds and animals which haunt the uplands and cultivated fields. As one lies on the edge of some great cliff, such as the South Foreland, it is interesting to see the grey and black forms of the hooded crows contrasted with the seagulls as they hunt on the shore far below. On such beaches their food consists chiefly of shell-fish; and they have been seen to carry up cockles and drop them from a height—a device which has also been learnt by at least one species of gull.

Woodcock now breed in Britain in increasing numbers; but our whole stock of native birds is small in comparison with the autumn immigration which takes place from Scandinavia. The great rush takes place between the middle of October and the middle of November; and it is expected at the time of the full moon, which is believed to be chosen by the woodcock for their passage by night. The movements of woodcock in this country form a very interesting chapter in the history of migration, and one which is still imperfectly understood. The general body of evidence tends to show that the migrations of this species oscillate along a path running from Scandinavia and northern Russia on the north-east, south-westwards through our island to western France, Spain and Portugal. The last point at which they rest in our islands is the south-west of Ireland; there they

collect in large numbers, and often provide excellent sport. It is chiefly a matter of the weather whether they collect in large numbers at this or any other point in their path; cold weather sends them on, and mild weather attracts them to unfrozen feeding-grounds in the woods and mires. Most of our own breeding birds seem to begin to move southwards about the end of August. But the date and extent of their wanderings seem very variable; they do not appear to be guided by strict rule any more than the other species nesting

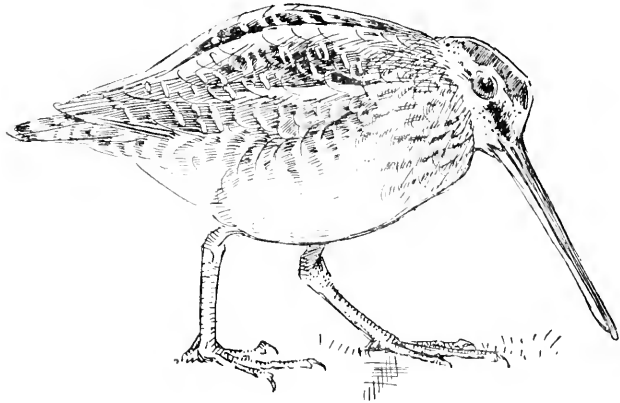


WOODCOCK

with us which are noted in the chapter on the Departure of Birds. Woodcock are regarded as immigrants in winter, not emigrants, because the majority of the species nest more to northwards, and move down at this time; but they provide an excellent example of the way in which the same birds may have a different classification in different parts of their range, and the same species may be represented in any one

district from month to month by birds with a very different history.

The same is true of snipe ; they nest in many parts of the country, but the numbers of winter visitors are far greater than those of the nesting birds. The jack snipe is a winter visitor pure and simple ; it breeds in Lapland and the Arctic tundras, and departs again in March. Golden plover appear



SNIPE

on heaths and wide ploughed fields in hard weather, flocking down from the Baltic and Arctic basins where they chiefly breed. Some of them may possibly come from nesting-places on the mountains and high moors of the northern counties and Scotland ; but probably most of our own birds go southward early, in the vanguard of the movement. On the sea-shore and in oozy estuaries, as early as August, flocks of dunlin are once more veering over the creeks and channels, showing their gleaming bellies as they turn. Curlew come down from their high-lying inland nesting-grounds at the

same time ; and they are joined by wandering whimbrels and redshanks and oyster-catchers. As autumn goes on, a greater variety of waders flocks down from the high north. Some of them, like the ruff and the black-tailed godwit, once nested in the English fens, and still breed not far away in Holland and the Baltic basin. Others, like the grey plover and sanderling and knot, are migrants from the swamps that fringe the Arctic sea, and their nests have seldom been seen. Most of these visitors from afar fare still further, and are seen no more after the season of autumn migration ; but some remain to add interest to winter walks and watchings.

With the woodcock at the end of October comes the 'woodcock owl.' The short-eared owl is widely known by this name among sportsmen, because it not only arrives at the same time as the woodcock, but is flushed in the same wet woods and thickets where woodcock lie. The owl has the same accidental connection with the woodcock that the cuckoo's mate, or wryneck, has with the cuckoo. It is the least nocturnal of owls in Britain, except the recently introduced little owl, which is now quickly spreading ; and its greyish-buff form is often seen flying low towards twilight over some rushy field or tract of sedgy marsh in quest of field-mice. The barn-owl also flies occasionally before it is yet dark on an autumn or winter afternoon ; but it is paler and brighter in colour, as well as being a little smaller. As is the case with the woodcock, the short-eared owl normally nests in Britain in numbers small in comparison with its winter flights. But the enormous multiplication of breeding birds in the districts of the Scottish lowlands affected by the great vole plague of 1893 will long be remembered. The short-eared owls gathered in great numbers to prey on the swarms of voles, and a great number remained to nest in spring. Waxing fat on the unlimited diet, they began to

breed very early in spring—some time before the ground was clear of snow—and laid double the usual number of eggs. The concentration of so many owls on this one district is an indication of the great numbers of birds which normally traverse any area during their winter wanderings, and depart unnoticed. Every short-eared owl which came to this land of plenty stayed there ; and the consequent abundance of the species seemed unaccountable and almost miraculous.

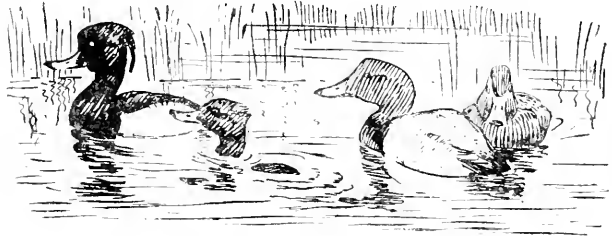
Besides short-eared owls, the vole-ridden sheep-farms were visited on that occasion by large numbers of rough-legged buzzards. This fine bird of prey, with its legs feathered right to the toes, is a regular winter visitor in small numbers from the uplands of Norway where it breeds among the crags. Usually it is a rare bird, and many years may pass without its being noticed in a locality ; but the abundance of voles collected the rough-legged buzzards from a wide area—possibly from the greater part of their whole winter range. Normally it lives a wandering life during the winter, chiefly haunting hill ranges and open downs. It is one of the most typical winter visitors, though not a common one.

Every rough-legged buzzard identified in Britain is easily recognised as a visitor from abroad, because the cases of its breeding here are so rare as to be negligible ; but there is no such easy criterion in the case of some other birds of prey, such as the sparrow-hawk and kestrel, or of the great flocks of diverse species which they accompany and prey upon. The winter visitors to Britain include vast numbers of skylarks, chaffinches, goldcrests, rooks, crows, plovers, wood-pigeons and many other species which are included among our breeding birds ; and the wanderers from one English county are winter visitors when they appear in the next. There can be no doubt about birds of common English species being visitors when they are seen landing, or passing

the lightships and lighthouses, as is often the case. Goldcrests arrive in autumn in great numbers from the pine-forests of Scandinavia; the passage of this minute and short-winged bird over the stormy breadth of the North Sea at the roughest period of the year is one of the most striking features of migration. Soon they spread themselves over the country, haunting fir-woods and the shelter of evergreens in gardens; they are far more abundant in many English gardens in winter than in summer, and can constantly be heard passing through the dark boughs of the spruce coverts with their needle-like cry.

The visits of most of the geese and ducks which are commonly classed as 'wild-fowl,' depend to a very great degree on the weather in this and other lands, and are consequently exceedingly irregular. Some species of geese are regular in their appearance in their old haunts each autumn, though variable in numbers; but the great majority of these water-fowl come to us when the frost of a severe winter has gripped their oozy feeding-grounds in the Baltic basin and along the eastern shores of the North Sea, and their coming depends on the season. Their numbers have greatly decreased, since reclamation of marshes and harbours has diminished their feeding-grounds, and their chief haunts are more closely watched by gunners. Next to the well-known mallard—often called the wild duck to the exclusion of all the other species in this fine group—the commonest species of duck which visit us in winter are wigeon and teal. The wigeon keeps chiefly to the estuaries, though it sometimes visits inland lakes; but the brilliant little teal distributes itself well about the country, settling down on small woodland ponds as well as larger sheets of water. Pochard are scarcer than teal and wigeon, but are seen fairly often on inland sheets of water in hard winters. Though they belong,

like the wigeon, to the group of diving ducks, their natural haunt is on fresh water, and not in the estuaries. Tufted duck are becoming more common as a nesting species in many counties, and more familiar as winter visitors where they do not yet breed. With their bold pied markings of black and white, bright yellow eye, and hanging crest, the drakes are very handsome birds, and catch the eye from afar as they rest on the water or dive. The ducks have the same general



TUFTED DUCK AND POCHARD

pattern, but the black and white patches are replaced by two shades of brown, so that they are much less conspicuous.

All these species belong either to inland waters or to creeks and harbours; the true sea-ducks haunt open salt water, and scatter round the coasts in winter with the divers and guillemots and gulls. The commonest of them is the common scoter, or 'black duck,' which can often be seen near the coast, as well as occasionally inland, when it has been carried out of its course by stormy weather. Even during the hour's crossing on the frequented route from Dover to Calais, scoters can often be seen; they fly low over the water like smaller cormorants, or float low in the trough of the waves. Gannets are also frequently seen in winter in the straits of Dover, as well as round the rest of our coast; as autumn approaches, they wander from their densely packed

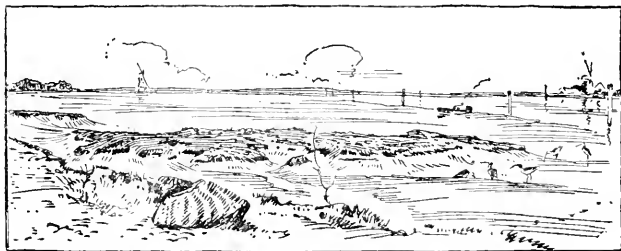


LAWNY OWL MOBBED BY SMALL BIRDS BY G. E. LOUG

breeding-places—chiefly off the Scottish coast—and live a roving sea-life till spring. Guillemots, razorbills, and puffins rove off the coasts through winter in the same way; and the little auks join them from their far northern breeding-places within the Arctic circle. True sea-birds, none of them willingly approach the shore; but we see them cast up dead on the beach after long spells of stormy weather, and they are sometimes picked up far inland, when gales and thick weather have confused and beaten them from their course. Divers are more often seen close inshore, as well as out at sea; they nest in fresh-water lakes, and sometimes take refuge on them in winter. The great northern and black-throated species are more often seen in winter than the red-throated, though the last-named is the commonest breeding species in Britain, and the great northern diver does not breed with us at all. Most of the divers seen in winter are immature birds, and their species is difficult to distinguish; but they well display the characteristic build and habits of their tribe as they urge their large and powerful bodies along the sea, disappear for a long dive, and rise with long neck and bill uplifted many yards distant from the point where they disappeared.

A peculiar view of migration is opened to observers on the east coast of England. It is generally supposed that a south-east wind sees the greatest movement, although birds flitting from north-eastern Europe would appear to prefer a slanting wind. Often there is a dreary undirected drizzle prevailing, a condition of weather by no means to their liking or benefit. They often tire and lag on their journey; many drop into the sea to perish, and others bewildered, like mariners on an uncharted coast, drop wearily on ships, or strike the lanterns of light-vessels, to be picked up in dozens

in the morning by the lightsmen, dead or maimed. Black-birds, starlings, redwings, crows, rooks, and many others are found by the score, and not infrequently by the hundred. In widely extended flocks, like baffled skirmishers, they beat jadedly in. Lapwings also almost invariably arrive abreast of the wind, often so utterly fatigued as to drop down in the first sandy wheel-rut that offers, or behind the nearest stone that affords a little shelter. They are then so tame and tired that they may be picked up. A lady one day thus caught a way-worn linnnet, placing it in the bosom of her



BREYDON

jacket: when the warmth had revived it, it struggled out and took to wing.

Some of the great salt-water broads—of which Breydon is the chief—have been known as great tidal resorts of numerous species of wild-fowl.

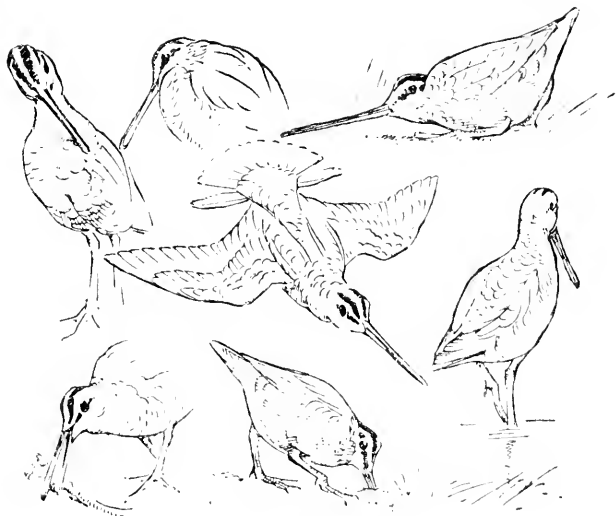
In stirring autumn and in severer winter many travellers drop in, breaking the southward journey, some driven, maybe, against their will, by the keen frosts of winter, from Scottish lochs and Scandinavian fjords. In the shallows, the wigeon pulls at the long-stemmed *zostera* or 'grass,' and deftly breaks in pieces the succulent stem; the mallard and his kin bite the greener fronds into short lengths, and between them they do

a good spell of shearing, but there always remains enough, for ducks to-day are fewer and the *zostera's* range is wider. When the broads are hard frozen there flock hither crowds of coots, that, hungering for the roots of reed and rush,

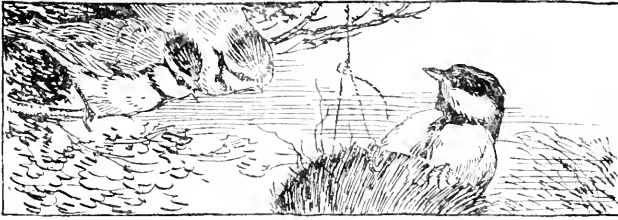


WIGEON

remember that last year they found a friendly substitute in the luscious 'wrack.' And they fly to the broad, feeding like sheep on the grass that lies prone when the tide is out, and wander about upon the soft ooze, all heading one way, like grazing cattle.



ATTITUDES OF SNIFE



FEEDING BIRDS

A BIRD table is now becoming a necessary piece of furniture in country gardens. But it is well to remember that January and February (not December) are the months when the duty of feeding birds is most insistent, and the profit greatest. Birds can endure starvation in early winter; indeed they naturally then reduce their feeding; but as the days lengthen they grow as hungry as a cabbage caterpillar. Not seldom the beginnings of this access of hunger will coincide with a period when the frost cuts off all food-supplies, save the scraps of dead creatures stuck in the resin of the fir and larch, or in the cracks of the bark. Happily this winter amusement and duty of feeding birds is becoming very popular in England; and abroad the Governments are gravely considering the economical wisdom of encouraging the practice. Indeed every year more of our gardens—even the little rectangles in towns and suburbs—are becoming sanctuaries to which birds of many species resort from the worst of all enemies, hunger, and for the best of all pleasures, a nesting home.

During the twentieth century we have seen birds grow perceptibly tamer and vastly more numerous. It is a wonderful addition to life to eat with the birds, as it were, to tempt them on to the window-sill, if not within the room.

For birds are tamer than we think. The man whom we used to watch in the Luxembourg Gardens in Paris had no special charm by which the sparrows were drawn to settle on his shoulders and to peck from his hands. If he possessed the qualities of St. Francis, they were not obvious on simple inspection. It is indeed an easy thing to get into touch with birds; to induce a gull on the embankment to take a sprat from your fingers, or to tempt a robin to the breakfast-table, or tits to a cocoa-nut within the window, or sparrows to your feet. Any invalid has the chance of realising this and taking profit by it. An open window and a tray of crumbs may make all the difference between a cheery and wretched period of illness or convalescence. More than one particular picture comes to the mind. The first is an invalid's room in Dorset. As a beginning the window-sill was scattered with crumbs each morning. Then a tray was fixed so as to extend the table. As spring began to warm the air the window was opened as often as might be, and the tray fixed inside instead of out. The change made no difference to the birds. Blue-tits, great-tits, cole-tits, robins, chaffinches, and an occasional wagtail came gaily into the room; and it was noticeable that the birds less tame, one would say, by nature, and especially the chaffinches, showed even less nervousness than the robins when they had conquered their first fears. Another picture of this sort is set in the frames of windows looking on a beautiful garden sanctuary in the Isle of Wight. But we may all do the same; the extended window-sill is the first and best attraction. If it be put before the window in sight of the breakfast-table it will pay 100 per cent. in the first week.

One of the best of all tamers was that charming naturalist, whose invalid state suggested the study of natural history as a solace, Mrs. Brightwen. The poet

Cowper's happy family, whose playful and affectionate ways assuaged the melancholy of his madness, less deserve fame than her household of birds and mammals, from which she drew intense satisfaction to within a few minutes of her death. Falstaff—not in Shakespeare perhaps, but in a brilliant emendation of Shakespeare—'babbled o' green fields' as he lay dying; and there is something Shakespearean in the last hours of this modern naturalist. 'In her dying moments,' wrote Mr. Gosse, 'she was attended by those wild creatures, who had long been accustomed to her presence. When I took farewell of her, two squirrels were gambolling and struggling on the toilet-table, and a robin was seated on the edge of her cup. Her last conscious moments were gladdened by the sound of the cuckoo calling from the height of the great tulip-tree opposite her bedroom window, and awakening one more flash in her sympathetic eyes.' She laid great stress on winter feeding, which 'gave her great insight into the habits and traits of otherwise shy birds, as then, to a lesser extent, and at all times, a large collection of birds were to be seen in front of the windows, in size ranging from a pheasant to the tiny tits; even the fussy water birds were enticed on to the lawn and under the tulip-tree.'



BLUE-TITS

If the birds are hungry and you have food, all the 'conditions precedent' to a common understanding exist and will exert a compelling influence. There is virtue in

elaborating a little the simple art of feeding the hungry, though the dietetic science as taught by some of the professors has a touch of absurdity in it. However, it is to be confessed that some very astonishing results have been achieved in Germany by the scientific baron who has devoted himself to the work of encouraging birds to breed and feed and have their being in his garden and park and woods. The baron is a sort of latter-day Winterton; and however formal his methods, they are not without hints for us in England, whether we have a two-thousand acre park, like the wonderful sanctuary at Woburn, or a rectangular rod, pole or perch close to London or other town—indeed within the city pale. No one could more profitably follow his example than the public authorities who attend to the parks and the live things in them.

The baron has made a speciality of feeding apparatus and nesting apparatus, for birds will come first to those places where they can find most suitable food and nesting places.

Food, however, comes first, and food is a subject that really requires a certain amount of scientific thought, such as Baron Burlepsch has spent on it. The most engaging of all his devices is what has been called the Christmas tree and plum pudding arrangement. The tree can either be a real tree—for preference, a small spruce, such as those sold for Christmas trees—or it can be a made-up tree, artificially put together in the manner practised on a large scale by Mr. Thomson Seton in his sanctuary in New York State. In a garden the tree can be put up within sight of the window. This tree is to play the part of a widow's cruse. It is to ooze plum pudding, as it were, as a fir-tree oozes resin. It is a not uncommon practice to smear boughs with the remainder of the breakfast porridge reinforced by crumbs and scraps; and birds of all sort appreciate it highly. But the baron has

played the scientific doctor in this matter. He makes a pudding or porridge or olla podrida, which is a compound of the sorts of food that birds most enjoy and most flourish on.

The following is his ideal recipe :—

White bread, (dried and ground),	. . .	4½ oz.
Meat, (" " "),	. . .	3 "
Hemp, . . . . .	. . .	6 "
Crushed hemp, . . . . .	. . .	3 "
Maize, . . . . .	. . .	3 "
Poppy flour, . . . . .	. . .	1½ "
Millet, white, . . . . .	. . .	3 "
Oats, . . . . .	. . .	1½ "
Dried elder-berries, . . . . .	. . .	1½ "
Sunflower seed, . . . . .	. . .	1½ "
Ants' eggs, . . . . .	. . .	1½ "

This elaborate mixture is incorporated into a mass of fat or suet equal to nearly twice as much as the whole of the previous mixture. The pudding is heated and poured over the branches and trunk, over which it forms a film; and to these rich and succulent boughs the birds will flock, pecking at the plums in the collection from every conceivable attitude—robins on tip-toe, tits upside down, thrushes blundering about, and warblers alighting daintily. Of course the food need not be so elaborate as the baron's, but if it contains some meat and some seeds, so much the better. It is a good plan to collect the seeds of elder or sunflower at the right season, and keep them for the birds against the hungry hours of the year. The really important thing is to pour the mixture on the trees when it is boiling hot, so that quite a fine coating is spread as widely as possible.

Another idea is a 'food stick.' A succession of holes are cut or scooped out of a narrow bough which is then nailed across a trunk. It provides a very handy and picturesque way of feeding tits and tree-creepers, and the

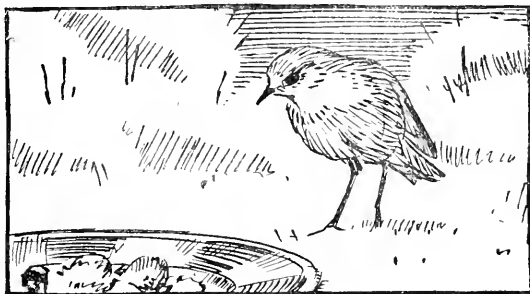
food can be well protected against the weather if the holes are faced to one side. As might be expected, a quantity of more elaborate methods are practised in the German sanctuary. There are food bills and food hutches and houses of many sorts designed to protect the food from the weather and to attract the birds. Some of them would be a great addition to the London parks, but they would not be of less use in gardens.

These methods have been elaborated for some years, but the economic value has only recently become apparent, and induced the German Government to take this model sanctuary under its wing, following an example set by Hungary, where the Government assists the study of migration with as good results as have followed its teaching of economic ornithology.

Every one finds it easy enough to attract the common birds and some of the bolder. The cole-tit and march-tit may in some neighbourhoods be regarded as more or less uncommon or at least hard to find; but they will at once come to the suspended fat on the Christmas tree. Other birds are not so bold as the tits; and to draw them more care must be taken and their habits more closely observed. The nuthatch is one. He seems to have as shrewd a sense for a nut as a vulture for a carcase. You may offer any sort of food; and never discover that nuthatches exist; but if a frame be fixed with wire or wood in front to hold the nuts without hiding them it is odds that the nuthatches arrive within a week. The better plan with all the shyer birds is at first to put the food in the places where they are most likely to be rather than where you wish them to be. When once they have found food within your precincts the rest is easy. They may be tempted nearer and nearer; or out of the obscure into the open with some ease.

Some birds baffle all attempts ; but among the untamable are very few of our native birds or indeed our winter visitors. The obstinate are the summer migrants ; and the timidest of all perhaps is the wryneck. Among the easiest are game birds, and the partridge at any rate pays for his food ; he is delightful to watch.

Some few birds are so persistent that they will learn to take food in ways entirely foreign to their nature. In a small garden in the Midlands one starling, after weeks of



ROBIN

endeavour, learnt to take the fat meant for the tits. His discovery came by a sort of accident. He perched on the end of the bar where hung the suspended fat, and after long gazing tried to manipulate the string. In doing so he half tumbled, so it seemed, but getting both claws on to the string, slipped down, and found himself to his surprise safely landed where he would be. On the following days he performed this acrobatic feat with increasing skill and of deliberate purpose. Later other starlings, observing the success of the manœuvre, followed the example ; and in order to save the fat for the proper feasters the string had to be lengthened.

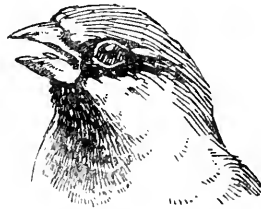
In the same way robins will now and again learn to take a precarious stand on a swinging cocoa-nut; but they do not often repeat the attempt. A starling is of all birds perhaps the most deliberate imitator; imitative in his songs and sounds, imitative in all his ways. It is, for example, by no means uncommon to see starlings, short though their wings are, pick up food off the surface of the Thames. They have learnt the art, though they remain clumsy in the technique, from the gulls, who do not mind a wetting and have wings suited for the purpose.





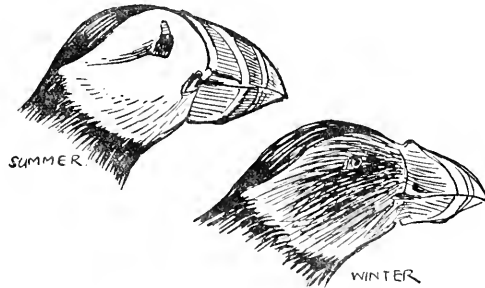
WINTER DRESS

Most birds and animals are duller in colour in winter than in summer; and in some the change is very marked. There is a remarkable difference between the fantastic breeding plumage of the ruff, or the brilliantly contrasted colours of the dotterel, and the modest greyish dress assumed after the summer moult. Though this change is on the whole most conspicuous in these and other members of the wader tribe, it is very noticeable in some of the most familiar birds. Cock house-sparrows lose their smart black bib, which becomes blurred and almost obliterated. The dull spotted plumage of the starling in autumn is so different from the metallic gloss of its spring plumage that birds in this phase are often not recognised by eyes that know them when they are busy with their young. The brilliance of the cock chaffinch's varied colours as spring approaches makes it a far finer bird than in autumn; and there is an increase of freshness and brightness in the markings even of such modestly dressed species as the hedge-sparrow and coot. The change extends in some cases from the feathers to the hornier and fleshier parts; the grotesque striped sheath which



SPARROW WITH BLACK EYE

swells the puffin's beak in the breeding-season vanishes after the moult, together with the wattle-like protuberances round the eye, and the rough red skin of the face. In all their typical cases, the dress in spring and early summer is more brilliant and elaborate than the winter plumage. In many animals there is a similar, though less marked, fading of summer hues as winter comes in. The winter coat of deer, hares, polecats and martens, and several kinds of mice



and voles, loses the reddish or tawny hues of summer and becomes a duller dun or grey.

Many of the brightest colours and most elaborate ornaments of birds are special accompaniments of the nesting-season, and disappear in the idle months of autumn and winter. They are usually explained as being the results of sexual selection, and as having been produced by perpetual breeding from the stocks which most pleased the eyes of the hen birds. In winter, when courtship loses its importance, protective adaptation to some extent takes its place in controlling the colours of birds' plumage and animals' pelts.

In Britain we have no Polar bears or white snow-foxes to help make up a really representative Arctic fauna; but the summits of some of the highest Scottish mountains still

provide a breeding-place for the ptarmigan. Formerly the ptarmigan bred on the mountains of the Lake District, and probably also in Wales. In its summer plumage it has a considerable admixture of white, which blends with its mottled browns and greys so as to be very protective among the last snow-patches or the white bleached stones which the thawing snow leaves bare. In winter the bird turns completely white, except for its short black tail-feathers, and a small black eye-stripe in the cock. Its general appearance can be well seen in the so-called ptarmigan sold at the poulterers'; but the great majority of these birds are actually willow-grouse or 'rype' in winter plumage, and are imported from Scandinavia and northern Russia. They are larger than true ptarmigan, and the cocks have not the black eye-stripe. These willow-grouse are the nearest representative abroad to our own red grouse—the only bird peculiar to Britain, unless we choose to regard the St. Kilda variety of wren as a true species. It is another pretty illustration of the working of the British climate that the red grouse does not turn white in winter, though the willow-grouse does. The common ptarmigan is also found in Norway, but haunts higher ground, and is a good deal scarcer, just as it is outnumbered by the red grouse here.

Last of our little group of the white Arctic birds and beasts comes the snow-bunting. It is rather an imperfect specimen of the group, for its winter plumage is not pure white; but in its haunts and habits it is a true bird of the snow-wastes. It breeds on the bleached, stony summits of the highest Scottish mountains with the ptarmigan, and also in the Shetlands. Its summer haunts extend far north to Greenland. It arrives in England at irregular intervals in considerable autumn and winter flocks, sometimes intermingled with other species, and generally seen near the

north and east coasts. At this season it varies a great deal in appearance ; some young birds have few or no white markings, while the amount of white in older specimens largely depends on their age and sex. The hens are less purely marked than the cocks ; but there is enough white on the wings, head, and breast of most of the birds in a flock to make them very conspicuous as they flit about the marshes or winter cornfields. There seems nothing definitely protective about their splashed plumage when they feed on ground clear of snow, as they often find it in their winter haunts. Even in a snow-covered landscape the large admixture of reddish and greyish-brown feathers on the back and wings prevents them from blending as completely with their surroundings as the ptarmigan or mountain hare. Nor is the protection apparently more complete in summer plumage. Then the brownish mantle turns to jet-black in the cock, and greyish-black in the hen, by the complete or partial wearing off of the brown tips to the feathers. A Norwegian naturalist describes the bold black-and-white plumage of the cock as forming a striking contrast to the snowfields and moorlands which it haunts ; and the pattern of the hen is almost equally distinct. Although there is an obvious similarity between the snow-buntings' white-splashed plumage and the snowy landscapes which they chiefly haunt, the likeness has stopped far short of the close imitation seen in the case of the ptarmigan or mountain hare.

The explanation of this degree of imitation seems partly to be found in the snow-bunting's nesting habits. It builds in cliffs and holes among stones ; and in these comparatively sheltered situations the hen bird does not need to imitate her surroundings so closely as the hen pheasant or wild duck on their open nests among dry brown leaves and herbage. A clue to the protective nature of many strongly contrasted



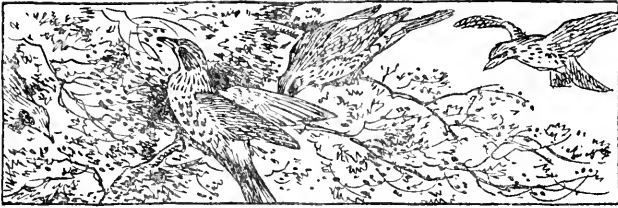
Snow-bunting.

SNOW-BUNTINGS IN WINTER PLUMAGE. BY WINIFRED ARSTEN.

markings is supplied by the small black spots or patches in the white coats of all this group of Arctic birds and beasts. The ermine has its black tail-tuft, the mountain hare its black ear-tips, and the ptarmigan its black tail-feathers and eye-stripe. In every case there is some definite mark of contrast to the general design. Patches of this kind are sometimes explained as recognition marks, enabling one bird or animal of a brood to catch sight of its companion and follow it when hastily changing ground. But if it served to make its wearer more conspicuous, it would be more likely to endanger it than assist it. It seems more likely that the real effect of these contrasted markings is to conceal the whole outline of the bird or animal by concentrating the attention upon one particular spot. In looking at a bird sitting in an open nest, such as a nightjar or pheasant, the eye is often caught by some particular spot or bar in the plumage without realising that it is part of a living creature. It looks like a stick or shadow or dry leaf; and when the attention is localised in this way, it is less likely to recognise the bird's complete outline. The same effect can often be seen in a photograph. It is the same with large and boldly contrasted markings as with the mottled plumage of the pheasant. A sheldrake is an extremely conspicuous bird as one sees it on an aviary pond; but the eye can easily miss it a hundred and fifty yards away on the mud-banks or the water. The white parts in its plumage blend with the reflected light on the mud or water, and the darker patches are dispersed and suggest nothing like a bird. The black and white markings of the ptarmigan and its companions of the snowfields probably have a similar effect. In most cases the small black marks are situated at or near some extremity; when they catch an enemy's eye on the snow they would tend to prevent it from getting a general

impression of the whole form. The ermine's tuft or hare's ear-tip would appear like any dark stain or surface shadow on the snow; and the rest of the white form would blend indistinguishably with its surroundings. In the case of the snow-bunting the outline would be broken up in the same way, though the dark patch of the bird's back might be more noticeable. Though conspicuous when flying, its pied markings would hide it efficiently when at rest; and no protection pattern can do much to conceal a bird or animal when it runs or flies.





FIELDFARES

THE STRUGGLE WITH COLD

(1) BY LAND

It is a pretty belief of the country people, and it is general, that many berries mean a hard winter. Such a thing is not impossible. It could be that weather of the sort to produce much fruit is a cause of other weather that includes frost; but there is no evidence for the truth of the belief. One year of astounding berry weather in this century was followed by a winter of quite unusual mildness. As often with country people, inherent teleology has been stronger than observation. The truth is that in England the harvest of berries is always large; and often lasts on until every fear is gone of the dearth that goes with heavy frost. But however open the winter, the favourite berries are always cleared off, and generally there comes a day when hunger or laziness compels an attack on the more bitter fruit. Every winter within the writer's experience a certain clump of holly bushes has been attacked and cleared of berries by a sudden onslaught in January. Several trees of the clump are female hollies, and thanks to their juxtaposition to the males they usually bear heavily. The groups of coral berries stand out very clearly from the metallic leaves, so clearly indeed that emissaries from Covent Garden, who now range the country at a radius of a hundred miles from

London collecting for the Christmas market, see them from afar and beg leave to purchase. But the berries are not designed for Covent Garden.

In the early winter not a single berry is touched, so far as one can see. Perhaps now and again a blackbird picks one off—a probability enhanced by the discovery of holly seedlings in one of the blackbird's favourite haunts. But the cardinal harvest remains apparently intact till a particular day. It is then attacked furiously by the fieldfares, and the whole cleared off in a day or two. It is difficult to determine the reasons of the sudden attacks. No doubt the holly-berry is bitter as compared with the hip, which is therefore preferred before it. But whether the birds are forced by necessity to take the less savoury food, or whether they wait till the berries are matured is another question. All the wild berries are softened and sweetened by frost and much weather. At Christmas the holly-berries are hard and shiny. After a week's good frost they mature, like celery, and the first birds to fall upon them are the congregated fieldfares, which travel further than our native birds in quest of food, and are much more dependent on berries.

All the thrush tribe are great berry-eaters; but the thrush itself is much more carnivorous than missel-thrushes, blackbirds and fieldfares. In fields where the May bushes are frequent you may almost catch blackbirds with your hands, so greedy are they for the hips. The time is a perfect one for watching the birds; you have only to stand still against the trunk or series of trunks of some thorn and watch. If it is very cold the fieldfares will crowd on the bush over your head, now and again dropping to the ground almost at your feet to pick up fallen fruit. Missel-thrushes prefer above all other food the berries of the yew or one of its varieties. Any one who plants a Japanese yew in his

garden may make quite sure of attracting the missel-thrushes. They make for the fruit more greedily than a tit for a cocoonut. The tree is a peculiarly difficult tree to perch upon, and in their greed they work noisily and clumsily. The only way they can pluck the berry is by fluttering violently opposite it, and now and again steadying themselves with their claws, but never perching. The difficulty is almost as great to them as to starlings which have been seen imitating the gulls in their art of picking food from the surface of the water. As they catch each berry they almost tumble down to the foot of the bush in their hurry to devour this most delicious food, as sweet to the human palate as to the birds. It is a lesson in aeronautics to watch the extreme difficulty experienced by the bird in flying straight upwards. The wings move at a frantic pace, and the whole effect is strangely laborious; but the greed for the berry is too great to allow the bird a thought of flying even a few yards off the tree.

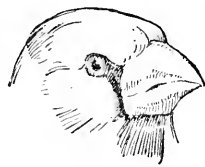
Naturalists have not very closely studied the feeding habits of our birds, or indeed other animals in winter, except in cases where they have some very apparent effect on cultivated crops. The Board of Agriculture itself has come forward to impress upon the community that the plover is the best of the farmer's friends, and that the starling is very little less useful. The crops of thousands of unfortunate pigeons have been examined; and though it has been proved against them that they will eat their fill of clover and succulent green stuff, they also swallow a good number of the bulbous buttercup roots and arrest the spread of most pernicious weeds. The Hungarian Government, through its well-equipped bird department, has justified the rook, that valiant destroyer of the click beetle, but confessed that when the numbers grow excessive the birds may degenerate, just as children in our

slums develop a taste for pickles. Indeed, birds very rapidly change their feeding habits if there is pressure. They will imitate, too, an individual who may show some morbid taste. Little colonies of rooks, as of brown squirrels, may turn into eaters of carrion.

It is curious that more is not known of the food of birds since classification began on the lines of the dietary. For as birds feed, so are their beaks shaped; nor is there any part of the bird which has been so affected by locality and habit. Compare the spillikin beak of the wren with the pearl pincers of the hawfinch, or the aquiline hawk with the rook, or the



WREN



HAWFINCH

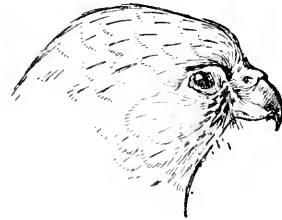
broad-based mouth of the nightjar with the awl of the woodpecker. In all these, and yet more clearly in the snipe and avocet, you could infer the feeding habits *a priori*. But the knowledge lacks precision as the aviculturists or keepers of captive birds have realised. Few field observers care to be aviculturists, but they are inferior to the keeper of caged birds in this department of knowledge.

We may be sure that the country would be overrun with certain weeds if many birds did not live principally on seeds. A type of the insect feeder is the goldfinch; and once again, after the lovely bird has nearly vanished, we begin to see their flocks swarming among the thistles. They become again part of the autumn landscape. Less conspicuously, but as surely, the other finches, the buntings, and our one warbler, the hedge-sparrow, are at work in thinning the

myriad seeds that are to be found in every single square inch of earth of open country. Other animals save their lives by reducing vitality. But birds, though they store fat within their bodies, and can thus bear some temporary starvation, must live the active life though the ground is iron with frost or blanketed with snow.

Among the birds that suffer most from want of winter food are partridges, though their case is seldom if ever quoted. All game

preservers feed their pheasants, spending often unheard of sums in this way; and of course the artificial multiplication of these wild fowl makes this quite necessary. But comparatively few pay this attention to the partridges, which deserve it more since they do little if any harm, while the pheasants do much.



KESTREL

The partridge is essentially the bird of cultivated fields: the better the farming, the more the birds, it is said.



ROOK

The stubbles are their feeding-ground, the grasses their sleeping-place, the south side of the hedgerows their siesta couch, the dust

of the roads their bath. When the stubbles are well gleaned and birds plentiful, partridges begin to suffer seriously towards the end of January. The theory is a personal one; but the dogma may be broached that scatter-

ing food for partridges through January, when the spring hunger begins, would do more to multiply the stock than many of the troublesome and expensive breeding systems. The partridge is a very heavy bird. It does not demand quite so much sustenance as the woodcock, which will eat its own weight of food in twenty-four hours; but it needs much food and has a wonderful instinct for its discovery. Not even a green woodpecker has a finer taste in ants and their grubs. In a district almost denuded of partridges by several wet Junes one field was found packed with birds, the day after a number of ant-hills had been cut open; and



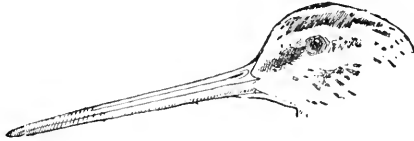
NIGHTJAR

GREATER SPOTTED WOOD-
PECKER

the birds remained clearing up the relics for many weeks. It is an odd fact, established by some very thorough investigations, that partridges living on chalk land are distinctly bigger and stronger on the wing than others.

The bird that, if one may say so, ought to suffer more than most others, but does suffer less, is the sparrow. It is essentially a grain eater. It does not care for fruit, and only eats live things during one of the spring months, but it is saved by its affection for the haunts of men and by the stackyards, where there is always grain. In the yards it is always associated with finches. Any one who likes to conceal himself in loose straw can watch the finches from a few yards or even feet; and if there were more stackyard

observations, there would be less written of the exceeding scarcity of certain birds. In Hertfordshire, for example, the brambling or mountain finch is usually common every winter. Large flocks appear in the fields now and then, but there are some specimens in the stackyards every year. Hawfinches, too, are common. Indeed, every finch is common,



SNIPE

the goldfinch and especially the bullfinch; and it goes without saying that greenfinches swarm. But none of them



AVOCET

except the greenfinch have the sparrow's fondness for human houses.

The most pleasing of all birds to watch in winter time is the jenny wren, though many people who enjoy their tits and robins immensely seem to forget all about it. The little things are even fonder of houses than sparrows or robins. With the slightest encouragement they will come into the warm rooms whenever the weather is severe, and they rejoice especially in a greenhouse. They creep in and about a honeysuckle on the wall, greenhouse plants, or the

base of a hedge, very much like mice, quick, quiet and busy. At every step or two of their running about they peck at the branches or plants, finding food quite invisible to our eyes. The little black eyes and the beautifully fine beak, pointed as an etching pen, discover and seize what no other bird cares about; and this form of food exists even in the hardest weather. If any twig is carefully studied with a huge magnifying glass you can find pieces of dead insects and *animalculae, disjecta membra* of incomparable minuteness, caught in the roughness, the crevasses of the bark, or stuck in the oozy resin of the fir twigs. The number of dead remnants of creatures is probably much greater in any glass-house, and the fact will account for the wren's noted preference for this winter feeding-ground. And the wren is prettier than any of the greenhouse plants. The delicate browns and greys of the bird outdo in comeliness the flame of the climbing geranium, through which it threads its dainty course. The black eye has a glint beyond the eye of the flower; and the sudden energy of its bouts of song in wintry weather have the impetus of a Shelley lyric.

Robins save themselves as sparrows do; but their case is worse. Above all other birds they are flesh feeders. Their courage and energy are the courage and energy that, as some philosophers consider, are a consequence of a flesh diet. Insects and grubs and worms are harder to come by even than grain, when winter lies heavy on the land. So it comes about that each robin absolutely demands an area to himself. He will not permit any other robin, even his own child or parent, within that area; such is the stark law of self-preservation. It is therefore quite difficult, however thorough the supply of food, to attract to your window more than a robin or two, while as many tits will come as you find

supplies for. Of all the birds that fly the robin is perhaps the most solitary.

The least solitary are the starlings, whose vast throngs, shifting the light as they manœuvre this way and that, are one of the most familiar of winter sights. It is always laid down as a maxim that birds congregate and mass for the sake of food-supplies. It is true enough that partridges pack most in years when food is scarcest; but it is difficult to understand why each bird finds it easier to discover food when he is one of a great pack. Starlings and larks, which cover our fields in winter, have rather changed their feeding habits since they became so numerous. You may see fields in Norfolk where the starlings have fairly devoured the whole crop of wheat. They scratch at the foot of the blade and bite it off about a quarter of an inch below the top of the bleached part. Where birds, taken with a fancy for this unlikely food, have descended in a harpy spirit, farmers have been forced to sow the field over again. So here and there, walking over the winter fields, one may find patches scabbled over as though a hen had been scratching, and the wheat over the patch looking a rather melancholy spectacle. It finally recovers to some extent, but it is not a sight that helps the farmer to appreciate his birds. The offender in this manner is always the lark, whose numbers after the winter migration are portentous. But both birds, especially the starling, are, like most other birds, notable benefactors. What they prefer to eat are the grubs that live at the bases of the plants. They are scavengers and sterilisers, a potent ally, except when the numbers grow excessive. Both the starlings and larks suffer excessively in very hard weather; and multiply exceedingly after a course of open winters.

(2) BY THE SEA

Few birds have more difficulty in getting food than the gulls. They seem to have no proper home. The black-headed gulls, the species chiefly frequenting London, cannot get a living at sea, which is their proper home; and they do not seem particularly well fitted for life on land. They flock to the ploughs as soon as harvest is over, tumbling over one another in their greed, and often fluttering and 'scrabbling' within a yard or two of the ploughman's back.



'THE GULLS PRESS AND SCRAMBLE CLOSE BEHIND THE PLOUGH'

They come yearly in greater numbers to the river-side towns, and though one regards them by the sea as the wildest of birds, expressing wildness in the strange cry that seems taken from the tempest, they are grown so tame that they will feed from the hand and can be captured—*experto crede*—by the hand. One may say that the whole tribe of gulls are in a manner parasite. The skua gull, of course, largely lives by stealing, by robbing other birds of the fish they have caught, just as in America the eagle will rob the fish hawk. The greater black-backed gull is a murderer. In the realm of nature it is seldom if ever that a more brutal sight is vouchsafed than this gull attacking a laggard or a wounded duck. There is savagery in the impetus of the onset. The beak is driven as if it were a sword into the screaming bird,

and the feast is begun before the bird is dead. Round the harbours every variety of gull is busy picking up any refuse ; and perhaps after all the proper work of the gull in the economy of things is to scavenge, to eat up scraps, even to play the vulture. For this task they are made omnivorous. They swallow the bread we give them on London embankments as eagerly as they pick garbage on the river.

But the gulls, a various crowd of great multitude, are best seen at their work of scavenging along the coast. It is the great feeding-ground of winter, and its importance may best be realised when the great shoals of fish begin to approach the land, especially when, late in autumn, there come into east coast waters huge shoals of silvery herrings, and sea-going fishermen begin the harvest of the sea. It is a pleasant sight when the day is bright to see the long processions of sturdy steam luggers passing in and out the harbour. Those with catches push their way vigorously towards the port. Others just away from the wharves and quaysides, slushed down and freshly cleared of fish scales and the bloody drip of yesterday's catch, race each other to the herring grounds, with nets ready to be shot for the night's fishing.

On just such days as these the waves fling upon the strand queer things which have dropped from the nets, besides strange creatures churned up from the depths. Above the waters flocks of gulls scan with keen yellow eye the flotsam flung from wave to wave. These welcome morsels may be broken fishes, or sea anemones ripped from weed-grown wreckage sunk in the shallows hard by some treacherous sandbank. Often the larger gulls snatch up from the sea the bedraggled carcase of some small drowned migrant bird—a skylark or a chaffinch, overcome by an adverse wind, or starling, maimed by striking a lightship's lantern. The

gulls are of many varieties : the dark mantled greater black-backed gull, the blue-legged common gull, the smaller black-head, distinguished now only by two dark ear spots, and by its bill and legs of crimson, and the herring gull, with pale blue back and pinky feet. But young birds of the year, of the larger species, clad in freckled greys, muster up in vastly larger numbers.

There is often much of interest to be noted at the tide-mark. You may find the long ribbon-like streamers of the sea-tangle, the olive-brown fronds of the serrated wrack, the bladdered fucus and the oar weed—this last often attached to a valve of the horse mussel ; whilst star fishes, the weed-like corallines and zoophytes, lumps of the egg-cases of the whelk and feebly struggling pear-crabs, with rarer and even more interesting products of the sea, go to swell this 'margin of all things vile.' Sometimes the scouring underwash lays bare the delicately brown shells of the radiated trough shell, the long fingerlike razor valves, and hermit crabs robed in discarded shells of whelk, casting them up with the rest to the delight of the sea birds. Amongst the debris one often finds numbers of herrings, the more or less putrid carcasses of the largest fish, whose weight caused them to drop back from the meshes of the nets. With them dull-eyed mackerel, victims also of the nets, and, maybe, weevers, and here and there a whiting, and among them the picked or spiked dog-fishes. Often we find the wicked grey eye of this little shark still glistening. It is an interesting experiment to dissect them. As often as not you may turn out from a sea-dog's stomach, chestnut-shaped pieces of herring—always of the largest and best, the fisherfolk will tell you—which they had bitten from the dead fishes as they hung suspended in the vertical nets.

That large-eyed fish, the scad, or horse mackerel, often

as fresh as if but just dead, may be found stranded on the shore. Neither fisherfolk nor landfolk in East Anglia seem to care for him, though he is attractive to the eye, with cuirass-like scales adorning his lateral line, and with his great bright eyes. But the hooded crow does not despise him. Planting a big black foot upon the stranded fish, he gouges out first one eye, and then the other, and as deftly disembowels it. A few pieces are snatched from the back, when a fellow-bird calls to its companion. Away flies the crow to help a comrade who has just discovered a cast up baby porpoise, another derelict from the fishers' nets. At times the crows find food in plenty, for nature is cruel as well as kindly, and the bird is by no means dainty. When the night has been boisterous, and poor little migrants have been beaten into the sea, next morning's tide, or a tide or two after, sees their carcasses flung on the sands: larks, blackbirds, thrushes, linnets and many others, may be among them. Even rooks so perish. It is quite a common thing in late autumn to find the breast bones of various birds clean picked a few hours after some sea-storm. One has found the gull and the gannet, and many a guillemot, razorbill, and little auk's skeleton entirely fleshless, with perhaps only the wings intact, and when they are hard pressed by hunger the crows have been again at these sorry remnants, stripping off the tougher muscles of the wings that they had rejected. At a pinch the candle ends and dead rats and mice from the sewers are greedily devoured, nor will the hungry tribe despise a stranded turnip or a broken cocoanut, soft and putrid though they be by long submersion.

When the east wind long continues, and the sea-fishes leave the shallows for deeper waters, the commoner auks, the guillemot and razorbill, fare badly. These birds revel in

the herring shoals far out at sea, and with gannets that plunge, and cormorants and shags that dive, they share the fishing-grounds with the fisherfolks and the gulls. The gannets may need ten fishes a day, the cormorants as many, and the auks can safely do with half a dozen. The gulls by thousands harass the shoals, unable to dive, depending more upon the fishes gilled high up in the drifting nets, to the disgust of the rightful owners. Often these various birds gill themselves in the nets and are drowned. But when the herrings swim low, the guillemots especially suffer sadly;



SCOTERS

and, flung from wave to wave, after becoming wearied out by constant diving, and by plunging through the rollers, by and by the breakers cast them dead or dying on the beach. It is no uncommon thing for the rambler on the shore to find a guillemot bunched up as if sleeping just above the margin of the highest wave, and, on stooping to pick it up, to find it dead and stiffened. More rarely the razorbill suffers with it. Life is harder for the birds of the sea, though the sea is unfrozen, than the birds of the land. For by the sea there is always the winter of heavy winds. But not only sea birds come for a space to find food by the sea shore.

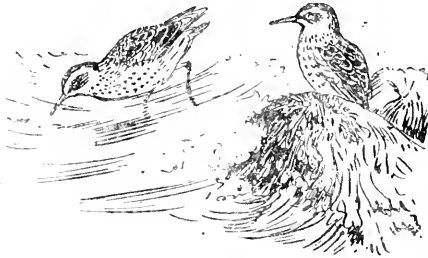
Among the least restful flocks are scaups, wigeon, tufted ducks, and shelducks. The black-plumaged scoter, the 'mussel duck' of the east coast fowler, hardy and vigorous



SKYLARKS, COCK UPPER BIRD, HEN AND NESTLINGS. BY A. W. STARY.

of wing and foot, seems not to heed so much the fury of the elements. Its home is on the sea, its food abundant in the quieter deeps below: it is an excellent diver, and searches diligently for the fat, brittle-shelled trough-shell and the smaller mussels, nor are small crabs and kindred crustaceans despised by them.

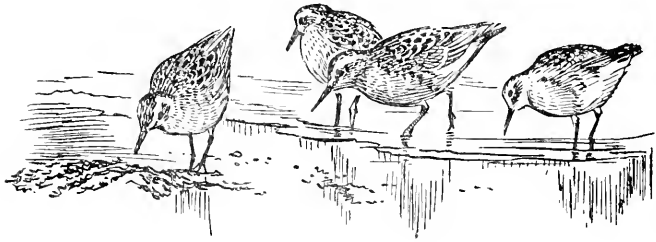
Running nimbly along the moistened sands various shore birds hunt for such fragmentary or minuter forms as the larger birds reject. Dunlins trot in zig-zag fashion up and down the wet sands. Here they snap up small crustaceans: — gammarus, hyperia, corophium, and crangon, and tiny fragments of other animal bodies.



THE PURPLE SANDPIPER . . . WILL RUN DOWN A RETREATING WAVE-WASH, THIGH DEEP

Occasionally the purple sandpiper may be met with: preferring rocky beaches and the neighbourhood of fucus-decorated piles and boulders, they will search the flattened stretches of sands, and, being daring, will run down a retreating wave-wash, thigh deep, in order to snatch up any tempting morsel. One seldom sees two together, less often a trio of this solitary species. Knots tamely prick about among the weeds and shingle, hoping for sand-hoppers. Ringed plovers in scattered companies search the drier stretches above the tide-mark, and occasionally a parcel of grey plovers, now clad in wintry vests of white, drop in to share the findings of the smaller birds.

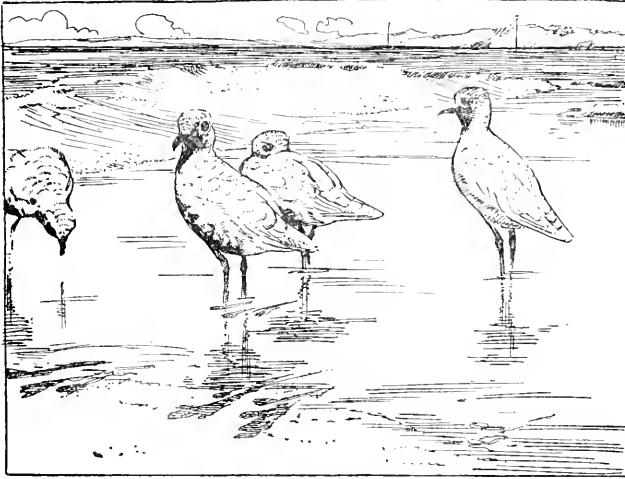
On the shingle patches high above the highest wave-sweep of the spring tides flocks of snow buntings, tinkling their bell-like note as they flit from spot to spot, explore the brown sands. Their quest is the buried and unburied seeds of the dune-plants that the wind and the drift sand play hide-and-peek with,—the seeds of maram and sand-sedge and the low-growing vegetation that bloomed and seeded last autumn, and dispersed, leaving an earnest of vegetation for the spring to follow. The naturalist and the bird-catcher



KNOTS

who lays his nets hard by the sand dunes recognise occasionally among their flocks the hardy Lapland bunting, the snow-bird, and the shore-lark. Happily these bird-catchers, the greatest of all enemies of our rarer birds, are beginning to decrease. Then there are grey linnets trooping southwards, resting and feeding as they travel, twites and redpoles—the lesser and the mealy—appearing in twittering, dancing flocks, keeping to the coastline, having arrived, perhaps but a day or two since, on the Norfolk coast. In January 1895 a later migration sped them in astonishing numbers before a spell of exceedingly wintry weather. It is horrible to record that one bird-catcher netted 70, 130, 220, 330 linnets in four successive days. When bad weather set

in in the winter 1900-1 another netter captured 140 siskins one morning before breakfast on a decayed lettuce patch



GREY FLOWERS ON MIGRATION

within rifle shot of the sea. It is on this coast that we most need the efforts of the Royal Bird Protection Society.



WOOD-PIGEONS

BIRDS IN LONDON

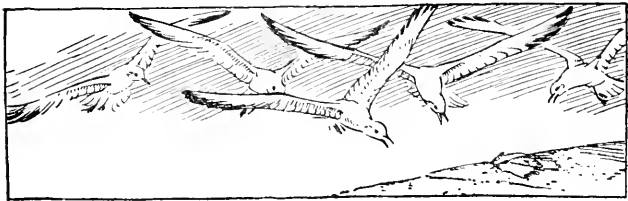
BIRD life in towns is proportionately much richer in winter than in summer. Few spots in towns can provide even the bolder and hardier species of birds with the privacy which they require at the nesting-season, or a sufficient supply of insect food for their young. On the other hand, towns in winter are warmer than the open country, and are better provided with many kinds of food. The scraps thrown out from houses, whether accidentally or in deliberate charity to the birds, are naturally more abundant; and even in days when motor traffic is so largely ousting the horse there is still a good deal of corn to be picked up by pigeons and hard-billed birds of the finch tribe in mews and stables and about cab-ranks.

The larger the town, the greater is the difference in the richness of bird life at the different seasons; and it is greatest of all in London. There, for the last twenty years, the winter birds have increased even more remarkably than the summer birds have diminished. As the suburbs spread annually wider and wider, the summer migrants seem less and less inclined to penetrate their murky barrier into the parks and gardens of the centre; and for a long time past the trees and undergrowth in their old haunts have been

growing sicklier and more decayed. It is doubtful, for example, whether the spotted flycatcher has nested in Hyde Park or Kensington Gardens for some years past, though it did so until quite recently; and the same process of diminution or disappearance is noticeable in the case of the summer migrants almost everywhere in the metropolitan area. Birds which visit London in winter, on the other hand, have grown far more numerous; and in some cases they are not only winter visitors, but residents all the year round. The regular arrival of large flocks of black-headed gulls in autumn dates from the great frost of 1895; and the increase of wood-pigeons, with the remarkable change in their habits which town life produces, has been more and more noticeable during the same period. So it comes about that in London the ordinary contrast between the seasons is precisely inverted. Londoners see the first gulls return to the river in autumn with the same sense of anticipative pleasure that countrymen feel when they see the first swallow in spring. The gulls begin to return to London in considerable numbers about the third week in October, though a few immature or unmated birds may be seen as stragglers in August, or even earlier. Their date of migration to their winter home is thus about a week later than that of the swallow and many other summer migrants; but it is part of the same great movement. By November they have fairly settled down for the winter; and they depart about the third week in March, or a little earlier in a very open season, leaving a few stragglers behind them. Their numbers vary a good deal according to the weather; after hard frosts or violent gales, the flocks wheeling and screaming at the parapet of the Thames Embankment are twice as numerous, and twice as hungry, as in spells of calm. They feed to a great extent on what they can find on the surface of the river and its foreshores,

and on the lakes in the various parks. But their skill in catching bread or fish thrown to them in mid-air makes them favourite pets with Londoners ; and a flock of gulls wheeling with harsh screams in an endless circle past a figure on the wet grey embankment is one of the most characteristic pictures of outdoor London life. They will alight a moment on the parapet with wary eyes, and carry away a crust to consume as they float on the stream ; and sometimes they will even feed from the hand.

Black-headed gulls make up the vast majority of the birds of their tribe which visit London. Occasionally the



much larger herring gull is seen floating warily in mid-stream, or a common gull flits among the barges on the river ; but neither, so far as we have seen, is ever confident enough to come and catch food thrown from the Embankment, far less to take it from human hands. Herring gulls in the adult plumage of soft grey and white are much scarcer on the Thames than young birds in mottled suits of grey and brown. Among the black-headed gulls there are always a large proportion of birds in similar mottled plumage ; and it is not until the early weeks of the new year that the old birds gradually assume the sepia mask of their spring plumage which gives them their commonest name. Earlier in the season they have only two faint dark bars on the head, one across the

orifices of the ears, and one further forward. The dark patch is confined to the front part of the head, and does not extend over the crown to the nape of the neck, as is the case with the jet-black caps of terns. Black-headed gulls are also called laughing gulls, from the resemblance of their repeated cries to sharp laughter when they grow violently excited at any disturbance of their nesting colonies, or when they are being fed on the Embankment. All the gulls are eager and aggressive birds; but only the black-headed gulls have so far adapted themselves with confidence to London life. Their aggressiveness is very conspicuously displayed towards the ducks in St. James's Park. When food is thrown from the bridge to the mixed flock of waterfowl beneath, the gulls hover with threatening cries above the swimming pochard and wigeon, and often force them to drop what they have secured. Beneath the water the diving ducks are their masters; but we have seen a tufted duck bring up sprat after sprat from the shallow bottom of the lake, only to be robbed of them by the gulls as soon as it appeared on the surface. The gulls play pirate with the ducks' lawful gains, much like Arctic skuas with the earnings of other gulls. It is surprising to see the ducks victimised so easily by smaller and lighter birds; but the gulls win by sheer force of courage, though it is courage in an unamiable shape. The courage and intelligence displayed by the black-headed gulls in London is only one form of the vitality and adaptiveness which characterises their whole family. Gulls are a rising race; in many parts of the country various species are multiplying greatly under the protection of the Acts, extending their range to districts where they were formerly unknown, and developing new and mischievous tastes in diet.

In all these respects the wood-pigeon is the gull's counterpart on dry land. Wood-pigeons also have enormously

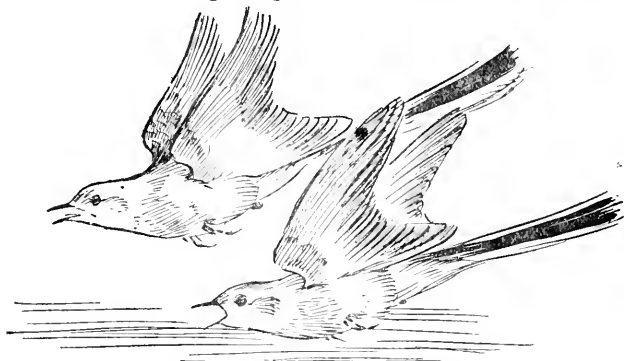
multiplied, have followed the spread of plantation into new districts, have become a positive curse to the farmer, and have added themselves as a new and delightful feature to London life. London has had its wild house-pigeons probably from time immemorial; Stowe, the Elizabethan antiquary, shows us how they were household words in his day by his story of how the boys of St. Anthony's Hospital used to call 'Paul's pigeons' after the St. Paul's boys in the street. They would respond with a cry of 'Anthony pigs,' and then both sides naturally fell to fighting. But the white-necked, portly London wood-pigeon is a colonist of much more modern date. London wood-pigeons are believed all to be descended from a few pairs turned out in the grounds of Buckingham Palace by the late King when Prince of Wales. In the country they are among the wariest of birds; in London they show the same intelligence by presuming to an almost ludicrous extent on man's friendliness. Swollen to an enormous size by inactivity and good living, they will scarcely step out of the way of the nursemaids' perambulators in the parks. Yet they have not lost their cunning, when it is needed. We have watched a half-grown Persian cat stalking a large and placid wood-pigeon in a little garden abutting on one of the London parks, until it seemed as if the cat's fierce concentration must win its prize, and the pigeon's indifference prove fatal; yet just at the right moment, with one more sidelong glance of the complacent eyes, the bird flapped gently over the fence, and the cat was left petrified and glaring.

It is remarkable how the distinction in the natural habits of the two kinds of common London pigeons still persists in spite of the great change in the birds' present life and surroundings. The pigeons of St. Paul's and the Royal Exchange and many other London buildings are descendants

of escaped house-pigeons, and thus ultimately of the wild blue rock-dove, which still haunts some of the wildest cliffs and caves on the coast and inland. They nest and roost, accordingly, in the streets which are like deep ravines, and on the tall buildings which recall the lofty cliffs. The roar and flow of traffic far beneath them is curiously like the movement and murmur of the sea, when heard and seen from one of their lofty watch-towers. Wood-pigeons, on the other hand, are seldom or never to be seen out of sight of a park or garden, or at least of one of the trees which break the line of so many London streets. House-pigeons feed more freely in the parks and squares than wood-pigeons in the streets; but they never nest in trees, whereas wood-pigeons have already so far modified their ancestral habits as to nest now and then in a window-box on an upper floor, which is a site more recalling a ledge on one of the rock-dove's cliffs. Every group of London's half-wild house-pigeons recalls Darwin's famous experiments with the many varieties of their one species, by the diverse gradations of plumage between the standard pattern of the fanciers and the original wild stock with its characteristic dark wing-bars. The perpetual tendency is to revert to the original type; and if it were not for perpetual new recruits of strange hues and shapes from the pigeon-cotes, in a very few years the whole race of London house-pigeons would become pure blue rocks again.

Grey wagtails are far less numerous than black-headed gulls, but equally regular as winter visitors. Wagtails are often badly named; the name of yellow wagtail is reserved for a summer migrant, and the name of grey wagtail is given to a bird in which yellow is even more conspicuous, while the common grey member of the family is called the pied wagtail. Pied wagtails may be seen now and then in the parks or along the river at most times of

year, but especially at the two migration times, when they sometimes appear in little flocks. Grey wagtails, with their beautiful glint of sulphur yellow beneath the tail, are winter birds in London and other parts of the south and east of England, whither they almost all migrate in late summer from the hill streams of the west and north, where they breed. They may be seen along the Thames in London from about the beginning of September to early March.



GREY WAGTAILS

Occasionally they are found resting in some City garden or churchyard, or on some high ledge of a building in the middle of the most densely overbuilt areas. Sometimes they appear in pairs, even in the autumn and early winter months, when birds' family ties appear loosest; but usually we see single birds scattered here and there along favourite reaches of the river. One of their most frequented haunts is off the Chelsea Embankment, where they can find rest on certain floating timbers when the shore-line is submerged at high water. At all states of the tide they can often be seen flirting their yellow tails, or flitting with their sharp double call-note,

along the riverside at Chiswick Mall or Strand-on-the-Green. Unable to rest on the water, like the gulls, they are less at home on the river between Westminster and St. Paul's; the noise of the traffic and the absence of any convenient resting-place at high water keeps them restless and timorous, and they flit uneasily over the plane-trees and across the river with an anxious cry. Often this familiar call first draws attention to their slender forms as they waver across the wide brown channel of the river. There is a strange contrast between these London scenes and the shores of the mountain torrents where they are familiar in the summer half of the year.

Brown owls are chiefly winter visitors to the more central parts of London, though one or two pairs may possibly still remain to breed. They are sometimes heard in spring and summer within a mile of St. Paul's; but these may be unmated birds. For many years in succession a large hollow elm in the northern part of Kensington Gardens was tenanted every winter by a brown owl, which arrived in autumn and left again in spring. The ground beneath the tree was littered with numerous undigested pellets, each of which contained the bones and feathers of a sparrow neatly packed up. For the last few seasons there has been no sign of this tree being tenanted; but owls are still often to be heard in Kensington Gardens and Holland Park, and are occasionally seen perched among the branches by day. Brown owls feed chiefly on small birds, and thus find a plentiful source of subsistence in the London sparrow-flocks; but white or barn owls live chiefly on mice and young rats, caught in the open, and are therefore seldom seen or heard in the central parts of London, though they are not very uncommon in the suburbs. The peril of owls in the dark may be one reason why London sparrows are fond of roosting in trees which are lit up all

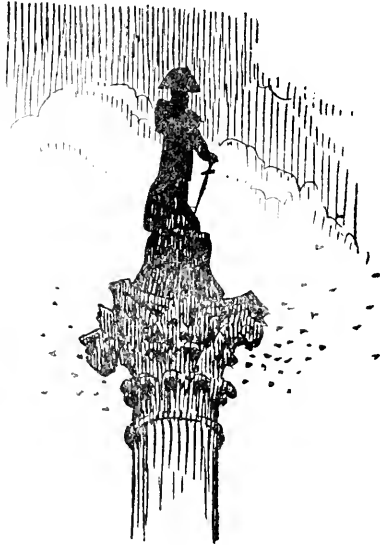
night long by the full glare of the street lamps. One such roosting-place is in a group of three plane-trees on the little plot called Knightsbridge Green, at the eastern end of the Brompton Road. Here they assemble every night to sleep in a situation which would effectually banish slumber from birds less inured to city life. For many hours the full roar of the traffic of one of the most crowded London thoroughfares rises just beneath them; and in winter, when the boughs are bare, the arc-lights dot the pavement with the shadows of the birds' clustered forms. Large flocks of sparrows also roost in thick clumps of trees in some of the parks. Here they find protection from marauding owls among the dense boughs, as well as shelter from the cold in winter. The chorus of harsh chirping with which they settle down for the night is a peculiar sound at twilight in the parks, where the comparative silence makes it most conspicuous.

Often the same roosting-place is frequented by a flock of starlings; and then the chirping of the sparrows is almost drowned by the starlings' more strident cries. By day the starling is far less conspicuous than the sparrow in central London; it principally feeds on the turf of the parks and suburban fields, and has not the capacity of the sparrow for picking up a living in any gutter or alley. But certain spots in the middle of London have been chosen by starlings for the site of their great nocturnal gatherings; and their assembly a little before sunset is a most remarkable feature of London bird life. In October and early November, before the leaves fall, one of their chief stations is among the planes of the Temple; but the most interesting sight of all is to watch them alight on the capital of the Nelson Column in Trafalgar Square. As dusk begins to fall, every few seconds flocks and small parties of starlings come flying in high above the house-tops to their lofty perch beneath Nelson's statue, chiefly

from some northerly quarter. Hundreds of birds vanish among the carved foliage of the capital; but only a small number leave this cold and windy height, and seek a shelter more in accordance with their usual habits in the thickets on the island in St. James's Park, which is another of their favourite roosting-places.

By the time that the sky is dark, and the glare of lights rises from the streets beneath, the movement of the flocks has ceased; and to all appearance the great majority of the birds spend the night in this lofty watch-tower.

Many people who know birds well in the country are astonished at the commonness of the carrion crow in the whole London area. It has an air of wildness which seems to make it unsuitable for London life; but in reality its habits are better adapted to life in towns and suburban market-gardens where there is no game and few lambs or poultry, than to the modern countryside. In many rural regions the carrion crow is now practically extinct. These are the districts where game-preserving is strictest. There is no such intelligent and ruthless enemy of the eggs and young of most other species of birds as the 'corbie'; and his habit of attacking young or weakly lambs makes him as well hated by the



shepherd as by the gamekeeper or the poultry-farmer. Both the bird and its nest are conspicuous, and it is not difficult to banish the species from any well-watched region. But in London and its suburbs the carrion crow has few enemies ; and his boding caw and lean sinewy form are familiar from the centre of London to its furthest outskirts. True to its name, the carrion crow chiefly feeds in London on the garbage of ash-heaps and rubbish-tips in suburban wastes, and on the



CARRION CROW

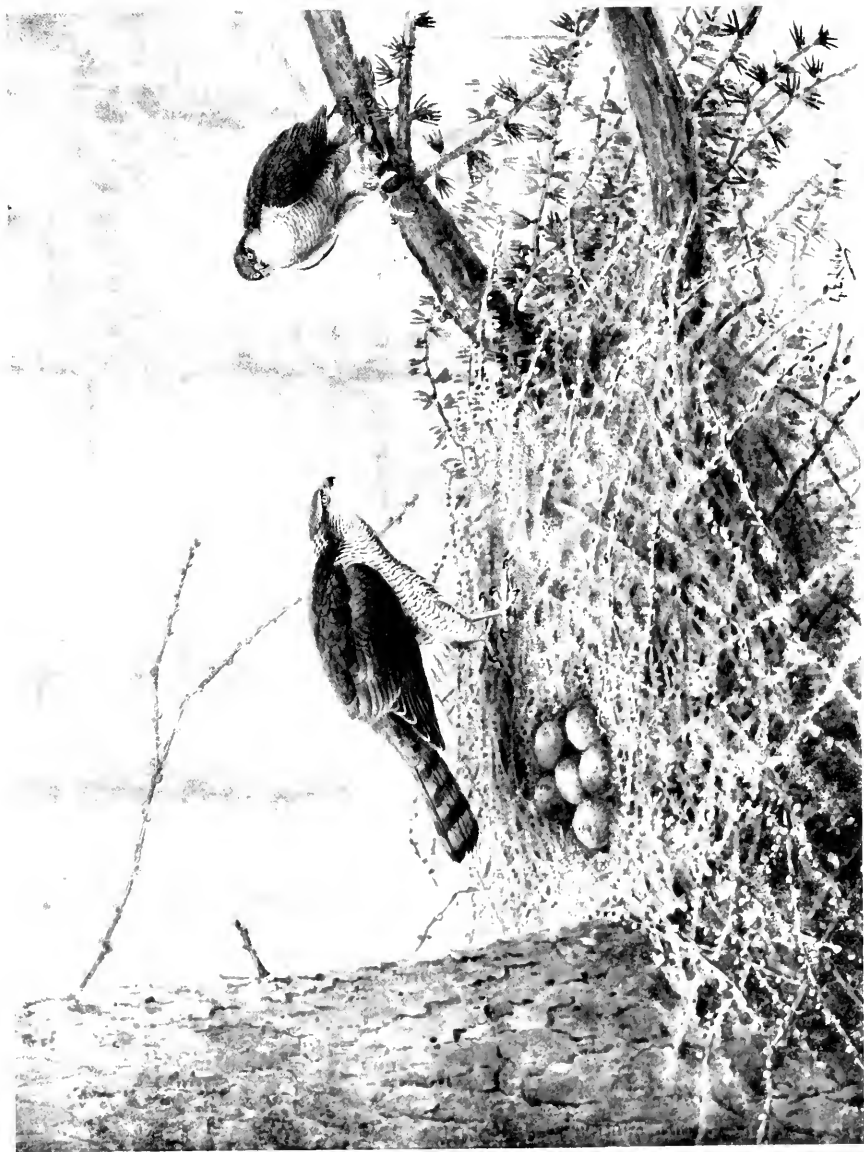
dead animal matter which it finds on the shores of the river and the large suburban reservoirs. It will also steal eggs or kill young birds when it can. The prevalence of the carrion crow in London is one reason of the diminution of its more peaceable cousin, the rook, just as the diminution of crows has led to the multiplication

of rookeries. Though the rook sometimes develops the carrion crow's marauding tricks, it is no match for the crow in a family tussle ; and crows are dangerous pests in the neighbourhood of any rookery. Rooks are now very scarce in central London ; besides the small rookery in Connaught Square, on the north side of Hyde Park, which is only irregularly occupied, their only surviving colony is the famous rookery in Gray's Inn. A few years ago this was nearly wiped out by the raids of carrion crows, and the rooks were only saved by the forcible expulsion of the robbers. But crows incur little hostility elsewhere in London ; they occasionally breed even in Kensington Gar-

dens, and often in the oaks and elms of suburban fields. They are long-lived birds, so that their numbers are not dependent on numerous families; and it is probable that they are recruited from time to time by refugees from the country. Their snarling caw is a very familiar sound in all parts of London, especially in early spring, when they wander about the town in quest of attractive nesting-quarters. The jackdaws which still frequent one corner of Kensington Gardens are manifestly afraid of them; and they are great pests to the waterfowl which breed on the lakes in the parks. But they are a bold and interesting feature of wild life in London; and their lean forms hunched on a tree-top bring welcome associations of the lonely marsh and mountain to many prosaic squares and dull riverside fields.

Missel-thrushes are common now in London in the same weeks of early spring when the crows go cawing and wandering from park to square. They have a regular habit of settling close to houses for the nesting season, apparently for the purpose of seeking protection from the crows. In the country crows usually avoid the near neighbourhood of man; and the discovery that this rule does not apply to London is very likely the reason why missel-thrushes seem never to nest in the central parks and gardens, though they often appear in them for a few days in early spring. They visit Hyde Park from time to time, and almost outstrip the song-thrushes; and at the end of March 1909 a missel-thrush settled for two or three days in Lincoln's Inn Fields, and sang so loud and sweetly at dawn that wondering sleepers put out their heads to listen. But the singer found no mate, and departed for fields which were wider. Song-thrushes and blackbirds are permanent residents in all the parks and many of the larger London gardens, and sing with as much freedom as the birds on any country lawn. Birds attached to a single

spot generally sing earlier and more vigorously than their wandering kindred; they are free from the hardships and distractions of a vagabond life, and pair and breed earlier in spring. The song of the thrushes in December fills Hyde Park with a sense of spring in spite of its grey fogs; and they are unusually musical in and about the Zoological Gardens, where they can pick comfortably among the pens and shrubberies, and prosper on fragments of bun. Blackbirds are heard in London in March more often in proportion to their numbers than in the country. The plague of cats makes it difficult for London thrushes and blackbirds to bring up a brood in safety, but otherwise their life is a comfortable one. Robins are bolder birds than thrushes and blackbirds; but they are less numerous in London owing to the scarcity of secure nesting-places. They naturally build in open holes on sloping banks, within a few feet of the ground; and such sites in London are perpetually exposed to the attacks both of cats and rats. Robins are birds of woodland tastes, for all their familiarity with man, and cannot make themselves at home among chimney-pots and paving-stones, as the sparrows do. Hedge-sparrows are rather commoner than robins in the London parks; and this seems due to their habit of nesting in thick bushes, which protect them better from their four-footed enemies. From early autumn until summer, the sweetly piercing song of the robin can be heard sparingly in the more thickly grown portions of the London parks, and in some of the gardens and squares; but it is less constant, especially from January onwards, than the shriller and more laboured ditty of the hedge-sparrow. Chaffinches are no more than occasional visitors to central London; though they are not uncommonly seen or heard among the park trees, they are unlikely to be found in the same place next day. Since they abound in almost every country district,



SPARROW-HAWKS. THE BIRD ON THE NEST IS THE FEMALE. BY G. E. LODGE

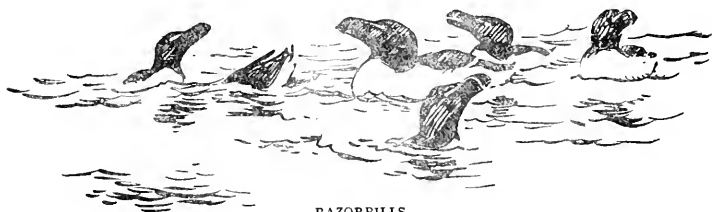
and thrive in high-lying villages which even the sparrows avoid. It seems curious that they do not settle in London. But they are so fresh and dainty in their plumage, and the fashion of their nests, and all their movements and ways, that one suspects that they cannot tolerate the London grime. Tits, and especially the great and blue tits, are common in many small gardens as well as in the parks. Their searching ways make them at home in a small plot, while they nest safely in small holes either in trees or walls, or even in iron lamp-posts. They are also among the easiest birds to feed in winter, and grow attached to many gardens in this way. The see-saw call of the great tit, and the blue tits tinkling chime, are sure signs of spring in London gardens, and may be expected in January or early February between the songs of the song-thrush and blackbird. The little grey cole tit, with his white stripe dividing his black cap, is less common in central London than towards the outer fringe.



GREAT TIT

Besides the birds which are residents or common visitors, it is surprising how many others can be seen from time to time even in the more central districts. The great opportunity for seeing rarities is in the early morning in the parks, especially during the spring and autumn migrations. Kingfishers, sandpipers, wheatears, reed warblers, and many other fairly scarce or local species are frequently reported in this way from Kensington Gardens and Hyde Park. As the morning stream of workers begins to pour along the paths, most birds grow scared and pass on, so that they are seldom

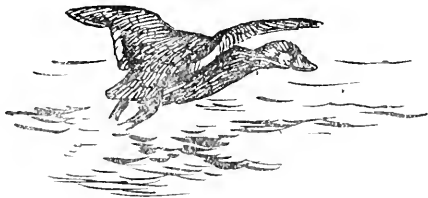
to be seen later in the day. The moorhens and dabchicks and mallard on the park waters are recruited on the spring migration by wild birds, so that it is by this time hard to say whether the park stocks should be regarded as wild or tame. These three species have certainly a better title as wild birds than the city house-pigeons ; and it seems likely that some of the tufted ducks on park waters are wild birds from some of the lakes and reservoirs where they are yearly growing more numerous. Sheets of water are an attraction to most birds on migration, from the food of all kinds usually to be found



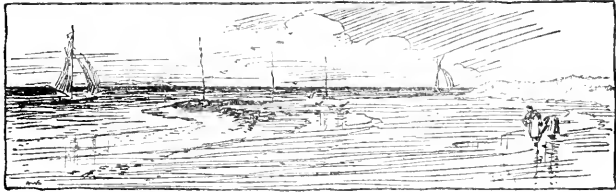
RAZORBILLS

in, beside, and above them. In bitterly cold springs, large parties of swallows and house-martins and sand-martins are sometimes seen circling for flies above the Round Pond and Serpentine, though it is to be feared that they find little to feed on. The same species, and also swifts, hunt now and then in wet and stormy Septembers along the plane-trees on the Chelsea Embankment. But swifts and birds of the swallow tribe are now only visitors, though not rare visitors, to central London. House-martins clung for a long time to nesting-haunts in a few of the airier streets, but have left them for many years. We do not wake in London to hear the screaming swifts betoken a sunny morning, as one does under the purer skies of Paris, though they can sometimes be seen in fine summer weather. But London gains many

unusual visitors from its position near the mouth of a wide tidal river. When the north-westerly gales overfill the North Sea and drive up the high tides in the Thames, there is always a chance of finding some unusual wanderer among the gulls between Lambeth and Blackfriars, within sight of the trains rumbling in to Charing Cross. Last autumn a flock of razorbills were watched by curious Londoners struggling and diving in the tide, equally frightened of the noise of the huge double-decked tramcars on the Embankment and of the dark arch of Blackfriars Bridge, to which the strong ebb was sweeping them. More recently, a dark sea-duck was seen skimming straight and low up the river under Westminster Bridge, and settling on the water in a quiet spot just opposite the House of Lords. As far as could be seen from the gardens further along the river-bank, it was a female scoter. Close by a pair of mallard were quietly paddling and preening themselves in the shallow water at the mouth of one of the old buried rivers, which now flow through culverts into the Thames. Such are some of the unexpected windfalls among the wild birds of London; and they add the perpetual anticipation of novelty to the constant interest of the life of the residents and regular visitors.



A DARK SEA-DUCK . . . FEMALE SCOTER



BY THE SIDE OF THE WATERS¹

WINTER is much more like winter on the east than the west of England, but only the natives appreciate it. Among the many who loiter in summer among the placid lagoons or on the reed-margined pathways of Broadland, few care to return there when the winds and hailstorms of mid-winter play havoc among acres of dead reeds and rushes. No one but the naturalist and the wild-fowler then find excuse for haunting the Broads, though the season is in most ways the best of all. For the wild-fowl are many. They may be watched bobbing up and down on the troubled waters, until only narrow 'wakes,' kept open by the swans and the punts of the Broadmen, are left between the ice-sheets approaching from either shore. When the waters are coated with the ice, there are mallard and teal and wigeon and many others to be seen restlessly flitting from one Broad to another, to make at length for the salter estuaries and the open sea. In their passing, the flocks pay a too heavy toll to the local sportsman, whose bag will often contain a surprising variety of species.

In these rare winters of severe frosts, when the Broads are locked in ice, there would be silence as profound as that of the pine-woods, except for the ring of many skates. The croak of the moorhen and the click of the coot is no longer heard—the one has gone begging around the precincts of the

¹ Most of the notes on Norfolk are contributed by Mr. A. H. Patterson.

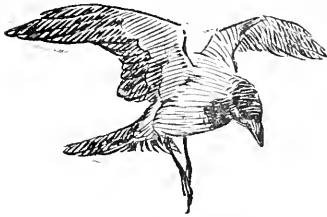
farm premises, and the other betaken itself to the tidal estuary, to feast upon the *zostera*, or sea-wrack, growing luxuriantly upon the mud-flats, sharing it with the wigeon, which so delights in it as to have given it the expressive cognomen of 'wigeon grass.'

Often there are winters that the Broadmen call 'open,' when for the briefest possible periods the Broads are covered by the merest 'slub,' through which the punt goes crackling and rasping her way; while on average days the clouds drop sleet or disperse an uncomfortable and persistent drizzle. On these days the fowl are wilder and more alert: the pochard warily feeds among the towy potamogeton, with sentinels always on the alert against danger. Even the coots, tame enough in summer days, are vigilant and suspicious, and make for the reeds on the least alarm, although, somehow, they seem to discriminate between the man with the gun and the man who angles. The persevering pike-fisher, to whom the wintry Broads are as delectable as his summer roach-swims, inspires them with no disquietude.

A short winter day's pottering in Broadland, to the man who can conquer a disinclination to face a drizzly rain and a spiteful wind, is as full of incident as a spring day at its best. One Broad is as wintry as another, and a curious likeness marks them all. The sea-winds hustle over the sand-cliffs, sweeping along the water whose margins are ill defined by sedges and reeds and marshy stubble: swampy levels and tussocky ronds, like South Sea atolls, push their way into the view: and land and lagoon seem akin.

The low banks of some such river as the Thurne are bare now of iris and pink willow-herb, and sweet-scented sedges: the Broadman has left nothing but the stubble of the 'gladden.' There are many sterner attractions. A stunted willow here and there breaks the level of the banks, and a

laden wherry now and then passes along with its red-capped wherryman shouting a greeting, or offering a comment on the weather. At first perhaps, as you pass up the river, there is little bird-life observable on the waters, an unhappy moorhen croaks discontent from a ditch behind the banks, a hungry gull or two silently pursue the bend of the river, hoping to find something edible in the shape of a small dead bird or the carcase of a tiny drowned mammal. A few meadow pipits cheep mournfully as they take to erratic flight from the herbage, and a flock of grey linnets rise from a patch of



white goosefoot, a plant which grows abundantly on newly thrown marsh soil, and assumes a creeping habit. Odd snow buntings are disturbed from that same favourite weed, which even attracts to the waterside the covert-haunting pheasants.

Lapwings, wailing on the marsh-lands, are fairly numerous, and an occasional bunch of golden plovers is seen. But the merry reed and sedge warblers, so familiar from their confidential manners and pleasant snatches of song to yachting folk in summer days, are absent. The 'visping' of the snipe, the babbling voices of the wild-fowl, and the harsh grating notes of the hooded crows, prowling around, like camp followers, seeking to despoil the dead and wounded, become familiar, and are, perhaps, more in keeping with the rougher spirit of winter. The creaking of the pump-mills and the sighing of the winds through the reed beds make appropriate wintry music. Let any one who wishes to see a characteristic winter scene visit such a place as the 'Sounds,' where dark pools, reflecting the sombre cloud, nestle among

the acres of brown reed, and bulrush stems, where the over-ripe 'pokers' of the reed-mace nod and dance to the rough hustling of the north wind. Floating on these pools, some asleep, some preening their feathers, and others pulling at the sodden vegetation beneath them, are scores of mallard with glossy green heads and their more sober mates. Maybe a shoveller or a bunch of teal come into view, or a diving bird pops up into notice. Now and again you may see the grebe,—the great-crested grebe, more abundant during the summer, and the gossander. Any one living in the neighbourhood, who follows up these waters from day to day, may see—and too often shoots—even less commonplace visitors, some vagrant buzzard or peregrine falcon keenly bent on harrying the wild-fowl; some wing-wearied northern diver, or a rare gull, a Bewick's swan, or a skulking bittern. Rigorously protected by the riparian owners and their gamekeepers from the more vulgar guns of the 'irregular musketeers,' the 'outside' village gunners, most of these unfortunate rarer birds fall to the share of these so-called protectors, and become candidates for niches in collections.

One of these Broadland gamekeepers punting around will discourse of sundry 'rare 'uns' that have visited his beat since wintry weather obtained. There were flocks of wild swan among them, a half dozen little auks driven in, weary, from the sea. A velvet scoter has been hobnobbing with a parcel of 'mussel ducks' (common scoters), and had apparently been diving for small swan-mussels or 'clams' as he calls them; a couple of 'sawyers' (red-breasted mergansers) have successfully evaded him, although a 'sawbill' (gossander) had not been so fortunate; a flock of pintail ducks had joined themselves to the 'duck' (mallard), and he had put up a bunch of golden-eye only that morning as he came 'athort Hicklin' Broad. He had observed a 'game-hawk'

(peregrine) the day before strike down a 'smee' (wigeon), while a small gaggle of white-faced Bernacle geese had been using the 'Sounds' for over a week, 'though there ha'n't bin one kilt as yet, they was so shy,' as if that killing were the final cause of the appearance of the bird.

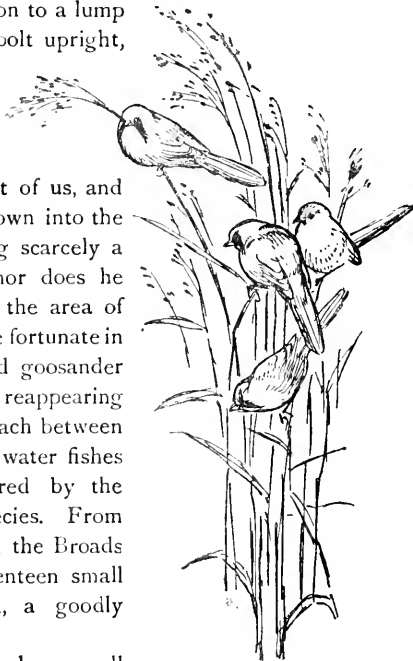
The Broadland naturalist, like his kindred elsewhere, should be apt at concealing his person and at holding his tongue, for quietude and inconspicuity are essential to bird-watching. These accomplishments, acquired by constant practice, help us to-day: a parcel of bearded tits, most characteristic of Broadland, restless and ever on the move, keeping close to the limited habitat, flit into view, and commence to climb and play the acrobat upon the tall stems of the reed-mace, digging their tweezer-like mandibles sharply into the brown over-ripe velvety tufts, from which downy particles float away on the wind. Unable to find tiny mollusca upon the moister stems below, as in summer days, this bird is happy enough in having at hand a goodly supply of 'pokers' and the seed of the common reed. The bearded tit is as merry now as ever, and frequently utters its clear, metallic 'ping ping,' which can be exactly imitated by balancing a penny on the tip of each forefinger and tapping them smartly together. It is a jolly family party that flits to and fro to-day, regardless of unpleasant weather, and will be merry still when the snowflakes dance in the chill air, and the ravenous pike unhappily dart hither and thither under the clear ice.

Emboldened by quietude, a moorhen or two scuttle along, lightly supported by their long clinging toes, on the matted debris at the base of the reeds, seeking food; and several coots paddle about, diving at intervals and coming up again with a juicy bit of plant root, which, after a preliminary shake of the head, is bolted. Peering from between a tuft of rush

stems, the dark brown head of a crested grebe is observed. The rich brown tippet and earlike crest has long been moulted, and will not be replaced until the mating time. The bird shuffles up on to a lump of matted leaves, sits bolt upright, standing indeed on its flat feet, and begins to rearrange a few ruffled feathers. Then his keen eye catches sight of us, and with a quick header down into the water he goes, leaving scarcely a ripple behind him; nor does he reappear again within the area of our pool. We are more fortunate in watching a dun-headed goosander which repeatedly dives, reappearing perhaps with a small roach between its mandibles. Fresh-water fishes are as readily devoured by the 'sawbill' as marine species. From the crop of one shot in the Broads some years since, seventeen small roach were recovered, a goodly meal indeed.

Now and again a long spell of frosty weather locks up the Broads and rivers beneath a thick coating of ice, when the wherries are unable to leave their moorings for weeks together. Then are the wild creatures sadly put to for their means of subsistence, the tail-flicking moorhens sneak into the neighbourhood of the farmsteads, the coots flock to the tidal estuaries, where the ice breaks above the sinuous creeks

(1,822)



BEARDED TITS

between the mud-flats, and jostles in great jagged slabs on the ebbtide to the sea. Here with various wild-fowl they share the food to be found in the open 'wakes' and on the bared mud-flats, from which the tide has dragged and drifted the more rotten ice. To such a place as Breydon Waters, with its vast acres of ooze, flock various waders. To Breydon, the one great salt-water Broad, in severe weather crowd thousands of grey dunlins, with grey plovers, knots, curlews, and many other waders, and where there is any



GREAT-CRESTED GREBE

open water there drop in 'hard fowl' in flocks — pochards, tufted ducks, scaups, scoters, and often smews and dabchicks, white-fronted geese, 'Scotch brents,' shelducks, whooper swans, driven south by the wintry snows.

But it is in the days that the ice first 'lays' on the freshwater Broads, and the snow lies deep on the marshes and fenny places, that to those waters come the greatest crowd of fowl. It is then that the privileged native sportsman takes heavy toll, and even the labouring gunner may earn a meal from their flocks as they pass uneasily from one unfriendly lagoon to another, should they pass over the 'free shooting' corners where it is still his right to sport.

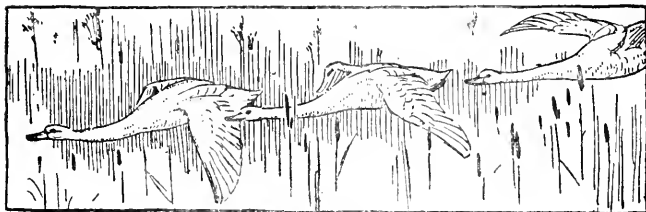
On such a day, when the heavy black squalls, pushed along from the north by the howling wind, dissolve themselves in snow, like wool, and others follow on charged with stinging hail, it is out of the question save for the hardest

native sportsman to get afloat. On such a day a few minutes' view, from one of the little one-arched bridges that cross the small neck of water which often joins one Broad to another, will suffice to gather a good impression of what Broadland on the whole is like. The dense reed clumps at the margin bend beneath their burden of snow, every leaf-bare twig and spray has its touch of white that shoots off in a powdery shower as some hungry bird darts. There is a tinkling sound as the ice crystals on the reed stems chase in the breeze. One may perchance see a skein of fowl circling round the Broad, or a parcel of them bathing in an open spot in the centre, with others hunched up, sleeping or preening their feathers on the icy margin hard by them.

The starlings, now hard put to it, pry around for anything edible. A black-headed gull disconsolately eyes the open patches of water, eager for a morsel of food; or its larger relative, the grey gull, a junior of the herring gull or the black-backed species, searches for carrion. Dead redwings, starved to a mere bunch of skin and bones, suit them well, or at a pinch any living dunlin or weakened bird they can overtake or seize. The snipe, hard pressed, goes bleating overhead and is off westward in quest of some 'spring beck,' where the snow melts as it falls on moving water, or where, under an overhanging bank, the frost has so far overlooked the still soft larvæ-tenanted ooze. From far overhead come the clanging voices of the bean or the pink-footed goose as they fly in wedge form ahead of the storm; and it is quite likely one may discern a skein or two of wild swans, forced to flit from their northern homes, speeding along with outstretched necks, their white plumage made brilliant by contrast with the leaden storm-clouds behind them.

We may still hear the tinkling of the bearded tits, which find it no great task to shake the snow dust from the reed tufts in order to lay bare for their profit the ripe seed-heads.

At these times bird and beast are put to great shifts for a bare living. Out there by the edge of a pine clump is a gaunt heron watching hard by a water-vole's burrow; if the vole but show itself the bird's stiletto of a bill will pierce its skull as by a lightning stroke. Let the frost 'give' but an hour or two, crows will be seen inspecting the freshly cast mole-heaps showing black above the snow. A batch of



WILD SWANS

a few heavier feathers—the rest have been scattered by the wind—and a red tinge of blood on the snow is all that is left of a little tragedy of the earlier morning. A parcel of hooded crows had found a wounded pochard lying against this grassy tussock. It had escaped the aim of the fowler to fall into the tender mercies of the crows. There may have been two, or even four or five at work; anyway, they did their work quickly and well, for only the breastbone, brought to view by a thrust of the foot against the snow, remains of it. Probably the head and other parts were snatched up by these ghouls to be discussed elsewhere.

One may now often drop across the remains of a big bream, or a jack, or even the relics of a coot, the debris

left by a prowling otter, for flesh as well as fish do not come amiss to him when hard pressed by hunger. Nor are rooks particular when food is scarce. A Norfolk naturalist once came across a score of rooks busily at work on the carcase of a dead sheep, tearing like so many vultures.

The land birds too are hard pressed. The fieldfare finds his hawthorn berries sadly diminishing, the redwings fluff up their feathers to keep their starved little bodies warm, and soon perish in numbers if the snow and frost are slow to go; larks leave the buried wheat-fields and sneak into the market gardens to raid the cabbage patches, and the wood-pigeons skulk for provender where they are by no means desired.



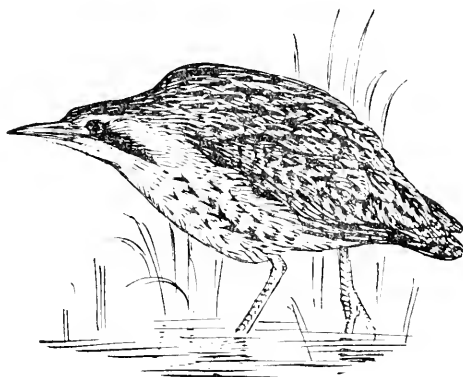
OTTER

A sudden rush of winter may disturb and distress the whole population of seaside birds. From Scottish lochs and Norwegian fiords are driven great hosts along the eastern seaboard of England. On one such occasion as many as seventy Brent geese dashing south were counted in a solid flock. Little auks, driven inland, wearied and hungered, fell helplessly in the pools and meadows, numbers being picked up a little later on dying and dead. One of the Hickling keepers reported that on one single morning he observed no fewer than fifty shelducks, eleven goosanders, two black-throated divers, a red-throated diver, two smews, one being that very rare visitor, an adult male bird, besides golden-eyes, curlews, dunlins, ringed plovers, and sanderlings. A flock of long-

tailed ducks were noted by another observer. The men with guns slew without much mercy or compunction. Three bitterns, a bird that at last has begun to nest again in England, were slain, and many wild-fowl. In the Saturday's market in an east coast town hung from every other stall bunches of lapwings, mallard and duck, smews, starlings, wigeon, and here and there a goose of one sort or another.

With a continuance of the frost and winds the fowl went farther afield, not finding a rest anywhere. Beast and bird and fish longed for the springtime warmth. For the days are hard when

'the snow
Looks cheerless on the fields below ;
And cheerlessly the leafless trees
Toss their dark branches in the breeze.'





FEBRUARY

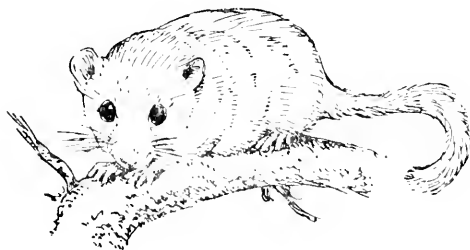
'And lastly came cold February, sitting
In an old wagon, for he could not ride,
Drawne of two fishes for the season fitting,
Which through the flood before did softly slyde
And swim away; yet had he by his side
His plough and harness fit to till the ground,
And tools to prune the trees, before the pride
Of hasting Prime did make them burgein round.
So past the twelve months forth, and their dew places found?

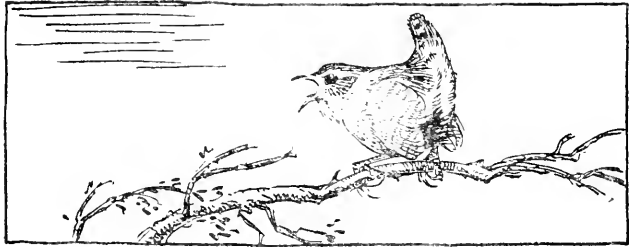
SPENSER, *Mutabilitie*.

'O quick prae-vernal power
That signalled punctual through the sleepy mould
The snowdrop's time to flower.

Oh, Baby spring,
That flutterest sudden 'neath the breast of earth
A month before the birth.'

COVENTRY PATMORE, *Saint Valentine's Day*.





PAIRING AND EARLY SONG

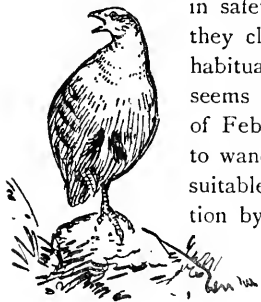
EARLY in February there is a rapid increase in the number of birds in song; and at the same time they begin to pair and settle down in their nesting-quarters. The traditional date for the pairing of birds is St. Valentine's Day; and this is as accurate as any one day that could be named for a process which extends over many weeks, and is largely influenced by the openness or severity of the season. By February 13 in a normal year separate pairs of birds begin to be conspicuous in lanes and sheltered gardens and in the open fields; and this new feature in their distribution gives a promise that the nesting season is at hand, though for six weeks longer the wandering winter flocks of many species are to be seen side by side with the newly mated couples. Not all birds choose fresh mates every spring. Many of the larger species, such as the birds of prey and the crow tribe, apparently mate for life; and for them the pairing season merely means closer companionship and a more constant attachment to their nesting-place, which in many cases is also a permanent one. It is likely, though it is still unproved, that mating for life is the general rule among small birds also, though there are probably many exceptions. Cock and hen birds of migratory species may meet again in their

accustomed spring haunts, and resume the partnership which their winter wanderings have interrupted. So far as the adult birds are concerned, the winter flocks may be an aggregate of pairs rather than of individuals: and many pairs may keep together through all their wanderings, and be ready to settle down either in the old haunt or in some new one when the weather begins to grow springlike. Chaffinches separate in autumn into flocks composed almost exclusively either of cocks or hens; and in their case the chance of the same pair meeting again might seem small. Yet even in their case there would be little difficulty about it, if each bird returned to its last year's home; and the records of marked birds of other species show that this happens sufficiently often to make it probable as a general rule.

The first birds to settle down in couples are naturally those which have been most stationary during the winter. Conspicuous among these are the hedge-sparrows, house-sparrows, robins, song-thrushes, blackbirds, wrens, pied wagtails, and a few other species which haunt gardens and other sheltered spots. With most of the species just named the resident birds are only a small minority. The most stationary species are the house and hedge sparrows and the wren; but even they indulge a proportion of wanderers, which pair and settle down a good deal later than the regular dwellers in our gardens. By early February, and often earlier, the usually unobtrusive hedge-sparrows are beginning to chase each other along the hedges and through the shrubberies with shrill pipings, and to show watchful interest in the particular corner where they intend to nest. Blackbirds drift apart into special clumps in the shrubberies; and timid hen thrushes are seen in the shelter of the bushes where the cocks sing more and more loudly

from the boughs. The wren's mate follows him as he slips, mouselike, through the chinks in the faggot-pile or along the eaves of the old thatched shed; and the impetuous scrimmaging of the cock sparrows increases as their black throat-patch becomes more clear. Neither the song nor the fighting of the cock birds of various species has probably so definite a purpose of winning a new mate as is often supposed. Both their song and their combativeness are natural ebullitions of a spirit fired by spring; they sing from increased vitality, and fight more or less promiscuously from the same incentive. Young birds still unmated may gain their brides by force of arms or vigour as expressed in song; but the old birds sing as vigorously as the young, and if they fight, it is less often to win a mate than to warn off an unmated intruder.

Carrion crows are winged Ishmaelites which have often to travel far before they can find a spot where they can nest in safety; and when we see how closely they cling together on their wanderings, habitual constancy among migratory birds seems more probable. Before the end of February pairs of carrion crows begin to wander about the country in search of suitable nesting-places, and attract attention by their loud caws—more hoarse and snarling than those of the rook—and by their way of posting themselves conspicuously on some lofty perch. They settle early in the

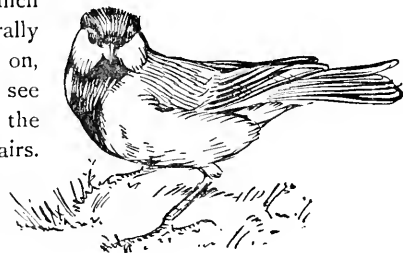


COCK PARTRIDGE CALLING

place where they intend to nest, but do not naturally begin to build until the end of March or early in April. If they are left in peace, they will often nest in the same wood or clump of trees for many years in succession; and then they are less

conspicuous in February and March, since they are not forced to hunt for a new home. Pairing is equally conspicuous in February with the partridges, which are among the most sedentary of our birds. Instead of the packs or shrunken coveys in which partridges are generally seen as the winter goes on, early in February we see them start up from the grass and stubble in pairs.

The time of the first pairs varies not only according to the weather of the season but to some extent with the

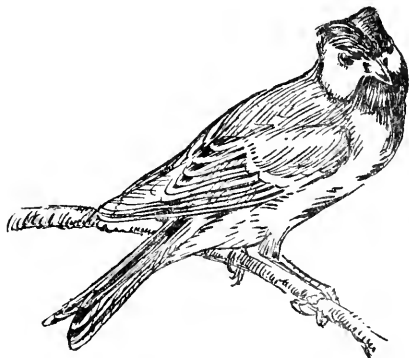


GREAT TIT

height and climate of the spot. On a ridge of hills the partridges may still be living in packs in early February, when they are paired in the fields lying below. From the wheatfields in the lengthening evening twilight comes the call of the cock partridge mounted upon a clod; and this note of spring mingles pleasantly with the song-thrush's music, and the spring cry of the great tit in the apple-trees.

This 'saw-sharpening' cry of the great tit is one of the most typical spring notes, and one of the most distinctive of the many different notes of the titmouse tribe. It is a shrill, rasping double note, repeated with see-saw persistence more and more regularly as spring draws near. It is not seldom heard in January, but begins to be common as pairing-time in February comes on. Bright sunny mornings will draw forth the spring cry of the great tit, as of many other birds, even after frosty nights; but it is likeliest to be heard in calm mild weather. The great tit calls so boldly that it is not difficult to trace the crude song to the singer, which is easily

recognisable with its black crown, dark stripe down a vivid yellow-green breast, and the conspicuous white cheek-patches which have given it its name of oxeye, much as the large moon-daisy is called the oxeye daisy. A little later



GREAT TIT

than the great tit, the blue tit also begins its spring song. This is more musical than other notes uttered by this tribe of birds; tits' notes have generally a twanging or metallic ring which makes them easily attributable to one species of the tribe, though their variety makes

it often hard to identify them more particularly without careful observation. The blue tit's spring song consists of two or three plaintive calls followed by a tinkling peal—much like a small silver bell sharply pulled and echoing out its peal. This song is constantly uttered by the cock bird as it hunts among the twigs in acrobatic attitudes, often with its mate in attendance.

Missel-thrushes are sometimes heard singing as early as December; but their free song is usually first heard from some lofty bough on a morning or evening in February, when there is a noticeable increase in the light as compared with the short dark days. It is more like the blackbird's and ring-ousel's song than that of the song-thrush; and it is often mistaken for the blackbird's when heard early in the

year. It consists of a phrase of three sweet notes, deeper and richer than the song-thrush's, and repeated with little variation often for a great length of time. On a February or March morning, with a bright light and a strong wind that bends the boughs, the missel-thrush will often sing almost uninterruptedly hour after hour on some lofty perch in a poplar or elm. It makes little difference to the bird's spirit and enjoyment if a driving north-west wind brings showers of cold rain or hail. The bird's apparent delight in boisterous weather has given it the common country name of storm-cock. Blackbirds dislike such riotous weather; if they are heard in February, it is generally on some morning of premature sunshine, when the crocuses in the south borders are yawning their utmost to the bees, or at sunset on some unusually mild evening. Often they are not heard until March. With a little practice it is not hard to distinguish the two birds' songs. The missel-thrush's is much more limited and monotonous; and sweet as it is, it has not the richness of the full notes that the blackbird seems to turn over in its throat. Shyer and wilder than either the song-thrush or the blackbird, its sweet but unskilled music seems truly to fit its nature; and the tireless song streaming from aloft on some turbulent February morning is one of the most satisfying of all sounds which tell of the oncoming of spring. As missel-thrushes pair and search for nesting-places, they very often draw closer to gardens and houses than is their habit at other times of the year. This seems to be due to their fear of carrion crows, which are inveterate



MISSEL-THRUSH

stealers of eggs, and must often find an easy prey in the missel-thrush's conspicuous nest when it is built in open hedgerows and copses. Crows usually avoid the close neighbourhood of houses, where they expect to find enemies with guns; and the missel-thrush's shyness of mankind is overcome by its mistrust of the crow. It is probably owing to the same reason that rookeries are so often built close to man's dwellings. Crows are great robbers of rooks' nests, though rooks are their own close kin. As rookeries are usually in warm and sheltered places, rooks are some of the earliest birds to pair and nest. Ravens also nest from year to year in the same site, and are as early breeders as the earliest rooks, though they haunt wilder and bleaker regions. But crows do not build until late March or early April; and this seems to be due at least in part to their being usually prevented from settling permanently in one spot, and compelled to discover a retreat where there seems a chance of being undisturbed.

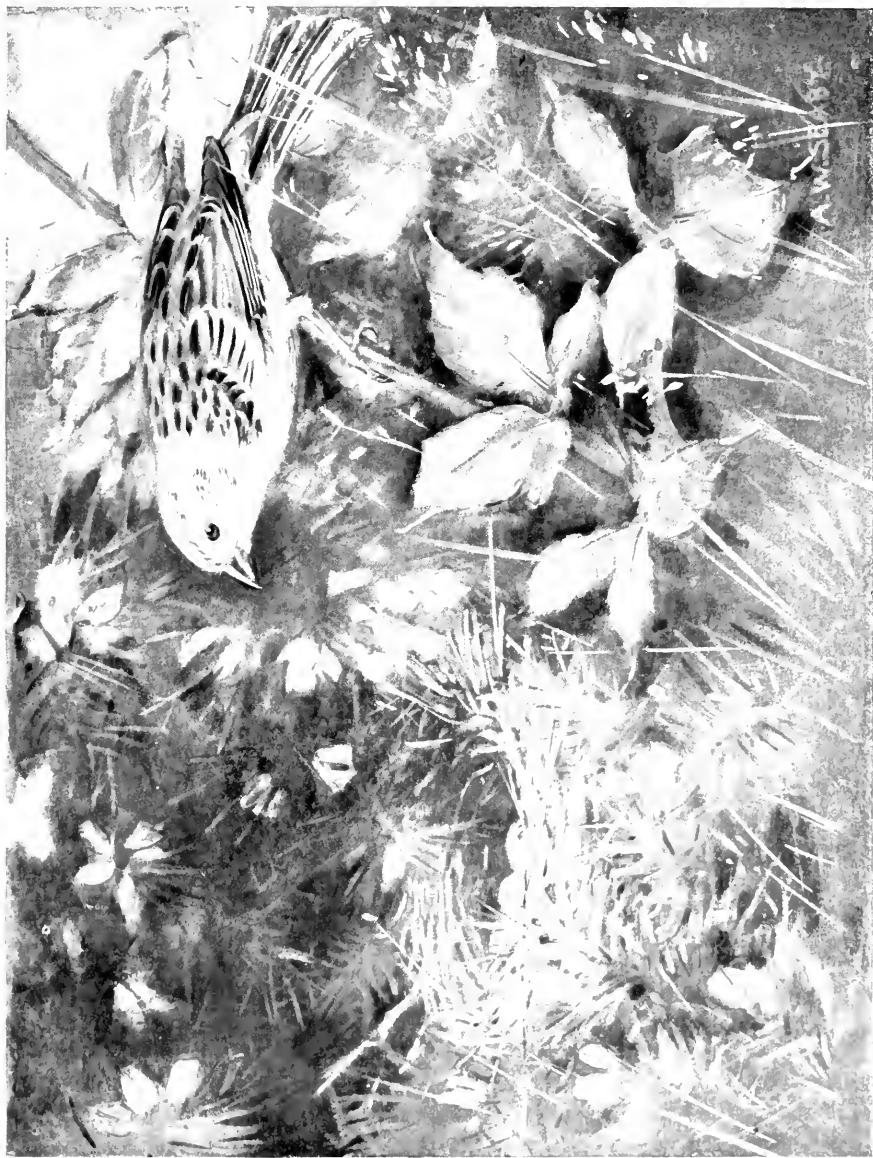
Another step forward in the year's progress towards spring is marked by the first singing of the chaffinch. So large a part of the whole volume of song in England is supplied by this most plentiful and animated bird that the chorus before its singing-time is necessarily thin. Before the middle of February the gay and vivacious ditty begins to ripple from the orchard fruit-trees or the hedgerow elms; sometimes, when an exceptionally bright and warm morning follows a long spell of gloom and cold, the song of the chaffinches seems to break out in a positive torrent. But the song is not always complete at once. It consists of a run of rapid notes ending in a kind of flourish or twirl; and when the chaffinch first begins to sing, he cannot always accomplish it perfectly. The notes become slurred and confused, and the bird stops in the middle, tripping over its

own music; and sometimes it seems to break off from sheer insufficiency of vitality to attempt the difficult final passage. It is very interesting to listen to two or three cock chaffinches singing within earshot of one another on a warm February morning, and gradually improving in delivery under the stimulus of practice in competition. One bird is generally more perfect than the others; he may sing the song perfectly nearly every time, while the others do it seldom. The instinct of rivalry keeps them sedulously to their song; and as the day advances they are often noticeably more perfect than a few hours before. A day or two later, they execute their roulade so spiritedly and smoothly that one might think they could never have felt any difficulty about it. Yet it is impossible not to recognise that they have a force of inertia and unfamiliarity to overcome at the beginning, though the spirit which impels them may be an almost completely unconscious instinct of vitality, and no such deliberate and critical purpose as directs a human singer. Chaffinches' songs vary a good deal; one bird's song differs from another's, and the general type of song seems to be different in different districts. But its general character is the same always; there is the rapid preliminary run and the final ascending flourish, which makes the difficulty for the bird when it first begins to sing.

Only a song with a definite and rather elaborate pattern allows us clearly to mark the stages by which the bird reaches its full spring skill. The yellowhammer sings a song of much the same kind, and begins it at about the same date. It is a plaintive song, as the chaffinch's is emphatically a gay one; instead of a rising flourish, it ends with two lower notes. But there is the change from the opening notes in each case, and the consequent difficulty for the bird when it begins to sing in February. The yellowhammer's song can be well

memorised by the country version of it—'A very, very little bit of bread and no cheese.' The last two words represent the two lower notes at the end; and these at first the bird is often unable to deliver. The February sunshine falls on the golden bloom in the hillside furze-brake, and on the golden feathers of the birds perched above; and they answer one another with the halting and incomplete notes soon to develop into the ditty that echoes so persistently by the sun-smitten highways late into August and September. Perhaps one yellowhammer gets the full song about once in three times, another delivers the first and most emphatic of the two final notes, and a third does not get more than half-way. Before they begin to utter even the easier early notes of their song, yellowhammers display the rudiments of the impulse to sing in a curious and noticeable way. About sunset at the beginning of February they mount to the same conspicuous perches in the hedges and gorse-brakes where they afterwards sing, and utter a laboured chirp with an air of emphasis and challenge. It is an exceedingly rudimentary method of expression; but the bird's whole demeanour indicates strongly that it is meant as an effort at song, and as a vindication of its right to that particular stretch of the hedgerow or thicket. This stage does not last long; ten days or a fortnight after the yellowhammer has begun to act in this way it usually begins to sing, and in a week or a fortnight more the well-known ditty is complete.

There is little or no similarity of tone between the yellowhammer's rudimentary chirp and the notes of its song; nor has the chaffinch's song any noticeable likeness to its common cries and call-notes. But the development of the green woodpecker's full notes as spring approaches is an interesting example of expansion from the normal winter cry. The loud laughing note of the 'yaffle' or 'eclé'—as the green wood-



COCK YELLOWHAMMER BY A. W. S. 1917

pecker is often called—is very familiar in the spring woods, and begins to be heard in a complete form in February, if the season is early and open. It is a shout rather than a song; but it seems clearly to be a shout of gladness, and therefore closely akin to song in spirit and origin. Yet if we startle a woodpecker as it feeds on the ground under the winter hedgerows, it often utters a cry which is merely its spring laugh cut down to two or three notes, as it shoots up and undulates across the field.

Snipe begin to drum in mild seasons in the south of England in the second or third week in February, when they pair and settle down in the marshy fields where they nest early in April. Their drumming or bleating note sounds extremely like the baa of a young lamb, and is even closer to the bleat of a kid. It is the snipe's equivalent for song, though it is not produced vocally, but by the vibration of the web of the two outer feathers of the tail. This is peculiarly stiff, and produces the bleating note whenever the snipe drops slanting downwards in the course of its long flights over the nesting-ground. It winds swiftly about the sky within a space of about a quarter of a mile, and every few moments drops obliquely downwards, when the bleating note is almost immediately heard. It ceases as soon as the bird reaches the bottom of its descent, and again shoots up. The sound has been reproduced by binding the snipe's outer tail-feathers to the shaft of an arrow, and shooting it into the air; the sound began when it descended. It is remarkable that while some American and African species of snipe drum in the same way as the common snipe, great or double snipe do not drum, but display before the hens much like the blackcock. The jack snipe has yet another method of nuptial expression. It makes in the air a sound described as being like the galloping of a horse over a hard road; and it is thought that this is vocal though the point is still undetermined.

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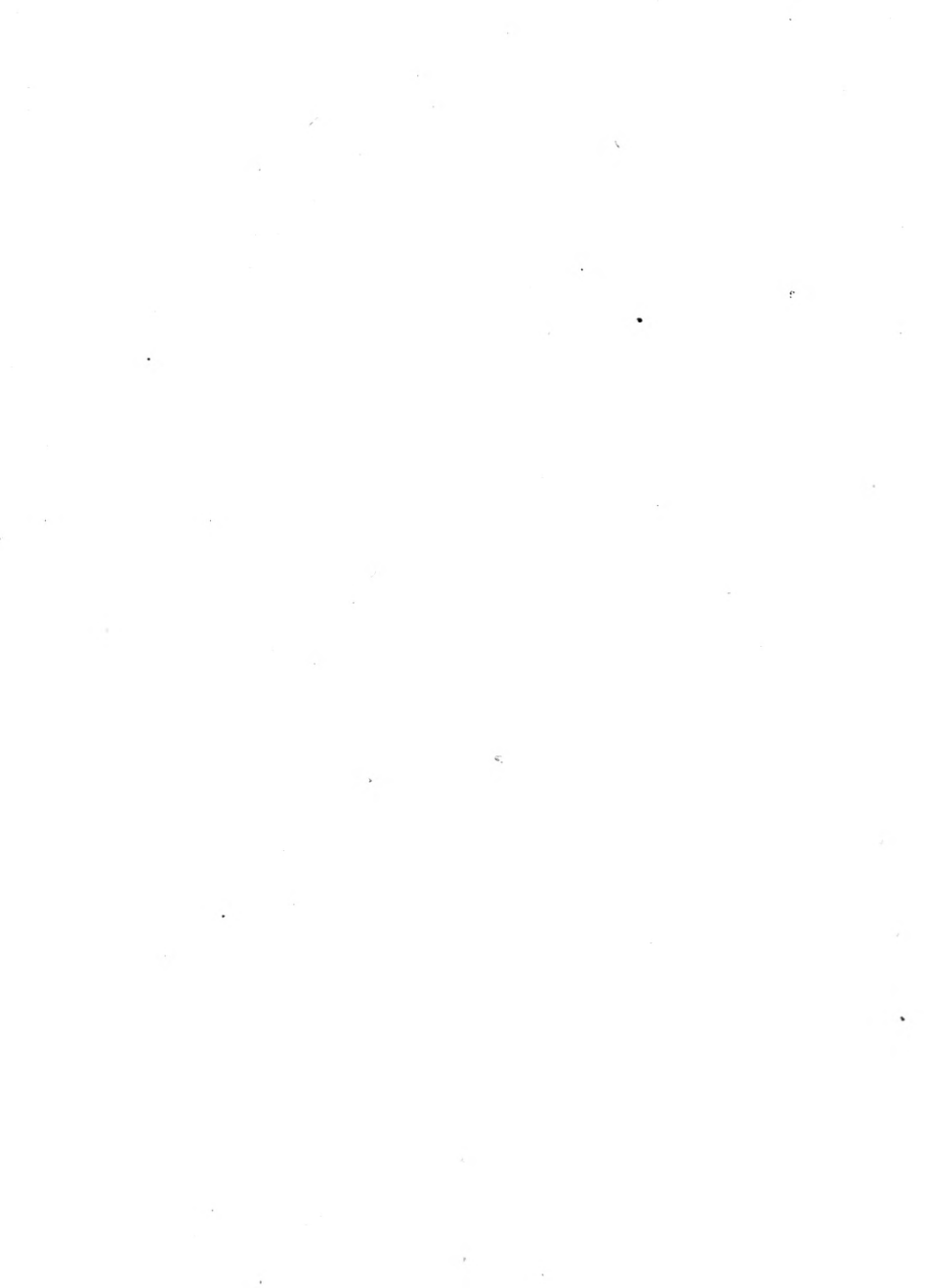
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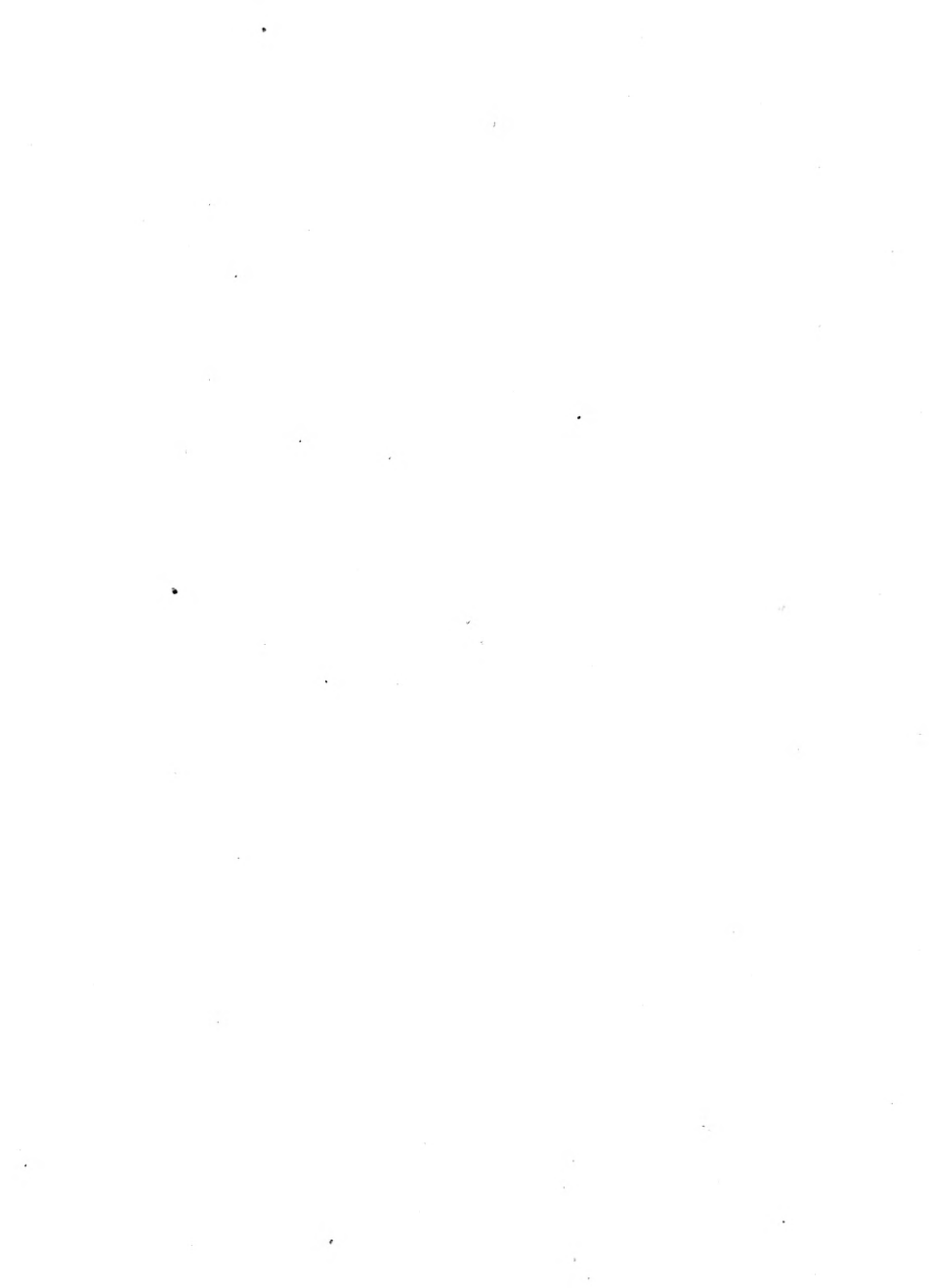
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