JOHN F. WATSON

POACHERS AND POACHING

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Содержание

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NOTE

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As to the facts in the volume, they are mainly taken at first hand from nature.

J. W.

CHAPTER I.
POACHERS AND POACHING.—I

The poacher is a product of sleepy village life, and usually "mouches" on the outskirts of country towns. His cottage is roughly adorned in fur and feather, and abuts on the fields. There is a fitness in this, and an appropriateness in the two gaunt lurchers stretched before the door. These turn day into night on the sunny roadside in summer, and before the cottage fire in winter. Like the poacher, they are active and silent when the village community is asleep.

Our Bohemian has poached time out of mind. His family have been poachers for generations. The county justices, the magistrates' clerk, the county constable, and the gaol books all testify to the same fact.

The poacher's lads have grown up under their father's tuition, and follow in his footsteps. Even now they are inveterate poachers, and have a special instinct for capturing field-mice and squirrels. They take moles in their runs, and preserve their skins. When a number of these are collected they are sold to the labourers' wives, who make them into vests. In wheat-time the farmers employ the lads to keep down sparrows and finches. Numbers of larks are taken in nooses, and in spring lapwings' eggs yield quite a rich harvest from the uplands and

ploughed fields. A shilling so earned is to the young poacher riches indeed; money so acquired is looked upon differently from that earned by steady-going labour on the field or farm. In their season he gathers cresses and blackberries, the embrowned nuts constituting an autumn in themselves. Snipe and woodcock, which come to the marshy meadows in severe weather, are taken in "gins" and "springes." Traps are laid for wild ducks in the runners when the still mountain tarns are frozen over. When our poacher's lads attain to sixteen they become in turn the owner of an old flintlock, an heirloom, which has been in the family for generations. Then larger game can be got at. Wood-pigeons are waited for in the larches, and shot as they come to roost. Large numbers of plover are bagged from time to time, both green and grey. These feed in the water meadows through autumn and winter, and are always plentiful. In spring the rare dotterels were sometimes shot as they stayed on their way to the hills; or a gaunt heron was brought down as it flew heavily from a ditch. To the now disused mill-dam ducks came on wintry evening—teal, mallard, and pochards. The lad lay coiled up behind a willow root, and waited during the night. Soon the whistling of wings was heard, and dark forms appeared against the skyline. The old duck-gun was out, a sharp report tore the darkness, and a brace of teal floated down stream and washed on to the mill island. In this way half-a-dozen ducks would be bagged, and dead or dying were left where they fell, and retrieved next morning. Sometimes big game was obtained in the shape of a brace of wild geese, the

least wary of a flock; but these only came in the severest weather.

At night the poacher's dogs embody all his senses. An old black bitch is his favourite; for years she has served him faithfully —in the whole of that time never having once given mouth. Like all good lurchers, she is bred between the greyhound and sheepdog. The produce of this cross have the speed of the one, and the "nose" and intelligence of the other. Such dogs never bark, and, being rough coated, are able to stand the exposure of cold nights. They take long to train, but when perfected are invaluable to the poacher. Upon them almost wholly depends success.

Poaching is one of the fine arts, and the most successful poacher is always a specialist. He selects one kind of game, and his whole knowledge of woodcraft is directed against it. In autumn and winter the "Otter" knows the whereabouts of every hare in the parish; not only the field in which it is but the very clump of rushes in which is its "form." As puss goes away from the prickly gorse bush, or flies down the turnip "rigg," he notes her every twist and double, and takes in the minutest details. He is also careful to examine the "smoots" and gates through which she passes, and these spots he always approaches laterally. He leaves no scent of hand nor print of foot, and does not disturb rough herbage. Late afternoon brings him home, and upon the clean sanded floor his wires and nets are spread. There is a peg to sharpen and a broken mesh to mend. Every now and then he looks out upon the darkening night, always directing his glance

upward. His dogs whine impatiently to be gone. In an hour, with bulky pockets, he starts, striking across the land and away from the high-road. The dogs prick out their ears upon the track, but stick doggedly to his heels. After a while the darkness blots out even the forms of surrounding objects, and the poacher moves more cautiously. A couple of snares are set in holes in an old thorn fence not more than a yard apart. These are delicately manipulated, and from previous knowledge the poacher knows that the hare will take one of them. The black dog is sent over, the younger fawn bitch staying with her master. The former slinks slowly down the field, sticking closely to the cover of a fence running at right angles to the one in which the wires are set. The poacher has arranged that the wind shall blow from the dog and across the hare's seat when the former shall come opposite. The ruse acts, and puss is alarmed but not terrified; she gets up and goes quietly away for the hedge. The dog is crouched and anxiously watching her; she is making right for the snare, though something must be added to her speed to make the wire effective. As the dog closes in, the poacher, bowed, and with hands on knees, waits, still as death, for her coming. He hears the trip, trip, trip, as the herbage is brushed; there is a rustle among the leaves, a momentary squeal—and the wire has tightened round her throat.

Again the three trudge silently along the lane. Suddenly the trio stop and listen; then they disperse, but seem to have dissolved. The dry ditch is capacious, and its dead herbage tall

and tangled. A heavy foot, with regular beat, approaches along the road, and dies slowly away in the distance.

Hares love green corn stalks, and a field of young wheat is at hand. A net, twelve feet by six, is spread at the gate, and at a given sign the dogs depart different ways. Their paths would seem soon to have converged, for the night is torn by a piteous cry, the road is enveloped in dust, and in the midst of the confusion the dogs dash over the fence. They must have found their game near the middle of the field, and driven the hares—for there are two—so hard that they carried the net right before them. Every struggle wraps another mesh about them, and soon their screams are quieted. By a quick movement the poacher wraps the long net about his arm, and, taking the noiseless sward, gets hastily away from the spot. These are the common methods of hare-poaching.

In March, when they are pairing, four or five may often be found together in one field. Although wild, they seem to lose much of their natural timidity, and now the poacher reaps a rich harvest. He is careful to set his nets and snares on the side *opposite* to that from which the game will come, for this reason: That hares approach any place through which they are about to pass in a zig-zag manner. They come on, playing and frisking, stopping now and then to nibble the sweet herbage. They run, making wide leaps at right angles to their path, and sit listening upon their haunches. A freshly-impressed foot-mark, the scent of dog or man at the gate, almost invariably turns them back. Of course these traces are necessarily left if the snare be set on the *near* side

of the gate or fence, and then they refuse to take it even when hard pressed. Where poaching is prevalent and hares abundant, the keepers net every one on the estate, for it is well known to those versed in woodcraft that an escaped hare once netted can never be taken a second time in the same manner. The human scent left at gaps and gateways by ploughmen and shepherds the wary poacher will obliterate by driving sheep over the spot before he begins operations. On the sides of the fells and uplands hares are difficult to kill. This can only be accomplished by swift dogs, which are taken *above* the game; puss is made to run down hill, when, from her peculiar formation, she goes at a disadvantage.

Our poacher is cooly audacious. Here is an actual incident. There was a certain field of young wheat in which were some hares. The knowledge of these came by observation during the day. The field was hard by the Keeper's cottage, and surrounded by a high fence of loose stones. The situation was therefore critical, but that night nets were set at the gates through which the hares always made. To drive them the dog was to range the field, entering it at a point furthest away from the gate. Silence was essential to success. To aid the dog, the poacher bent his back in the road at a yard from the wall. The dog retired, took a mighty spring, and, barely touching his master's shoulders, bounded over the fence without touching. From that field five hares were killed.

It need hardly be remarked that the intelligent poacher is always a naturalist. The signs of wind and weather he knows as it

were by heart, and this is essential to his silent trade. The rise and wane of the moon, the rain-bringing tides, the local migration of birds—these and a hundred other things are marked in his unwritten calendar. His out-door life has made him quick and taught him of much ready animal ingenuity. He has imbibed an immense amount of knowledge of the life of the woods and fields, and he is that one man in a thousand who has accuracy of eye and judgment sufficient to interpret nature aright.

It has been already remarked that the poacher is nothing if not a specialist. As yet we have spoken only of the "moucher" who directs his attention to fur. But if there is less scope for field ingenuity in the taking of some of our game birds, there is always the possibility of more wholesale destruction. This arises from the fact of the birds being gregarious. Partridges roost close to the ground, and sleep with their heads tucked together. A covey in this position represents little more than a mass of feathers. They always spend their nights in the open, for protective reasons. Birds which do not perch would soon be extinct as a species were they to seek the protection of woods and hedge-bottoms by night. Such ground generally affords cover to vermin—weasels, polecats, and stoats. Although partridges roam far by day, they always come together at night, being partial to the same fields and fallows. They run much, and rarely fly except when passing from one feeding ground to another. In coming together in the evening their calls may be heard at some distance. These sounds the poacher listens for and marks. He remembers the nest under

the gorse bush, and knows that the covey will not be far distant.

Partridges the poacher considers good game. He may watch half-a-dozen coveys at once. Each evening at sun-down he goes his rounds and makes mental notes. Three coveys are marked for a night's work—one in turnips, another among stubble, and a third on grass. At dark he comes and now requires an assistant. The net is dragged along the ground, and as the birds get up it is simply dropped over them, when usually the whole covey is taken. In view of this method of poaching and on land where many partridges roost, low scrubby thorns are planted at regular intervals. These so far interfere with the working of the net as to allow the birds time to escape. If the poacher has not accurately marked down his game beforehand, a much wider net is needed. Among turnips, and where large numbers of birds are supposed to lie, several rows or "riggs" are taken at a time, until the whole of the ground has been traversed. This last method requires time and a knowledge of the keeper's beat. On rough ground the catching of the net may be obviated by having about eighteen inches of smooth glazed material bordering the lower and trailing part of the net. Partridges are occasionally taken by farmers in the following unorthodox fashion. A train of grain is scattered from ground where game is known to lie. The birds follow this, and each morning find it more nearly approach to the stackyards. When the birds have become accustomed to this mode of feeding, the grain train is continued inside the barn. The birds follow, and the doors are closed upon them. A bright light

is brought, and the game is knocked down with sticks.

Partridges feed in the early morning—as soon as daybreak. They resort to one spot, and are constant in their coming if encouraged. This the poacher knows, and adapts himself accordingly. By the aid of a clear moon he lays a train of grain straight as a hazel stick. He has brought in a bag an old duck-gun, the barrels of which are short, having been filed down. This short weapon can easily be carried in his capacious pocket, and is only needed to fire at short distances. Into this he crams a heavy charge of powder and waits for the dawn. The covey comes with a loud whirring of wings, and the birds settle to feed immediately. Firing along the line, a single shot strews the ground with dead and dying. In ten minutes he is a mile from the spot, always keeping clear of the roads. The poacher has yet another method. Grain is soaked until it becomes swollen and is then steeped in the strongest spirit. This, as before, is strewn in the morning paths of the partridge, and, soon taking effect, the naturally pugnacious birds are presently staggering and fighting desperately. The poacher bides his time, and, as opportunity offers, knocks the incapacitated birds on the head.

The wilder grouse poaching of the moorlands is now rarely followed. The birds are taken in nets similar to those used for partridges. By imitating the peculiar gurgling call-notes of the grouse, old poachers can bring up all birds within hearing distance. As they fly over the knolls and braes they are shot. Many of the birds sold in London on the morning of the

"Twelfth" are taken in this way. In the north, since the inclosure of the Commons, numbers of grouse are killed by flying against the wire fences. When the mists cling to the hills for days, or when the weather is "thick," these casualties occur. At such times the birds fly low, and strike before seeing the obstacle. The poacher notes these mist caps hanging to the hill tops, and then, bag in hand, walks parallel to miles and miles of fence. Sometimes a dozen brace of birds are picked up in a morning. Not only grouse, but on the lowlands pheasants and partridges are killed in this way, as are also snipe and woodcock.

In summer, poachers make and repair their nets for winter use. Large hare nets are made for gates, and smaller ones for rabbit burrows and "smoots." Partridge nets are also necessarily large, having sometimes to cover half a field. Although most of the summer the poacher is practically idle, it is at this time that he closely studies the life of the fields, and makes his observations for winter. He gets occasional employment at hay or harvest, and for his darker profession treasures up what he sees. He is not often introduced to the heart of the land, and misses nothing of the opportunity. On in autumn, he is engaged to cut down ash poles or fell young woods, and this brings him to the covert. Nothing escapes his notice, and in the end his employers have to pay dearly for his labour. At this time the game birds—pheasants, partridge, and grouse—are breeding, and are therefore worthless; so with rabbits and hares. But when game is "out," fish are "in." Fish poaching has decreased of late years,

owing to stricter watching and greater preservation generally. In summer, when the waters are low, fish resort to the deep dubs. In such spots comes abundance of food, and the fish are safe, be the drought never so long. The pools of the Fell becks abound at such times with speckled brown trout, and are visited by another poacher—the otter. When the short summer night is darkest, the man poacher wades through the meadows by the river. He knows the deeps where the fish most congregate, and there throws in chloride of lime. Soon the trout of the pool float belly uppermost, and are lifted out, dazed, in a landing net. In this way hundreds of fish are taken, and find a ready sale. The lime in no wise poisons the edible parts; it simply affects the eyes and gills, covering them with a fine white film. Fish so taken, however, lose all their pinky freshness. The most cowardly part of this not uncommon proceeding is that the lime is sometimes put into the river immediately below a mill. This, of course, is intended to mislead watchers and keepers, and to throw the blame upon the non-guilty millowner. And, seeing that chloride of lime is used in various manufactures, the ruse sometimes succeeds. Many of the older poachers, however, discountenance this cowardly method, for by it the destruction of fish is wholesale, irrespective of size. The old hands use an old-fashioned net, to work which requires at least two men. The net is dragged along the quiet river reaches, a rope being attached to each end. The trout fly before it, and are drawn out upon the first bed of pebbles. In this way great hauls are often made. To prevent this species of poaching,

stakes are driven into trout stream beds; but they are not of much avail. When it is known that a "reach" is staked, a third man wades behind the net and lifts it over. A better method to prevent river poaching is to throw loose thorn bushes into the bed of the stream. In trailing along the bottom the net becomes entangled, and long before it can be unloosed the fish have escaped. This wholesale instrument of fish poaching is now rarely used. The net is necessarily large and cumbersome. Wet, it is as much as two men can carry, and when caught in the act, there is nothing for it but to abandon the net and run. This is an effectual check for a time, as a new net takes long to knit and is expensive, at least to the poacher. When salmon and trout are spawning their senses seem somewhat dulled, and they are taken out of the water at night by click-hooks. In this kind of river poaching a lighted tar brand is used to show the whereabouts of the fish. A light, too, attracts salmon. Of course, this can only be attempted when the beats of the watchers and keepers are known. The older generation of poachers, who have died or are fast dying out, seem to have taken the receipt for preparing salmon roe with them. For this once deadly bait is now rarely used. Here is a field incident.

A silent river reach shaded by trees. It is the end of a short summer night. We know that the poachers have lately been busy knitting their nets, and have come to intercept them. The "Alder Dub" may be easily netted, and contains a score nice trout. Poachers carefully study the habits of fish as well as those of game, both winged and furred. To the alder dub they know the

trout make when the river is low. The poachers have not noted signs of wind and weather and of local migrations for twenty years past to be ignorant of this. And so here, in the dew-beaded grass, we lie in wait. It is two o'clock and a critical time. A strange breaking is in the east: grey—half-light, half-mist. If they come they will come now. In an hour the darkness will not hide them. We lie close to the bank thickly covered with bush and scrub. Two sounds are and have been heard all night—the ceaseless call of the crake and the not less ceaseless song of the sedge-bird. A lapwing gets up in the darkness and screams—an ominous sound, and we are all ear. Three forms descend the opposite bank, and on to the gravel bed. They empty the contents of a bag and begin to unroll its slow length. The breaking of a rotten twig in a preparatory movement for the rush sufficiently alarms them, and they dash into the wood as we into the water—content now to secure their cumbersome illegal net, and thus effectually stop their operations for three weeks at least. The grey becomes dawn and the dawn light as we wade wearily home through the long wet grass. And still the sedge warbler sings.

CHAPTER II.
POACHERS AND POACHING.—II

The confines of a large estate constitute a poacher's paradise; for although partridge and grouse require land suited to their taste, rabbits and pheasants are common to all preserved ground. Since the reclamation of much wild land these latter afford his chief spoil. And then rabbits may be taken at any time of the year and in so many different ways. They are abundant, too, and always find a ready market. The penalties attached to rabbit poaching are less than those of game, and the vermin need not be followed into closely preserved coverts. The extermination of the rabbit will be contemporaneous with that of the lurcher and poacher—two institutions of English village life which date back to the planting the New Forest. Of the many modes of taking the "coney," ferreting and field-netting are the most common. Traps with steel jaws are sometimes set in their runs, and are inserted in the turf so as to bring them level with the sward. But destruction by this method is not sufficiently wholesale, and the upturned white under parts show too plainly against the green. The poacher's methods must be quick, and he cannot afford to visit by day traps set in the dark. When the unscrupulous keeper finds a snare he sometimes puts a leveret into it, and secretes himself. He then waits, and captures the poacher "in the

act." As with some other methods already mentioned, the trap poacher is only a casual. Ferreting is silent and usually successful. In warrens, both inequalities of the ground and mounds and ditches afford cover for the poacher. A tangled hedge bank with tunnellings and coarse herbage is always a favourite spot. There are generally two and often half-a-dozen holes in the same burrow. Small purse nets are spread over these, and the poacher prefers them loose to being pegged or fixed in any way. When the nets are set the ferrets are taken from the moucher's capacious pockets and turned in. They do not proceed immediately, but sniff the mouth of the hole; their decision is only momentary for soon the tips of their tails disappear in the darkness. Now, above all times, silence is essential. Rabbits refuse to bolt if there is noise outside. A dull thud, a rush, and a rabbit goes rolling over and over entangled in the net; one close after it gets clear away. Reserve nets are quickly clapped to the holes as the rabbits bolt, these invariably being taken, except where a couple come together. Standing on the mound a shot would stop these as they go bounding through the dead leaves; but this would bring up the keeper, and so the poacher practices self-denial. Unlike hares, rabbits rarely squeal when they become entangled; and this allows the poacher to ferret long and silently. Rabbits that refuse to take the net are sometimes eaten into by the ferret, but still refuse to bolt. If a rabbit makes along a blind burrow followed by a ferret, the former is killed, and the latter gluts itself upon the body. When this occurs it is awkward for the poacher; the

ferret in such case usually curls itself up and goes to sleep; left to itself it might stay in the hole for days; and so it has either to be dug or starved out. Both processes are long, the burrows ramify far into the bank, and it is not certainly known in which the ferret remains.

The poacher's wholesale method of night poaching for rabbits is by means of two long nets. These are set parallel to each other along the edge of a wood, and about thirty yards out into the field or pasture. Only about four inches divides the nets. A clear star-lit night is best for the work, and at the time the nets are set the ground game is far out feeding. The nets are long—the first small in mesh, that immediately behind it large. When a hare or rabbit strikes, the impetus takes a part of the first net and its contents through the larger mesh of the second, and there hanging, the creature struggles until it is knocked on the head with a stick. Immediately the nets are set two men and a couple of lurchers begin to range the ground in front—slowly and patiently, gradually driving every feeding thing woodwards. A third man quietly paces the sward behind the nets, killing whatever game strikes them. And in this way hundreds of rabbits may be, and are, taken in a single night. Some years ago half-a-dozen young rabbits appeared in our meadow-lot which were of the ordinary grey with large white patches. Whilst feeding these stood out conspicuously from the rest; they were religiously preserved. Of these parti-coloured ones a normal number is now kept up, and as poachers rarely discriminate, whenever they disappear, it is

primâ facie evidence that night work is going on.

Of all poaching that of pheasants is the most beset with difficulty; and the pheasant poacher is usually a desperate character. Many methods can be successfully employed, and the pheasant is rather a stupid bird. Its one great characteristic is that of wandering, and this cannot be prevented. Although fed daily, and with the daintiest food, the birds, singly or in pairs, may frequently be seen far from the home covers. Of course the poacher knows this, and is quick to use his knowledge. It by no means follows that the man who rears the pheasants will have the privilege of shooting them. In autumn, when beechmast and acorns begin to fall, the pheasants make daily journeys in search of them; and of these they consume great quantities. They feed principally in the morning, dust themselves in the turnip-fields at noon, and ramble through the woods in the afternoon; and when wandered birds find themselves in outlying copses in the evening they are apt to roost there.

It need hardly be said that pheasants are generally reared close to the keeper's cottage; that their coverts immediately surround it. Most commonly it is a gang of armed ruffians that enter these, and not the country poacher. Then there are reasons for this. Opposition must always be anticipated, for the covert should never be, and rarely is, unwatched. And then there are the results of capture to be taken into account. This effected, and with birds in his possession, the poacher is liable to be indicted upon so many charges, each and all having heavy penalties.

When wholesale pheasant poaching is prosecuted by gangs, it is in winter, when the trees are bare. Guns, the barrels of which are filed down so as to shorten them, are taken in sacks, and the birds are shot where they roost. Their bulky forms stand sharply outlined against the sky, and they are often on the lower branches. If the firing does not immediately bring up the keepers, the game is quickly deposited in bags and the gang makes off. It not unfrequently happens that a light cart is waiting to receive the men at some grassy lane end. But the moucher obtains his game in a quieter way. He eschews the preserves, and looks up outlying birds. He always carries a pocketful of corn, and day by day entices the birds further and further away. This accomplished he may snare them; and take them in iron traps. He sometimes uses a gun, but only when other methods have failed. A common and successful way he has is to light brimstone beneath the trees in which the pheasants roost. The powerful fumes soon overpower the birds, and they come flapping down the trees one by one. This method has the advantage of silence, and if the night is still need not be detected. Away from the preserves time is no object, and so the moucher who works systematically, and is content with a brace of birds at a time, usually gets the most in the end, with least chance of capture. The pugnacity of the pheasant is well known to him, and out of this trait he makes capital. When the whereabouts of the keeper is known, he takes under his arm a game cock fitted with artificial spurs. These are attached to the natural ones, are sharp as needles, and the bird is trained how to

use them. Upon the latter's crowing one or more cock pheasants immediately respond and advance to meet the adversary. A single blow usually suffices to lay low the pride of the pheasant, and in this way half-a-dozen birds may often be taken whilst the poacher's representative remains unhurt.

The most cruelly ingenious plan adopted by poachers, however, is also one of the most successful. If time and opportunity offer, there is scarcely any limit to the depredations which it allows. A number of dried peas are taken and steeped in boiling water; a hole is then made through the centre with a needle or some sharp instrument, and through this a stiff bristle is threaded. The ends are cut off short, leaving only about a quarter of an inch of bristle projecting at each end. With these the birds are fed, and are greedily eaten. In passing down the gullet, however, a violent irritation is set up, and the pheasant is finally choked.

The birds are picked up in a dying condition from beneath the hedges, to which shelter they almost always run. The plan is a quiet one; may be adopted in roads and lanes where the birds dust themselves, and does not require trespass.

The methods here set forth both with regard to pheasants and rabbits are those ordinarily in use. In connection with the former it might have been remarked that the gamekeeper sometimes outwits the poacher by a device which is now of old standing. Knowing well from what quarter the depredators will enter the woods, wooden blocks representing roosting birds are nailed to

the branches of the open beeches. The poacher rarely fires at these "dummies," and it is only with the casual that the ruse works. He fires, brings the keepers out of their hiding places and so is entrapped.

It need hardly be said that our poacher is a compound of many individuals—the type of a numerous class. The tinge of rustic romance to which we have already referred as exhibited in his character may have been detected in his goings. And we may at once say that he in nowise resembles the armed ruffian who, masked and with murderous intent, enters the covert at night. Although his life is one long protest against the game laws, he is not without a rude code of morality. He complains bitterly of the decrease of game, and that the profession is hardly now worth following. Endowed with marked intelligence, it has never been directed aright. His knowledge of woodcraft is superior to that of the gamekeeper, which personage he holds in contempt. He quietly boasts of having outwitted the keepers a hundred times. The "Otter" is chary as to those he takes into confidence, and knows that silence is essential to success. He points to the "Mole,"—the mouldy *sobriquet* of a compatriot—as an instance of one who tells poaching secrets to village gossips. The "Mole" spends most of his time in the county gaol, and is now undergoing incarceration for the fifty-seventh time. Our "Otter" has certainly been caught, but the occasions of his capture form but a small percentage of the times he has been "out." He is a healthy example of pure animalism, and his rugged nature has much in

common with the animals and birds. As an accurately detailed reflection of nature, his monograph of any one of our British game-birds would excel even those of Mr. Jefferies himself; yet of culture he hasn't an idea. He admires the pencilled plumage of a dead woodcock, and notes how marvellously it conforms to the grey-brown herbage among which it lies. So, too, with the eggs of birds. He remarks on the conformation to environment—of partridge and pheasant, the olive colour to the dead oak leaves; of snipe and plover to the mottled marsh; of duck and water fowl to the pale green reeds.

As to his morality with regard to the game laws, it would be difficult to detect exactly where he draws the line. He lives for these to be repealed, but his native philosophy tells him that when this time comes game will have become well nigh extinct. Upon the Ground Game Act he looks with mingled feelings, for, after all, are not rabbits and hares the chief product of his nights? The farmers now get these, and the poacher's field is limited. They engage him, maybe, to stay the ravages upon clover and young wheat, or to thin the rabbits from out the pastures. He propitiates the farmer in many ways. Occasionally in the morning the farm lad finds half-a-dozen rabbits or a hare dropped behind the barn door. How these came there no one knows—nor asks. The country attorney is sometimes submitted to a like indignity. In crossing land the poacher is careful to close gates after him, and he never breaks down fences. He assists cattle and sheep which he finds in extremity, and leaves word of the mishap at

the farm. Is it likely that the farmer will dog the steps of the man who protects his property, and pays tolls for doing it?

And it frequently happens that the poacher is not less popular with the village community at large than with those whose interests he serves. It is even asserted that more than one of the county Justices have, in some sort, a sneaking affection for him. The same wild spirit and love of sport take him to the fields and woods as his more fortunate brethren to the moor and covert. It is untrue, as has been said, that the poacher is always a mercenary wretch who invariably sells his game; he as frequently sends in a brace of birds or a hare to a poor or sick neighbour. He comes in contact with the law just sufficient to make him know something of its bearings. When charged with being in possession of "game," he reiterates the old argument that rabbits are vermin. Being committed for four months "for night poaching," he respectfully informs the presiding Justice that at the time of his capture the sun had risen two hours, and that the law does not allow more than half the sentence just passed upon him. The old clerk fumbles for his horn spectacles, and, after turning over *Stone's Justices' Manual* solemnly informs the Bench that defendant in his interpretation is right. He remembers this little episode and chuckles over it. There is another which is equally marked in his memory. The "Otter" poached long and successfully ere he was caught, and then was driven into an ambuscade by a combination of keepers. Exultant at his downfall, the men of gaiters flocked from every estate in the

country-side to witness his conviction. Some, who had only seen a vanishing form in the darkness, attended to see the man. This wild spirit of the night was always followed by an old black bitch. She, too, was produced in court, and was an object of much curiosity. The "Otter" had been taken in the act, he told the Bench. "He deserved no quarter and asked none. Poaching was right by the Bible, but wrong by the Law." One of the Justices deigned to remark it was a question of "property," not morality. "Oh!" rejoined the "Otter," "because blue blood doesn't run in my veins, that's no reason why I shouldn't have my share." And after a moment's pause: "But it's a queer kind o' property that's yours in that field, mine in the turnpike, and a third man's over the next fence."

The end of it was, however, a fine of £5, with an alternative. And so the case ended. But that day the keepers and their assistants had forgotten the first principles of watching. The best keeper is the one that is least seen. Only let the poacher know his whereabouts, and the latter's work is easy. It was afterwards remarked that during the trial of the "Otter" not a poacher was in court. This fact in itself was unusual—and significant. It became more so when he was released by reason of his heavy fine being paid the same evening. More than one woman had been seen labouring under loaded baskets near the local game dealer's, and these were innocently covered with mantling cresses, and so at the time escaped suspicion. Upon this memorable day the pheasants had been fed by unseen hands and had vanished.

The only traces left by the covert side were fluffy feathers everywhere. Few hares remained on the land; these had either been snared or netted at the gates. The rabbits' burrows had been ferreted, an outhouse near the keeper's cottage being entered to obtain possession of the ferrets. It need hardly be said that had the "Otter" been aware he would not have countenanced these lawless doings of his *confrères*. He claimed to "poach square," and drew the line at home-reared pheasants, allowing them "property." Those he found wild in the woods, however, were *ferœ naturæ*, and he directed his engines accordingly.

Every poacher knows that the difficulty lies not so much in obtaining the game as in transporting it safely home. Their dogs are always trained to run on a couple of hundred yards in advance, so as to give warning of anyone's approach. If a police constable or keeper is met on the highway the dog immediately leaps the fence, and, under its cover, runs back to its master. Seeing this the game-bag is dropped into a dry ditch, and dog and man make off in different directions. County constables loiter about unfrequented lanes and by-paths at daybreak. The poachers know this and are rarely met with game upon them. Ditches, stacks, and ricks afford good hiding places until women can be sent to fetch the spoil. These failing, country carriers and morning milk carts are useful to the poacher.

In one sleepy village known to us both the rural postman and the parish clerk were poachers. The latter carried his game in the black bag which usually held the funeral pall. The smith at the

shoeing forge was a regular receiver, and there were few in the village who had not poached at some time or other. The cottage women netted fish, and shut the garden gates on hares and rabbits when they came down to feed in winter. Upon one occasion a poacher, taking advantage of a country funeral, had himself and a large haul taken to the nearest market town, the hearse disgorging its questionable corpse behind the nearest game shop. Another of the poachers, nicknamed the "gentleman," was wont to attire himself in broad-brimmed hat and frock coat similar to those worn a century ago by the people called Quakers. In the former he carried his nets, and in the capacious pockets of the latter the game he took. These outward guarantees of good faith away from his own parish precluded him from ever once being searched.

Of late years egg poaching has been reduced to a science; and this is one of the worst phases of the whole subject. In certain districts it is carried on to a large extent, and comes of artificial rearing. The squire's keeper will give six pence each for pheasants' eggs and four pence for those of partridges. He often buys eggs (unknowingly, of course) from his own preserves, as well as from those of his neighbours. In the hedge bottom, along the covert side, or among gorse and broom, the poacher notices a pair of partridges roaming morning after morning. Soon he finds their oak-leaf nest and olive eggs. These the keeper readily buys; winking at what he knows to be dishonest. Plough-boys and farm-labourers have peculiar opportunities for egg-poaching. As to pheasants' eggs, if the keeper is an honest man and refuses to buy,

there are always London dealers who will. Once in the covert, pheasants' eggs are easily found. The birds get up heavily from their nests, and go away with a loud whirring of wings. In this species of poaching women and children are largely employed. At the time the former are ostensibly gathering sticks, the latter wild flowers. A receiver has been known to send to London in the course of a week a thousand eggs—probably every one of them stolen.

When depredations are carried on nightly, or game disappears in large quantities, warrants are obtained, and search made for nets. Except for immediate use the poachers seldom keep their nets at home. They are stowed away in church tower, barn, rick, or out-house. Upon one occasion it got abroad that the constables would make a raid upon a certain cottage where a large net was known to be. The dwelling was a disused toll bar on the turnpike, and commanded a long stretch of road. The good woman of the house saw the constables approaching, and made the most of her time. Taking off her gown, she fastened one end of the net, which was long and narrow, to a projecting crook in the wall; then retiring to the further side of the kitchen, she attached the other end of it to the whalebone of her stays, and by turning round and round, wound the net about her capacious person. When the constables arrived she accompanied them into every corner of the cottage, but no net could be found.

CHAPTER III.
BADGERS AND OTTERS

Hazelhurst was a long line of woodland, on one side skirted by the sea and on the other by a crumbling limestone escarpment. It was woodland, too, with the deep impress of time upon it—a forest primeval. The branches and boles of the oaks were tortured out of all original conception. Save for colour they might have been congealed water or duramen muscles. Down in the hollows there was deep moss, elastic and silent, over all. For centuries the pines had shed their needles undisturbed. These and the pine trunks sent up a sweet savour from the earth—an odour that acted as a tonic to the whole being. There were sun-flashes in the glades, where the jays chattered and the cushats cooed, and where ever and anon a rabbit rustled through. Often over these the kestrel hung and vibrated its shadow on the spot beneath; or the sparrow-hawk with its clean-cut figure stared with the down on his beak on a dead pine bough. In the summer red creatures that were bits of light gracefully glided among green tassels, and the chatter of squirrels was heard. The older trees attracted woodpeckers, and the nuthatch threw out fine fibres of rotten wood. Sometimes a pheasant or a partridge would startle, getting up from its olive eggs by a log left by the charcoal-burners. Thus rudely disturbed, it had no time to scatter leaves

over its nest, as is its wont. The shaggy and corrugated bark of the old trees is larvæ-haunted, and consequently mouse-like creepers abound. These little creatures on every trunk showed conspicuously as they ran their marvellous adaptation to an end, and fulfilled it perfectly. All the wood-birds were there—the White-throat, the Wood and the Willow Wren, the Chiffchaff, and Garden-warbler. These sang from the leafy boughs. But higher up, towards the escarpment, the floor of the wood was rugged and rock-strewn. Boulders had rolled from above, and among these dwelt weasels and ermines. There were at least a pair of martins, and foxes from the fells had their tracks through the woods. A primitive mansion had once stood in the wood, but now was gone. It had been large, and green mounds, now laid low, marked out its dimensions. Old oak-panelling, with long-gone dates, were sometimes dug up, and these were covered with carvings—"carvings quaint and curious, all made out of the carver's brain." Lying around this had been an extensive orchard, the rich, though old trees of which remained. And now, in this glorious summer-time, the golden fruit fell unheeded to the ground. For Hazelhurst was long distant from town or nearest village. Brambles held their luscious fruit, and every species of ground berry grew there. No wonder it was a paradise to mice and squirrels and birds. They revelled in nature's ample provision, and were undisturbed.

Here, in the days of our immediate ancestors, Badgers were plentiful. Now, where a ridge of rock ran through the wood,

there was a hole, the entrance to a somewhat spacious cavity. This could be seen for the seeking, not otherwise. Brambles and ground-ivy protected it. Black bryony and woodbine twisted up every available stem, and a knot of blackthorn grew over all. The spot was protected and dense. One day we invaded it, but after long crawling and sticking fast had to return. In it lived the badgers—had done so time out of mind, and the few poachers who knew it called it "Brock-holes." "Brock" is the old north-country word for badger, and, as we have said, everything testified to its presence. In this wild fruit paradise at least two pairs of badgers bred. Each pair had more than one apartment —at least the young were not produced in that which formed the general abode. These were at the ends of the burrow, where were the beds, composed of roots and dried grass. The young were brought forth in April, and after about six weeks might have been seen sitting about the mouth of their hole, or accompanying their dam to short distances when on her evening rambles. We always found the badgers unoffending, harmless creatures unless first attacked. They fed almost entirely on roots, wild fruit, grain, and occasionally insects. They were, however, extremely shy and wary. Beautiful it was to see these creatures on summer evenings searching for food among the low bushes, occasionally giving a low grunt when some favourite root was turned up. When insects came within their reach they were snapped up somewhat after the manner of a dog catching flies. The life of the badger is eminently that of a peaceful creature, harmless in all its ways,

unoffending, interesting in its life-history, useful, and, above all, fitted with a quiet contentment almost human. The body of the badger is long and heavy and its legs short, which give it an awkward shambling appearance when running. Its beautifully-shaped head has two long lines running from the snout to the tips of the ears. The upper parts of its body are light grey, becoming darker below, the lower parts being quite black.

The total length of a fully-grown male badger is about thirty-six inches. The structure of the creature is especially adapted to its mode of life, this being shown in the slender muzzle, with movable snout, which is employed in digging. It is when thus occupied, too, that the short, stout limbs are seen fulfilling their end; and when no natural cavity exists it is these limbs and snout that provide one. Both are brought into frequent requisition when digging for roots, of certain of which the badger is particularly fond. Badgers are quite susceptible of domestication, and a friend had a pair which he led about in collars. They are possessed of great affection for their young, and rush blindly into danger, or even suffer themselves to be killed, in attempting to rescue them….

We have stretched our length along a slab of rock which margins the bank and recedes far under it. The stream for the most part is rapid, but here narrows to slow, black depth. Ever and ceaselessly does the water chafe and lap among the shelving rocks, and this, with the constant "drip," only seems to make the silence audible. Fungi and golden mosses light

up our dark retreat. Never was green more green nor lichen tracery more ravishing. Close-clinging and rock-loving is all life here. Water percolates through the bank, and spreads its silver filament over all. Far out and beyond the deep wood it comes from the scaurs, and the limestone sends its carbonate to dome our retreat. Miniature stalactites hang from the roof, and bright bosses rise from the floor. Frail fern fronds depend from the crevices, and as the light rushes in, masses of golden saxifrage gild all the chamber. The beams will not long stay, for the sun dips in the western woods. From the mouth of our recess we take in a silent river reach. It is thickly embowered and overhung. Long drooping racemes of green tree flowers attract innumerable insects, especially those of the lime, and intent upon these a flycatcher sits lengthwise upon a branch. How beautiful are its short flights, the iridescence of its plumage, its white eye-lines, and barred forehead! Numerous small waterfalls, the gauze and film veils of which, when the wind blows, and dripping moss, have attracted the dippers. Kingfishers, too, in their green flight, dash over the still water. The remote pines have lost their light, and stand black against the sky. Sundown has come, and it is the hour of vesper hymns. The woods are loud swelling volumes of sound. Behind us is a woodland enchanted, though with no sadder spirits than blackbirds and thrushes that whistle to cheer it. This loud evening hymn lasts for an hour, then subsides, and the woods hush. The stem of the silver birch ceases to vibrate to the blackbird's whistle. The polyglot wood-thrush is dreaming

of gilded fly and dewy morn, and finally that last far-off song has ceased. Silence—an intense holy calm—is over the woods. Chill comes, the dew rises, and twilight;—and the night side of nature. How rich and varied is that of the stream side! The fern-owls with their soft plumage and noiseless flight come out, as do the great moths and bustards.

This prevalence of life at the same time is as Nature would have it—the one acting as food for the other. The beat of unseen pinions is heard above, but no object visible—some night-haunting bird flying off to its feeding ground. Through the short night summer snipe whistle and wail. Newly-arrived crakes call from the meadows, and a disturbed lapwing gets up crying from the green cornstalks. Maybe the disturber was the hare whose almost human cry now comes from the thorn fence. For it the corn sprouts have come for the last time, and soon it will be in the poacher's wallet. A loud splash comes from the water, and a great black trout has sucked down its prey. This is a large-winged night-fly. That first splash is a token of more abundant night food, and soon the reach boils. Every speckled trout is "on its feed." How we long for the pliant, sympathetic rod! Then, ye lusty trout, how would the undefinable thrill rush at intervals up our arm! But our mission to-night is not this. The herons scream, the wood-owls hoot, and—what is that other night sound? The crescent moon shows a bit of light at intervals; soon masses of cloud intervene.

A faint whistle, unlike that of any bird, comes up stream, and

although imperceptible the dark, still water is moved. The trout cease to rise. The whistle comes nearer, and then a rustle is heard. The osier beds are stirred, and some long dark object makes its way between the parted stems. A movement would dispel the dark shadow, and which in turn would divide the dark water and take it silently away. The otters have reconnoitered, and all is safe. They come paddling down stream, and, arriving at the pool, stop, tumble and frolic, rolling over and over, and round and round, and performing the most marvellous evolutions you could possibly conceive. They swing on the willow spray, and dash with lightning velocity at a piece of floating bark, tumble with it, wrestle with it, and go through a hundred wonderful movements. They are motionless, then begin to play, and so continue for nearly an hour, when, as if suddenly alarmed, they rush down stream to their fishing grounds, and leave us cold and benumbed. We plod through the meadow beneath the moon and stars, chilled to the marrow by the falling dew.

Otters are still abundant on the banks of most northern streams, as also among the rocks and boulders of the coast-line. Human invasion drives them from their haunts, although, where waters remain unpolluted, they not unfrequently pass up the rivers by towns and villages during the still night. On the margins of the more secluded tarns of the fells, otters, too, are yet found. Fitted for an aquatic existence, the structure of the otter beautifully exhibits the provisions suitable to its mode of life. On land it can travel swiftly, though the water is its best element.

Immersed in this, its coat appears smooth and glossy. In pursuing its prey it performs the most graceful movements, doubling and diving so rapidly that it is difficult to follow its evolutions. When fishing, its object is to get beneath the object pursued, as, from the construction of its eyes, which are placed high in the head, it is better enabled to secure its prey. This it seldom fails to do, its whole structure, as already remarked, greatly facilitating its movements in the water. Its uniform dusky brown coat has, like all aquatic creatures, a soft under-fur with long hair above.

The otter generally takes possession of a natural cavity, a drain, or a hole made by the inundation of the stream. The entrance is usually under water, and inclines towards the bank. Situations where the latter is overhung with bushes and with tall water plants in the vicinity are generally chosen. From this the young, when three or four weeks old, betake themselves to the water. If captured now they may easily be domesticated. One of our friends has to-day a young otter, which he leads about in a leash. At Bassenthwaite a man and his son trained a pair of otters to fish in the lake. They would return when called upon, or follow their master home when the fishing was over. The males in spring fight desperately, and once, when hidden, we witnessed a fight which lasted an hour, and so engrossed did the combatants become that we approached and, taking the part of the lesser, shot its aggressor.

And now a word as to the food of the otter. That it destroys fish we are not about to deny. But this liking for fish has become such

a stereotyped fact (?) in natural history that it is glibly repeated, parrot-like, and so continues until most readers have come to accept it. The otter destroys but few fish, using the word in its popular acceptation. What it destroys are for food, and not out of love of killing. The greater part of its diet consists of fresh-water crayfish, thousands of which it destroys, and it is for these that long journeys are so frequently made. This does not apply to the pairing season; the wanderings have then another end. Many miles in a night are traversed for these crustaceans, the beds of mountain and moorland streams being tracked to their source, almost every stone on the way being examined. At least upon two occasions have we found the remains of the moor-hen after an otter's meal.

CHAPTER IV.
COURIERS OF THE AIR

The power of flight being almost exclusively the characteristic attribute of birds, it is somewhat strange that even the most eminent naturalists should be silent upon it. And yet this is almost universally so. Those who mention the speed of flight do so upon the most insufficient evidence, as witness Michelet's statement that the swallow flies at the rate of eighty leagues an hour. Roughly this gives us a thousand miles in four hours; but assuredly, even in its dashes, the swallow does not attain to anything like this speed. The Duke of Argyll is rather under than over the mark when he computes the speed at more than a hundred miles an hour. Here, however, the mechanism of flight in the swallows is carried through an ascending scale, until in the swift it reaches its highest degree of power both in endurance and facility of evolution. Although there are birds which may, and probably do, attain to a speed of one hundred and fifty miles an hour, this remarkable rate is not to be looked for in any of the birds of the swallow kind. There is something fascinating in the idea of eliminating time and space, and with this attribute popular fancy has in some measure clothed the swallows. At the greater rate of speed indicated above the swallow might, as has been stated, breakfast round the Barbican, and take its

mid-day *siesta* in Algiers. This, however, is a popular myth. In their migrations swallows stick close to land, and never leave it unless compelled; they cross straits at the narrowest part, and are among the most fatiguable of birds. From this it will be seen that although swallows may possess considerable speed, they have no great powers of sustained flight or endurance. These attributes belong, in the most marked degree, to several ocean birds.

Any one who has crossed the Atlantic must have noticed that gulls accompany the ship over the whole distance; or, at least, are never absent throughout the voyage. The snowy "sea swallows," as the terns are called, seem quite tireless on the wing; though the petrels and albatross alone deserve the name of oceanic birds. Sir Edwin Arnold, in an account of his voyage to America, writes as follows of the sea-swallows: "Every day we see playing round the ship and skimming up and down the wave-hollows companies of lovely little terns and sea-swallows, the latter no larger than thrushes. These fearless people of the waste have not by any means followed us from land, living, as gulls often will, on the waste thrown from the vessel. They are vague and casual roamers of the ocean, who spying the great steamship from afar, have sailed close up, to see if we are a rock or an island, and will then skim away on their own free and boundless business. Yonder tiny bird with purple and green plumage, his little breast and neck laced with silver, is distant one thousand miles at this moment from a drop of fresh water, and yet cares no more for the fact than did the Irish squire who 'lived twelve miles from a lemon.'

If his wings ever grow weary it is but to settle quietly on the bosom of a great billow and suffer it for a time to rock and roll him amid this hissing spendrift, the milky flying foam, and the broken sea-lace which forms and gleams and disappears again upon the dark slopes. When he pleases, a stroke of the small red foot and a beat of the wonderful wing launch him off from the jagged edge of his billow, and he flits past us at one hundred knots an hour, laughing steam and canvas to scorn, and steering for some nameless crag in Labrador or Fundy, or bound, it may be, homeward for some island or marsh of the far-away Irish coast. Marvellously expressive of power as is our untiring engine, which all day and all night throbs and pants and pulses in noisy rhythm under the deck, what a clumsy affair it is compared to the dainty plumes and delicate muscles which carry that pretty, fearless sea-swallow back to his roost."

No deserts seem to bound the range of the petrels, and they are found at every distance from land. Different species inhabit every ocean—from the fulmar in the far north to the giant petrel which extends its flight to the icebanks of the south. Here the Antarctic and snowy petrels appear, floating upon the drift ice, and never leaving these dreary seas. Another bird of immense wing power is the tiny stormy petrel, the smallest web-footed bird known. It belongs to every sea, and although so seeming frail it breasts the utmost fury of the storm, skimming with incredible velocity the trough of the waves, and gliding rapidly over their snowy crests. Petrels have been observed two thousand miles

from nearest land, whilst at half that distance Sir James Ross once saw a couple of penguins quietly paddling in the sea. A pair of the rudimentary wings of this bird are lying before me as I write. These are simply featherless paddles, but by their aid so rapidly does the bird swim that it almost defies many of the fishes to equal it. The enormous appetite of the giant penguin (which weighs about eighty pounds) may have something to do with its restricted powers of flight, and in the stomach of one of these Ross found ten pounds of quartz, granite, and trap fragments, swallowed most likely to promote digestion.

But surely the lord of the winged race is the bird which does not rest; and this may almost be said of the man-of-war or frigate bird. He is a navigator who never reaches his bourne, and from his almost ceaseless flight it would seem as though earth and sea were equally prohibited to him. To a bird with such an immense and superior wing apparatus, the metaphor, "he sleeps upon the storm," becomes almost literal. This black, solitary bird is nearly nothing more than wings, his prodigious pinions measuring fifteen feet, even surpassing those of the condor of the Andes. Although sometimes seen four hundred leagues from land, the frigate bird is said to return every night to its solitary roost.

Of all birds, the albatross has, perhaps, the most extended powers of flight. It has been known to follow a vessel for several successive days without once touching the water except to pick up floating food; and even then it does not rest. In describing

the flight of this bird from personal observation, Captain Hutton writes as follows: "The flight of the albatross is truly majestic, as with outstretched motionless wings he sails over the surface of the sea—now rising high in the air, now with a bold sweep and wings inclined at an angle with the horizon, descending until the tip of the lower one all but touches the crests of the waves as he skims over them. I have sometimes watched narrowly one of these birds sailing and wheeling about in all directions for more than an hour without seeing the slightest movement of the wings, and have never witnessed anything to equal the ease and grace of this bird as he sweeps past, often within a few yards—every part of his body perfectly motionless except the head and eye, which turn slowly and seem to take notice of everything. 'Tranquil its spirit seemed and floated slow; even in its very motion there was rest.'" But these birds and the frigate bird are sea and ocean species, and, with rare exceptions, are able to rest upon the waters. This, however, cannot be said of many of the land birds, and here observation is easier.

As an antithesis to the apparently lifeless wings of the albatross, Pettigrew compares the ceaseless activity of those of the humming-bird. In these delicate and exquisitely beautiful birds, the wings, according to Gould, move so rapidly when the bird is poised before an object that it is impossible for the eye to follow each stroke, and a hazy circle of indistinctness on each side the bird is all that is perceptible. When a humming-bird flies in a horizontal direction, it occasionally proceeds with such velocity

as altogether to elude observation. Mention of the calm majestic flight of the albatross suggests the possibility of birds resting on the wing. An American naturalist asserts that birds of prey and some others have the power to lock securely together those parts of the wing holding the extended feathers, and corresponding to the fingers of the human hand. The action of the air on the wing in this condition extends the elbow, which is prevented from opening too far by a cartilage, and the wings may keep this position for an indefinite length of time, with no muscular action whatever on the part of the bird. While resting in this way, the bird cannot rise in a still atmosphere; but if there be a horizontal current, it may allow itself to be carried along by it, with a slight tendency downward, and so gain a momentum by which, with a slight change of direction, it may rise to some extent, still without muscular action of the wings. This same naturalist also believes it quite possible for birds to sleep on the wing. As bearing on this subject, Professor J. S. Newbury asserts that he once shot a bird which came slowly to the ground as if still flying, but reached it dead. He believed that it had died high in the air; but had never been able to account for the manner of its descent till now, when he found an explanation in the statement just given.

Thousands of gold-crests annually cross and recross the North Sea at the wildest periods of the year, and unless the weather is rough generally make their migrations in safety. And yet this is the smallest and frailest British bird—a mere fluff of feathers, weighing only seventy grains. Another of the tits, the oxeye, has

been met upon two occasions at six hundred and nine hundred miles from land. With regard to those birds which cross the Atlantic, it matters not for our purpose whether they are driven by stress of weather or cross voluntarily—suffice it they come. Less likely birds that have occurred in Britain are the belted kingfisher and American yellow-billed cuckoo. The white-winged crossbill must be mentioned with less certainty, for, although a North American bird, it is also found in some northern European countries.

All birds of great and sustained powers of flight have one well-marked characteristic—they have long wings, with sharply-pointed ends. The general truth of this will be at once admitted if the rule be applied to the various species mentioned above. Another point is worthy of notice. The apparent speed of flight to an unpractised eye is most deceptive. A heron, as it rises and flaps languidly along the course of a brook, appears not only to progress slowly but to use its wings in like manner. Yet the Duke of Argyll has pointed out, and any one may verify the statement by his watch, that the heron seldom flaps his wings at a rate of less than from one hundred and twenty to one hundred and fifty times in a minute. This is counting only the downward strokes, so that the bird really makes from two hundred and forty to three hundred separate movements a minute. The rook and heron fly in almost straight lines, have large rounded wings, and float with the greatest ease upon the air. The rook in its measured flight makes about five-and-twenty miles an hour; the heron thirty. Our

short-winged game birds fly with incredible velocity, and any attempt to observe or count their wing movements leaves but a blurred impression on the eye, whilst in some species so quick is the vibratory movement as to prevent its being seen. Driven grouse flying "down wind" have been known to seriously stun sportsmen by falling upon their heads. A grouse does not move its wings so rapidly as a partridge, though the late C. S. was once clean knocked out of a battery by a grouse he had shot falling upon him; and in this way loaded guns have frequently been fired by dead birds. The Duke of Beaufort upon one occasion picked up a brace of grouse which had cannoned and killed each other in mid-air, and colliding is not an unfrequent occurrence. As illustrating a remarkable quality of flight, the case of the kestrel or windhover may be taken. On a summer day one may frequently see this pretty little falcon standing against the blue in what seems an absolutely stationary position, as though suspended by an invisible silken thread. But let a meadow-mouse so much as move and it drops to the sward in an instant.

As has been already stated, there is perhaps nothing more wonderful in nature than the power of flight, and no subject which yields such startling facts upon investigation. "The way of an eagle in the air" is one of those things of which Solomon expressed himself ignorant; and there is something truly marvellous in the mechanism which controls the scythe-like sweep of wings peculiar to most birds of prey. The noblest of these, the peregrine, has been seen flying over mid-Atlantic;

and Henry IV., King of France, had a falcon which escaped from Fontainebleau, and in twenty-four hours after was found in Malta, a space computed to be not less than 1,350 miles, a velocity equal to fifty-six miles an hour, supposing the hawk to have been on the wing the whole time. Indeed, in Montagu's opinion, the rapidity with which hawks and other birds occasionally fly is probably not less than at the rate of a hundred and fifty miles an hour, when either pursued or pursuing. The speed of flight of the peregrine cited above is about that of our best trained pigeons; and it may here be remarked that the flight of these two (otherwise dissimilar) birds very much resembles each other. The beautiful swallow-tailed kite has accomplished the feat of flying across the whole Atlantic Ocean, which is hardly to be wondered at seeing its vast powers of flight. Lieuwenholk relates an exciting chase which he saw in a menagerie about one hundred feet long between a swallow and a dragon-fly (Mordella). The insect flew with incredible speed, and wheeled with such address that the swallow, notwithstanding its utmost efforts, completely failed to overtake and capture it. The best speed of a railway train is only a little more than half the velocity of the golden eagle, the flight of which often attains to the rate of one hundred and forty miles an hour. Of all birds, the condor mounts highest into the atmosphere. Humboldt describes the flight of this bird in the Andes to be at least twenty thousand feet above the level of the sea. Upon one occasion a falcon was observed to cut a snipe right in two, with such strength and

speed did it cut down its prey. Sparrow-hawks and merlins have not unfrequently been known to crash through thick plate-glass windows when in pursuit of prey, or at caged birds.

Of all British birds, none is so beautiful or so secluded in its habits as the kingfisher. Its presence is peculiarly in keeping with the rapid rocky trout streams which it loves to haunt. Its low, arrow-like flight, as it darts like a streak of azure, green, and gold, is familiar to every angler. He hears it far down stream; it comes under the old ivied bridge, passes like a flash, and is gone—how quickly the following will show. Mr. George Rooper, the well-known Biographer of the Salmon, was travelling on the Great Western Railway, which between Pangbourne and Reading runs parallel with, and close to, the Thames. As the train approached the river a kingfisher started from the bank and flew along the river for nearly a mile. Mr. Rooper watched it the whole distance, and its relative position with the window never varied a yard; the bird flying at exactly the same pace as that at which the train travelled, and which the observer had just previously ascertained to be fifty-five miles an hour. This is about half the speed at which the eider-duck flies, as, when fairly on the wing, it makes upwards of one hundred and twenty miles an hour. The rapidity with which all birds of the plover kind fly is well known, and a "trip" of golden plover have been seen midway between Hawaii and the mainland. An officer in Donald Currie's line recently brought home with him a specimen of the St. Helena waxbill which he caught when on watch on the bridge of the *Grantully*

Castle. At the time the nearest land was distant a thousand miles, and the little captive was so distressed that it quietly allowed the officer to capture it.

It has been computed that a red-throated diver swims about four and a half miles on the surface of the water, and between six and seven beneath the surface per hour. Macgillivray states that upon one occasion he watched a flock of red-breasted mergansers pursuing sand eels, when the birds seemed to move under the water with almost as much velocity as in the air, and often rose to breathe at a distance of two hundred yards from the spot at which they had dived. To show to what depth this bird flies beneath the water it may be mentioned that one was caught in a net at thirty fathoms; while a shag, or green cormorant, has been caught in a crab pot fixed at twenty fathoms below the surface; and guillemots literally fly under water without even using their feet. As bearing directly on the interesting subject of flight under water the case of another of the divers may be mentioned. It has been said that one of the strong and original strokes of nature was when she made the "loon," a bird which represents the wildness and solitariness of the wildest and most solitary spots. It dives with such marvellous quickness that the shot of the gunner gets there just in time to cut across a circle of descending tail feathers and a couple of little jets of water flung upward by the web feet of the loon. Speaking of this bird Burroughs says that in the water "its wings are more than wings. It plunges into this denser air, and flies with incredible speed. Its head and beak form a sharp

point to its tapering neck. Its wings are far in front, and its legs equally far in the rear, and its course through the crystal depths is like the speed of an arrow. In the northern lakes it has been taken forty feet under water upon hooks baited for the great lake trout. I had never seen one till last fall, when one appeared on the river in front of my house. I knew instantly it was the loon. Who could not tell a loon a half-mile or more away, though he had never seen one before? The river was like glass, and every movement of the bird as it sported about broke the surface into ripples, that revealed it far and wide. Presently a boat shot out from shore, and went ripping up the surface toward the loon. The creature at once seemed to divine the intentions of the boatman, and sidled off obliquely, keeping a sharp look-out as if to make sure it was pursued. A steamer came down and passed between them, and when the way was again clear the loon was still swimming on the surface. Presently it disappeared under the water, and the boatman pulled sharp and hard. In a few moments the bird reappeared some rods further on, as if to make an observation. Seeing it was being pursued, and no mistake, it dived quickly, and when it came up again had gone many times as far as the boat had in the same space of time. Then it dived again, and distanced its pursuer so easily that he gave over the chase and rested upon his oars. But the bird made a final plunge, and when it emerged upon the surface again it was over a mile away. Its course must have been, and doubtless was, an actual flight under water, and half as fast as the crow flies in the air. The loon would have delighted

the old poets. Its wild, demoniac laughter awakens the echoes on the solitary lakes, and its ferity and hardiness were kindred to those robust spirits." Another specially interesting bird which does something nearly approaching to flying under water is the dipper. The ouzel is essentially a bird of the running brook, though as to what part this pretty white-breasted thrush plays in the economy of nature naturalists are by no means agreed. Its most frequent stand is upon some mossy stone in a river reach, and here its crescented form may oftenest be seen. It haunts the brightly-running streams in winter as in summer, and when these are transformed into roaring torrents seems to love them best. Let us watch it awhile. It dashes through the spray and into the white foam, performing its morning ablutions. Then it emerges to perch on a stone, always jerking its body about, and dipping, dipping, ever dipping. Presently it melts into the water like a bubble, but immediately emerges to regain its seat, then trills out a loud wren-like song, but, breaking off short, again disappears. We are standing on an old stone bridge, and are enabled to observe it closely. By a rapid, vibratory motion of the wings, it drives itself down through the water, and by the aid of its wide-spreading feet clings to and walks among the pebbles. These it rapidly turns over with its bill, searching for the larvæ of water flies and gauzy-winged *ephemeræ*. It searches the brook carefully downwards, sometimes clean immersed, at other times with its back out, then with the water barely covering its feet. It does not always work with the stream, as we have frequently seen him struggling

against it, but retaining its position upon the bottom. Even at the present day there are naturalists who, from the examination of cabinet specimens, aver that it is not in the power of the bird to walk on the bottom of the brook, but then they know nothing of him along his native streams.

Taking advantage of two birds remarkable for their long and sustained powers of flight, experiments have recently been conducted with a view to utilising swallows and pigeons as war messengers. In this connection the use of trained pigeons is one of the oldest institutions in the world; though now that certain European Powers have trained falcons to cut down pigeons, it is said that the pigeon-post is not sufficiently reliable. In consequence a number of French *savants* recently approached the Minister of War, and induced him to found a military swallow-cote whence the birds might be trained. The Governor of Lille was charged to test the plan, and certain experiments made at Roubaix last year are now commanded to be repeated under the supervision of Captain Degouy of the Engineers. During the coming autumn this gentleman is to be present at a grand flight of messenger swallows; and if his report is favourable, a swallow-cote will be founded and placed under the care of special trainers at Mont Valérian. The idea of engaging swallows in war is a pretty one, as in future all European wars will have to be conducted in "Swallow-time"—when the warm winds blow from the sunny south. This arrangement will at least obviate night-watches in frozen trenches; nor is it

likely that pickets will any longer be starved to death at their posts. The incident is also quoted in proof of the fact that we are nearing the time when Europe will be governed by the Parliament of Man, the Federation of the World. But, after all, the idiosyncrasies of France have a way of not being fulfilled; and the reign of the swallow will doubtless be as ephemeral as that of the *brav' Général* himself. In all their military operations of late the French have made considerable use of pigeons in conveying despatches; and in the Franco-German war the birds played a conspicuous part. Upon several occasions, indeed, the inhabitants of beleaguered cities looked upon the successful flights of these birds as their only hope betwixt death and starvation.

At the time the French were making trials with messenger swallows, the young German Emperor ordered extensive experiments to be carried out with carrier pigeons, the same to be tested at the Imperial manœuvres. Upon this, six of the first Columbarian Societies of Germany each offered to supply twenty-four birds, which are now in training. So we have it that the French are endeavouring to train swallows, the Germans pigeons, and the Russians falcons. Whether the falcons are themselves to convey messages, or are to be used to cut down the swallows and pigeons whilst so engaged, is not stated. The pigeon is a tried messenger, and has, moreover, some interesting and remarkable records. The claim of the swallow, on the other hand, lies all in its possibilities. In this connection "swallow" must stand

in a generic sense, and include all birds of the swallow kind as well as the swift. Although, as already stated, swallows are among the most fatiguable of birds, yet one of the American species—the purple martin—would seem to be an exception, and the fact of its having crossed the Atlantic is well known. It is true that swallows attain to an immense speed in their rushes, and there is a well-authenticated instance of one having flown twenty miles in thirteen minutes. The probable speed of the swallow, flying straight and swift, is about one hundred and twenty miles an hour; its ordinary speed ninety miles. The swift attains to two hundred miles, and seems quite tireless on the wing. If swifts can be inspired with a sense of discipline; if French wars can invariably be arranged for the summer months; and if some arrangement can be made with the insect hosts to keep the upper air—*then* something may come of the Lille experiments. If these things cannot be, the French sharpshooter will never be asked to try flying shots at swifts rushing through the air at the rate of two hundred miles an hour. If the Russians are training falcons to catch pigeons, the Germans must train raptors to catch swallows. Here is a fact which proves the possibility. The hobby falcon, a summer migrant to Britain, hawks for dragon-flies—among the swiftest of insects—which it seizes with its foot and devours in mid-air. It cuts down swifts, larks, pigeons, and, where they are found, bee-birds—all remarkable for their great powers of flight. By way of testing the speed of flight in birds of the swallow kind, Spallanzani captured and marked a sand-martin or bank-swallow

—the feeblest of its genus—on her nest at Pavia and set her free at Milan, fifteen miles away. She flew back in thirteen minutes. In striking contrast with the rate at which birds with long pointed wings fly is the fact that one of a pair of starlings (which are short-winged birds) was captured and sent in a basket a distance of upwards of thirty miles by train. It was then freed, and was three hours before it found its way back to its nestlings.

To turn from swallows to pigeons. The power of pigeons on the wing is proverbial. All trained birds of this species have two qualifications in a marked degree. The first is speed; the second long and sustained powers of flight. This proposition can be amply demonstrated, and the following are some of the most remarkable records. On the 6th of October, 1850, Sir John Ross despatched a pair of young pigeons from Assistance Bay, a little west of Wellington Sound; and on October 13th a pigeon made its appearance at the dovecote in Ayrshire, Scotland, whence Sir John had the pair he took out. The distance direct between the two places is two thousand miles. An instance is on record of a pigeon flying twenty-three miles in eleven minutes; and another flew from Rouen to Ghent, one hundred and fifty miles, in an hour and a half. An interesting incident of flight is the case of a pigeon which, in 1845, fell wounded and exhausted at Vauxhall Station, then the terminus of the South-Western Railway. It bore a message to the effect that it was one of three despatched to the Duke of Wellington from Ichaboe Island, two thousand miles away. The message was immediately sent on to his Grace,

and by him acknowledged. In a pigeon competition some years ago, the winning bird flew from Ventnor to Manchester, two hundred and eight miles, at the rate of fifty-five miles an hour. As an experiment a trained pigeon was recently dispatched from a northern newspaper office with a request that it might be liberated for its return journey at 9.45 a.m. It reached home at 1.10 p.m. having covered in the meantime one hundred and forty miles, flying at the rate of forty miles an hour. In the north pigeons have long been used to convey messages between country houses and market towns; and in Russia they are now being employed to convey negatives of photographs taken in balloons. The first experiment of the kind was made from the cupola of the Cathedral of Isaac, and the subject photographed was the Winter Palace. The plates were packed in envelopes impenetrable to light, and then tied to the feet of the pigeons, which safely and quickly carried them to the station at Volkovo. Here is another interesting instance of speed and staying power. The pigeons in this case flew from Bordeaux to Manchester, and not only beat all existing records, but flew more than seventy miles further than anything previously attempted by English flyers. The winning bird flew at the rate of eighteen hundred and seventy-nine yards a minute, or over sixty-four miles an hour, and that for a distance of one hundred and forty-two and a half miles. The same club has flown birds distances of six hundred and thirteen, and six hundred and twenty-five miles. These latter, however, were several days in returning, and in their case the

only wonder is that they could accomplish the distance at all. The following is still more interesting, as it entailed a race between birds and insects. A pigeon-fancier of Hamme, in Westphalia, made a wager that a dozen bees liberated three miles from their hive would reach it in better time than a dozen pigeons would reach their cot from the same distance. The competitors were given wing at Rhynhern, a village nearly a league from Hamme, and the first bee finished a quarter of a minute in advance of the first pigeon, three other bees reached the goal before the second pigeon, the main body of both detachments finishing almost simultaneously an instant or two later. The bees, too, may be said to have been handicapped in the race, having been rolled in flour before starting for purposes of identification.

The American passenger pigeon compasses the whole Atlantic ocean. The speed of its flight is approximately known; it is able to cover one thousand six hundred miles in twenty-four hours. This, however, is marvellous, when it is seen that, flying at the rate of nearly seventy miles an hour, it takes the bird two days and nights to cross. What must be the nature of the mechanism that can stand such a strain as this? This pigeon is now recognised as a British bird. Several examples have occurred, and whilst some of these were probably "escapes," others doubtless were wild birds. These had perfect plumage, were taken in an exhausted condition, and their crops showed only the slightest traces of food. As is well known, the passenger pigeon is a bird of immense powers of flight, and in its overland

journeys often flies at the rate of a mile a minute. Wild birds, however, can only come from America; and this opens up the interesting question as to the possibility of birds crossing the Atlantic without once resting. Naturalists of the present day say that this feat is not only probable, but that it is accomplished by several birds. Mr. Darwin somewhere asserts that one or two of them are annually blown across the ocean; and it is certain that half-a-dozen species have occurred upon the west coasts of England and Ireland, which are found nowhere but in North America. Mr. Howard Saunders states that passenger pigeons are often captured in the State of New York with their crops still filled with the undigested grains of rice that must have been taken in the distant fields of Georgia and South Carolina; apparently proving that they passed over the intervening space within a few hours. It certainly seems remarkable that a bird should have the power of winging its way over four thousand miles of sea; but recently two persons have recorded the fact that they have noticed pigeons settle upon the water to drink, then rise from it with apparent ease. And Mr. Darwin says that, where the banks of the Nile are perpendicular, whole flocks of pigeons have been seen to settle on the water and drink while they floated down the stream. He adds that, seen from a distance, they resemble flocks of gulls on the surface of the sea. The passenger pigeon is one of the handsomest of its kind. The accounts of its migrations in search of food are known to all. It is said to move in such vast flocks as to darken the earth as they pass over, and that one of

these columns brings devastation wherever it comes.

In the Anglo-Belgian pigeon races, some of the birds attain to nearly a mile a minute, and this when the race is for five hundred miles. The English, French, and Germans all rear pigeons in their fortresses; and the birds are utilised by the Trinity House in conveying messages from the lightships. They are also in use on the Indian stations. The following are additional remarkable instances of quick and long sustained powers of flight which show what the pigeon is capable of doing. Thirty-three birds were recently brought from Termonde, in Belgium, and were liberated at Sunderland at 5 a.m. A telegram received at the latter place stated that sixteen of the birds reached home at 1.35 the same afternoon, having accomplished the distance of four hundred and eighty miles in about eight and a half hours, or about fifty-six miles an hour. A week previous the same birds had flown from London to Brussels.

It has frequently been suggested that homing pigeons should be used to carry telegraphic messages between country houses and post offices. In many cases pigeons have been used as telegraphic messengers with the most successful results. Sending into town, by the people of the Hall is a frequent occurrence, and whenever a messenger had occasion to go, some pigeons, bred at the Hall are sent in a hamper by the dog-cart or what-not. These are taken possession of by a local tradesman living near the post office, who also receives the telegrams. The latter are rolled up and tied either round the bird's leg, or so that it lies across the

upper part of its breast. The pigeon is then liberated, and in about ten minutes from the time of despatch the telegram is delivered at the Hall, five miles distant. The reverse process is repeated with the tradesman's pigeons kept at the Hall if a reply to the telegram is required. The platform leading into the pigeon-house is connected with an electric bell that rings when the pigeon, reaching home, alights on the platform, and thus notifies the servants the arrival of a telegram; one of them then goes and unties it from the bird's neck. Much saving in porterage is thus accomplished; the telegrams are delivered in a few minutes, and rarely, if ever, lost. The ordinary homing pigeon is best adapted for the purpose, being an inexpensive purchase. In proof of this fitness the following most remarkable incident may be recorded. A number of English homers were recently sent to Lassay, an inland town of France, but for some reason the French police authorities refused to start them, and the birds were relegated to Cherbourg, where they were liberated at 7 a.m. One of them was seen to alight on the roof of its loft at 11.30 the same forenoon. It had accomplished the entire distance of about three hundred miles, including one hundred miles of water, in a bee-line from Cherbourg to Birkenhead at the rate of over a mile a minute. This particular bird had never been any great distance from home, and although English bred it was from a famous strain of Belgian "homers." The large provincial towns in the north of England are the great centres of pigeon-flying. Recently as many as two thousand five hundred birds were liberated at a

flight. Every one of these pigeons were out of sight in one minute from the time they were thrown up, a fact which shows how strong is the "homing" instinct within them. The homing pigeon may not supersede the telegraph; but in disturbed times it is the business of an enemy to cut the wires, to tap them, or even to send misleading despatches along them. No such danger need be apprehended from a carrier pigeon, for, if well trained, it will fly straight from loft to loft, never parting with its tiny scroll unless killed or taken—a mishap which is not likely to befall more than one or two of a flight. As already stated, some remarkable results have already been achieved, not only by Government birds—whose performances and proceedings are, of course, kept secret—but by those belonging to the numerous carrier-pigeon societies which have been established on the Continent either for mere amusement or with more patriotic objects in view. Thus, some years ago, a homing pigeon covered the six hundred and fifteen miles—air-line—between Liége, in Belgium, and San Sebastian, in Spain, in the course of a single day; and in the United States as much as five hundred miles has been traversed in from twenty-four to twenty-eight hours—that is, the birds were absent from loft to loft for that period. But, as the progress of the pigeon from one station to another cannot be accurately followed, it may have halted on the way. The bird is believed to travel the first day without stopping, and being stiff and sore, to rest the second day, resuming its journey on the third, since it is seldom that "a return" comes back travel-stained or weary.

When the rearing and training of carrier-pigeons for French military service was seriously undertaken, the first thing to be done was to find a breed of birds at once intelligent, hardy, strong, light on the wing, and of a dull, uniform colour, likely to escape notice and pursuit. All these attributes are possessed by the Belgian breed, which is divided into two classes; the large, heavy Antwerp, and the smaller, lighter Luttrich variety. The scientific training, which must be begun early, is as follows: As soon as the young pigeons can fly they are taken out of the pigeon-house, put into a basket, and carried (always with the flying-hole of the basket kept carefully turned towards the pigeon-house), to an unknown spot at a short distance, where they are set free and let fly home. It is seldom that a pigeon fails, in the first short trial, to find its way back to its paternal nest. At each trial the distance is slightly lengthened. Pigeons six months old are liberated at a distance of eighty kilometres from home, those of a year old at one hundred and fifty kilometres, those of two years at three hundred kilometres, and older tried birds at six hundred to eight hundred kilometres. These, of course, are average measurements, and are varied according to circumstance. The percentage of losses naturally increases with increasing distance. In long flights the birds meet with innumerable hindrances; rain, hail, fog, wind, and thunderstorms not only impede their flight, but often affect their wonderful sense of locality and direction. The birds are remarkably sensitive to electricity, so that thunderstorms are peculiarly baffling to

them, and large forests, great extents of water, and ranges of mountains influence and alter the upper air currents, by the direction of which the pigeons, taught by some marvellous "instinct," are able to steer their course. The average speed of a pigeon is reckoned at a kilometre a minute, and on this basis, and taking into consideration the time of year, length of daylight, weather, &c., calculations are made of the distance a pigeon can be sent. In summer, when daylight begins at half-past three in the morning and lasts till half-past eight at night, a trained pigeon can fly about one thousand kilometres in a day, while on a foggy November day, when the daylight begins late and darkness comes on early, the same bird cannot accomplish more than four hundred kilometres. One great drawback hitherto attendant on the use of pigeons has been the supposed impossibility of making them fly backwards and forwards between two points; they would only fly in one direction. Now, however, Captain Malogoli, the head of the Italian military carrier pigeon depôts, has, after immense and unwearying trouble, succeeded in getting his pigeons to fly backwards and forwards between Rome and Civita Vecchia (seventy-two kilometres). This practical success has shattered the theories of various ornithologists, as Russ, who have affirmed that pigeons cannot be made to fly in two directions. The chief points to be observed in the rearing of pigeons are—roomy, warm houses, facing toward the sun; scrupulous cleanliness, light food, and abundance of clean, fresh water. The smaller the bird, and the quieter its colour, the better

chance it stands of safety from human and other enemies; among the latter the falcon is the most dangerous. The military pigeon-post is best organised in Germany, Italy, and France. In the last French budget a sum of sixty-eight thousand francs was devoted to this branch of the service, and there are at present in France twenty-two sub-depôts, besides the chief pigeon station. In Italy there are twelve sub-depôts, and five in the Italian possessions in Africa.

The following are the regulations as to training and flying in connection with the messenger war pigeons in Italy. The posts of Digdegha, the wells of Tata, as well as the detachments sent out to reconnoitre towards Ailet, Assur, &c., send their reports by means of pigeons from the dovecote installed at Massowa, whence they are forwarded to the headquarters at Saati. On rainy days, and when the communications are confidential, the despatches are introduced into goose-quills and sealed; but as this operation, above all when the troops are on the march, entails a certain loss of time, they must only, when possible, write a despatch on a leaf of a pocket-book with which every officer and non-commissioned officer is provided; the despatch is then tied to a tail-feather of the bird. Conventional signs are also used in the case of a detachment being surprised by the enemy and not having time to send a telegram. For instance, when one or more pigeons arrive at the dovecote without despatches, and with the loss of some tail feathers, it is a sign that the troops have been attacked. Sometimes marks made with colour supply such-

and-such information. Each detachment carries three or four pigeons in a light basket of bamboo and net. The distances being short, each despatch is sent by one pigeon. A first despatch is sent at the hour fixed in advance by the commander, the others successively as there is news to transmit. The pigeon-basket is borne by soldiers, who relieve one another at stated intervals. The grains of wheat and vessels of water are confided to a corporal, who has the care of the pigeons. When the detachment has to remain absent more than a day, they take with them four pigeons, with wheat and water in a leathern case. If they have to return in a day, they carry but three pigeons, with the food and drink necessary. The frequent arrival of these birds from all quarters presents a curious appearance. When they arrive they perch at the window of the dovecot, where their mates and young await them. To enter they must pass through a sort of cage-trap, which does not permit them to return, and at the same time separates them from the other pigeons. The weight of the newcomer sets an electric bell ringing; and this signal continues all the time the bird remains in the trap; thus giving notice to the sergeant of the guard, who takes the despatch and forwards it to headquarters.

The liability of so defenceless a bird as the pigeon to attack has led to experiments being undertaken from time to time with young ravens, which make fairly quick and reliable messengers up to a distance of about fifty miles. As the raven is very teachable (it can be made to "retrieve" most creditably), and as it manifests a strong attachment to its birth-place, there seems

no reason why its training should not be further extended in the new direction, for which its great spirit and endurance appear eminently to fit it.

Here I have only touched upon the speed and power of flight, but the whole subject is one of the most fascinating branches of natural history. No reference has been made to the marvellous movements of birds in the air, which constitute the very poetry of motion—the stationary balancing, hovering, circling, and gliding, all of which may be observed, especially among our own birds of prey.

Although much is known of the speed of birds and animals, there are but few ascertained facts concerning that of insects and fishes. The comparatively low intelligence of these two classes of animals makes it difficult to direct them. They rarely fly or swim in anything approaching to a straight line, and experiments give only approximate results. Pike in pursuit of their prey seem to flash through the water; and salmon and trout move almost as quickly. The Spanish mackerel, with its smooth, cone-shaped body, is among the swiftest of fishes, and for speed only finds a parallel in the dolphin. There is a great similarity in shape between these two, and both cut the water like a yacht. The first follows the fastest steamers with the greatest ease, in its dashes swimming at five times their speed. The bonito is also a fast swimmer; and all those fishes "trimmed" in like fashion with him.

There is one insect to which attention may be drawn, as

affording a most striking example of speed among lowly-winged creatures. That is the dragon-fly. I have frequently had an opportunity of dropping into company with the largest species (*Libellula grandis*), in its aerial excursions in autumn by a particular roadside, along which there was a rushy-margined pool. At such times the writer has been occasionally on foot,—more frequently driving. On foot one has scarcely any means of judging of its speed, for in a moment it is past and gone out of sight. But what is the experience when you are driving, say at ten or twelve miles an hour? This rapid voyager passes over, proceeds beyond you almost out of sight, then turns, swerving widely from right to left, repasses again in both directions, traversing repeatedly the ground, while you are travelling, or rather dragging, over the same space of about a mile only once. We are apt to exaggerate in these matters, but with every allowance, having compared the flight of a dragon-fly with that of a passing hawk, swallow, or cuckoo, I have computed that this large species is capable of flying at a speed of from eighty to one hundred miles an hour—an enormous draw upon the creature's nerves and muscular powers, as manifested by occasional rests of a few minutes upon a bush or a piece of sedge, its habits not requiring uninterrupted flight at such a pace. Perhaps the need of these occasional rests is an erroneous opinion founded upon too limited an area of observation. For Cuvier has stated that M. Poey, who had particularly studied the insects of Cuba, informed him that at certain seasons of the year the northerly winds bring

to the city of Havannah and its neighbourhood an innumerable quantity of specimens of one of the species of *Libellulæ*. Other instances of the periodical flights or migrations of dragon-flies have been noted by observers. And even butterflies have been seen to migrate to distant points of land, making flights of fifty or sixty miles across water. These long journeys may be relieved by occasional rests, as Mr. Newman and others have ascertained that lepidopterous insects are able to alight upon the water, rest awhile, and then rise with apparent ease—a fact readily credited by fishermen, who so frequently see the green-and-grey drake and other *ephemeræ* float down stream, and, if not taken by the trout, suddenly spring up again, and resume their aerial dances. But this power of rapid movement in the dragonfly, be the rate more or less, is in just keeping with its structure. The insect's body is slender, the chest strongly developed, though firm; the wings, four in number, are narrow, of great length, and consist of fine, thin, dry membrane, stretched upon a series of lightly made *costæ*, or rafters. No wonder, then, that with such a mechanism the creature pursues its prey of smaller insects with such rapidity.

Конец ознакомительного фрагмента.