Chamber birds: their natural history, management, habits, food, diseases, treatment, breeding, and the methods of catching them / By J.M. Bechstein, M.D. Translated from the last German ed., by W.E. Shuckard. To which are added observations compiled from the works of British naturalists.

Contributors

Bechstein, Johann Matthäus, 1757-1822.
Shuckard, W. E. 1802-1868.

Publication/Creation

London : W.S. Orr, 1848.

Persistent URL

https://wellcomecollection.org/works/bjs5tpav

License and attribution

This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

wellcome collection

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

12843/B

3/6

29C5881

CHAMBER BIRDS:

THEIR NATURAL HISTORY, MANAGEMENT, HABITS, FOOD, DISEASES, TREATMENT, BREEDING, AND THE METHODS OF CATCHING THEM.

BY J. M. BECHSTEIN, M.D.

TRANSLATED FROM THE LAST GERMAN EDITION,

BY W. E. SHUCKARD, M.E.S.

AUTHOR OF "ESSAY ON THE FOSSORIAL HYMENOPTERA," "ELEMENTS OF BRITISH ENTOMOLOGY," &c.

TO WHICH ARE ADDED,

OBSERVATIONS COMPILED FROM THE WORKS OF BRITISH NATURALISTS.

LONDON:

WM. S. ORR AND CO., AMEN CORNER,

PATERNOSTER ROW.

MDCCCXLVIII.

LONDON :
VIZETELLY BROTHERS AND CO. PRINTERS AND ENGRAVERS,
PETERBOROUGH COURT, FLEET STREET.

WELLCOME
HISTORICAL
MEDICAL
LIBRARY

CONTENTS.

INTRODUCTION.

Section I.		Division of the Work	1
„	II.	Voice and Song of Birds	2
„	III.	Habitations of Chamber Birds	10
„	IV.	Food	14
„	V.	Diseases	19
„	VI.	Age	23
„	VII.	Mode of Capture	ib.
„	VIII.	System of Classification	30
		Note on Structure of Birds	ib

BIRDS.

Section I.		Accipitres. Birds of Prey	51
„	II.	Corraces. Crow Tribe	58
„	III.	Levirostres. Large-billed Birds	119
„	IV.	Pici. Woodpeckers	155
„	V.	Passeres. Sparrow and Finch Tribes	171
„	VI.	Oscines. Songsters	286
„	VII.	Columbæ. Doves	385

Digitized by the Internet Archive
in 2017 with funding from
Wellcome Library

https://archive.org/details/b29333350

PREFACE.

An intimate knowledge of Ornithology, and an enthusiastic love of the feathered tribes, well qualified Doctor Bechstein to write the History of Chamber Birds. His book was eminently successful, having gone through three large editions during his lifetime, and been translated into several European languages. It has been found so full, so accurate, and so exhaustive of its subject, that it has not been—nor is it likely to be, superseded. An excellent edition, marked by several improvements, has been produced since the author's death, under the superintendence of his friend Dr. Lehrmann of Hamburgh; of that edition a translation is now offered to the public, which it is hoped will not be found inferior to the original in accuracy and usefulness.

Dr. Bechstein thus describes his qualification for the task he had undertaken. "From my earliest childhood, I have been surrounded by almost every feathered companion described in my work, and have so accustomed myself to them, that I cannot sit down to my desk with even ordinary attention, if my apartment be not enlivened by the choral music of these songsters, of which I have never less than fifty or sixty about me. I have, therefore, very naturally, studied the readiest means of procuring them, as well as the cheapest mode of feeding and maintaining them in health; and in doing so, I soon accumulated materials for composing their natural history."

The plan pursued by the author was to describe all the birds indigenous to Germany, as well as foreign ones brought to that country by bird-fanciers, capable of being tamed or kept in the chamber or aviary, under the distinct heads of—

1. Description—which is given somewhat elaborately, so as to be intelligible to ladies, and other amateurs; bird-catchers

and dealers not being over scrupulous in passing off one bird for another when an opportunity occurs.

2. HABITAT—as indicating the locality where certain birds may be captured.

3. FOOD.—An especial object of attention to the amateur; as the nearer he approaches the food of the bird in its natural state, the greater his chance of keeping it in good health.

4. BREEDING.—Some birds are best when taken from the nest, others when bred in confinement: hence the necessity for this head.

5. DISEASES.—A very difficult subject to treat of in such tender creatures as birds; but I have given the best remedies in my power.

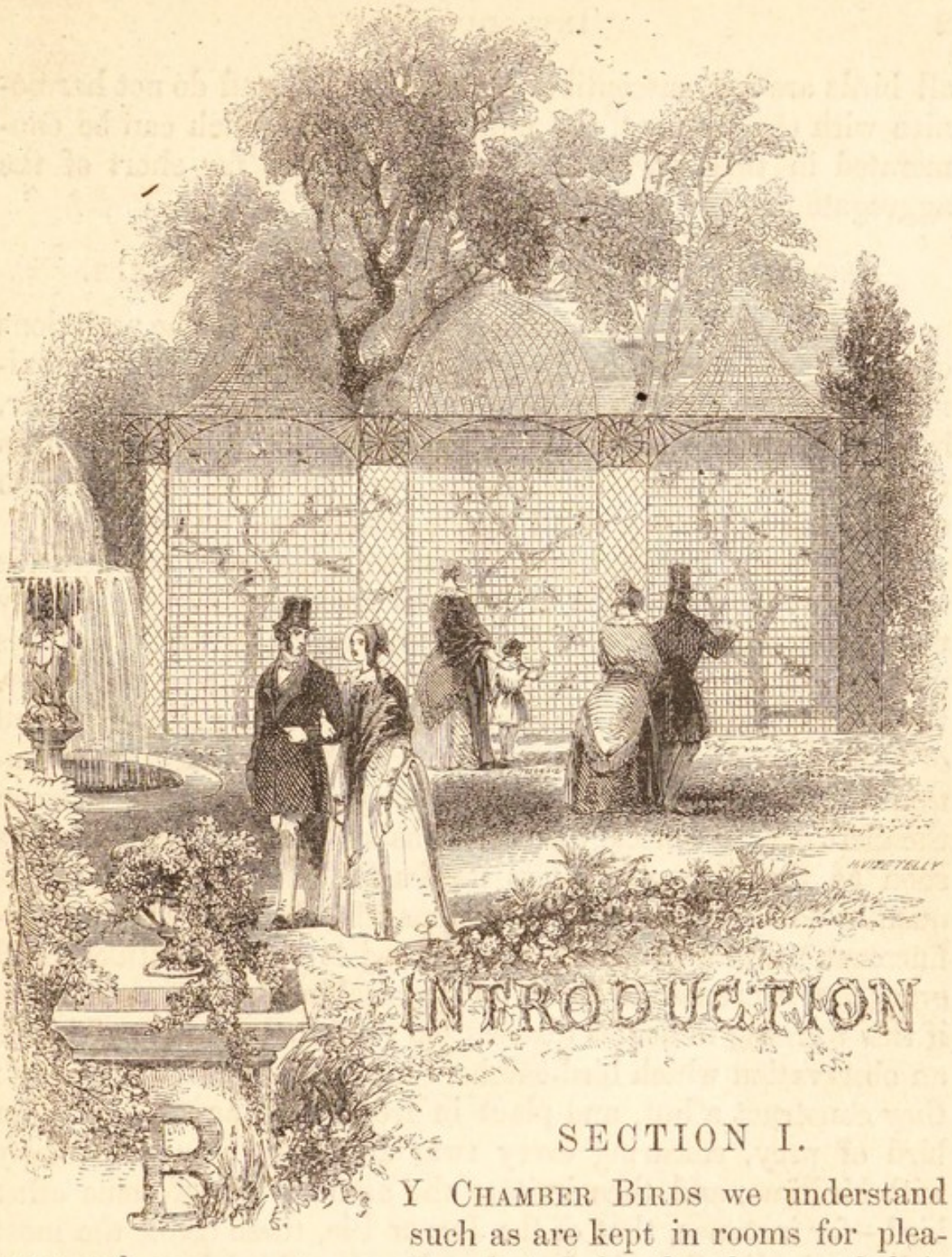
6. COMMENDATORY QUALITIES.—Those properties which render the bird worthy of the amateur's attention.

In the present translation the same plan has been strictly followed, with the addition that a short notice, compiled from the observations of British Naturalists, has been added, pointing out the seasonal habits as observed in this country, so as to prevent confusion in their times of migration.

"Some persons may think," adds the author, in his preface to the third edition, "that I include too many under the term Chamber Birds, as many of those described are only to be tamed with great difficulty; as for instance, the Golden Crested Wren and the Common Wren. I can only reply, that it appears to me too circumscribed, if those birds only be admitted which are easily initiated. I am acquainted with several amateurs who have constantly a couple of Wrens, either flying about the chamber or confined in cages, and who derive great pleasure from rearing them."

In the words of Dr. Lehrmann, we may conclude with the hope that this edition retains, with its other advantages over all similar works, that attraction and popularity which it claims from its elegance of typography and variety of illustration.

LONDON, *December* 20, 1847.



INTRODUCTION

SECTION I.

BY Chamber Birds we understand such as are kept in rooms for pleasure and amusement, usually selected for the charms of their song or the beauty of their plumage, although it is not to be denied that both naturalists and fanciers are likewise induced by other causes to cherish these feathered creatures; their vivacity entertains him, and he delights in the study of their peculiar habits. For both purposes it is especially desirable that he should be able to distinguish the sexes, as the male is greatly preferred for his powers of song. I shall, therefore, in sketching this history of chamber birds, note particularly the characteristics which distinguish the male from the female. As

all birds are not susceptible of being tamed, and do not harmonize with the attempt, the number of birds which can be enumerated in this work, must necessarily fall far short of the aggregate number of the entire race.

Section II.—Of the Voice and Song of Birds.

Every species of bird has its own peculiar notes, the variations of which conspicuously distinguish them from all other animals; they are thereby capable of communicating to each other, if not indiscriminately throughout the entire race, yet within the compass of their own genera, or, at least, of their own species, the expression of all their emotions and wants.

Any person but slightly familiar with the study of nature, is aware that the expression of fear and proximate danger is a cry universally comprehended; for if even uttered by the Wren it is understood by the Turkey, and if proceeding from the latter, the former takes alarm. Every bird that first perceives a bird of prey excites, by its own peculiar accent of warning, the attention of all others in its immediate vicinity, guarding them to be on the alert and to conceal themselves as speedily as possible. As soon as the Titmouse utters its fearful *Iss!* (and this it frequently does in mere mockery, as may be observed when in confinement,) that instant the whole wood is suddenly stilled, and every bird is aroused to detect its approaching enemy, or hastens, if this warning indicates distress, to yield its succour. This is an observation which bird-catchers take material advantage of: they construct a hut, and place in front of it an owl, or other bird of prey, smearing every twig and branch in its vicinity with birdlime, and then imitate the anxious cry of some other bird—for instance, that of the Jay or Pie, these being the most universally distributed—knowing that every bird, both great and small, which hears it, will flock to their protection, and thus be caught.

Equally comprehensible, if not to all, yet to the majority of birds, are the accents of joy and pleasure whereby they excite in each other similar agreeable sensations. This delight, however, is not expressed merely in the ordinary song of the bird, stimulated by which, a whole wood or aviary is sometimes observed to strike up its jubilant notes, but also by means of solitary and peculiar tones.

In the autumn and the early spring we meet with a multitude of birds, in hedges and bushes, differing considerably in genera and species, which seem to delight each other by their universal chirp. Within a chamber any noise, loud speaking, or instrumental music especially, will excite birds to sing; but in the woods and fields this has a contrary effect, for it then becomes the means of scaring them.

Very many different genera appear to have a facility of communicating together. Thus, for instance, Ravens, Crows, Daws, and similar birds have their various calls, and approach each other when necessary,—as during their migrations. A bird-catcher may thus secure, by the call of the Yellow Bunting, either the Foolish Bunting, Ortolan Bunting, Snow Bunting, or Reed-Bunting. He may also capture the Mountain Finch by the call of the Chaffinch; as well as the lesser Redpole and the Citril by the call-note of the Siskin.

Lastly, every bird is endowed by nature, if not with an aptitude for song, at least with some distinct notes whereby it can express its desires, not merely to its own, but to the opposite sex also. This is accomplished either by means of single notes, or by one or a succession of several melodies; the one is named the call-note of the bird, and the other its song. In many the call-note varies according to the varying emotion or want, in others it is uniform. Thus, the Chaffinch in its migrations calls *yack! yack!* In the expression of joy, a solitary *fink! fink!* When excited with anger, a rapid *fink! fink! fink!* And in sorrow or in tenderness, *treef! treef!* Whereas, the Carrion Crow at all times utters only *grahb! grahb!* and expresses the difference of its emotions in the slow or rapid succession only of this cry.

The song of birds is always, if not the expression of love, at least that of pleasure. Thus, the Nightingale sings only as long as pairing time or hatching lasts, and is silent as soon as it is compelled to feed its young; whereas, the Starling, Goldfinch, and Canary sing throughout the year, and only cease when moulting dejects them.

Song appears to be the especial privilege of the male, whereby it either attracts the female or seeks to obtain her love, for there are but few females which produce, and these almost exclusively in a state of widowhood, notes similar to the song of the male.

They listen attentively, in fact, to the greater or lesser perfection or charm of the song of the male, to bestow upon that one their love whom they esteem the most accomplished singer. Thus, the most sprightly hen Canary selects the best singer; and the Chaffinch, when at liberty, will choose from among a hundred males the one whose song best pleases her.

Chamber birds, as I have before remarked, delight us chiefly by their song, and this is divided into the natural and the acquired. The former is usually as different as the birds themselves; and I cannot recal to mind any native bird which has completely acquired the peculiar song of any other species, excepting only the three species of Shrikes described: these birds, in consequence of their very retentive memory, can imitate very faithfully the song of all the birds in their vicinity; but with these they so peculiarly intermix their own discordant notes, that a connoisseur at once detects whether it is the Skylark itself that is singing, or the Wood Chat imitating it. A familiarity with these various songs is not only important to the bird-fancier, but also to the naturalist, as it frequently happens that observations of consequence can be made upon these feathered creatures only through the medium of their song.

The acquired song of chamber birds consists partly of the borrowed song of other birds, which young birds, especially, learn in aviaries, or of such as are whistled or played to them upon flutes and organs. Almost all singing birds, if not transferred too young from the nest to the chamber, acquire some bars of such melodies as are daily played or whistled, but only such as are very tractable wholly abandon their native notes, to sing, purely and without any intermixture, those which they are taught. Thus, the young Goldfinch will learn some of the bars whistled to the Bullfinch; but he is never able to pipe the song so perfectly as the latter. The reason does not lie, as many suppose, in the greater or lesser ductility of the organs, but in the relative capacity of their memory. Those which have not a cleft tongue like singing birds, but are furnished with an entire broad fleshy one, and are, consequently, enabled to imitate articulate sounds, are said to speak. Thus, many kinds of Parrots speak, the Jay also, and several others.

Bird-catchers and bird-fanciers also classify the song of birds thus:—The bird *quavers*, they say, when it repeats the strophes,

or solitary notes of its song, in the same order of succession; thus the Nightingale and the Chaffinch quaver. Birds *sing* when, without respect to any particular tact, they carol their twittering or chirping notes, intermixed with louder ones; as is the case with the Siskin, and the Redbreast. And lastly, they *pipe* when their song consists of distinct round flute-like tones; thus the Linnet pipes, and also the instructed Bullfinch.

Some birds sing the whole day, others only in the morning, and again others only in the evening, or, indeed, during the night. Some like society whilst singing, others, on the contrary, desire only to hear themselves. The Nightingale, for instance, quavers, by preference, during the stillness of the evening or in the night, and is comparatively silent during the day; and it would seem, in fact, that she, as queen of singing birds, aware of her pre-eminence, does not wish her beautiful song to be drowned in the busy clamour of the day and the mixed carollings and cries of other birds, but is anxious that man may thus the better feel and enjoy it. It is remarkable that all birds, which do not sing uninterruptedly the whole year through, as the Redbreast, the Siskin, the Goldfinch, &c., must relearn their song after moulting, or, if it be merely the song of love and pleasure, upon the renewal of spring. But this, according to my observation, is no distinct learning, but only a softening of the organ so as to render it again efficient for the reproduction of its usual notes. This re-learning, or recording as it is called, consists properly only of a kind of twittering and chirping, which has no sort of affinity to the ordinary notes of the bird's peculiar song; and whoever observes attentively will find, that by this exercise, the throat is, by degrees, enabled to reproduce the notes which form the distinct song of the species. This, therefore, does not imply any deficiency of memory; but, if we may hazard the expression, a seasonal defect or disuse of the *larynx* of the bird. The Chaffinch thus chirps for almost two months—some longer, others shorter—before it is able to reproduce its note perfectly; and the Nightingale modulates indistinctly the bars of his song for a similar period before he warbles forth his exquisite tune.

The reason why one bird sings stronger and better than another, is to be deduced from the relative size and strength of the larynx; and from the same cause females do not usually sing, their larynx not being so powerfully organized as that of the male.

Therefore, the loud, long, and strongly-singing Nightingale has, of all singing birds, the most muscular larynx. But as the organization of the human body may be perfected by exercise and practice, so is it also in birds; and birds of the same species may, by means of nutritious food and care, and the clamour in which they are brought up, have the larynx so distended and strengthened by the exercise thus continually given it, that their song will be considerably improved. This is daily observed in Chaffinches, Linnets, and Bullfinches which are kept in an aviary.

I must not omit one further remark made already by Barrington,* that the wild or natural song of a bird might be perfected by that of a different species; thus, for instance, if Linnets and Sparrows were reared with chamber birds, such as Nightingales and Canaries, and then set at liberty, their song would partake of some of the excellencies of that of their companions. The observation is correct in as far as their song would, in such confinement, be perfected; for birds brought up in a chamber, in consequence of the care and attention paid to them, have nothing to do but to attend to their singing, which induces them to exert themselves the more strenuously to obtain a partner. We might also teach such birds as can bear our climate a song different from their own, by enclosing them with wire gauze in an open place, and suspending near them uncoupled Canary birds and Nightingales which sing at all times; but that this can be done within a chamber, as is asserted by Dr. Gainborg,† I doubt, as it is opposed to my own experience. For, in the first place, it would be possible only with such birds as winter with us, and, indeed, in the vicinity of our houses, as Sparrows; but these, usually, are so deficient in capacity as to learn no song thoroughly. Secondly, birds, if intended to acquire the peculiar song of any other species, should be removed as early as possible out of the nest, that they may not have learnt to chirp their native notes, when their sophistication, by the peculiar food and atmosphere of the chamber, would render them unable, when afterwards enlarged, to support themselves, without at all adverting to their inadequacy to the

* In the Phil. Trans., vol. 63; 1773.

† How can we improve the song of our wild birds? Copenhagen, 1800.

labour of migration. Thirdly, did we cause such birds to be bred by Canaries, in large and extensive copses, there would, it is true, be no difficulty as regards their food; but when winter came, being totally unaccustomed to, and ignorant of the call of their parentage, they would not join the flock, and consequently be left behind when these migrated, and destroyed. The surest way to perfect the native wild note of such species, would be to hang out cages filled with accomplished singers, either in a garden, or other place to which Larks, Chaffinches, and their congeners resort and breed. The young which had a good memory would thus acquire, not merely the native song of their parents, but also the improved song of the others. Such an universal improvement or rather confusion of songs is not however desirable. It is, therefore, best to retain birds with an acquired note within the chamber, and there to keep them.

Observations of British Naturalists.—Colonel Montague, who paid great attention to this subject, was of opinion that the note was innate in each species. "That birds in confinement," he says, "will learn the song of birds they are constantly kept with, there is no doubt; but then it is constantly blended with that peculiar to the species. In the spring, the very great exertions of the male birds in their vociferous notes are certainly the calls to love; and the peculiar note of each is an unerring mark for each to discover its own species. If a confined bird had learned the song of another, without retaining any part of its natural notes, and was set at liberty, it is probable it would never find a mate of its own species; and even supposing it did, there is no reason for believing the young of that bird would be destitute of its native notes; for if nestling birds have no innate notes peculiar to their species, and their song is only learned from the parent bird, how are we to account for the invariable note each species possesses, when it happens that two different species are bred up in the same bush, or in the contiguous one, or when hatched or fostered by a different species? The males of song birds do not in general search for the female, but, on the contrary, their business in the spring is to perch on some conspicuous spot, breathing out their full and amorous notes, which, by instinct, the female knows, and repairs thither to choose her mate. This is particularly verified with respect to summer birds of passage. The Nightingale, and most of its genus, although timid and shy to a degree, mount aloft, and incessantly pour forth their strains, each seemingly vieing in its lone love-laboured song before the female arrives. No sooner does the female

make her appearance than dreadful battles ensue—their notes are changed; their song is sometimes hurried through without the usual grace and elegance; and at other times modulated into a soothing melody. The first we conceive to be a provocation to battle at the appearance of another male; the last, an amorous cadence, or courting address. This variety of song only lasts till the female is fixed in her choice, which is in general a few days after her arrival; and if the season is favourable, she soon begins the task allotted to her sex.

"The male no longer exposes himself as before, nor are his songs heard so frequently, or so loud; but while she is searching for a secure place in which to build her nest, he is no less assiduous in attending her with ridiculous gestures, accompanied with peculiarly soft notes. When incubation takes place, the song of the male is again heard, but not so frequently as at first; he never rambles from hearing, and seldom from her sight, and if she leaves the nest, he accompanies her with soft notes of love.

"The continuation of song in caged birds by no means proves it is not occasioned by a stimulus to love; indeed, it is probable that redundancy of animal spirits from plenty of food and artificial heat may produce the same result, whereas wild birds have it abated by a commerce with the other sex;—but even in their natural state, birds may be forced to continue their song much longer than usual. A male Red-start made his appearance near my house early in Spring, and soon commenced his love-tuned song. In two days after a female arrived, which for several days the male was continually chasing, emitting soft interrupted notes, accompanied by a chattering noise. This sort of courting lasted for several days. Soon after, the female took possession of a hole in a wall close to my house, where she prepared a nest, and deposited six eggs. The male kept at a distance from the nest; sometimes sung, but not so loud nor so frequently as at first, and never when he approached the nest. When the eggs had been sat on a few days, I caught the female. The male did not miss his mate immediately; but on the next day he resumed his vociferous calls, and his song became incessant for a week, when I discovered a second female;—his note immediately changed, and all his actions as before described returned. This experiment has been repeated on the Nightingale with the same result; and a Golden-crested Wren, who never found another mate, continued his song from the month of May till the latter end of August. On the contrary, another of the same species, who took possession of a fir-tree in my garden, ceased its notes as soon as the young were hatched."

Mr. Rennie, commenting on this paper, is of opinion that birds sing most frequently from joy and buoyancy of spirits, and not unfre-

quently in triumphant defiance of rivalry or attack. "I have a Redbreast," he says, "who will sing out whenever I snap my fingers at him; and the Sedge-bird sings when a stone is thrown into the bush where he may be." Syme remarks, "that the notes of soft-billed birds are finely toned, mellow, and plaintive; those of the hard-billed species sprightly, cheerful, and rapid. This difference proceeds from the construction of the larynx: as a large pipe of an organ produces a deeper and more mellow-toned note than a small pipe, so the trachea of the Nightingale, which is wider than that of the Canary, sends forth a deeper and more mellow-toned note. Soft-billed birds also sing more from the lower part of the throat than hard-billed species, which accounts for the soft, round, mellow notes of the Nightingale and other soft-billed birds, as compared with the shrill, sharp, and clear notes of the Canary and other hard-billed birds." Syme proceeds to divide the song of birds into six separate sounds:—*first*, the call-note of the male in spring; *second*, the loud, clear, and fierce notes of defiance; *third*, the soft, tender, full, melodious, love warble; *fourth*, the notes of fear or alarm when danger approaches the nest; *fifth*, the note of alarm, or war-cry, when a bird of prey appears; *sixth*, the note the parent birds utter to their brood, and the chirp or note of the young. The note of the young he also divides into two,—that which they utter while in the nest, and the chirp after they have left it; to which he adds the soft murmuring kind of note emitted by the male while he is feeding the female in the nest, and also by her while receiving the food; all which notes he considers as intelligible only to birds of the same species, although very significant even to a casual observer. "All the notes," he adds, "comprised in the song of birds convey delight to the lover of nature; but the bird-fancier only prizes their love warble and notes of defiance; these notes, and these only, he considers to be their song."

M'Gillivray, who enters largely into the anatomical structure of the organs of tune in birds, describes the trachia as an elastic tube, extremely flexible and contractile, covered with layers of cellular tissue, and accommodating itself to all the motions of the neck. It commences behind the tongue, extending to opposite the first rib, where at the *syrinx*, as he calls it, or inferior *larynx*, it divides into two *bronchii*. In man and in quadrupeds, the parts are proportionally larger and more complex,—the voice, with all its varieties of tone, being produced by the muscles and cords of the larynx; while in birds it is produced at the lower extremity of the windpipe or *syrinx*, and modulated into notes by the contraction and extension of the *larynx*. In the human larynx, the *vocal cords*, which vibrate under the impulse

of the air, and thus produce sound, are placed in the *larynx;* but in birds there are no traces of them there, the vibrating membrane being placed in the *syrinx* or lower larynx. Such is the apparatus by which the voice of birds is attuned. The air contained in the lungs and air-cells, passing through the *bronchii,* causes the vocal membranes at their anterior extremity to vibrate, and thus produces sound, which is rendered grave or acute by the relaxation or tension of the parts; and the stream of air thus thrown into vibration is divided, narrowed, or suffered to pass free, by the muscles of the larynx. "The modifications of these organs," he adds, "presented by the different species, are slight, the parts in all I have examined being the same, and with the same number of muscles. The peculiar song of different species must, therefore, depend on circumstances beyond our cognition; for surely no one could imagine the reason that the rook and the hooded crow require as complex an apparatus to produce their unmusical cries as that which the blackbird and nightingale employ in modulating their voices, so as to give rise to those melodies which are so delightful to us; and yet the knife, the needle, and the lens, do not enable us to detect any superior organization in the warbler over the crow."

Section III.—Habitations of Chamber Birds.

The space allotted to chamber birds varies according to the object in view, and will also differ according to their nature. All indeed thrive best in an open space, for instance, in a room fitted for the purpose, having small fir trees placed around for their accommodation. These trees should be cut during the winter, or at the latest in March, before the rising of the sap, that they may not cast their leaves. But in so large a place some birds will not sing so well as when their motions are confined within a narrower space, where they have nothing to entertain or occupy them but their song.

Birds which are kept only on account of their beauty, or for their animation and vivacity, are, therefore, kept best in a room where they can run or fly freely about, and where they can resort at night for repose, to a large cage of many compartments, or to one or more fir trees. But larger birds, Thrushes for instance, should have an apartment expressly appropriated to them, as their fæces smell unpleasantly in a dwelling-room, whence also they require constant cleaning. Smaller birds may be allowed to run freely about, having a small tree or a cage hung up for them to roost in. With this degree of liberty,

many birds, such as the Hedge-warbler, and the Blue-throated Warbler, sing better than when confined in a cage. But it would be dangerous to enclose a Titmouse or a Shrike with them, for these, although kept constantly supplied with an abundance of food, will frequently take a malicious delight in destroying their companions, for the sake of regaling upon their brain and viscera. Such birds as require to be closely confined that we may thoroughly enjoy the pleasure of their song, also exact care in the choice of their cage, which will materially depend upon the vivacity of their temperament. A Lark must have a larger cage than a Chaffinch, and care must be taken to observe whether the bird dwells upon the ground, or settles upon a perch. Thus Skylarks require no transverse perch, which is absolutely indispensable to the Nightingale ; but I shall note under the several species the cage best adapted to each.

Cleanliness is in every respect very important in keeping birds, for they are not only thereby preserved for many years, but it keeps them constantly healthy and cheerful; consequently, it is necessary that the cage should be cleaned at least (I will not say once a-day, for this would too much disturb the bird) but once a-week, and birds which run about upon the ground, like Wagtails and Skylarks, should have the sand renewed frequently ; the perches also of such as use them should be carefully cleaned. If this be not attended to, the birds will become sickly, and will suffer from lame feet, gout, and other maladies, terminating in the loss of their toes, as all must have experienced who have been accustomed to keep birds, and have neglected cleansing them. In cleaning their feet it is very requisite that the bird should have them dipped in water before the dirt is removed ; for if this be not done, the skin, to which the dirt closely adheres, comes off, with it, which renders the bird not merely lame, but also attracts to the part all the unhealthy humours generated by their unnatural mode of living.

It is in the feet indeed that chamber birds chiefly suffer, and they must be daily examined to see that nothing gets twisted about them, as hair thus twisted will frequently cut very deep, and in the course of a few days that portion of the foot or toe so tied up will dry up and fall off. Very great attention must be paid to this particular circumstance, as scarcely a bird can be preserved for any length of time with all

its toes uninjured. It is not to be denied, however, that many birds keep themselves exceedingly clean, whilst others, even of the same genera, are so uncleanly, that they are not only always soiling themselves, but never clean either their feet, beak, or wings. It is remarkable that to some species of birds cleanliness is habitual, and I have always found the Yellow Bunting, Reed-Bunting, Bullfinch, and Lesser Redpole, and especially the latter, quite models of cleanliness. Many other birds, especially the Larks and warblers, have their feet always covered with dirt, and will rather let their toes rot off than take the trouble to clean them.

Some bird-fanciers take delight in making birds so tame as to be taken upon the hand into the open air, or to be allowed to fly away and come back again upon a call. One of my friends, who has tamed birds as well as otters, adders, foxes, weasels, and martins, so that they would follow him upon a sign given, adopts the following easy and certain method to effect it:—When he wishes to accustom a bird to fly abroad, or to go out with him perched upon his finger or his shoulder, he first teazes it with a soft feather in its cage, which stands open. The bird soon snaps at the feather, and then at his finger, and it will then come out of the cage, and perch upon the extended finger; he immediately strokes it, and lays a few choice morsels before it. These the bird will soon take out of the hand itself. He then commences by familiarising the bird with some peculiar call or whistle, and he carries it, as soon as it permits itself to be grasped in the hand, placed upon his hand or shoulder, from chamber to chamber, taking care to close the doors and windows; he then suffers it to fly, and calls it back again. As soon as it attends to this call without being scared or frightened, he takes it cautiously into the open air, and thus the bird becomes gradually so accustomed to him that he can carry it abroad or into company without its offering to fly away.

Care however must be taken not to carry adult birds, which have been thus tamed, into the open air, where they can hear their fellows, in the spring or at pairing time, which are usually the periods when they show indications of resuming their native wildness. Young Linnets, Bullfinches, and Canary birds, may be thus tamed.

The following is a certain method, which I have only very

recently become acquainted with, of making all kinds of chamber birds so tame in one or two hours, that they will sit upon the hand, jump from one finger to the other, fly off and come back again, and eat out of the mouth.

A Siskin, Goldfinch, or Chaffinch, is taken (either of which admits of being tamed in half an hour), or a Bullfinch or Nightingale, which it is more difficult and takes longer to do, and in proportion to its wildness, more or less of the inner web of the pinion-feathers is cut away, taking care that the bird shall have sufficient power left to fly from the hand without injury, and the natural shape be not affected. It is then smeared near the nostrils with essence of bergamot (or with any other powerful essential oil), by which it is rendered for a short time so insensible, that it can be subjected to the training, which consists chiefly in accustoming it to sit tranquilly upon the finger, in teaching it to hop from one finger to the other, and in preventing it from flying away. It may, it is true, fly away a few times; but this it will not continue to do, especially if taken into a dark place behind a curtain, and it is thus also secured from the mischance of flying against the walls or window frames, and injuring itself. If it at once sit quiet, the finger of the other hand is held beneath it in front, and it is made to step from one to the other; when, the distance being gradually increased, it will speedily hop to it. This being accomplished, the chief difficulty is over; for if once the bird hop quietly from one finger to the other, it will, on recovering from its insensibility, upon observing that its trainer does it no harm, speedily familiarise itself with all kinds of tricks, such as the firing of pistols, and flying to and fro. If it is wished to teach it to eat out of the mouth, it must be kept for a time in the cage without food, and then when sitting upon the finger its favourite food must be held to it upon the tip of the extended tongue. Hunger soon teaches it to peck. Such tame birds learn also speedily to sing upon the finger. To accomplish this, nothing more is necessary than to induce it by certain tones, motions, and fondling. The Chaffinch will do so, if at its singing time *yack, yack*, is piped to it, and its neck stroked; and the Bullfinch, also, if stimulated by friendly looks and a motion to and fro of the upper part of the body. But it is still further requisite to observe in this process

of taming, that to be effectual it should be continued for a longer time than is here laid down. May we not presume that the bird will in the course of a few weeks do that freely which has been taught or rather forced upon it in this short space of time.

Section IV.—Food.

In selecting the food of birds in confinement, it is requisite to do so as far as is practicable, in accordance with the nature of its food in a natural state. This, indeed, is frequently difficult, if not wholly impossible; for who in Europe can furnish us with the seeds which East Indian birds require? Great caution, therefore, must be observed to accustom the birds we keep, or rather their stomachs, by degrees, to the food we are compelled to supply them, although it may not be denied that there are birds also, such as Chaffinches, Yellow Buntings, Thrushes, Wax-Chatterers, &c., which as soon as they are placed in the aviary, eat anything that is given to them. But others are more delicate, and will not eat at all, partly from grief at the loss of their liberty, and partly from not finding the food they have been accustomed to. Great care must, therefore, be taken of these. If such as are known to be delicate—the majority of singing birds—for instance, commence greedily eating as soon as they are placed in the chamber, it is a bad sign, for they will certainly die, as it implies an unnatural indifference to the loss of their liberty which is almost always deducible from sickliness. Those which creep into corners and seem for some hours to pine, it is less necessary to be anxious about; but they must not be disturbed until their ill-humour subsides.

Dr. Meyer, of Offenbach, communicated as follows upon this subject:—"An almost unfailing mode of accustoming birds to their food, which is known to be extremely difficult in many, is thus:—Let the bird be placed in a cage in the room where it is purposed to be kept; give it freely appropriate food and drink in open vessels; leave it thus undisturbed for several hours, then catch it and dip it in fresh water, and again place it in its former cage. It will now sit for some moments thoroughly exhausted, but will soon recover and begin preening itself, and in the course of a few minutes become extremely animated, and then it will certainly eat the food put before it. Doubtless the

same cause produces an appetite in birds after bathing as in man."

That I may generalize what it is necessary to observe upon the food of birds, I will class the subject under four heads. CHAMBER BIRDS are,—1. Those which live exclusively upon seeds, as Canary birds, Goldfinches, Siskins, Linnets, Bullfinches, &c. 2. Those which eat both seeds and insects, as Quails, Larks of all species, Yellow Buntings, the various kinds of Wrens (although some of these eat berries). 3. Such as feed upon insects and berries, as Nightingales, Redbreasts, Thrushes, Blackcaps, and other of the genus *sylvia*. 4. Such as feed upon insects exclusively, as the Wagtail, the Whitetail, the Blue-throated Warbler, &c. The latter class of birds are the most difficult to rear, and certainly do not reward us by the melody of their song for the trouble they give; but they may be trained in the following manner:—In the spring flies are collected, which are then found in multitudes in the windows of old buildings; dry these and preserve them in a pot. When no living insects are to be procured, they may be mixed up with the following kind of food, which is to be considered as the general food of delicate birds like the Nightingale—ants'-eggs, or mealworms also being occasionally given to them:—A quantity of rolls made of unsalted paste, proportionate to the number of birds, is baked, sufficient to last for three months. These the baker must again rebake, leaving them to grow cold with the oven, when they are easily pounded in a mortar into crumbs, which may be preserved a quarter of a year without acquiring any unpleasant taste. Of these crumbs a large tea-spoonful is taken daily for each bird; about thrice the quantity of warm or cold, but not boiling milk, is poured upon it; this is then mixed and formed into a thick paste, which is chopped fine upon a board. This food can be preserved a long time, even during the hottest weather, without becoming sour; it is never clammy, but remains always dry and crumbly, and is very nutritious. When delicate birds are obtained, dried flies and chopped up mealworms are laid over this food, to which the birds speedily accustom themselves, and it is a diet that will preserve them from sickness or premature death.

In tending the First Class of birds, experience has shown that Canary birds feed most freely upon a mixture of Canary

seed and crushed hemp and rape seed; the Goldfinch and Siskin, upon poppy seed, occasionally mixed with crushed hemp seed; Linnets and Bullfinches, upon rape seed only, which is prepared by putting as much as will suffice for a day's consumption into a pipkin, covering it over with water in the morning, leaving it to simmer on the hob in winter, or in the sun in summer; on the following morning it will be fit for use. All birds require occasionally green food, such as cabbage leaves, salad, or water-cresses, as well as white sand, which it is only necessary to sprinkle on the floor of their cage or other dwelling-place. This is often absolutely indispensable to assist them in their digestion. Of the Second Class, the Wagtails require wheat-meal, and crumbs of roll and bread; the Larks, barley-meal and chopped cabbage leaves and water-cresses, poppy seed, mixed with bread crumbs, and oats in winter; the Chaffinches, summer cabbage seed, mixed occasionally in summer with hemp;* the Yellow Bunting, the food of the Lark, but without the admixture of green food; the Titmice, hemp, the seed from the cones of pines, bacon, oats, meat, bread, roll, the kernels of hazel nuts and walnuts; and the same may be given to the Blue Titmouse and the Coal-tit. All birds of the first and second class, which feed at large upon seeds, or upon these and insects, can be preserved without difficulty in a chamber, unless they are confined at pairing time, in that case they will pine and starve through dejection at the loss of their liberty.

Universal specifics always appear to me highly suspicious, nevertheless, I can, with a certainty derived from the experience of my childhood upwards, recommend the use of two kinds of universal food for birds. I call these universal, because all my birds, excepting only those which I keep in cages on account of the excellence of their song, thrive well upon it. This food recommends itself by its cheapness and simplicity, but more particularly by a great saving of time in feeding. The first is thus prepared: — Take a stale and thoroughly-baked roll, dip it in water until completely saturated, then press out the milk poured over it, and mix it with

* Too much hemp seed is prejudicial to all birds, and must therefore be given them sparingly; for when too frequently fed upon it, they become hoarse and blind, and frequently die of consumption.

more or less, say a proportion of two-thirds of coarse barley-meal, freed entirely from the husk, or in preference coarse wheat-meal. The second kind is this:—Take a Swedish turnip, which can be kept fresh the whole year through, by burying it in sand in the cellar, grate it upon a flat grater, moisten a little roll in water, press the water out again, add to this about two handfuls of the above barley or wheat meal, and mix all together with a pestle and mortar.

I have nothing further to observe upon these kinds of food, except that they must be fresh made every day, otherwise they become sour, and the first especially is highly injurious in that state. I use in feeding my birds a long earthenware trough, at which there is room for at least half of the birds of my aviary; and of earthenware, from its being more easily cleansed than wood, and also because wood accelerates the food getting sour. My birds, of which I have always from thirty to forty at large about me, thrive so well upon the first kind of food, that they are not only plump, but also so fully feathered, that their confined mode of living is not observable in them. Almost all birds consume seeds and insects freely, and therefore in my room may be seen Chaffinches, Linnets, Goldfinches, Siskins, Canary birds, Warblers, Redbreasts, Larks of all kinds, Wagtails, Yellow Buntings, Ortolan Buntings, Blue-throated Warblers, Redstarts, &c., eating all together at the same trough. As an especial treat hemp, poppy-seeds, and rape-seeds, crumbs of bread and biscuit, as well as ants' eggs, may be given them occasionally. The same food may also be given to birds of the third and fourth classes.

Chamber birds of all kinds should be supplied every morning with fresh water, not only to satisfy their thirst, but, for the majority to bathe in also. When a great number are confined together in the same apartment, an earthenware vessel, eight inches long by two inches broad, and as many in depth, formed into several compartments, should be given to them. They cannot get entirely immersed in a vessel of this description, which protects the chamber from dirt and wet. A similar vessel, but without the divisions, may be used, in which to place the general food. In bathing, Larks and Wagtails alone require a floor of sand.

Those birds which devour everything thrown to them, must

be protected against the possibility of having any food given to them that contains pepper, and especially against putrid meat. This is a universal rule of precaution. I will also further observe, that to birds in cages no more must be given than they can eat during the day, otherwise they will accustom themselves to scatter their food out of the vessel, and eat the best first, leaving the worst for subsequent fare; and are consequently to-day well, and drooping to-morrow.

There is but little to be said of the breeding of birds in confinement, as in the majority of cases it is difficult to accomplish, excepting in such as, like Canary birds, can be thoroughly domesticated. It is chiefly requisite to supply birds that are to breed with a still, solitary, and spacious abode; and if possible an entire room in which fir trees are placed that have not lost their leaves. Above all things it is desirable to make this abode as nearly resemble their natural dwelling-place as possible, that they may be excited to pair. With every care, however, to render their breeding-place like the natural one, it is difficult to supply them with the necessary materials for their nests. This deficiency should be supplied by nests artificially formed of woven cotton, willow, straw, or turned wood, into which they will only have to convey appropriate linings; for this purpose they must be supplied with the hair of animals and raw silk and cotton wool. Especial care must be taken to furnish them with requisite food, which partly contributes to fit old birds for the function, and which must be also suited to the varying ages of the reared young.

The precaution requisite to be adopted in the different species of birds, I shall indicate when I treat severally of them.

It is still necessary that I should give here some general directions about the time at which it is desirable to remove young wild birds which it is intended to rear, from the nest. This is when the tail quills shoot forth, and when all the feathers begin to expand, and before the birds can yet completely open their eyes. If they are removed earlier their stomachs are too weak to endure the food of the aviary, and if it take place later, it is usually extremely difficult to induce them to open their beaks to receive food with which they are unacquainted. But there are species of birds which can at all times be easily fed and tamed.

Section V.—Diseases of Cage Birds.

Like all tame animals, birds that are kept in confinement are exposed to more maladies than those which live at large ; * and especially as they are frequently so closely confined in cages that they have scarcely room to move. These maladies are, however, considerably increased by their having all kinds of delicacies, and pastry, sugar, &c. given them, which spoils their stomachs, and usually produces a slow consumption.

The following are the chief maladies which affect birds, and their remedies, the efficiency of which I have proved upon my own. Indeed the variety of birds, as well as the variety of their foods, require also a difference of treatment in their maladies ; and in speaking of each species I shall have occasion to notice how their peculiar diseases may be cured, when the general remedies are not suitable to their nature.

1. The Pip.—This is properly a cold, in which the upper skin of the tongue becomes hardened by fever, and the orifices of the nose are stopped. In large birds, therefore, this skin is separated from the tongue, and in doing this it must be commenced beneath and behind. Thus the pores of the tongue are re-opened, and the secretion requisite for digestion can be reproduced, and taste and appetite made to return. A pill, consisting of butter, pepper, and garlic, generally frees them from this complaint. They may also be made to drink pectoral tea made of speedwell. To remove the stoppage of the orifices of the nose, a small feather is drawn through them.

This malady may be detected by the yellow colour at the root of the beak, the ruffled feathers of the head, the frequent opening of the beak, and the dryness of the tongue.

2. For Rheum, which is indicated by frequent sneezing and shaking the head, I have found no better remedy, especially when the bird has been valuable to me, and I have not desired nature to work alone, than giving it some drops of pectoral elixir in pectoral tea ; or, when it would not drink of its own accord, to

* It has been frequently asserted that birds in their natural state are never ill, but this is unfounded, as I shall have the opportunity of subsequently showing in many instances. Thus, I have very frequently found the Hedge Warbler thickly covered with *pimples*, especially upon the naked part around the feet and beak.

drench it with it. To a sick chicken I have given twenty drops in half a pint of the tea.

3. Consumption.—It is usually the result of unnatural food, which interrupts the function of digestion, and it is recognised by the bird inflating and distending itself. The feathers are ruffled, and their flesh dwindles. As yet I know no better remedy than to give to such birds a common spider, which purges them, and to lay in their water a rusted nail, which strengthens the stomach. They must, at the same time, be fed with the best description of their appropriate food. In birds which will eat vegetables I have always found this, and especially water-cresses, the surest remedy against consumption, or waste. Usually, birds suffering from this malady have a voracious appetite for green food. I fed a Siskin, which had already completely wasted, for three successive days with nothing but water-cresses, and on the fourth it recommenced singing.

4. Constipation.—This malady is detected by observing the birds every moment bending the venter to evacuate, and being unable to do so. If a spider does not cure, the smooth head of a pin must be dipped in linseed oil, and gently thrust into the rectum: such a clyster is usually effective. In birds which eat meal-worms, constipation is removed by squeezing the inside of a meal-worm and filling it with linseed oil and saffron. The bird thus willingly swallows the laxative, and the effect is certain.

5. Dysentery.—Birds frequently suffer from this before they become accustomed to the food of the aviary, and then generally die. They evacuate at every instant a chalky substance, which usually hangs about the feathers of the vent, and is so acrid that it inflames the rectum and anus. In such cases, occasionally, the internal application of the rust of iron, by placing it in the drinking vessel, and a linseed-oil clyster have been serviceable. But I know no positive remedy yet, and have only found that ailing birds may sometimes be saved when food is supplied them which is most appropriate to their nature. Many persons pluck away the feathers of the tail and vent, and rub their hinder parts with fresh butter, and mix the hard-boiled yolk of eggs with their food. But this remedy I have found rarely followed by a successful result.

6. The Stoppage of the Fat-glands, or the Pimples.—Every bird has above the rump a gland, which secretes the oil

required by the bird to smear its plumage, to retain them supple, and to prevent moisture passing through. In confinement, birds neglect the frequent pressure of this gland, as they are more rarely exposed to getting wet than when at liberty, and it consequently becomes hardened or inflamed. If the bird is seen sitting and drooping, the tail bending downwards, or if the feathers upon the rump are observed to be ruffled, and that the bird frequently pecks at it, it must be examined to see if the swoln gland be not the cause. This may frequently be softened by the application of very fresh butter, mixed up with a good deal of sugar, the aperture being enlarged by gently distending it with a needle, or a small knife; but a lead salve or rather a salve of litharge of silver, white lead, wax, and olive oil, which must be ordered at an apothecary's opens it best. The usual remedy is to pierce it with a needle, or to cut off the hardened gland. But this process, whilst it removes the stoppage, it destroys the gland, and birds thus healed usually die at moulting, from wanting the oil requisite to smear their feathers.*

7. Epilepsy.—A very usual malady of birds. The abundance and goodness of food, and the want of exercise, whereby much and thick blood is produced, are the chief causes of this. I have found no better remedy than to dip birds when thus suffering frequently into ice-cold water, and to pare their nails so closely that some drops of blood start. Also a few drops of olive oil given internally have been serviceable. Large birds may be bled in the veins at the sides of the feet. But usually birds which suffer from this sickness, die eventually of it.

8. Moulting is also a malady. At this period it is requisite to attend to them very carefully, and to change their diet without giving them delicacies.

9. Birds in confinement also suffer much in their feet. These must be constantly so carefully cleansed, that the skin is not at all ruptured. The large thick scales in front of the legs must also be removed once a-year, but with great precaution.

* Tscheiner has the following observations upon this malady :—"If this evil have not yet too severely affected the health of the bird, it may be sought to be remedied by puncturing the gland, compressing it frequently, bathing the bird with a syringe, and plucking out some of the feathers of the tail. The accumulated fat is absorbed in the renewal of the feathers, when the gland resumes its natural functions."

10. Tympany.—At one part of the body, or frequently all over it, the skin is puffed up as tense often as a drum. A small puncture must be made with a needle, whereby the air escapes, and the bird usually becomes sound again. I have had Skylarks which suffered from this malady, and in the next quarter of an hour, when freed from the air, resumed singing, although previously they had been sick to death.

11. Twirling.—This is properly no sickness, but yet a very general evil, and a habit acquired by seed-eating birds in cages, where they turn and twist their head and neck so far back as to overbalance themselves. There is no better mode of breaking them of this evil habit than, as soon as it is detected, to put a cover over the cage, and so prevent their seeing anything above them; as this is the cause of their twirling themselves.

12. Parasites.—If birds are sometimes restless, especially of a night, and if they are observed to be frequently feeling with their beak about the abdomen, back, or wings, they must be examined to see if no small yellow insects (lice or mites) may be discovered upon the body, or between the feathers. If this be the case, they must be sprinkled by means of a small syringe with water, in which quicksilver has been steeped, or with a greatly diluted infusion of tobacco, for several successive days, whereby these vermin are destroyed, or chased away. Another mode of getting rid of the lice is to bathe the birds frequently, and to give them daily fresh or dry sand, and to be very particular in keeping them exceedingly clean.

13. If it be found that the birds become unnaturally fat, which is often the case, especially during autumn in some species of warblers, their too nutritious food must be changed and Swedish turnips be mixed in it, and dry ants' eggs put into their drink, which much checks their corpulency.

14. Birds in confinement are subject to another malady, which I may call the amatory fever. It occurs usually in the month of May when the sexual impulse is strongest. Birds that are attacked by it usually cease to sing about this time, droop, raise their feathers, waste away, and die. Birds that are confined in cages are first attacked by this malady. The cause appears to me to be the uniformity and tediousness of confinement as well as their desire for a female. I cured several suffering thus, merely by hanging them frequently at the

window. They were almost immediately cheered, and seemed to forget their sorrow, as well as their desire for freedom and pairing, in the general hilarity peculiar to singing birds.

Section VI.—Age.

The age of birds in confinement depends peculiarly upon the care bestowed upon them. Parrots are mentioned as having attained the age of a century, and Nightingales, Chaffinches, and Goldfinches, are known to have lived for twenty-four years in cages. The age of birds in confinement and tamed is rendered the more interesting from its being the only means whereby we may arrive at an approximation to a knowledge of the age of birds in general; and confined birds, consequently, both in this and in other respects, are of great importance to the naturalist. It is remarkable that birds, while they grow more quickly, also attain a far greater age than the mammalia: in the latter, life lasts six or seven times longer than the period of growth, whereas in the former it extends to fifteen, twenty, and even thirty times longer. The reason given is the structure of the bones, the substance of which is looser and lighter, and consequently remains longer porous and unhardened than in the mammals.

Section VII.—Mode of Capture.

Birds are obtained chiefly by means of bird-dealers and bird-catchers: the former supply us with foreign birds, and the latter with our native wild birds. The latter must not only possess a knowledge of the different modes of capturing birds, but must also be familiar with the various decoying notes whereby they may be attracted, as well as the notes by which the sexes may be allured. It is well known that the call-notes of birds, especially of those which are sought for keeping, differ according to their passions and instincts. This language the bird-catcher must be familiar with if he wish to be sure of his capture.

As almost every species of bird requires to be treated in a different manner, if its capture be made the special object of attention, I can only give in the particular history of each the mode by which it is to be obtained. Here I can speak but generally.

In the first place, it is necessary to know when birds ought to be caught. If migratory birds, which are forced to resort to warmer climates both on account of food and temperature, they are best sought for during their autumnal and spring journeys. Submigratory birds, which not cold but the deficiency of food drives hither and thither, may be found in spring and autumn, as also sometimes in winter. And lastly, resident birds, which are not driven from the country by either of these causes, may be caught at all times of the year, but more readily in the winter, when they usually assemble in small flocks.

In autumn they are generally caught in large numbers by fowling nets; some which are allured by call-birds and bait in nets upon the fowling floors, and others which will not be decoyed, as the species of Lark, are driven into open bird nets. Spring is the time when all cage birds are easily caught, following the call-note of the bird-catcher or of the call-bird concealed in a cage, to seek here a mate with which they can pair. Thus are those northern birds caught which only pass through the country, and which there is no opportunity of capturing in winter as they winter further to the south. This is also the period when the sexes of cage birds can be best distinguished. For it is confirmed by experience that in migratory and submigratory birds the males arrive some days, indeed sometimes a whole week or more, earlier than the females. Thus bird-catchers take in the first flocks nothing but males, and in the latter ones only females. The peculiar time for these captures is March and April, and from daybreak until about nine of the morning, for after this time the birds are seeking their food and will not listen to the call.

As almost all the seed-eating birds are thus captured, I will more particularly describe a simple mode practised in Thuringia for this purpose.

Some strong branches of oak or beech are taken, such as have the faded leaves still adhering to them, and they are cleared to within a foot or a foot and a half of the summit; the upper-topped twigs are then slit so that the bird-limed rods may be inserted. These bushes, which are called decoy-bushes, are placed upon some elevated spot which the birds pass in their course: for birds have in their migration so determinate a road by which they almost invariably pass, that at a distance of from

four to five hundred paces from this track they are seldom to be met with. In mountainous countries migratory birds take their course chiefly over valleys ; therefore the decoy-bushes must be placed on elevations which adjoin valleys. On the summit of these bushes the limed sticks are stuck in, somewhat obliquely, and under them upon the ground the various call-birds in their cages are placed, being covered with branches of fir that the call-birds may not be seen by those migrating, nor the latter by the former : for if so, the former would not perch, nor would the latter call them. Such birds are used for call-birds as have been caught adults, in preference to those which are reared from the nest; the latter being so denaturalized as either not to know the call, or not to call so earnestly for a mate as the others, or they may possibly have acquired strange and scaring notes.

One of the best places of capture is the place whither they resort to drink. Birds of all kinds are there caught, and there may be selected precisely any species that is wished. Nothing is more agreeable than to watch, upon sultry summer days, the capture in a dark place where a brook flows. A small clap-net is cast, three, four, five, or six feet long, according to the size of the place, and from three to four feet broad, over a small ditch, into which water is turned by means of a channel. In this ditch, sticks, an inch thick, are placed ; parallel with the water, and over it arched pieces are placed, to prevent the fowling-net from getting wet when cast. All neighbouring water is covered with twigs. In a well-selected place the whole day long you are surrounded by a variety of different species in multitudes. Early in the morning, and in the evening after sunset, the best captures are made, and this commences from the 24th of July and continues until far on in October. When the drinking-places are so situated as to lie between a large wood and a copse which consists of oak, beech, ash, hazel, &c., and to which other hedges and gardens adjoin, the capture may combine both forest and field birds ; otherwise two drinking resorts must be selected.

Of the other modes of capture the Gin is one of the easiest, and also one of the most interesting : I will, therefore, particularly describe it here, giving at the same time a representation to convey the idea of it the more distinctly.

In woods and bushes many kinds of large and small berry-eating birds, such as Thrushes, Redbreasts, &c., are caught in autumn, especially for about a fortnight before and a fortnight after Michaelmas, in springes of thread, yarn, or horse-hair, which are placed in many ways, in straight or serpentine passages; and this mode of capture and passage is called a gin.

For this purpose nooses and springes are specially made use of.

1. Nooses.—It will suffice to indicate here the most desirable nooses, of which there are a great many kinds used in different parts of Germany.

A. *Rind Nooses* (fig. 1, p. 29).—These are made of lime-tree rind, stripped off in July. The noose consists of a threefold plaited band, five inches long, into which three loops, made of from four to six horse hairs plaited together, are so inserted that the knot of the loop is fastened in the rind band, and the remainder hangs loosely out. At one end of the rind band there is an eye (an open loop), an inch long; but at the other end there remains, plaited or unplaited, strips of rind for the purpose of fastening. For setting the noose, a little stem is selected of about the thickness of the little finger, from which a small branch grows straight out; a hole is bored in a thick or thin tree, the noose with the eye is hung to the twig; the opposite end is then fixed to the tree, and the three horse-hair nooses which hang attached to the rind band are then opened. The baiting food, consisting of service berries, is hung up in slits cut in the little stick, and placed conspicuously.

B. *Twig Nooses* (fig. 2, p. 29).—For these tough rods of willow are used, and holes or slits are made in the tree, into which the two ends are inserted, at a distance of about four inches apart, and forming a bow or semi-oval, which extends about six inches from the tree. Into the upper side of this are inserted from two to three hanging nooses of horse hair; and in slits of the lower part service berries are hung.

C. *Hanging Gin* (fig. 3, p. 29).—The best consists of a rod of willow bent into a triangle, which is six inches wide at the bottom, but almost three times as high, and has the service berries fixed at the bottom, and one noose at each side. They are useful to fix to trees, to shrubs, and in hedges, and are hung by the upper acute angle to a twig.

But whoever has used a noose-perch, as such gins are usually called, will have found that the service berries are frequently carried off; this is done sometimes by mice, and sometimes by the birds themselves. The latter, if not urged by extreme hunger, will make every possible endeavour to get at the berries without perching upon the gin. Most of them will snap them away flying: carry off a couple or so, and then perch on the ground to eat them. This the Song-thrush does very expertly. The Redwing Thrush perches frequently at the side, or climbs on the outside of the gin. Others will also often fly upright through, passing over the noose, and sometimes bending downwards, whereby it passes beneath it; and thus the gin is deprived of its berries. To avoid this inconvenience the following gin is useful:—

This may be called the *Entire Twig Gin* (fig. 4).—You take a stick of tough willow, of about the thickness of a little finger; cracking it eight inches from the thick end, bend it over the knee or in the hands into a long oval; cut the thin end into a wedge, and at two inches from the thick end make a slit, sticking the opposite end into the slit, so that it passes slightly through it: the bow is thus made oval. The upper bowed part is pierced through with a sharp-pointed knife, and the nooses are passed through these with the berries hanging at the bottom. Beneath, near the berries, towards the side, two other nooses are inserted, and so fixed that the berries lie between them, but rather sideways; and it will be found that more birds are captured in the lower nooses than in the upper ones. The breadth and heighth of these gins is similar to the preceding.

In fixing all these kinds of gins particular care must be taken that the hair noose stands straight, which may be effected by dipping them frequently in boiling water whilst making them; further, that they exactly fit each other, and have no vacant space through which the birds can pass with their heads.

These gins can be used for several years if taken care of after the close of the season, and the nooses folded round in a large circle, or hung up lengthways extended.

2. Of Springes.—With these birds are caught by the leg, and not by the head, as in the noose. There are two kinds which are preferred:—

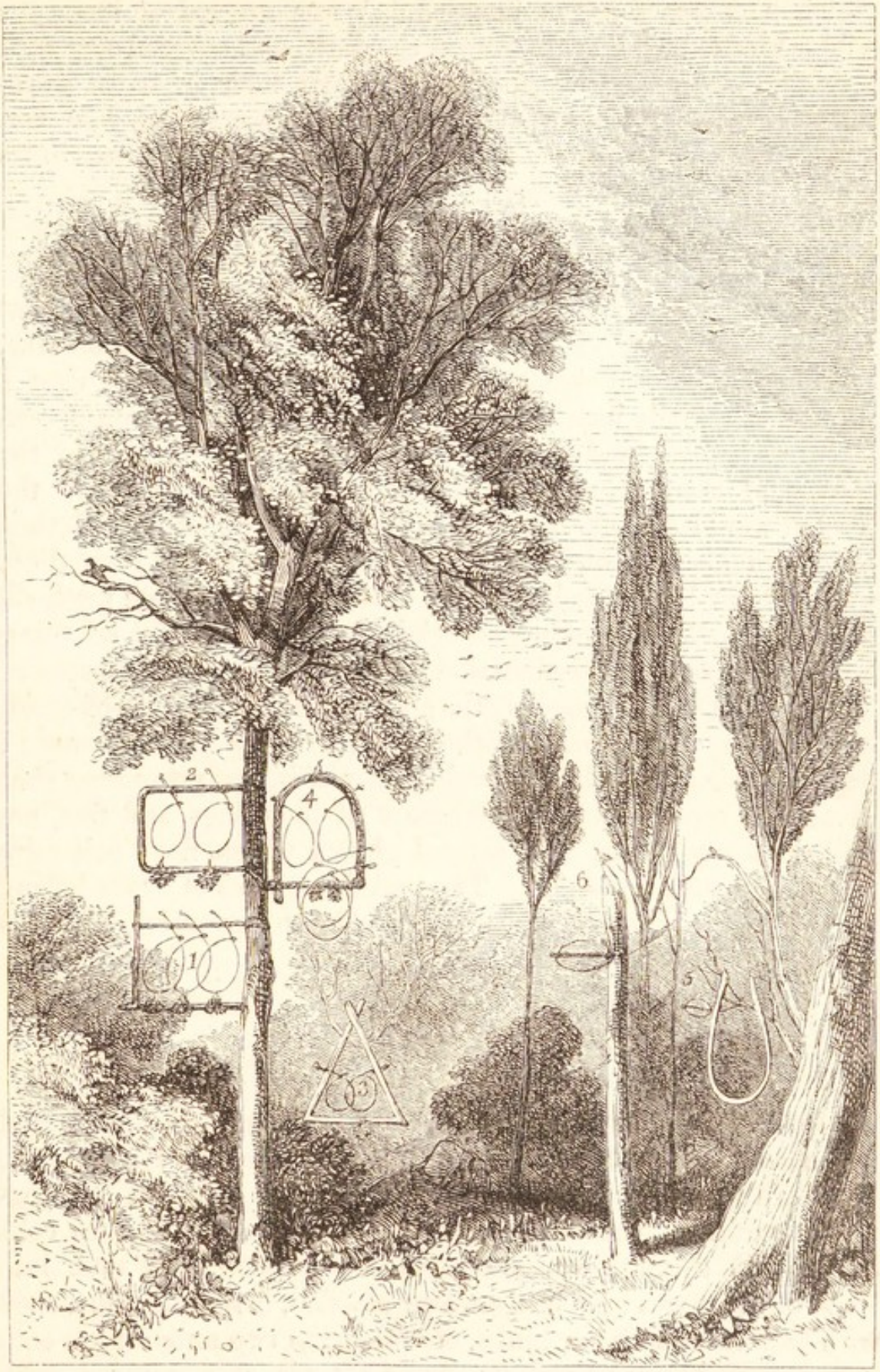
Genuine Springes (fig. 5, p. 29).—A hazel or willow rod is taken, a half oval notch cut in the thick end, and a hole bored through, and to the thinner end a horse hair or thread is attached, and passed through the hole so that the notch is in front; a peg of wood of about half an inch, or a bit of felt, is fixed to it that it cannot escape. In setting it the thread or hair is passed through the hole for about eighteen inches, and into the hole is put a peg, which holds a knot tied in the thread, spread it over the nooses, and fix them firmly in a slit on account of the wind. This springe is hung by a little slit in a thick twig, so that it cannot oscillate, and in front of it is placed a sprig with berries, which must be service berries if it is wished to catch large birds, but elder berries if smaller ones. When the bird steps upon the springe it falls down, the legs get into the noose, the springe flies back and holds it firmly fixed.

As thread nooses frequently hang limp, especially after rain, which prevents the bird's leg from getting into the springe, to remedy this a blade of grass is taken, fixed between, and thus they are kept open.

The so-called *Up-Springe* (fig. 6, p. 29), is made like ordinary springes, excepting that they are not all of one piece. Thus a piece of stick, of the thickness of the thumb, or thicker, and varying in length, is stuck into the ground, or a similar stem growing in the ground is used; you then cut the notch and bore the hole as before directed; the slip-knot is passed through the hole, and fastened to a snapper or spring, which is drawn down from a neighbouring hedge, bush, or tree, and the noose is fixed as before. The springe is usually set in this way in Thuringia and other parts of Germany.

When the season is past the nooses are taken out, and the latter kind can be used again the following year, when a fresh snapper or spring must be selected; but the springe itself cannot be again used, as it soon loses its elasticity.

Not to be troubled with too much baggage, and the better to convey the captured birds, bird-cages are so made that they can be folded together and carried in the pocket. But only such birds can be so treated as are not of a wild character, as Goldfinches, Siskins, Linnets, &c. Others, for instance, the Common Finch, Larks, &c., are very wild when caught, and must be placed either in a linen bag or in a bag of net into



NOOSES AND SPRINGES.

which a cover of felt is inserted. When arrived at home the wilder kinds should be hung up in the dark, and covered over with branches of leaves, or a cloth, to prevent their injuring themselves or spoiling their plumage. A little observation, however, will show the best practice to adopt, which is not the same in its application to every species.

Section VIII.—System of Classification.

In giving the history of cage birds many modes of arrangement might be proposed. I could take them in the order of their size, or according to the object of their being kept. In this view I should necessarily have to speak first of those birds which charm us by their song, and then of those which delight the eye by the beauty of their plumage: following this arrangement, the foreign would precede the natives of Europe, and I should thus have to take first such as may be tamed adult, and then those which must be trained young. But as none of these methods of arrangement present any especial advantage, I prefer adopting an easy and simple classification for their successive description. This has further, I conceive, the advantage of admitting of easier comparison with other ornithological writings and systems. I beg to remark here, that several species of birds, possessing characters in common in the structure of their legs and feet, are united into a genus, and several genera which have collective characters into an order. Thus all the species of Owls belong to one genus, and the Owls and Hawks to one order, which is called Birds of Prey.

STRUCTURE OF BIRDS.*

Birds constitute the second class of Vertebrate Animals, and are characterized by having an internal skeleton; a twofold, that is, a general, and a pulmonic, circulation; as well as a double respiration, the air passing beyond their lungs into cells distributed through various parts of the body, and even into some of the bones: by being warm blooded, oviparous, furnished with four extremities or limbs, of which the two anterior are converted into wings; and by having their skin covered with

*Abridged from M'Gillivray's "Natural History of British Birds."

feathers; a circumstance peculiarly distinctive of the class; being organized for flying, they are proportionally lighter than animals of equal dimensions belonging to other classes. Their specific gravity, in fact, is less than that of water, so that they all float on the surface of that element, and many of them are adapted for swimming upon it, or for plunging or diving into it. By far the greater number, however, are confined to the air, most of them obtaining their food by walking on the ground or on trees, while a few procure their prey on the wing, and are incapable of walking without difficulty.

Although it is unnecessary to enter here into a minute explanation of all the organs of birds, it is expedient to describe as much of their structure as may enable the reader, not previously acquainted with their anatomy, to comprehend some of the terms used in the following pages.

The head of birds, which is generally small, is at an early age composed of several distinct bones, which, however, soon unite, so that all traces of their sutures become obliterated.

The skull of the Raven, *Corvus Corax*, is here represented as viewed laterally. The occipital bone, *a*, originally composed of four pieces; and the temporal bone is composed of the petrous portion, *b*, containing the ear; the squamous portion, *c*; to which is articulated the tympanic portion, *d*. The parietal bone, *e*, intervenes between the occipital and the frontal. The latter, *f*, besides forming the anterior part of the covering of the brain, also constitutes the upper edge of the orbit or cavity in which the eye is lodged, its posterior process, *g*, bounding it behind, while its antorbital process, *h*, margins it before, and is connected with the lachrymal bones. The lower part of the orbit is thus left incomplete, as it is in various degrees in all birds, excepting some of the parrots. The sphenoid bone is originally composed of several distinct parts; a basilar portion, united to that of the occipital bone; two orbital plates, *i*, constituting part of the orbits and of their septum; two cranial plates, *j*, corresponding to the wings, and forming the posterior part of the orbits; and two pterygoid or interarticular portions, *k*, which are articulated posteriorly to the tympanic bones. The ethmoid bone forms the anterior portion of the septum of the orbits,

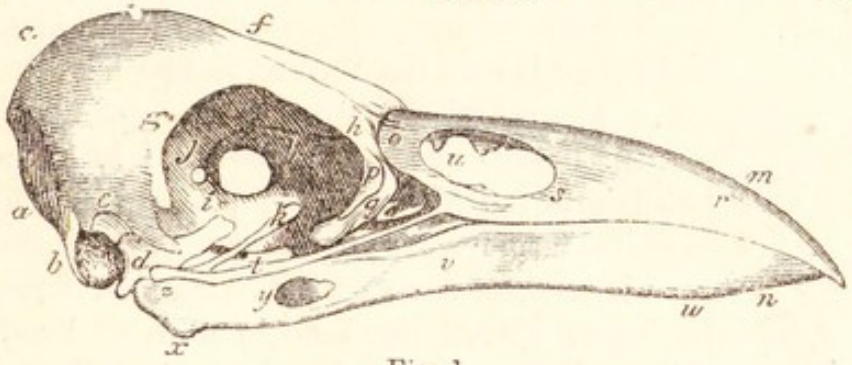


Fig. 1.

l, and separates them from the cavity of the nose. Excepting the os quadratum, *d*, and the pterygoid process of the sphenoid bone, *k*, these bones are all united in the Raven and other Crows, and in most adult birds.

The face is primarily divided into the upper jaw, *m*, formed of a number of bones, and the lower jaw, *n*, formed of a single bone. The nasal bones, *o*, occupy the basal part of the upper jaw, and bend obliquely downwards behind the nasal cavity. The lachrymal bones, *p*, are articulated with the antorbital process of the frontal bone, *h*, the nasal, *o*, and the malar bones. The latter, *q*, are here articulated posteriorly with the lachrymal bones, anteriorly and above with the nasal, and below with the long slender process of the upper maxillary. The intermaxillary bones, *r*, form the greater part of the upper mandible, extending from its extremity along the ridge and sides, and are united with the superior maxillary bones. The latter, *s*, are generally small. They send a long slender process, *t*, backwards, along the edge of the upper mandible, to be articulated to the tympanic bone, *d*. The palatal bones, forming the roof of the mouth, are scarcely visible in this view. The vomer separates the cavity of the nostrils, *u*, when complete.

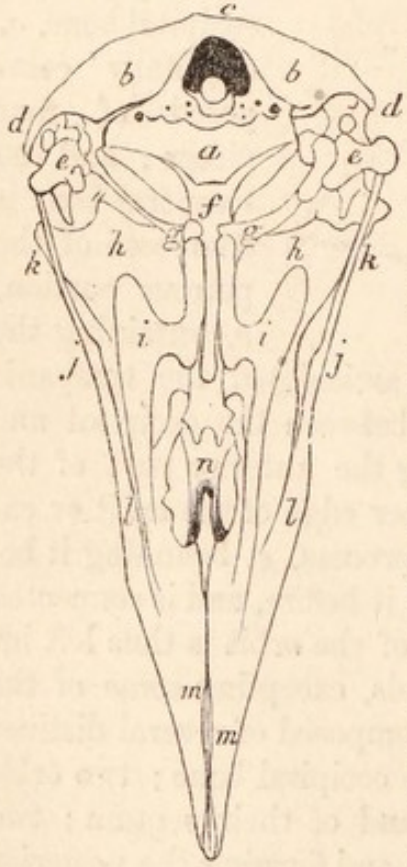


Fig. 2.

The second figure represents the cranium and upper jaw of the Raven, viewed from below. The occipital bone *a*, *b*, *b*, *c*, of which *a* is the basilar or anterior portion; *b*, *b*, the two lateral portions; *c*, the posterior. The occipital foramen for the passage of the spinal cord is seen, of a somewhat triangular form, having on its anterior margin a small hemispherical prominence for the articulation of the first cervical vertebra. The temporal bones, *d*, *d*. The tympanic bone, *e*, *e*. The basilar portion of the sphenoid bone, *f*; its pterygoid bones, *g*, *g*; and its large orbital plates, *h*, *h*. The palate bones, *i*, *i*. The malar bones, *j*. *j*. The os quadrato-maxillare, *k*, *k*, or slender process of the upper maxillary bones, *l*, *l*. Lastly, the intermaxillary bones, *m*, *m*, of which the superior part is seen behind the aperture of the nares, *n*.

The upper jaw preserves a degree of mobility in its union with the cranium, which is effected by the medium of the slender quadrato-maxillary bone, fig. 1, *t*, fig. 2, *k*, by which the motion of the os quadratum, fig. 1, *d*, is communicated to the maxillary bone, *s*. The

lower jaw admits only of a direct hinge-like motion. Both together constitute the general organ of prehension in birds, and undergo great modifications of form according to the nature of the food.

The anterior extremities of birds are modified so as to render them subservient to aërial progression. They are converted into wings by having appended to them a series of long stiff feathers, variously proportioned, according to the kind of flight required by the species. This adaptation of the form and structure of birds to flying, or progression in the air, is obvious and intelligible. Their body is oval, with the larger end forwards, and the more powerful muscles placed on the breast, so that when the horizontal direction is assumed, the centre of gravity comes between the wings, and is kept near the lower part by the weight of the pectoral muscles. The length and flexibility of the neck enable the bird to make the necessary changes in the centre of gravity, while the solidity of the dorsal spine gives advantage to the action of the muscles; the head is terminated by a pointed bill, which aids in cleaving the air; the feet, when short, are drawn up and concealed under the feathers; when long, stretched out beneath or beyond the tail, which is more or less expanded, and helps to support the body in the air, as well as, by acting in the manner of a rudder, to change its direction, or by being stretched out to break its descent. In proportion to their bulk birds are also much lighter than other vertebrate animals, and their lightness is produced by the introduction of air into their tissue, and even into the bones, as well as by the great bulk of the feathers, which in those having a very buoyant flight, as Owls and Gulls, is much greater than that of the body.

When a bird intends to fly, it loosens its wings from their ordinary position, throws its body forward, and gives it a sudden impulse by means of the legs, which would merely produce a leap, but the wings being in the meantime spread out and elevated, they are again brought down with force, so that their points generally strike against the ground. Whether or not, they act as levers, and by repeated strokes, carry the bird upwards. Were its ascent vertical, the rapid action of the wings in the same plane would suffice to raise it, provided the downward stroke were much more powerful than the upward, the wing, moreover, being drawn in during the latter, and stretched out during the former. But, for progression in a horizontal direction, it is necessary that the downward stroke should be modified by the elevation in a certain degree of the free extremities of the quills, and that the pinion should be pulled backwards. The best subject in which to study the motions of the wings during flight, is one of the larger gulls, in which the wings being very long and the flight remarkably buoyant, and performed by slow beats, one may trace their alternations with

ease, provided he be near enough; the wings are never extended to their full length, the elbow-joint being always more or less bent, and the hand or pinion always inclined backwards. During the elevation of the wing, it is drawn in a little, the humerus is directly raised, but the cubitus inclines downwards to some extent, and the fore-edge of the hand is depressed, so that the primary quills are elevated, by which arrangement little resistance is offered to the air. Then the wing is stretched out, brought strongly down, first with its whole concave surface direct, but presently with the quills raised a little behind, so as to procure an oblique stroke on the air.

As connected with flight, however, it may be proper to say a few words respecting the tail, and the muscular apparatus by which it is moved, which is represented in fig. 3.

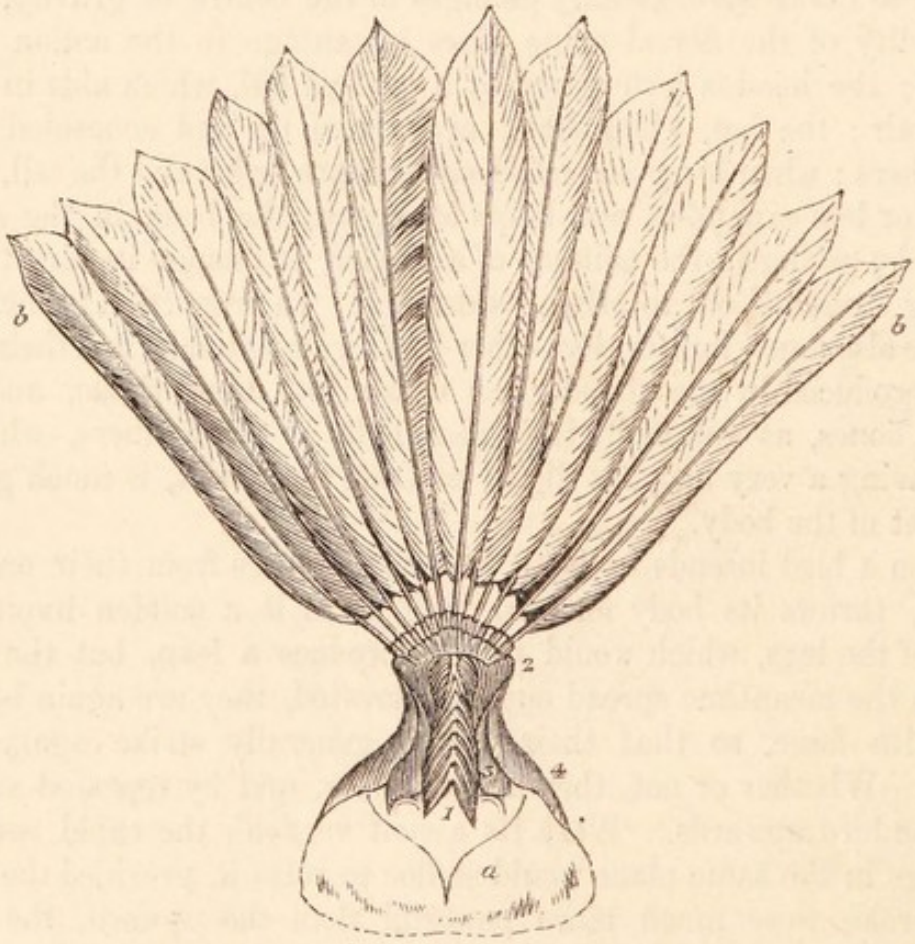


Fig. 3.

Fig. 3 represents, as seen from above, the tail of a Thrush, *Turdus musicus*, from which have been removed all the smaller feathers and the skin; a portion of the sacrum and pelvis, *a*; the large tail-feathers or quills, *b*, *b*. These feathers have their basis supported by the last coccygeal bone, and firmly bound together by a strong ligament, composed of interlaced fibres.

The muscles seen in this view are :—The *levator coccygis,* which rises from the lower extremity of the sacrum, and from the sides of the coccygeal vertebræ, to be inserted into the tips of their spinous processes, and into the base of the last vertebra. This muscle is, in fact, rather a series of small muscles of which there is one for each vertebra. Its use is to elevate the tail in various degrees ; and, when acting singly, to draw it obliquely to a side. It is opposed by the depressor coccygis.

The *quadratus coccygis* arises from the sides and transverse processes of the coccygeal vertebræ, and is inserted into the base of the ligamentous fascia investing the base of the quills, its fibres curving also round the edge of the tail, and being partly inserted beneath. Its action is to spread out the tail-feathers.

The *ischio-coccygeus* arises from the posterior edge of the ischium, passes laterally along the coccyx, and is inserted beneath into the edge of the last vertebra, and the adjoining part of the ligamentous fascia. It draws the tail laterally, and tends to depress it.

The *pubi-coccygeus* arises from the pubes and adjoining part of the ischium, and is inserted into the base of the fascia of the quills. Its action is to bend the tail to a side, and to spread the quills. Fig. 4 represents the lower surface of the tail ; the feathers, *b*, *b*, being cut short, and the skin removed. The pubi-coccygeus, 4, is seen in its whole length ; the ischio-coccygeus, 3, is also seen passing over the latter, and inserted into the last vertebra ; as is part of the quadratus, 2.

Fig. 4.

The remaining muscle is the *depressor coccygis,* which is much more powerful than the levator. It arises from the posterior edge of the pelvis beneath, and from the sides of the vertebræ, to be inserted into the inferior spinous processes, and into the sides of the last vertebra. The action of the two muscles is to depress the tail ; but when acting singly it draws it outwards and downwards.

The feet of birds afford a subject of observation as varied and interesting as the wings. They vary in the proportional development of their parts, and even in the number of the toes, as well as in their position and degree of connection or separation, according to the different modes of progression used by the different species. Some birds walk by bringing their feet alternately forward, others by a simultaneous motion of these organs ; some run with great velocity, while others are scarcely able to walk ; some can hardly even stand ; most birds walk only on a flat surface, but some are enabled to ascend a vertical plane ;

and many, by having their toes joined by membranes, have their feet converted into paddles, and are thus fitted for advancing on the water, where they are propelled like a boat, by means of their webbed feet, which act alternately in the manner of paddles. Those species which dive in pursuit of their prey, propel themselves under water by alternate motions of their feet, but also, and that more especially, by the simultaneous action of the wings, which are used precisely in the same manner as in aërial flight.

The nervous system of birds, which, although less developed than that of some of the mammifera, is greatly superior to that of the other oviparous vertebrate animals, exhibits a remarkable uniformity in the structure and form of the brain and spinal marrow in the different tribes. Figs. 5, 6, and 7, represent the brain of a sparrow, *Passer domesticus*, as seen from above, fig. 5; from behind, fig. 6; from beneath, fig. 7.

Fig. 5.

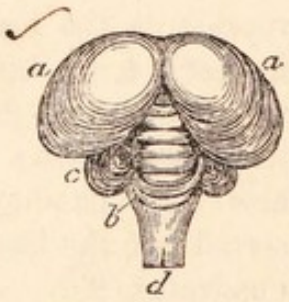


Fig. 6.

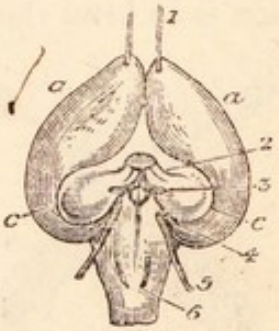


Fig. 7.

In fig. 5 are seen, besides the bill and part of the skull, *x*, and the eyes, *z*, the *cerebrum*, composed of two lobes or hemispheres, *a*, *a*, which are destitute of convolutions, as well as of the corpus callosum or great commissure; and the *cerebellum*, *b*, transversely grooved, and formed almost entirely of the middle lobe, which in the mammifera is comparatively small. In the posterior view, fig. 6, are seen, besides the cerebral lobes, *a*, *a*, and the cerebellum, *b*, the oval bodies, *c*, *c*, named *optic lobes*, together with the *medulla oblongata*, *d*, a large uniform mass placed beneath the cerebellum and behind the optic lobes. In fig. 9, representing the base of the brain, the same parts are seen, namely, the cerebrum, *a*, *a*, the cerebellum, *b*, the optic lobes, *c*, *c*, and the medulla oblongata, *d*, which is observed to be destitute of the prominences seen upon it in the mammifera. The numerals refer to the cerebral nerves. The first pair, or *olfactory*, 1, come off from near the anterior extremity of the cerebral lobes, pass along the septum of

the orbits, and are distributed upon the pituitary membrane of the upper spongy bone. The second pair, or *optic nerves*, 2, are remarkably large, and unite so as apparently to be perfectly incorporated. The spinal marrow is generally of great length, and has two dilatations or enlargements, corresponding to the origin of the nerves of the wings and legs. The posterior enlargement is generally greater than the anterior, more decidedly so in those birds which do not fly. The spinal nerves correspond in number to the vertebræ, and therefore vary exceedingly.

The *eyes* of birds are remarkable for their great size, for the convexity of the cornea, for having the sclerotic coat formed anteriorly by a circle of bony plates, and for the existence of a plaited membrane, named the pecten, projecting from the retina in the direction of the chrystalline lens. The pupil is, I believe, always round, although it has been alleged to be transversely or longitudinally elliptical in certain species, the Owls and Pigeons for example; the iris extremely contractile, and frequently of the most vivid colours, although for the most part of different shades of brown. The eyeball is moved by six muscles, four of which are straight and two oblique; but in many birds it possesses very little motion, and in some of the Owls is so closely fitted into the orbit as to be absolutely immoveable. There are two eyelids, of which the lower is generally largest, and a nictitant membrane moved by two muscles so as to sweep over the surface of the cornea.

Fig. 8.

Fig. 9.

Fig. 8 represents the eye-ball of an Owl viewed laterally:—*a*, the cornea, which is very convex; *b*, the sclerotica, depressed, and at its anterior part, *c*, contracted and surrounded by bony plates. Fig. 9 is an anterior view of the same, in which the central dark part represents the pupil dilated, the zone surrounding it the iris, then the circle of bony plates; and externally the sclerotic coat.

Fig. 10 represents the head of a Thrush, *Turdus musicus*: *a*, the upper mandible; *b*, the lower mandible; *c*, the tongue; *e*, the nostril;

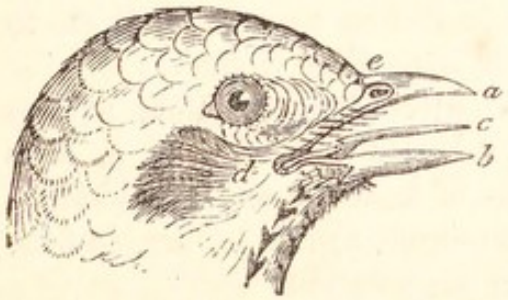


Fig. 10.

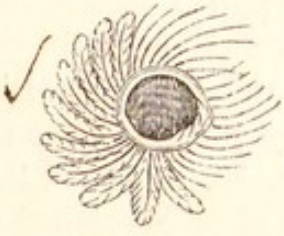


Fig. 11.

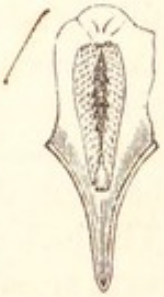


Fig. 12.

Fig. 13.

d, the feathers covering the ear. Fig. 11 is the external ear of the same bird, margined with feathers, of some of which only the shafts are represented. Fig. 12 is the roof of the mouth. Fig. 13 the tongue, *a*; and the glottis or top of the windpipe, *b*.

The *organ of hearing* has a somewhat less complex structure than in the mammifera. There is no conch or external auricle properly so called, unless in the Owls, in which the external ear is excessively large, and generally furnished with lateral flaps or opercula, by which it may be closed. The want of this part however is compensated by a circle of feathers, which are capable of being erected or depressed, as in fig. 11. The meatus externus is a very short membranous canal, in many cases scarcely appreciable; the membrana tympani is generally of an elliptical form, somewhat convex externally, and having attached to its inner surface a single ossiculum; the cavity of the tympanum is of moderate size, and communicates with numerous cells, analogous to the mastoid cells in the mammifera, but which extend over the greater part of the skull. The eustachian tubes, which communicate with this cavity, are large, entirely osseous, and open, either separately or united, into the aperture of the posterior nares or back part of the mouth. The vestibule and cochlea are small; and there are three semicircular canals, of which the bony walls are easily separated from the surrounding cellules.

The nostrils, fig. 10, *e*, are generally small and placed apart, being separated by the intermaxillary bones. They are of various forms, sometimes open, sometimes covered by feathers, and in other cases having an arched horny or membranous operculum. The nasal cavities are situated at the base of the upper mandible. Their septum is generally complete, but sometimes perforated. They have three turbinated laminæ on their outer side, and are covered by a pituitary membrane of delicate texture, bedewed with a lubricating fluid. The posterior nares, fig. 12, open in the form of a longitudinal slit margined with papillæ upon the roof of the mouth. It is very doubtful whether the sense of smell be acute in any order of birds, for it has been most satisfactorily proved by Mr. Audubon, that in the Vultures, at least in those of the genus Cathartes that occur in North America, which were supposed to possess it in the greatest perfection, it is so inefficient as not to indicate to them the existence of putrid flesh in their immediate vicinity.

As birds generally swallow their food without mastication, and as their tongue is small and sheathed with a horny case, fig. 13, *a*, it is not probable that they possess the sense of taste in any considerable degree. The bill, fig. 10, *a*, *b*, and the tongue, fig. 10, *c*, are, in fact, more properly organs of prehension than of gustation.

The skin, being covered with feathers or hard scales, is supposed to

be very imperfectly adapted for communicating a knowledge of the presence and nature of external objects; and it is very doubtful if those soft parts about the head, which are destitute of feathers, such as combs, wattles, and ceres, are ever employed for such a purpose. The bill, however, in many species, especially Ducks and some of the Grallatores, being abundantly supplied with nerves, and covered by a comparatively soft membrane, is undoubtedly an efficient organ of touch.

We come now to the consideration of the digestive organs, which merit especial attention, on account, not so much of their great importance in the economy of birds, as that the nervous, vascular, and other systems are not behind them in this respect; but because, exhibiting great diversity of form and structure, in accordance with the nature of the food, they are more obviously qualified to afford a basis for the classification of the numerous species of birds. The parts of which the intestinal canal are composed are the bill, the tongue, the cavity of the mouth, the pharynx, the œsophagus, the crop, the proventriculus, the stomach, the small intestine, the cœca, the large intestine, and the cloaca; to which may be added, as accessory organs, the salivary glands, the liver, and the pancreas.

The uses and relations of the parts described may now be briefly stated; and that will be most conveniently done by following the process of digestion in one of the Falcons. In the Peregrine Falcon the bill is a very powerful instrument of prehension and offence; its short, bulging, convex form, with its sharp edges, prominent tooth-like process, and strong curved acute point, rendering it well adapted for tearing up the skin, flesh, and entrails of birds and other animals on which it feeds. The long pointed wings, furnished with dense and large muscles, enable it to cleave the air with great rapidity; while being in all respects organized for a life of rapine, its whole frame is firm and compact, even the feathers having a close texture; and its long, flexile toes are furnished with curved claws, tapering to a fine point, and capable of being thrust in opposition to each other into the vitals of its victims. It preys entirely on living animals, which, after capturing, it deprives in a rude manner of part of their hair or feathers; when, keeping its prey firm with its foot, it tears up and swallows fragments of the flesh. If the subject be large, it fills the stomach, and then the crop and œsophagus, up to the very jaws, these parts being capable of containing five or six ounces of flesh. Notwithstanding its great agility and vigour, the capture of a suitable prize is not always of easy accomplishment, and therefore it is that the crop is added to the œsophagus, that enough of nutritious matter may be stowed away to last for a considerable time. That part is merely a

recipient for the food, and the mass of flesh, bones, and feathers contained in the œsophagus has been found perfectly fresh ten days after it was killed, the juices seeming to have a conservative, in place of a solvent, power. When the crop, stomach, and intermediate space are found filled, the solvent action is first perceived in the proventricular space; and it is probable that the secretion from its glandules effects the solution of the food in all species, for in those of which the inner coat is horny and thick, there can be no effusion from the stomach itself. The mass of flesh, mixed with feathers, hair, and bones, being in the stomach reduced to a kind of pulp, the nutritious parts pass into the intestine through the pylorus, which rejects the indigestible substances. These, including the inner coats of gizzards, seeds, and other vegetable substances, are, by the contraction of the muscular fibres, thrust into the œsophagus, and voided in rounded dense pellets, which falconers term castings. In the duodenum the pulpy mass is further diluted by the pancreatic fluid, assumes a homogeneous appearance, and is of a light red colour. On being mixed with the bile it acquires a greenish tint, and deposits the chyle on the surface of the intestine, whence it is absorbed. The modifications which the several parts of the digestive organs undergo in the different families of birds are very numerous. Thus, the œsophagus is extremely wide in some, and very narrow in others; the crop is sometimes altogether wanting, sometimes small, or large, or extemely developed, membranous, or muscular, forming merely a dilatation of the œsophagus, or assuming the form of a large bag having a small orifice; the stomach is sometimes very thin, or has extremely thick, firm, and powerful muscles, very small, or very large.

Fig. 14.

Fig. 14 represents the heart, *a*, *b*; the liver, *c*, *d*; the gall-bladder, *e*; the hepatic duct, *f*; the hepatico-cystic duct, *g*; the cystic-duct, *h*; and a portion of the intestine, *i*, *i*, of the Snowy Owl. The gall-bladder is wanting in the Pigeons, in which, as in many other respects, they differ from the Gallinaceous birds.

In birds the respiratory function is more energetic than in the

mammifera; they consume a larger quantity of oxygen, and produce a greater degree of heat. Yet their lungs are small, placed in the upper part of the thorax only, where they are confined on each side to a cavity bounded above by the ribs, and below by the imperfect diaphragm. But they are perforated by tubes which communicate with membranous cells, distributed over the thoracic and abdominal cavities, between the muscles and beneath the skin, often in all parts of the body. The air even penetrates many of the bones, although the number thus supplied varies in the different tribes, an arrangement which contributes to render them lighter, in proportion to their aërial habits, for in some aquatic birds the bones are filled with marrow, and in those which run rather than fly, some of them are impervious to air.

I have now only some observations to offer respecting the dermal system, or skin and feathers, after which it may be useful to consider the exterior of the bird, and mention the principal terms applied in describing it.

The Dermal or Tegumentary System is composed of the dermis, the rete mucosum, and the epidermis or cuticle. The skin, thus constituted, is connected with the subjacent parts by loose cellular tissue, which often contains a great quantity of fat, and is moved by the cutaneous muscles, by which the feathers are elevated and depressed. The dermis is generally very thin; and the rete mucosum, although usually colourless in the parts that are covered with feathers, often exhibits on those that are exposed the most beautiful and varied tints. The epidermis is generally scaly or scurfy on the feathered parts of the body, but on the tarsi and toes assumes a smooth and polished appearance, and to form the claws and mandibles becomes thickened, and acquires a horny texture.

Birds, like quadrupeds, are invested with a covering, which is connected with the skin, and lies immediately upon it. This covering is chemically of the same nature as the hair of the mammifera, and the scales of reptiles and fishes, but it differs essentially in respect to its mechanical structure, being much more complex in its constituent parts than the envelope of these classes of animals. To this general envelope the name of *plumage* is given. In ordinary language it is more frequently called *the feathers*.

The plumage, then, is the general covering of a bird, which usually invests all its parts, excepting the bill, eyes, tarsi, and toes. It consists of a great number of individual parts, which are denominated *feathers*. Besides these parts, however, so denominated, there are in most birds others, which, lying concealed among the former, and not making their appearance at the surface, are apt to be overlooked by superficial observers. These are the down-feathers, and hairs, or pili-

form feathers, which will be described in course, but which, for the sake of simplification, may be for the present overlooked. These individual parts or feathers are disposed upon the skin in what is called quincuncial order; that is, in lines intersecting each other at acute angles, and in such a manner as to lie over each other, like the tiles on the roof of a house; a circumstance denoted in zoology, as well as in botany, by the term imbrication, their general direction being backwards, or from the head of the bird to the tail and extremities.

The plumage, as has just been observed, does not cover the whole surface of a bird; but, besides the parts mentioned, as being altogether bare, there are others, which, although covered over by the feathers, yet do not give origin to them, and are thus, in a particular sense, bare. These parts are: a line from the base of the upper mandible to the eye, called the lore or bridle; a line from the ear to the shoulder, on either side of the neck; a broader line from the fore part of the sternum to the vent; a space upon the sides under the wings; and in female birds, and frequently in males also, during incubation, two circular spaces, or one transversely oblong space, of greater or less size, upon the abdomen. Other parts also occur in particular species or genera, which will become the subject of distinct consideration in their own place.

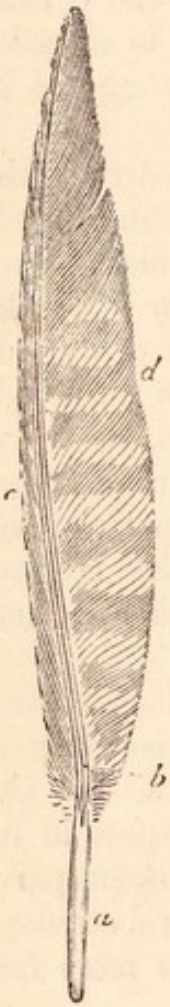


Fig. 15.

A feather, figs. 15, 18, may be defined an individual constituent of the plumage, having a distinct existence of its own, and by its association with others contributing to form the general envelope; or, in another sense, it may be defined, a mass of indurated albuminous matter, inserted by one extremity into the skin, connected by apposition in the greater part of its extent with others, and in a portion of one of its terminal surfaces touching the air, having a root or proximal part, of a tubular form, continued into an elongated and attenuated stem, laterally giving insertion to a series of connected filaments. A feather of the ordinary kind, or what may be assumed as a perfect feather, consists of the following parts:—

1. The *tube* or *barrel*, fig. 15, *a*, is the tubular part, by which it is fixed into the skin. It consists of a thinnish transparent tube or hollow cylinder, having the colour and texture of a thin plate of clear horn, and being chemically of the same nature. This tube, which is more or less protracted, being in some feathers scarcely a fortieth part of their length, while in others it exceeds a third, as in the quill-covers

of the Flamingo, is abruptly narrowed at the lower, or, with reference to the connection of the feather with the skin, the proximal end, where it is closed up by a dry membrane, forming part of an apparatus that has been subservient to the growth of the other parts of the feather, and which now, in a dry and shrivelled state, extends along the whole length of the tube, in its interior. This part, when taken out of the tube of the feather, presents the appearance of a very thin transparent membranous tube, divided internally by transverse dissepiments. At each of these dissepiments the tube separates on pulling it gently, and each portion so obtained presents the appearance of an inverted funnel, the prolonged extremity of which, being continued into that of the next above it, an internal tube is produced, which occupies the centre of the membrane. This membrane is, in ordinary language, termed the *pith*, from its resemblance, if not in nature, at least in position, to the pith of a plant. It might, with more propriety, be named the internal membrane of the tube. The tube is invested externally with a sort of close sheath, consisting of several layers of condensed cellular membrane.

2. The *shaft* or *stem*, fig. 15, *b*, is a continuation of the tube, but considerably altered in form. Internally the shaft consists of a soft, compact, elastic substance, of a white colour, having much of the mechanical nature of cork, and which may be named the internal suberose substance of the shaft. The external part, or horny envelope or case of the shaft, is much thinner than the tube, the latter of which is prolonged farther along the back of the shaft than along its face, although there is no line of distinction between them.

The *webs*, of which there are two, fig. 15, *c*, *d*, one on either side of the shaft. The web is a lateral prolongation of the external layer of the coat of the shaft, into a series of filamentous substances, ordinarily placed in apposition, and by their association in this manner forming a stiffish elastic expansion. The filaments of which the web consists are named barbs. The *barb*, fig. 16, *a*, *b*, *c*, is a very thin linear membrane, being an attenuated continuation of the outer pellicle of the shaft, and arising from it at the angle formed by the meeting of the dorsal and lateral surfaces, along the edge of the latter. The direction of the barbs is obliquely outwards with respect to the shaft, that is, inclining more or less at an acute angle toward the tip of the shaft. Each barb is flattened or compressed vertically with reference to the shaft, considering it horizontal with its face downwards, concave on the side next the tip, convex on the other, so as to fit to its neighbour on either side.

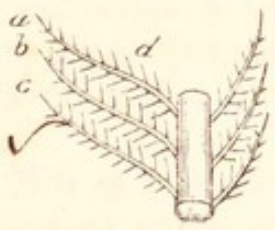


Fig. 16.

Fig. 17.

It terminates at its lower part, or that on the concave surface of the feather, in a sharp edge, generally diaphanous, which is reflected in the direction of the tip of the feather. The body or substance of the barb is pretty uniform in thickness, and it is only when viewed in connection with the barbules that it could with any propriety be said to be triangular.

From the upper part or edge of each barb there proceed two sets, one on either side, of minute filaments, having a direction, with respect to the barb, similar to that of the barbs with respect to the shaft. These smaller filaments are named *barbules*, fig. 16, *d*. It is by means of them that the barbs are firmly kept in apposition. The manner in which this is done, is not by the barbules of one barb interlocking with those of another, in the manner of dove-tailing, or as the teeth of two combs might be made to alternate by mutual insertion, as has generally been supposed. The position and direction of the barbules do not admit of such union, seeing they meet each other at an angle, and therefore cannot interlock, which could only happen were they to meet vertically. The barbules of the side next the tube are shorter and more adpressed; those of the side next the tip of the feather are longer and more patulous. The latter are curved downwards at the extremity, while the former are curved upwards, and being placed in apposition, they form two distinct and continuous edges, the incurvate or anterior series of one barb overlapping and hooking into the recurvate posterior series of the barb next to it. Although the connection of the barbs may not be easily seen in the ordinary feathers, yet it may in general be discovered in the quills and tail-feathers, without the aid of a glass. The curved form of the barbules is distinctly seen by the naked eye in the tail-feathers of Buceros galeatus.

The barbules themselves frequently present an appearance similar to that of barbs, giving off laterally two series of filaments which may be termed barbicels, fig. 17. These filaments are much more sparse than those of the barbs, but their object appears to be the same, namely, that of connecting the barbules, and retaining them in apposition. They are very distinctly seen, with the aid of a small magnifying power in the quills of Aquila Chrysaëtus, Diomedea exulans, and Buceros galeatus.

The webs ordinarily consist of united barbs, more or less stiff, although elastic, and compact in their whole length, excepting toward the junction of the shaft with the tube, where they are of a looser texture, often entirely disunited and floating. The lateral lines, from which the barbs arise, incline toward the median line of the shaft at this place, as has already been explained, and meet at its commencement.

Fig. 18.

At this point there is, in the feathers of a large portion of birds, a plumiform process, or small feather, fig. 18, *b*, which is of the following description: From the fore part of the tube, at the commencement of the shaft, and lying over the aperture by which the internal membrane of the tube escapes, rises a thin lamina, being a continuation of the substance of the tube. It gradually narrows, and is continued in the form of a very delicate thread, for a greater or less extent. From the sides of this shaft rise two series of barbs, and from the barbs two series of barbules, as in the ordinary feather itself, all the parts being extremely fine, and entirely disunited. The barbules are very much elongated, and loose, resembling in these respects those of the lower part of the webs of feathers in general. This miniature feather may be called the accessory feather or plumule. In feathers possessed of this structure, the internal membrane of the tube comes out entire between the accessory feather and the feather properly so called, and is not continued internally along the back of the shaft.

Considered with respect to situation, feathers may be named as follows:—

Frontal, on the fore part of the head.

Vertical, on the upper part of the head.

Occipital, on the hind part of the head.

Genal, on the side of the head, under the eye.

Loral, on the space between the bill and the eye.

Marginirostral, round the basal margin of the bill.

Auricular, about the aperture of the ear.

Palpebral, on the eyelids.

Ciliary, on the edges of the eyelids.

Cervical, on the neck; anterior, lateral, posterior; upper, middle, and lower.

Anterior, *medial*, and *posterior dorsal*, on the fore, middle, and hind parts of the back.

Pectoral, on the breast; anterior, middle, and posterior, on the fore, middle, and hind parts of the breast; lateral pectoral, on the sides of the breast.

Abdominal, on the belly.

Hypochondrial, on the sides of the body, under the wings.

Upper Alar, on the upper part, or dorsal aspect of the wings.

Lower Alar, on the lower part or sternal aspect of the wings.

Alar quills, or wing quills, large feathers projecting from the posterior edge of the wing.

Primary or *digital quills*, those on the hand or pinion.

Secondary or *cubital quills*, those on the cubitus or fore-arm.

Tertiary or *humeral quills*, those on the humerus or arm. Some writers consider the inner elongated feather-like cubital quills as the tertiary.

Quill-coverts, a row of feathers immediately covering the base of the quills; there are humeral, cubital, and digital quill-coverts on both surfaces of the wing, and therefore upper and lower.

Scapulars, a bunch or series of long feathers, situated at the proximal extremity of the arm, apparently on the back.

Axillary feathers, a series of long straight feathers, situated at the proximal extremity of the humerus, under the wing.

Tibial feathers, covering the tibia or leg.

Tarsal, covering the tarsus.

Digital, covering the toes.

Caudal quills, terminating the body behind.

Caudal quill-coverts, upper and lower, feathers covering the caudal quills at their base, above and beneath.

Caudal feathers, upper and lower, on the coccygeal region.

The ordinary terminology applied to the leaves of plants may be used with advantage for distinguishing the forms of feathers. Thus,

Ovate, having the outline of an egg. Fig. 19.

Lanceolate, tapering at both ends. Fig. 20.

Linear, narrow, with the edges parallel. Fig. 21.

Abrupt, cut even at the end. Fig. 22.

Fig. 19.

Fig. 20.

Fig. 21.

Rounded, having the extremity broadly rounded. Fig. 23.

Obtuse, narrowly rounded. Fig. 21.

Acute, sharp pointed. Fig. 20.

Acuminate, with a long taper point. Fig. 20, 24, *b*.

Acuminate and abrupt. Fig. 24, *a*.

Emarginate, having a notch at the end. Fig. 25.

Fig. 22.

Fig. 23.

Fig. 24, *a*.

Fig. 24, *b*.

Fig. 25.

The parts observable in the exterior of a bird may be described with reference to the figure of a Kestrel in outline, fig. 26.

Fig. 26.

It has already been stated that a bird may be primarily divided into certain parts: the head, *a*; the neck, *b*; the body, *c*, *c*; the tail, *d*;

the anterior extremities or wings, *e;* and the posterior extremities or legs, *f.* The head is composed of the brain, its membranes, the bones of the skull and face, the organs of sight, hearing, smelling, and tasting, with those of prehension and deglutition, and various other parts. The neck is the more or less elongated and flexile part by which the head is joined to the body, and is composed of the cervical vertebræ, various muscles, the œsophagus, the windpipe, nerves, and blood-vessels. The body is the basis of the whole, consisting of the dorsal and sacral vertebræ, the ribs, the sternum, the clavicles, the scapula, the heart, bronchi, lungs, liver, stomach, intestines, kidneys, genital organs, and various other parts. The tail is composed of the coccygeal vertebræ, their muscles, and the quills. The anterior extremity consists of the bones of the humerus, cubitus, and hand, with the muscles, and quills; the posterior extremities of the femur, leg, tarsus, and toes, with their muscles. All these parts, excepting the bill, the nostrils, the eyes, the tarsi, and the toes, are generally covered with feathers.

Now, considering the Kestrel with reference to its exterior only, we observe the following parts :—

The bill is composed of two mandibles, an upper, 1, and a lower, 2, which are formed of horny substances ensheathing the jaws.

In the upper mandible are distinguished the base, 3; the culmen or ridge, 4, of which the outline is named the dorsal line; the edges, 5; the point, 6.

In the lower mandible are seen the base, 7, 8, distinguished into the crura, 7, covering part of the rami of the jaw, and the angle, 8, or junction of the crura; the ridge, 9; the edges, 10; and the point.

The cere, 11, which is not of general occurrence, is a portion of bare skin at the base of the upper mandible.

The nostrils, 12.

The angle of the mouth, 13.

The lore, 14, or part between the angle of the mouth and the eye.

The eye, 15, in which are distinguished the pupil or dark central part, the iris or coloured circle surrounding the pupil, the eyelids, upper and lower, the supraocular ridge, 16, not general in birds. There are, besides, frequently a bare space about the eye, or a membrane above it, and various fleshy or carunculated appendages.

There are also frequently bristle-like feathers at the base of the mandibles, as well as tufts of feathers on the head.

The anterior part of the head is named the forehead, or frontal region, 17; the upper part, the crown, or vertical region, 18; the hind part, the occiput, or occipital region, 19. The sides of the head include the space from the ear to the angle of the mouth, in which are

distinguished especially the ear-coverts, 20. The feathers on these parts are named frontal, vertical, occipital, and lateral, or facial.

The neck may be divided into the upper, middle, and lower parts, each of which has a posterior, a lateral, and an anterior portion, which, however, it is not always necessary to specify. The feathers covering this part are named cervical, and may be anterior, lateral, posterior, superior, and inferior. Those on the upper part or throat, 21, are often named gular; on the lower anterior part, 22, jugular; on the upper hind neck, nucha, or nape, 23, nuchal. The part at the angle of the jaw, or interspace of the crura of the lower mandible, some name the chin; but this term is absurd, birds having no chin properly so called, and the part in question not being at all analogous to the chin in man.

In the body, the following parts are distinguished:—

The back, of which there are the anterior, 24, the middle, 25, and the posterior, 26, regions.

The scapular region, 27, is that over the scapula and humerus.

The hypochondrial space, or side, lies under the wing.

The breast commences at the anterior part of the sternum, 28, and extends to near its posterior extremity, 29; or, as the thorax and abdomen are not separated by a diaphragm, as in quadrupeds, it may be better to consider the entire space defined by the sternum as the fore part of the thorax.

The abdomen, 30, in that case, is the space from the posterior edge of the sternum to the anus or vent.

The feathers covering the back are named dorsal; the breast, pectoral; the sides, hypochondrial or lateral.

In the tail are distinguished the tail-feathers, or tail-quills, 31; and the upper and lower tail-coverts, the latter marked 32.

The wings are the anterior extremities, in which are distinguished the different parts already pointed out in speaking of the skeleton; the humerus, cubitus, and hand or pinion. Hence the quills, or large feathers, are divided into humeral, usually termed tertiary by ornithologists, who begin to count at the wrong end, 33; cubital, or secondary, 34; and digital or primary, 35. Those on the first finger, 35, are named alular. The series of large feathers immediately covering the quills is composed of the larger coverts, which are also named humeral, cubital, or secondary, 36, and digital or primary, 37. The other feathers of the wing are named the smaller wing-coverts. The lower surface of the wing is similarly feathered.

In the posterior extremities or legs are distinguished—the femoral region or thigh, generally concealed; the leg properly so called, or the tibia, 38, generally feathered, sometimes bare for a greater or less

extent above the ankle joint, which is generally mistaken for the knee; the tarsus, 39, almost always bare, and covered with scales or plates, of various forms, and variously disposed.

Lastly, we have the toes, 40, which vary in number, although there are never more than four, unless the spur be considered as a toe, nor fewer than three. They are covered above with scales of large size, laterally with smaller, beneath with papillæ, and have their extremities sheathed with horny claws, varying much in length and form in the different species, and in the present bird, the Kestrel, they are long, curved, and tapering to a fine point.

SECTION I.—ACCIPITRES. BIRDS OF PREY.

Birds of prey which live upon the destruction of other animals, or upon flesh, have a curved hook-shaped beak, and strong feet with sharp talons.

These birds are the special objects of falconry and of bird-catching, for by means of several kind of falcons, birds are chased or caught, and by means of different species of owls, the small birds are attracted to the fowling-floor and huts. As birds of prey do not sing, cannot be taught to speak, produce much filth, and are usually difficult to tame, bird-fanciers have little inducement to keep them; but three species form an exception from their beauty, their being easily tamed, or from their agreeable manners, namely, the Kestrel Falcon, the White Owl, and the Little Owl.

1. THE KESTREL FALCON.

Falco Tinnunculus. *Linn.* Syst. Nat.—*Lath.* Ind. Orn.—Kestrel. *Mont.* Orn. Dict.—Faucon Cresserelle. *Temm.* Man. d'Orn.—Kestrel. Falco Tinnunculus. *Selb.* Illustr.—Der Thurmfalke. *Bech.*

Description.—Is about the size of the Turtle-dove, namely, fourteen inches long, six of which comprise the tail; to two-thirds

of the length of which the folded wings extend; beak bluish black, ten lines long, with a large curvature or tooth. The irides, as also the feet, and the cere, yellow; tarsi, two inches high.

Males and females are not only conspicuously different in size like almost all birds of prey, the female being about one-third larger than the male, but also in colour. They are, as I have before said, handsome birds. In the former, the vertex and tail are of a beautiful light grey; the end of the latter, marked with a broad black bar; the back and coverts of the wings of a brownish red with scattered black spots; the under part of the body of a rusty rosy red with black longitudinal spots; legs and rump of the same colour; the tail feathers dark brown spotted white within.

In the female the back and wings are of a beautiful rust colour interspersed with many transverse black stripes. The head is bright red brown with many transverse stripes, the tail also equally striped, and towards its tip is a black bar similar to that of the male, and the tip itself in both is very pale.

Habitat.—It is found throughout Europe, especially in mountainous and wooded districts, where rocky precipices and old ruins occur. As a migratory bird, it goes away with the Larks in October, and is then only to be found in pairs, sometimes hovering in the air over a Lark or a mouse. It returns in February and March.

When captured adult, it should be placed in a wire cage. But if reared from the nest it may be allowed to roam about the house and even sit at the window and be suffered to fly out, for it will not quit the house or wood-stack, to which it is accustomed, especially when it has been habituated to dogs and cats.

Food.—This consists chiefly of small birds and mice; but it will also feed upon beetles and grasshoppers. If supplied with

fresh birds, and pigeons, and sheep's lights or liver, it soon becomes very familiar, and does not pine for its liberty even when caught adult and tamed.

Breeding.—Its nest, or, as gamekeepers call it, its eyry, is found in the fissures of high towers, castles, rocks, and upon the high stems of old trees. The female lays from four to six yellowish-red eggs sprinkled with red and brown spots. The young are covered only with a white down, and should be fed at first with bits of fresh mutton and birds. They readily perch upon the hand, become speedily acquainted with their feeder, and fly after him when he calls them.

Mode of Capture.—Adults are caught at the time of feeding their young, by means of thick limed sticks; and places which they frequent or sport about, can have what is called a hawk-bag-net set for them, baited with a Lark or a mouse. This trap stands upon four legs, and somewhat resembles a safe. The four legs are planted at distances equalling the size and width of an ordinary table; they are fixed to the ground by a plank, and to the four sides by a cord or wire; above on two sides, a couple of iron rods are placed, to which a cord with rings may run to the roof like a shutter; in the middle there is a woodfall which is bound to a piece of wood to which a corresponding weight is attached. As soon as the Kestrel observes the bait it dashes into the trap, treads down the spring, the weight falls, dragging the cord over him till he is caught.

Commendatory Qualities.—His bell-like ringing voice, "Kli! kli! kli!" which he often repeats in rapid succession, as well as his colour, and manner, make him agreeable. But it is not advisable to keep several together, otherwise their incessant cry will become tiresome. It may also be trained, like other species of Falcons, to the chase of birds and animals; and, brought up young and fed in the manner prescribed, it is early accustomed to fly in and out even in the largest cities. But care must be taken in September and October—the period when these birds migrate—not to allow him to roam at large for any length of time, otherwise he may be tempted by his comrades to migrate with them.

Observations of British Naturalists.—This Falcon is very generally distributed throughout Britain, being found from Devonshire to Cape Wrath and the Outer Hebrides. It is supposed to migrate, as in

the autumal months it is greatly diminished in numbers. The Kestrel builds no nest for itself, generally appropriating the deserted nest of the Crow or Magpie to its own use, laying four or five pale reddish eggs. When pinioned it will climb up a cage-side, like the Parrot, holding on by the bill. They are easily tamed when taken from the nest, and frequently trained to pursue small birds, such as Quails, Snipes, and Larks.

Mr. Waterton is of opinion that a large proportion of those bred in England leave it in the autumn to join the immense flights of Hawks which are seen to pass periodically over the Mediterranean, towards the African coast.

---

2. THE WHITE OWL.

STRIX FLAMMEA. *Linn.*—CHOUETTE EFFRAIRE. *Buff.* Ois.—STRIX FLAMMEA. *Lath.* Ind. Ord.—BARN OWL. *Mont.* Orn. Dict.—CHOUETTE EFFRAIE. STRIX FLAMMEA. *Temm.* Man. d'Orn.—BARN or WHITE OWL. STRIX FLAMMEA. *Selb.* Illustr.—DIE WEISSEULE. *Bech.*

DESCRIPTION.—This beautiful Owl is of the size of a Rook, fourteen inches long, five of which form the tail. The beak is one inch long, and white; the legs are covered with short feathers; the foot two inches high; the nails blackish, that upon the middle toe internally toothed. Its face is inclosed within a heart-shaped veil of white and chestnut feathers; the irides bright yellow; the upper part of the body reddish ashy grey, as if watered and crossed with beads, having small black and white spots like pearls; the under part of the body of a pale reddish yellow, with blackish spots; the pinion and tail feathers are of a rusty yellow, with blackish grey stripes, sprinkled with ashy grey; the first pinion feather is strongly toothed externally.

HABITAT.—In Germany this Owl dwells in the most populous cities and villages, in old castles, in churches, barns, and other recesses; but, as it will fly at small birds, it must be fettered to a perch or placed in a large cage.

FOOD.—It feeds chiefly upon mice, and when caught must,

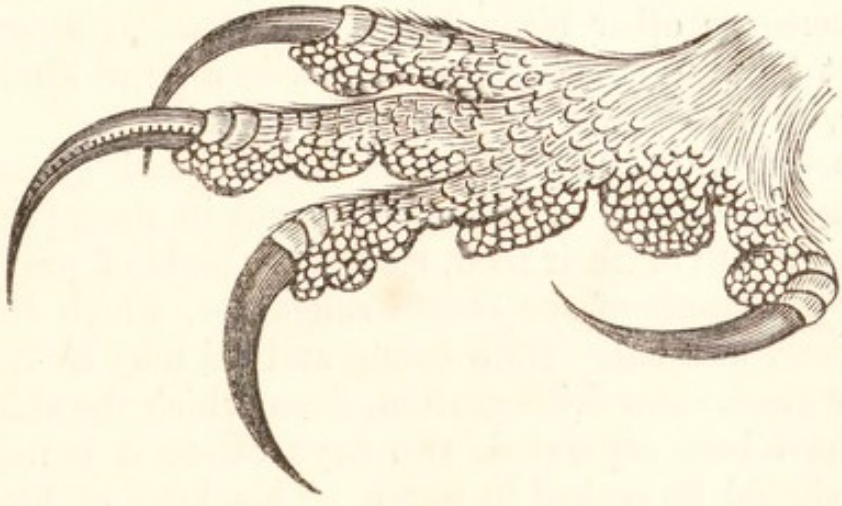
therefore, be fed with mice and small birds. At first it will not feed freely, and at pairing time they are difficult to rear. At other times only mice and birds need be placed in the cage, which they will certainly devour at night when they are unobserved.

BREEDING.—The nest is found in the fissures of old walls. The young are more easily tamed than the old.

CAPTURE.—They are caught sometimes in barns, especially in winter, by means of a bag-net being placed before the ventilators. They sleep in barns, and resort thither to catch mice.

COMMENDATORY QUALITIES.—They are handsome birds, but utter a plaintive cry, and have the reputation, with the superstitious, of betokening death.

OBSERVATIONS OF BRITISH NATURALISTS.—Mr. Waterton, who has domesticated this species, informs us that it carries off rats, and occasionally fish, dropping perpendicularly into the water for that purpose, and rising out of it with a fish in its claws. The nest—usually some obscure nook in an old building, church steeple, or tower—is composed of twigs and straws loosely arranged. "Watching near one of these haunts," says M'Gillivray, "one may dimly see it advance with silent and gliding flight; skimming over fields, shooting along the hedge bank, deviating this way or that, without causing the slightest sound by the flapping of its downy wings. On perceiving an object, it drops to the ground, secures its prey in a moment, and, uttering a shrill cry, flies off with it in its claws." The eggs, from two to five, and several broods, seem to be produced annually by the same pair.



3. THE LITTLE OWL.

STRIX PASSERINA. *Linn.*—CHEVECHE, ou PETITE CHOUETTE. *Buff.* Ois.—CHOUETTE CHEVECHE. STRIX PASSERINA. *Temm.* Man d'Orn.—LITTLE OWL. NOCTUA NUDIPES. *Gould.* Birds of Europe.—LITTLE NIGHT-OWL. STRIX PASSERINA. *Aud.* Orn. Biog.—LITTLE NIGHT-OWL. NOCTUA PASSERINA. *Selb.* Illustr.—DIE ZWERGEULE. *Bech.*

DESCRIPTION.—It is not much larger than the Rock Thrush, but its thick head and dense plumage make it appear so. It is about eight inches long, three of which comprise the tail, to almost the end of which the folded wings extend; the beak is nine lines long, brown at the base, and bright yellow at the point; the irides pale yellow, in winter sap green; the tarsi an inch and a half high; the claws blackish; the upper part of the body is light brown, with round white spots, those upon the scapulars and the back being the largest; the under part of the body is white, spotted with dark brown, intermixed with a rusty colour; the pinion feathers are dark brown, with round white spots; the tail light brown, with large round bright rust-coloured spots, which run together almost into bands.

The female is somewhat brighter in colour.

HABITAT.—This Owl, like most of the species, dwells in old buildings, towers, in church walls, and in hollow trees in fields, where the nest is also to be found. In the aviary this bird should never be allowed its liberty, or permitted to fly about where there are other birds, for it will certainly attack them. It is best to hang it out at the window in a large kind of wag-tail cage, so that it may be seen from within.

FOOD.—House and field mice, beetles, and grasshoppers, constitute their food. I have also found in their pellets—the indigested refuse of their food, ejected by birds of prey—multitudes of the stones of the *cornus sanguinea*, which they must consequently also eat. Both young and old may be kept easily for many years upon dried mutton, from which the skin, bones, and fat have been separated, two days before it is used. The mutton should be soaked in water. This kind of food checks the otherwise offensive odour of their fæces. One bird will

consume daily an ounce and a half of dried flesh, and occassionally mice or birds; the latter he devours, pinions, feathers, and all. He can eat five mice at a meal, and may be fed from two in the afternoon, after which hour he becomes quite animated.

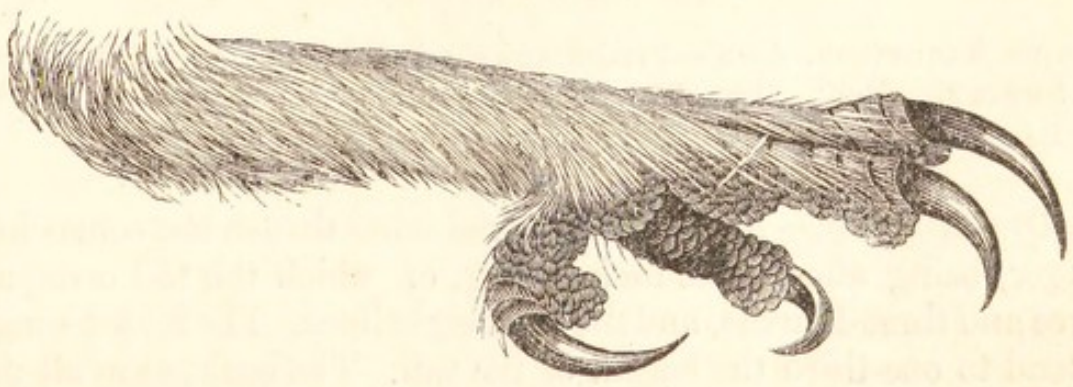
BREEDING.—The nest is formed in the fissures of walls, and also in hollow trees in woods. The female lays, even in confinement, a couple of round white eggs. The young are easily reared upon fresh flesh, especially that of pigeons. Before their first moulting, instead of their light brown prevailing colour, they are reddish grey; woolly on the head, and slightly clouded; the large round white spots upon the back are distinctly indicated, and the reddish white under part of the body has narrow grey longitudinal stripes upon the breast and sides.

MALADIES.—If they are not occasionally supplied with mice and small birds, the hair and feathers of which cleanse the crop, they die of atrophy.

CAPTURE.—If their place of resort be known, it is only necessary to hang a bag-net before it; they are sure to be caught at twilight when they fly abroad.

COMMENDATORY QUALITIES.—This is a very cleanly bird, placing their fæces all upon one spot. Their strange grimaces are very amusing, and it is to be regretted that their shriek and their restlessness at pairing time are somewhat annoying.

OBSERVATIONS OF BRITISH NATURALISTS.—This Owl is rare in Britain, although instances are mentioned of its occurrence. Like others of the tribe, it haunts old houses and deserted ruin, feeding on mice, small birds, and insects. The female lays two eggs, on which she sits alternately with the male till hatched; and British authors speak of its thriving well in confinement. Its ordinary cry, which it repeats flying, is "Poupou, poupou;" but when it settles down it emits a louder and clearer cry, like "Aîme, hême, êsmi."



SECTION II.—CORRACES. THE CROW TRIBE.

Such is the name given to this tribe; they have a somewhat compressed, more or less curved beak, convex above, usually of the shape of a knife, and of moderate size, but short; generally strong, widely spread feet, adapted partly for climbing and partly for walking. Their food consists of insects, worms, the flesh and refuse of other animals, and also of seeds and fruits. A few delight us with their song; the majority by their capability of articulating sounds, and by their beautiful colours.

4. THE GREAT CINEREOUS SHRIKE.

MOUNTAIN MAGPIE. MATTIGES. WIREANGLE. MURDERINGPIE. SHREEK OR SHRIKE.

Lanius Excubitor. *Linn.*—Pie-grieche grise. *Buff.* Ois.—Cinereous Shrike. *Mont.* Orn. Dict. Great Cinereous Shrike. Lanius Excubitor. *Selb.* Illustr.—Der gemeiner Würger. *Bech.*

Description.—As large as the red-wing thrush but somewhat longer, being about nine inches long, of which the tail occupies three and three-fourths, and the beak eight lines. The folded wings extend to one-third the length of the tail. The beak, as in all the

Shrikes, is straight at the base, slightly curved at the point, and furnished with a small tooth; it is black, and at the base beneath, yellowish white; the irides are black brown; the feet black, one inch high; the whole of the upper part of the body is of a beautiful bright ashy grey, the rump, above the eyes, on the forehead, and on the shoulders, merging into whitish; from the nostrils a broad black stripe extends, passing through the eyes beyond the white temples; the under part of the body is white, with evanescent dark brown undulations, which are more distinct in the female than in the male, the large coverts of the wings are black, the smaller ones ashy grey; the pinion feathers black and white at the base and apex, which thus form upon the wings two white spots; the wedge-shaped tail has the terminal feather white, and the middle one rather black.

HABITAT.—It remains in Germany both summer and winter, and inhabits small coppices and the skirting woods of large forests; it is also found in fields where there are bushes and solitary trees. It sits always upon the summit of the tree. It is very courageous and predatory, therefore cannot be allowed to occupy freely the same apartments with other birds; but is best placed in a large wire cage.

FOOD.—In summer this Shrike generally feeds upon beetles, field and mole crickets, blind worms, lizards, and only devours

mice and small birds when it cannot obtain these creatures. But in winter it will seize the Yellow Bunting, the Siskin, moles, &c. In flying down upon its prey it always makes a peculiar curve to enable it to seize it at the side, but it is often obliged to content itself with a beak full of feathers, from not being provided with talons like the other birds of prey. If captured when old it should be supplied with live birds, mice, beetles, and crickets ; but will not feed whilst watched. When the first cravings of hunger are satisfied it will eat fresh meat ; but it may be accustomed to the general food, particularly that made of roll crumbs. They eat a great deal at one time, in proportion to their size, two ounces of meat at the least. They like a perch with forked branches, or these may be placed transversely. They are also fond of bathing.

Breeding.—The nest, which is made of heath, blades of grass, wool and hair interwoven, is found on the branches of trees, and the female lays from five to seven eggs, which at the obtuse end are often spotted with olive green or violet gray. When the young is removed it should be fed with raw flesh, which indeed is the best mode of taming all the butcher birds. It soon learns to take the food from the hand.

Capture.—This bird is caught on fowling-floors, and in gins, enticed by the call-bird placed beside them ; also with birdlime placed on a branch, beneath which a nest of young birds is suspended ; when the latter are hungry and begin crying, the butcher-bird is speedily at hand. In autumn and winter he will dash at birds hanging in cages about windows. This may be made the means of his capture if the cage be hung in one of the traps, where by means of the fall as soon as he pounces upon the door of the cage the trap closes. A cage of this kind is requisite for those who keep birds which are allowed to fly about.

Commendatory Qualities.—His call-notes resemble those of the Lark, "gihr ! gihr !" Like the Nutcracker, he imitates many sounds, but he is not very successful in mocking the song of other birds. His own flute-like note is very beautiful, and very much resembles the piping of the ash-coloured Parrot, whilst he distends his gorge like a green frog. It is to be regretted that he sings only during pairing time, which is from March to May, and also that he frequently inter-

mixes with his beautiful notes some harsh and discordant sounds. Both male and female are vocal.

He might perhaps be taught to speak, for some of his notes resemble the articulation of the human voice.

Whoever wishes to catch Falcons and Hawks should have one of these birds on the spot. Its watchfulness perceives, and its demeanour indicates, the approach of the Hawk when still afar, and when so near as to strike, he creeps suddenly, with a cry, into his cage or house, which must be placed near the trap. As he utters the same cry, when at liberty, as soon as he perceives a bird of prey approaching, he is reputed thus to warn small birds from the presumed selfishness of wishing to reserve all for himself.

Observations of British Naturalists.—Although only an occasional, or rather accidental, visitant in this country, and that chiefly in autumn and winter, it has been found in almost every part of Scotland and England. Its prey—much the same as is described above—it kills by repeated blows of its bill on the head, affixing it to a thorn, or jamming it into the fork of a branch, that it may have a purchase by which to tear it into pieces. What remains after it is satisfied, it hangs on a thorn, and this habit has obtained for it the name of the Butcher-bird. Selecting a station from a twig or decayed branch, it sallies forth in pursuit of any insect that may pass; and it is probably from this habit of remaining perched for so long a time that it has obtained the name of Excubator, or the Sentinel. Its flight is undulating; and when searching for its prey it hovers occasionally like a hawk. Professor Rennie, in a paper published in the "Naturalist," thus notices this bird:—"I can testify to the power assigned to it by some naturalists, of varying its notes, or rather imitating those of other birds. Not exactly indeed; for my first acquaintance with the Butcher-bird was occasioned by hearing notes not entirely familiar to me, though much resembling those of the Stonechat. Following the sound, I soon discovered the utterer, and whilst listening, to my surprise, the original notes were discarded, and others adopted of a softer and more melodious character, never, however, prolonged to anything like a continuous song. Its grave ash-coloured garb, with its peculiar black patch on the cheek, soon convinced me that my unknown friend was the Butcher-bird, that petty tyrant of its neighbourhood, carrying on incessant warfare and wanton waste of life amongst the small fry of the Passerine Order, and whose war-cry was wont to set a host of minor warblers to flight."

5. THE LESSER GREY SHRIKE.

LANIUS MINOR. *Linn.*—PIE-GRIECHE D'ITALIE.—*Buff.* Ois.—DER GRAUER WÜRGER. *Bech.*

DESCRIPTION.—Is about the size of a Skylark, being eight inches long, of which the tail occupies three and a-half; the folded wings extend to one-third the length of the tail; the black beak is seven lines long, is straight at the base, and curved at the tip, where it is furnished with a small tooth. It is of a bright shining black; the irides are of a coffee brown; the feet black, with a leaden reflection, and one inch and a third high; the forehead black; a broad black stripe passes through the eyes; head, neck, back part and sides of the throat, the back and upper coverts of the tail, are ashy grey, the latter brightest; the whole of the under part of the body is white, the breast and the belly with a rosy tinge; the coverts of the wings black, the smallest with a margin of ashy grey; the pinion feathers black; the anterior ones from the base half way along white, whence a white spot is formed upon the folded wings; the tail is wedge-shaped, the two external feathers white, with a black shaft,—the third and fourth black, with white base and tip,—and the fifth and sixth entirely black.

The female scarcely differs from the male, with the exception of being a little smaller, with a shorter and somewhat narrower stripe upon its cheeks, and usually she has but one white feather in the tail.

HABITAT.—It is a migratory bird, leaving Germany at the beginning of September and returning at the commencement of May. A favourite resort is gardens in the vicinity of large woods or forests, those especially which adjoin meadows and cultivated fields; where he usually sits on the top branch of a tree, more rarely upon solitary shrubs in fields, where he watches insects. It is necessary in confinement to place him in a large wire cage, such as is used for Larks, with three perches: for it is not advisable to give him his liberty in a room with other birds, for even without being hungry he will frequently attack and kill his comrades, either from sanguinary instinct, or malice, or to show his strength.

FOOD.—He feeds chiefly upon May bugs, dung beetles; the carabidæ, and other beetles; upon the gad fly, and upon field

and mole crickets, and only during a continuance of wet weather will he seize upon young birds.

If captured adult, as soon as he is placed in the cage, birds, cockchafers, dung and other beetles, should be given to him; he will afterwards feed upon raw and cooked meat. It is, indeed, very difficult to rear him, and demands considerable time and trouble; for eight days successively he must have nothing given him but beetles and other insects, especially meal-worms, but when once accustomed to be fed, he soon becomes so tame that he will take it from the hand, and even, when the cage is opened, fly upon the finger and there eat it. I had one that would eat the first kind of general food described in the introduction. But those captured in the adult state can not usually be kept longer than a couple of years, as they generally die of atrophy. Those reared from the nest require less attention, and are soon habituated to all kinds of food.

BREEDING.—The nest of this Shrike is usually found in gardens, or upon the margin of woods, in a tree; it is spacious and irregularly constructed of roots, green plants, and wool intermingled, and lined inside with wool and large and small feathers. The female lays from five to six round grayish-white eggs, with violet grey and bright brown spots in the middle; and she hatches them, assisted by the male, in from fifteen to sixteen days. The young grow very fast, and fly so soon that, notwithstanding the late arrival and early departure of this bird, if fair weather prevail it has usually two broods during the summer. The young are fed exclusively upon beetles and grasshoppers. Until the first month they are destitute of the black band on the temple; the upper portion of the body is of a dark ashy grey, with scarcely distinguishable reddish undulation; the under side of the body is white, with yellowish tinge upon the breast, and with reddish undulation at the sides. If it is wished to rear them, they must be removed from the nest as soon as the feathers begin to shoot, and fed at first with ants' eggs, and then with roll, moistened with milk.

CAPTURE.—They cannot be caught alive, otherwise than by placing limed twigs upon the sprig or bush which they frequent, for the purpose of watching for insects. They are as imprudent as they are capable of instruction: for they unhesitatingly fly upon the twigs limed for them.

COMMENDATORY QUALITIES.—The male is a bird of admirable capacity for instruction ; the female, as in the majority of birds, does not sing. This Shrike does not merely imitate, like the other singing Shrikes, the solitary strophes of the songs of other birds, but it mocks their whole song with the most deceptive skill: indeed, it appears not to have received from nature any peculiar song of its own. It will perfectly imitate the entire song of the Skylark, and other birds, and even that of the Nightingale, only somewhat weaker, for it has not the round strong voice of that songster. Thus, confined in the cage, it affords much amusement to the amateur, by these powers of imitation. I have particularly noticed that it imitates with much pleasure to itself the call of the Quail. I possessed one that, zealous as he usually was in his ordinary song, as soon as he heard the Quail, he would entirely cease with his own, and imitate that of the other. The Quail, until it became accustomed to it, would out of jealousy earnestly seek around the room to discover its rival.

6. THE WOODCHAT SHRIKE.

LANIUS ERYTHROCEPHALUS COLLURIO RUFUS ET POMMERANUS. *Linn.* —PIE GRIECHE ROUSSE. *Buff.* Ois. — LANIUS RUTILUS. *Lath.* Ind. Orn.—WOODCHAT. *Mont.* Orn. Dict.—WOODSHRIKE. *Supp.*—PIE-GRIECHE ROUSSE. *Buff.*—LANIUS RUFUS. *Temm.* Man. d'Orn.—WOOD-CHAT. LANIUS RUFUS. *Selb.* Illustr. — DER ROTHKÖPFIGE WÜRGER. *Bech.*

DESCRIPTION.—This is somewhat smaller, at least more slender, than the preceding ; being seven inches long, the tail is three

and a half inches, and the folded wings extend one-third of it; the beak is eight inches long, has a strong tooth, and is blackish blue: the irides yellowish blue; the feet are one inch high, and, as well as the toes, of a black blue; the forehead is black, and there is united with it a black stripe that passes through the eyes, extending beyond the ears; the back part of the head and neck are of a beautiful reddish brown, the middle of the back reddish ashy grey, the upper coverts of the tail yellowish white; some large white feathers on the shoulder form, as in the Magpie, a large white spot on each side of the back; the prevalent yellowish white colour of the under part of the body commences in two white dots above the nostrils; the sides are somewhat redder, and indistinctly mixed with grey; the small coverts of the wings are blackish blue, with a yellowish white margin; the larger ones, as well as the pinion feathers, are black, playing into brown; the anterior pinion feathers have a white base, which in the folded wing forms a white spot; the tail is black, merging into brown, the external feathers are white with a black spot in the middle, the rest are white at the end, and with a gradually decreasing white base; the two middle ones are entirely black. The female exactly resembles the male, but the colours, especially the reddish brown, are paler.

Habitat.—This is a migratory bird, arriving towards the latter end of April, and going away again about the middle of September. It lives among the mountains in woods, or in wooded plains, and resorts in large numbers to spots and pastures, where horses are kept. It must be confined in a wire cage.

Food.—It feeds upon beetles, dung-beetles, and also upon grasshoppers, gadflies, and other insects. When impelled by necessity, it will attack young birds and lizards. It requires the same attention as the Lesser Grey Shrike, but it is still more delicate, and therefore it should, if possible, be reared from the nest. Even when young it should be fed at once upon raw meat.

Breeding.—Its nest, consisting of the stems of plants, moss, grass, bristles, wool, and hair, is built in the thick branches of lofty trees; the female lays twice a year six reddish white eggs, which are sprinkled all over, especially at the larger end, with distinct bright red, and indistinct bluish grey spots; in fifteen days the young are hatched. The nest is rarely found in fields, but upon the blackthorn and other bushes. The young, until

the first moult, are above dotted with dirty white and dark ashy grey: beneath clouded with dirty white and grey, and the feathers of the wings margined strongly with a rust colour; the tail and pinion feathers are blackish grey.

CAPTURE.—If a person is inhuman enough to capture it upon the nest, this may be easily effected by means of limed twigs, as it is the least timid of all the Shrikes. Like the Flusher it is fond of bathing, therefore it can frequently be caught about noon at watering-places when these occur near its haunts. This habit may account for the numbers of these birds that are often found drowned in large pools.

COMMENDATORY QUALITIES.—Although apparently as capable of being taught as the preceding bird, yet its song is not so agreeable, for in the first place it has not the same pleasant voice, and in the next, with all the songs it imitates, it intermingles its own harsh and discordant note. It imitates the Nightingale, the various warblers, the Goldfinch, and the Redstart. But its beautiful colours are the sole attraction that renders it so agreeable a pet as the preceding bird.

OBSERVATIONS OF BRITISH NATURALISTS.—The Woodchat can only be considered as a visitant in this country, and that a rare one: not more than five or six individuals having been taken or killed. Mr. Hay, a writer in Loudon's Magazine of Natural History, mentions, that it nestles invariably in trees, preferring the oak; fixing its nest in the fork of a projecting branch. The nest is composed outside of sticks and wool, mixed with moss from trees, and lined with fine grass and wool. The eggs, four or five in number, are rather smaller than those of the Flusher, varying considerably in their markings; the ground-colour is pale blue in some, in others a dirty white, with a zone of rust-coloured spots near the larger end; in others, again, the colours and spots are dispersed over the egg.

7.—THE RED-BACKED SHRIKE.

RED-BACKED SHRIKE. *Mont. Selb. Yarrel. M'Gillivray.*—LANIUS COLLURIO. *Linn.*—L'ECORCHEUR. *Buff.*—ROTHRÜCKIGER WÜRGER. *Bech.*

DESCRIPTION.—Length more than six inches; beak, six lines; tail, three inches and a quarter; folded wings extending one-third its length; feet ten lines high; beak black, stout, slightly curved at the tip only; irides hazel; feet and toes black, inclining to blue.

MALE.—Head, neck, upper coverts of the tail and knees ashy blue, rather brighter above the eyes than on the forehead; a broad black stripe extends from the nostrils across the eyes to the ears; back and wing coverts bright reddish brown; pinion feathers blackish, the posterior margined with deep red brown; under side of the body of a beautiful white,

with a rosy tinge upon the breast, sides, and abdomen; tail slightly conical, the two middle feathers black, the basal half of the rest white, gradually increasing, and with white tips.

The FEMALE differs almost entirely from the male: the upper part of the body being dirty rusty brown; neck and tail coverts verging towards ashy grey; back and wing coverts indistinctly undulated with white; forehead and above the eyes yellowish white; cheeks brown; throat, abdomen, and anal plumage dirty white; neck, breast, and sides, yellowish white, with dark brown transverse undulations; pinion and tail feathers dark brown, the latter inclining to reddish; the external primary feather margined with white, the rest, exclusive of the four middle ones, white at the tip.

The YOUNG resembles the female bird, the upper part of the body and breast being greenish grey with dark brown undulations, and the abdomen dirty white.

HABITAT.—This bird, from its peculiar qualities, appears to form the connecting link between the crow kind and songsters. It is migratory, and one of the latest which arrives, coming in May, and taking its departure in flocks in August, before the young have moulted. Although found in the valleys of forests where pastures occur, it seems to prefer hedge-rows and bushes in the open country, especially where cattle graze. Its food consists of insects, chiefly beetles, field crickets, and grasshoppers, and it resorts to the vicinity of pastures in pursuit of gadflies, which constitute its favourite repast. During rainy weather, when in-

sects are scarce, it will feed upon anything it can catch, as field mice, lizards, and young birds, and in accordance with its remarkable habit of impaling its prey upon thorns, it transfixes these also; but the assertion that this is done to allure other insects and birds is not founded in fact. It holds high rank as a sedulous and agreeable songster, for perched upon a bush or the lower slender branches of a tree near its nest, it warbles its song, composed of a mixture of the notes of all the birds which frequent its vicinity, as the Goldfinch, Blackcap, Robin, Wren, Nightingale, Skylark, Titlark, &c., with the occasional introduction of its own harsh tone. If it happen to imitate the call of some bird casually passing, it is done merely in the wantonness of its mimic powers. But the articulate song of the Chaffinch and Yellow Bunting it cannot imitate, probably from the peculiar structure of its larynx. It prefers the hawthorn to construct its nest in, which is large, and formed externally of roots and the coarse stalks of grasses, interwoven with a layer of moss and wool, and lined internally with the delicate fibres of roots; the female lays from five to six eggs of a greenish white, sprinkled with ashy and rusty grey spots, especially at the thick end; she is assisted by the male in incubation, which occupies fourteen days; in favourable seasons they rear two broods.

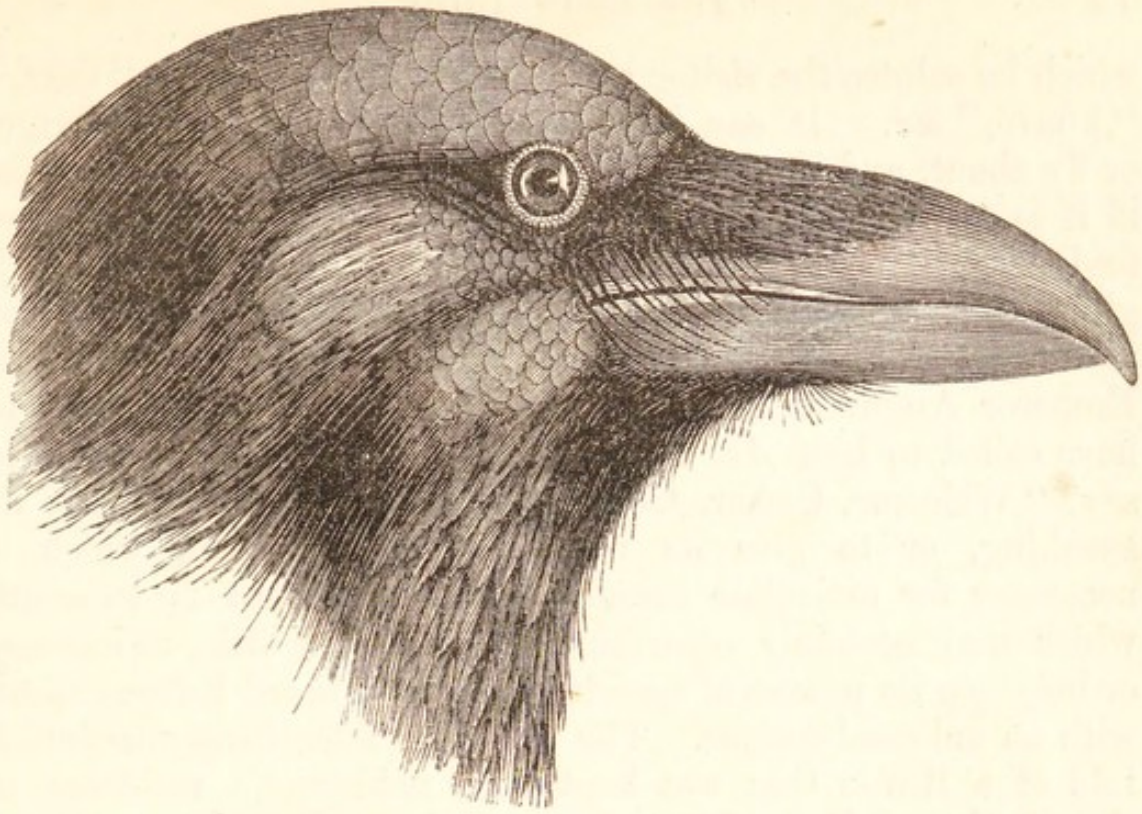
Mode of Capture.—They are easily caught by placing limed twigs upon the bush or shrubs they are observed to frequent, and are readily attracted thither by fixing a beetle, grasshopper, or gadfly, attached by a thread or horse hair with sufficient liberty to flutter. When captured, it is necessary to handle them cautiously, for, like all the Shrikes, they bite very severely.

In Confinement.—This bird must be placed in a cage by itself, for if allowed its liberty amongst others in a room, it will commit great havoc. A few years since I caught one, which fasted for three days, refusing all the food I offered it, whether dead birds, beetles, or other insects. On the fourth day, thinking I might then accustom him to the food given to the other birds, and that he was too weak to do them injury, I let him loose in the room, but the instant I had done so he flew at a hedge sparrow and slaughtered it before I was able to prevent it. This I allowed him to eat, and then replaced him in the cage, where, as if he had exhausted his spleen, he subsequently eat anything that was given to him. If placed in a room full of flies

he speedily clears it, catching them most readily on the wing, and if then supplied with a twig, having needles passed through it, he impales them in his usual manner, with a very peculiar and grotesque mien. They are easily reared when taken young from the nest, being fed at first with ants' eggs, then with cooked meat, and at last may be accustomed to eat roll steeped in milk, on which it can always afterwards be fed. The adult bird must be treated like the preceding species; insects may be given, together with the food of Nightingales, for which it soon acquires a taste, and then occasionally a piece of raw or cooked meat. It is difficult to teach these birds to pipe, for although quick in learning, they forget as rapidly, taking up something new; but they speedily acquire the song of the birds placed constantly near them, and have besides the further recommendation of being exceedingly animated and very beautiful.

Observations of English Naturalists.—This bird is common in Surrey, Kent, and Sussex, about London, and in the Western Counties of Wiltshire, part of Gloucestershire, Shropshire, Staffordshire, Herefordshire, and Worcestershire, but it diminishes towards the North, and has not been traced further than Yorkshire and Cumberland, and it does not occur in Scotland. It is a double moulting bird, as Mr. Blyth observes. The young are at first closely barred upon the upper parts with a darker colour, each feather exhibiting two transverse bars; this plumage is replaced shortly after leaving the nest by another closer and more rufous, the upper feathers of which have each one dark bar across—the primaries not being shed till the spring, when the birds assume the adult male and female dress, the latter much resembling that of the young, but without the barring. In autumn they moult again, at which time both sexes assume the plumage last described, and the following spring both acquire that which has been hitherto considered exclusively characteristic of the adult male, several fertile females having, to Mr. Blyth's knowledge, been killed in this dress, differing in appearance only from the male, in being less bright. These changes have escaped the notice of other naturalists. It arrives in May, and what is peculiar, both sexes at the same time; it leaves again in September, and is very regular in its visits. It frequents open downs and commons where furze abounds, and enclosed moist situations; but it prefers maple and hawthorn hedges, and always sits in a conspicuous position on the topmost or outermost twig or branch, or upon some post or railing, whence it may command a wide range of sight. Its flight is quick and undulating, and it will hover over a spot like a

Whin Chat, and then advance a few yards and hover again, and it usually hovers for some time above and around the branch or post where it intends to alight. Whilst flying the tail is kept straight out, its feathers being held very close together, and appearing to consist of but one; on alighting it gives a peculiar jerk with its tail, like the Robin or Magpie. In spring it devours great numbers of the large female wasps which then abound, and thus checks the increase of these injurious insects. It seizes Chafers by the bill, and then flying to a perch transfers them to the foot, and holding them up like a parrot, picks them to pieces. It has great power of clutching with its toes, and in holding its prey it rests upon the tarsal joint of the foot, unless when it has fastened it to a thorn, and it then pulls it to pieces in a contrary direction; and this it does when satiated, eating then only the abdomen and softer parts. In autumn, when it feeds a great deal upon grasshoppers, it captures them with a loud snap of the bill, like the fly-catcher. It has been observed pursuing a Blackbird, and has been frequently caught in the nets of the bird-catcher when endeavouring to seize the brace birds. It attacks a bird only on the ground, or on a branch beneath it, when, pouncing down, it bears it to the ground, seizing it with both bill and claws, and spreading over it its expanded wings and tail like a hawk, and despatches it by striking it on the head and picking a hole in the skull, and it then carries it to the horizontal branch of a tree, where, if undisturbed, it completely devours it. It will eat meat, fur, bones, feathers, &c., and disgorges the refuse in pellets, like the Hawk tribe. It is frequently beset with great clamour by Titmice and other small birds, which thus combine to annoy their common enemy; and although thus universally repudiated by the smaller tribes, and very ferocious itself, it is very social with its own species, young and old frequently assembling together, and betraying themselves by their perpetual clamour, especially when their nest is approached, thus guiding the seeker to their haunt. Their ordinary note is a sort of chirp, not unlike that of a House Sparrow, although they have also a short modulated song, and their power of mimicry is noticed above. The Cuckoo is reputed to deposit occasionally an egg in their nest.



8.—THE RAVEN.

The Raven. *Mont. Selb. Yarrel. M'Gillivray.*—Corvus Corax. *Linn.*—Corbeau. *Buff.*—Der gemeine Rabe oder Kolkrabe. *Bech.* Raven. Crow. Corby. Fidheach. Beadtach.

Description and Peculiarities.—This as well as the four following birds are not, properly speaking, birds of the aviary; but as they all, excepting the Rook, learn to articulate words, and are therefore frequently reared for this purpose, they must be noticed here for the sake of the completeness of the work.

The Raven is sufficiently well known. It is two feet long, of which the somewhat conical and obtuse tail occupies eight inches and three-quarters. The whole bird is black with a violet tinge above, while beneath the pinion feathers, the tail, and the large feathers of the back have a green reflection, and the throat is of rather a brighter black.

Of all birds which have a convex, round, knife-shaped bill, furnished at the base with hair projecting forwards, in other words, of all that belong to the tribe of Crows, this is, from the breadth of its tongue, the most easily taught to speak. In Thuringia this bird is a great favourite, and is frequently hung up over the door-post of inns in a handsome cage, resembling a tower, from

which he salutes the visitor with the opprobrious words "thief," "knave," &c. It can be allowed, however, to run at large, or fly about, and if reared from the nest (which must be the case if it is to be taught to speak), it will return to the place of feeding upon calling Jack, the name it usually bears. All glittering metal, especially gold, must be hidden from it, or it will carry it off like the other kinds of Crows. When the Emperor Augustus returned from a victory, one is reported to have called to him *Ave Cæsar, Victor, Imperator!* That is to say, "Welcome, Cæsar, Conqueror, Ruler!" To facilitate its speaking, or to give its tongue greater freedom, which is necessary for articulate sounds, the tongue cord is loosened, which may certainly contribute, although but little, to increase or heighten its powers of speech; for I have heard Ravens speak with an unloosed tongue. The following interesting anecdote is told of a Raven that was kept at a nobleman's residence in the district of Mannsfelt. Among other things he could say, "Well! who are you?" very strongly and distinctly. One day as he was creeping about in the grass in the garden, he observed a setter dog which remained near him, creeping after him when he went on. Not liking to be thus followed, the Raven turned rapidly round, and said, "Well! who are you?" The dog was alarmed at this, hung his tail, and ran hastily away, and not until he had gained a considerable distance did the dog turn round and howl.

When divination formed a portion of the popular belief, this bird was in considerable repute. Trouble was even taken to study its actions and all the circumstances attending its flight, and the various modulations of its voice. Of these sixty-four different variations were enumerated, without including the more delicate intonations which it was difficult to distinguish, to detect which, however, an excessively fine ear was requisite, as its cry, *craack* and *cruuck*, is so simple! Every distinct change had its peculiar signification, and there were not wanting people who studied to acquire this knowledge, while others carried their folly so far as to believe that by eating the heart and viscera of this bird they could acquire its prophetic powers.

Habitat.—It dwells in woody districts, where it builds its nest upon the highest trees, hatching from three to five dirty green olive brown spotted eggs. When these birds are intended

to fly about, the young must be removed when half fledged, about twelve days after they are hatched, and fed upon meat, snails, and earth-worms; they are also accustomed to eat bread and roll steeped in milk. The description of food they seek when at large, as young hares, birds, eggs, mice, young geese, chickens, snails, pears, cherries, &c., renders them partly injurious and partly beneficial.

Observations of British Naturalists.—This grave, sedate, crafty, vigilant, and shy bird, although not in great numbers, is pretty generally diffused over the British Island. The Bishop of Norwich knows no British bird possessing more estimable qualities than the Raven. "His constitution enables him," says that pleasing author, "to brave the most violent tempests, and the most intense cold; he is strong enough to repel any bird of his size, and his spirit is such that he will attack even the Eagle; his affection towards his young and his mate is great; in sagacity he is not excelled by any other species, and his power of vision is equal to most, even to birds of prey."

Mr. M'Gillivray had opportunities of studying the habits of the Raven in the Outer Hebrides, and on the north coast of Scotland, where they are numerous. In these regions they sometimes nestle not far from the Eagle. In such circumstances they do not molest each other, although in general the Raven is the Eagle's determined foe, a circumstance which prevents the shepherds from molesting the Ravens, because they help to keep off this, and indeed all other intruders that are in any way formidable.

The Raven is most abundant in wild mountain districts. It is common in the wilds of Dumfries and Peebles, and breeds about the head of Moffat Water. "In the wilds of Polmoody, on the face of tremendous linns and rocks, there juts out a dwarfish birch or mountain ash," says M'Gillivray; "the same cleft has borne a Raven's nest for centuries, where no human creature can get at them."

When searching for food on the ground, it generally walks with a steady and measured pace, like the Carrion Crow, the Hooded Crow, and the Rook; but under excitement it occasionally leaps, using its wings at the same time, as when driven from carrion by a dog, or when escaping from its fellows with a fragment of flesh or intestine. Its flight is commonly steady and rather slow, and is performed by regularly-timed beats of its extended wings, the neck and feet being retracted; but it can urge its speed to a great degree of rapidity, so as to overtake an Eagle or even a Hawk, when passing near its nest. In fine weather it often soars to a vast height, in the manner of the birds just mentioned, and floats as it were at ease high over the mountain tops.

Some naturalists observing birds thus engaged, have imagined them to be searching for food, and have consequently amused their readers with marvellous accounts of the distances at which the Eagle can spy its prey; but had they patiently watched, they might have found that the quiet soarings of the Raven and the rapacious species have no reference to prey. On the other hand it may sometimes be observed gliding along, and every now and then shifting its course, in the heaviest gales, when scarcely another bird can be seen abroad. Although there is not much reason for calling it "the tempest-loving raven," it would be a severe storm indeed that would keep it at home when a carcase was in view.

Having enjoyed ample opportunities of cultivating an acquaintance with this species in the Outer Hebrides, I shall describe its manners as observed by me in those dreary, but to the naturalist highly interesting islands. There the Raven, in search for food, may be seen, either singly or in pairs, in all sorts of situations, along the rocky shores, on the sand fords, the sides of the hills, the inland moors, and the mountain tops. It flies at a moderate height, proceeding rather slowly, deviating to either side, sailing at intervals, and seldom uttering any sound. When it has discovered a dead sheep, it alights on a stone, a peat bank, or other eminence, folds up its wings, looks around, and croaks. It then advances nearer, eyes its prey with attention, leaps upon it, and in a half-crouching attitude examines it. Finding matters as it wished, it croaks aloud, picks out an eye, devours part of the tongue if that organ be protruded, and lastly attacks the subcaudal region. By this time another Raven has usually come up. They perforate the abdomen, drag out and swallow portions of the intestines, and continue to feast until satiated or disturbed. Sometimes, especially should it be winter, they are joined by a Great Black-backed Gull, or even a Herring Gull, which, although at first shy, are allowed to come in for a share of the plunder; but should an Eagle arrive, both they and the Gulls retire to a short distance, the former waiting patiently, the latter walking backwards and forwards uttering plaintive cries, until the intruder departs. When the carcase is that of a larger animal than a sheep, they do not however fly off, although an eagle or even a dog should arrive. "Feris convivialis," observes Linnæus, and the fact is proverbial in the Hebrides, where this bird is named Biadhtach, and where biadhtachd, which etymologically is analogous to ravening, signifies associating for the purpose of eating and making merry. These observations I have made while lying in wait in little huts constructed for the purpose of shooting Eagles and Ravens from them. The latter I have allowed to remain unmolested for hours, that they might attract the former to the carrion; and in this manner I have been enabled to watch their actions when they were perfectly unrestrained.

Although the Raven is omnivorous, its chief food is carrion, by which is here meant the carcases of sheep, horses, cattle, deer, and other quadrupeds, dolphins and cetaceous animals in general, as well as fishes that have been cast ashore. In autumn it sometimes commits great havoc among the barley, and in spring it occasionally destroys young lambs. It has also been accused of killing diseased sheep by picking out their eyes; but of this I have obtained no satisfactory evidence. It annoys the housewives by sometimes flying off with young poultry, and especially by breaking and sucking eggs which the ducks or hens may have deposited, as they frequently do, among the herbage.

In these islands, should a horse or a cow die, as in my younger days was very frequently the case in the beginning of summer, after a severe winter or spring, or should a grampus or other large cetaceous animal be cast on the shore, the Ravens speedily assemble, and remain in the neighbourhood until they have devoured it. A large herd of Grampuses (*Delphinus Orea*) having been driven by the inhabitants of Pabbay on the sand beach of that island, which is one of those in the Sound of Harris, an amazing number of Ravens soon collected from all quarters, and continued for several weeks to feast upon the carcases. By the time when this supply of food was exhausted, autumn was advancing, and the inhabitants became alarmed lest, should the Ravens prolong their stay, they should attack their barley, which was their main stay, as they depended chiefly upon it for the means of paying their rents, a regular system of illicit distillation having, for reasons not difficult to be guessed, been permitted for many years. Various expedients were tried in vain, until at length a scheme was devised by one Finlay Morison, which produced the desired effect. The Ravens retired at night to a low cliff on the east side of the island, where they slept crowded together on the shelves. Finlay and a few chosen companions, intimately acquainted with the principal fissures and projections of the rock, made their way after midnight to the roosts of the Ravens, caught a considerable number of them, and carried them off alive. They then plucked off all their feathers excepting those of the wings and tail, and in the morning, when their companions were leaving their places of repose, let loose among them these live scare-crows. The Ravens, terrified by the appearance of those strange-looking creatures, which it seems they failed to recognise as their own kinsfolk, betook themselves to flight in a body, and did not again return to the island. On another occasion, when a whale had been cast ashore on the farm of Big Scarista, I have seen these birds impatiently waiting on the rocks around, until the people who were flencing it went home, carrying creels full of the flesh with them for domestic consumption, when the Ravens descended to the carcase, and gorged themselves with all haste.

Whatever may be said by closet naturalists as to the unrivalled adaptation of the point of the upper mandible of the Rapacious Birds for tearing flesh, I can assert from observation that the bill of the Raven is quite as efficient in this point of view. That bird can not only with great ease tear off morsels of flesh, but can pick the smallest fragments from the bones, and rend the intestines in pieces. When engaged upon a large carcase, they conduct themselves very much in the manner of the North American Vultures, as described by Wilson and Audubon. I well remember standing when a boy for a long time to observe the proceedings of about a dozen Ravens devouring a dead cow that had been dragged to the sand banks on the farm of Northtown. Some were tearing up the flesh of the external parts, others dragging out the intestines, and two or three had made their way into the cavity of the abdomen. It was amusing, and perhaps might be disgusting to a delicately organised snuff-taking and clean-fingered gentleman-inspector of birds' skins, to see them drag out the intestine to the distance of several feet. While one endeavoured to separate a morsel, another pulled it from him, when a third seized it in his turn. They allowed me then to come within twenty yards or so; but when some years after I carried a gun on my rambles, I could in no instance get within shot of Ravens thus occupied, unless by creeping up under cover of a bank, and indeed very seldom even then, as those flying about or stationed on an eminence gave warning to the rest.

It has seemed to me strange that in a country where, under ordinary circumstances, few Ravens are seen, so many as from twenty to two hundred or more should collect in a few days. In perambulating these islands, one scarcely meets with more than a pair in the space of a mile or so; and in Harris, where their breeding places were pretty generally known to me, I could not count a dozen pairs along a coast-line of as many miles. In Pabbay, as mentioned above, several hundreds had come together, so that the people naturally marvelled whence they had arrived. If along a coast-line of ten miles there are ten pairs of Ravens, with five young birds to each, or seventy in all, on one of a hundred and forty there might be nearly a thousand. Pabbay is two miles distant from Berneray, and six from Harris. Even should the wind blow in the latter direction, it is not likely that a Raven should smell carrion six miles distant, and in Berneray, which the effluvia might reach, there are not usually more than three or four resident pairs. The birds of the west coast of Lewis, South Uist, and Barray, could not be guided a distance of fifty miles or more by the smell. How then did they arrive in Pabbay? It seems to me that the phenomenon may be explained thus:—

The two pairs of Ravens residing in Pabbay itself would, with their

broods, first perceive the carcases. Those of Berneray might stroll over, as they often do, or they might see the prey, as might those on the Harris coast. Ravens have character in their flight, as men have in their walk. A poet sauntering by a river, a conchologist or fish-woman looking for shells along the shore, a sportsman searching the fields, a footman going on a message, a lady running home from a shower, or a gentleman retreating from a mad bull, move each in a different manner, suiting the action to the occasion. Ravens do the same, as well as other birds; and so, those at the next station, perhaps a mile distant, judging by the flight of their neighbours that they had a prize in view, might naturally follow. In this manner, the intelligence might be communicated over a large extent of country, and in a single day a great number might assemble. We know from observation that Ravens can perceive an object at a great distance, but that they can smell food a quarter of a mile off we have no proof whatever; and as we can account for the phenomenon by their sight, it is unnecessary to have recourse to their other faculties.

The Raven sometimes nestles at no great distance from the Eagle, in which case these birds do not molest each other; but in general the former is a determined enemy to the latter, and may often be seen harassing it. "What a brave soldier the Raven is! he fights the eagle, who is four times his size," I remember hearing an old highlander say to me more than twenty years ago. But let us consider the matter.

There goes the White-tailed Eagle! Launched from the rock of Liuir she advances along the cliffs on her way to the inland hills, where she expects to find a supply of food for her young. Now she is opposite the promontory of Ui, whence, croaking in fierce anger, rush two Ravens. The Eagle seems not to heed them; but they rapidly gain upon her, and, separating as they come up in her wake, one ascends, the other glides beneath, menacing her, and attempting to peck at her. While she regards the one below, that above plunges towards her, but perceiving that she is ready to meet him, he reascends a few feet, the other in the meantime threatening vengeance below. I never observed, however, that they actually came in contact with the object of their pursuit, which seemed to regard them as more disagreeable than dangerous, and appeared to hurry on merely to avoid being pestered by them.

The shepherds and farmers, so far from molesting the Ravens, are pleased when a pair of them breed on their ground, because they help to keep off the Eagles; and I was once seriously reprimanded by one for shooting a Raven on his grounds in the breeding season. In general, they keenly pursue all intruders that seem in any way formidable, while on the other hand they allow the Cormorant, the Rock Pigeon, and the

Black Guillemot, to nestle in their immediate vicinity. I have seen Pigeons' nests within thirty yards of a Raven's, and although the Raven might with impunity carry off the eggs or young of these birds, I have no reason to believe that it ever does.

The voice of the Raven is a hoarse croak, resembling the syllable *crock* or *cruck;* but it also emits a note not unlike the sound of a sudden gulp, or the syllable *cluck*, which it seems to utter when in a sportive mood; for although ordinarily grave, the Raven sometimes indulges in a frolic, performing somersets and various evolutions in the air, much in the manner of the Rook.

I have frequently seen Ravens perch on the roofs of huts in the Hebrides, more especially on the pole that projects at each end, and supports the heather ropes by which the thatch is secured. They also frequently visit the dunghills at their doors in the summer mornings, before the people are out of bed. They are not there, as in some parts of the country, viewed as boding death to the inmates; but it is considered unlucky for a marriage party to meet a Raven, unless it should be killed, in which case the omen is good. I have no faith in the faculty which Ravens, Crows, and Magpies, are alleged by some to possess, of discovering by the sense of smell or otherwise the existence in a house of disease or death. It is certain that Ravens can have no experience in this matter; and if their natural instinct or sagacity should enable them to discover approaching death in a human being, how does it happen that they never settle on the back or in the neighbourhood of a sickly animal, until it has presented visible indications of decay?

The character of the Raven accords well with the desolate aspect of the rugged glens of the Hebridian moors. He and the Eagle are the fit inhabitants of those grim rocks; the Red Grouse, the Plover, and its page, of those brown and scarred heaths; the Ptarmigan of those craggy and tempest-beaten summits. The Red-throated Diver and the Merganser, beautiful as they are, fail to give beauty to those pools of dark-brown water, edged with peat banks, and unadorned with sylvan verdure. Even the water-lily, with its splendid white flowers, floating on the deep bog, reflects no glory on the surrounding scenery, but selfishly draws all your regards to itself. There, on the rifted crag, let the dark Raven croak to his mate, while we search for the species in distant parts of the land.

According to Mr. Edmonston, Mr. Forbes, Low, and others, the species is very abundant in the Orkney and Shetland Islands. In Sutherland, as I am informed by my friend Mr. Alexander MacGillivray, it is also not uncommon. In most of the Highland districts, especially along the western shores, I have met with it here and there. In the lower parts of the middle division of Scotland it is of much rarer

occurrence; nor is it plentiful even in the higher and more central portions of the southern division, although I have seen it in many places there, as among the hills of the counties of Dumfries and Peebles, the Pentland Hills, and the Lammer Moor. Not many years ago a pair of Ravens used to build in the rocks of Arthur's Seat, close to Edinburgh. In England, it is much less frequently met with than in Scotland, although it seems to be generally distributed there.

If we take the whole range of the island as its residence, we must add to its bill of fare many articles not mentioned above, so as to include young hares and rabbits, other small quadrupeds, as rats, moles, and mice, young poultry, and the young of other birds, as pheasants, grouse, ducks, and geese; eggs of all kinds, echini, mollusca, fruit, barley, wheat, and oats; insects, crustacea, grubs, worms, and probably many other articles, besides fish and carrion of all sorts. The Raven is therefore certainly the most typical pantophagist that exists among our native birds.

My esteemed friend, Mr. William Hogg, Stobo Hope, Peeblesshire, has favoured me with the following observations on the Raven, which are of great value, as coming from a respectable and intelligent individual, whose lot, as he says, has always been to dwell in a wild and mountainous district, where he has had opportunities of attending to many of the phenomena of nature.

"In the place where I reside at present the Ravens are seldom seen, except in their passage from one mountainous district to another. I know them by their size, by their hoarse and hollow croak, and by the height at which they fly. Their sight and smell are very acute, for when they are searching the wastes for provision, they hover over them at a great height, and yet a sheep will not be dead many minutes before they will find it. Nay, if a morbid smell transpire from any in the flock, they will watch it for days till it die. I think the Ravens which traverse the wilds of Dumfries, Peebles, Roxburgh, and Selkirk shires, are mostly bred about the head of Moffat water, especially on the three farms of Chapelgill, Chanfren, and Polmoody. There, on the face of tremendous linns and rocks, there often juts out a dwarfish birch or mountain-ash. The same cleft of the same tree has borne a Raven's nest for centuries. No human creature can get at them. It is with difficulty the shepherd can break their eggs at a distance; but some young are always reared every year. They manifest a great hatred to the Eagle. Often have I seen, in a serene summer evening, when the noble bird set out, in her spiral course, for the higher tracks of the atmosphere—often have I seen her attacked by the Raven; but the Eagle does not mind her much, and all that she does when the Crow comes near her, is to throw herself on her side, still keeping her wings

extended, give two or three sharp *wheeks*, and then proceed on her journey. She soon reaches the height to which the Raven goes, who then leaves her, returns, and with great diligence reconnoitres the glens and mosses in search of plunder. Toward the Goshawk and Fox the Raven also shows great antipathy, diving through the air, and croaking in a furious manner. The Fox, if not hurried, will stand still, look up as if he would say, 'I value you not,' and then pass on; but the Goshawk* is not so passive, for though he suffers him a while, he becomes enraged at his clamour and repeated attacks, and turns to meet him, when the Raven utters a hurried *gorbel*, and leaves him abruptly. I once heard a man, whose veracity I had no reason to doubt, relate how when the Raven was diving at the Goshawk, as above related, the latter came in contact with him in the air. The Raven fell dead to the ground, and when the man went up and lifted him, his throat was found to be torn open, as if with a knife. I apprehend that all this malevolence proceeds from the circumstance that these creatures feed on the same garbage with the Raven (for the Goshawk also, as well as the Eagle, will eat of a sheep when newly dead), who is often forced away, or kept at a distance, till these more powerful plunderers are satisfied. The Raven also plunders the nests of Moorfowls (Red Grouse), and carries away the contents, whether eggs or young chicks; and as he is strong, as well as sly and sagacious, he no doubt kills many of the Moorfowls themselves after they are full grown. But the Raven is a magnanimous bird compared with the Hoddie or Carrion Crow, which descends to the most despicable shifts, and employs the most cruel methods to support itself that can well be imagined."

In the northern parts of Scotland, the Hebrides, the Orkney, and Shetland Islands, according to my own observation and that of other individuals, the Raven constructs its nest on high cliffs, both in the interior, and more especially along the sea-shore. But in the southern parts of the island, where rocks are not so common as tall trees, it is said frequently to nestle in the latter. According to the locality, it begins to repair its nest, or to collect materials for forming a new one, as early as from the beginning to the end of February. In the Hebrides, it is composed of twigs of heath, dry sea-weeds, grass, wool, and feathers. It is of irregular construction, and very bulky, not unlike that of the Eagle, but with a deeper cavity. The eggs are from four to seven, of a rather elongated oval form, pale green, with small spots and blotches of greenish brown and grey, having an oblong form. They vary in length from two inches and one-twelfth to one inch and eleven-

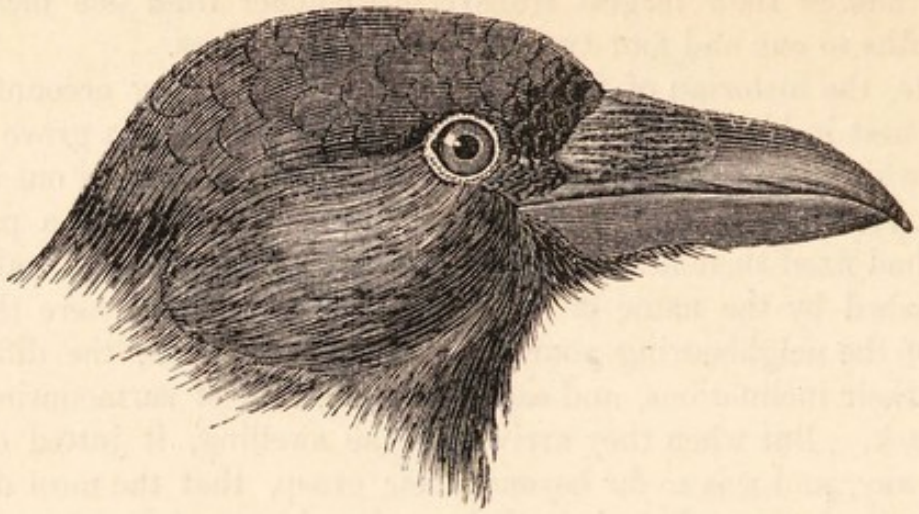
* The bird to which Mr. Hogg here gives the name of Goshawk, is the Peregrine Falcon.

twelfths, and in their largest transverse diameter from one inch and five-twelfths to one and four-twelfths, or somewhat less.

White, the historian of Selborne, gives the following account of a Raven's nest in his neighbourhood :—"In the centre of a grove stood an oak, which, though shapely and tall on the whole, bulged out into a large excrescence about the middle of the stem. On this a pair of Ravens had fixed their nest for such a series of years, that the oak was distinguished by the name of the Raven's Tree. Many were the attempts of the neighbouring youths to get at the eyrie ; the difficulty whetted their inclinations, and each was ambitious of surmounting the ardent task. But when they arrived at the swelling, it jutted out so in their way, and was so far beyond their grasp, that the most daring lads were awed, and acknowledged the undertaking to be too hazardous. So the Ravens built on, nest upon nest, in perfect security, till the fatal day arrived in which the wood was to be levelled ; it was in the month of February, when they usually sit. The saw was applied to the trunk ; the wedges were inserted into the opening ; the woods echoed to the heavy blows of the mallet ; and the tree nodded to its fall ; but still the dam sat on. At last, when it gave way, the bird was flung from the nest, and though her parental affection deserved a better fate, was whipped down by the twigs, which brought her dead to the ground."

The Reverend Edward Stanley mentions a similar "venerable establishment":—"Ours," he says, "is a noble beech about ninety feet in height, in the centre of a beautiful wood—from time immemorial called the Raven Tree. At one extremity of this wood, a noisy troop of Jackdaws have long been accustomed to rear their progeny unmolested, provided they venture not too near the sacred tree of the Ravens —in which case, one or other of the old birds dashes upon the intruder, and the wood is in an uproar, till the incautious bird is driven off. Few have dared to scale the height of this famed tree ; but the names of one or two individuals are on record, who have accomplished the perilous undertaking, and carried off the contents of the nest."

The young are at first of a blackish colour, scantily covered with soft loose greyish black down. They are generally abroad, even in the Hebrides, by the middle of May. It has been remarked that when, during incubation, or even when the young have left the nest, one of the old birds is killed, the survivor soon finds a mate. Ravens, if unmolested, breed in the same spot year after year ; but it seems strange that although they have a numerous brood, their number in any particular district does not appear to increase ; nor, in so far as I have observed, do two pairs ever breed near each other.



9.—THE CARRION CROW.

Corvus Corone. *Linn. Lath.*—Corneille Noir. *Temm.*—Carrion Crow. *Mont. Selb. Yarrel. Jennings.*—Die Schwarzekrähe. *Bech.*

Description.—It greatly resembles the preceding bird, but is smaller, being only a foot and a half long, and it has not a conical but a rounded tail.

Peculiarities.—In many parts of Germany this is one of the commonest birds, frequently assembling in great numbers in woods, adjoining fields, like the Rook, so that it is no unusual thing to find many nests upon a single tree. The female lays from four to six green eggs, marked with ashy grey and olive brown spots. At places whence they do not withdraw in winter, but remain the whole year round, the young may be obtained, and reared as early as March.* They must be treated in the same way as the preceding, indeed they are more easily tamed, for I know adult birds which were taught to fly to and fro, and even wild ones, which having fed in the poultry yard during the winter, flew back to the woods in the spring, bred there, and at a certain time at the commencement of winter returned, and became as tame as domestic fowls.

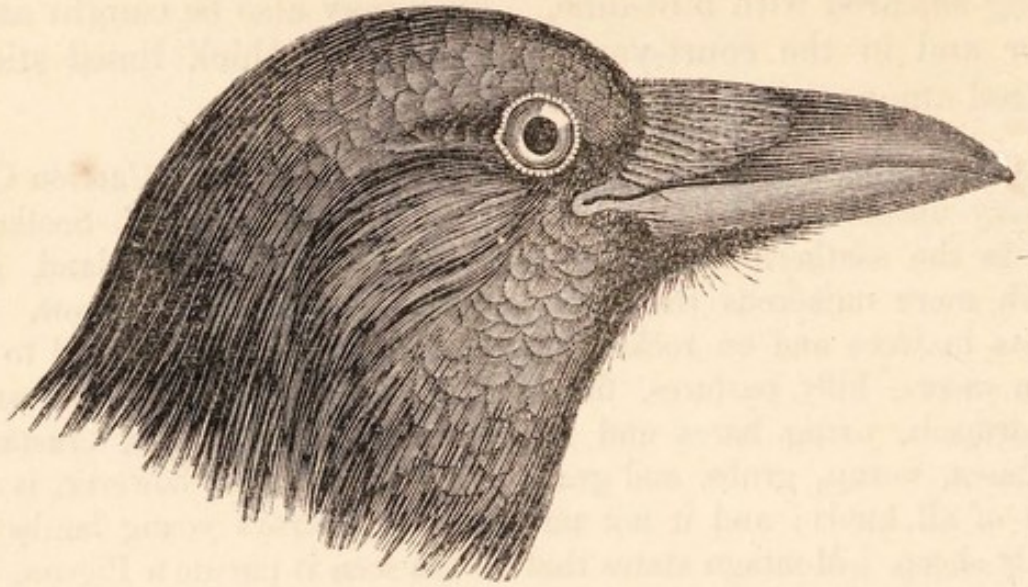
Their food at large consists of insects and worms, fruit, grain, and mice. Like the Hooded Crow and the Jackdaw, they are most easily caught in the winter in towns and villages, with

* In the mild winter of 1794, there were young crows in the Thurinigan Forest as early as the end of February.

paper cornets, beneath which a piece of meat is placed, the edge being smeared with bird-lime. They may also be caught at the door and in the court-yard, by means of thick limed sticks, placed amongst grain and horse dung.

Observations of British Naturalists.—The Carrion Crow is very uncommon in the northern and middle parts of Scotland; but in the southern division of that country, and in England, it is much more numerous than the Raven or the Hooded Crow. It roosts in trees and on rocks, betakes itself in search of food to the open moors, hilly pastures, fields, and shores, and preys on small quadrupeds, young hares and rabbits, young birds, eggs, crustacea, mollusca, worms, grubs, and grain. Its principal food, however, is carrion of all kinds; and it not unfrequently destroys young lambs and sickly sheep. Montagu states that he has seen it pursue a Pigeon, and strike one dead. As a proof of its being occasionally granivorous like the Raven, M'Gillivray mentions that he found the stomach of one that had been trapped in Linlithgowshire, in November, 1834, filled with oat seeds.

"The Carrion Crow," he adds, "is very easily tamed, and is strongly attached to the person who brings him up. I kept one for two years and a half. It flew round about the neighbourhood, and roosted every night on the trees of my shrubbery. At whatever distance he was, as soon as he heard my voice he immediately came to me. He was very fond of being caressed, but should any one except myself stroke him on the head or back, he was sure to make the blood spring from their fingers. He seemed to take a very great delight in pecking the heels of barefooted youths. The more terrified they were, the more did his joy seem to increase. Even the heels of my pointers, when he was in his merry mood, did not escape his art of ingeniously tormenting. His memory was astonishing. One Monday morning, after being satiated with food, he picked up a mole which was lying in the orchard, and hopped with it into the garden. I kept out of his sight, as he seldom concealed anything when he thought you observed him. He covered it so nicely with earth that after the most diligent search I could not discover where he had put it. As his wings had been cut to prevent him from flying over the wall into the garden, he made many a fruitless attempt during the week to get in at the door. On Saturday evening, however, it having been left open, I saw him hop to the very spot where the mole had been so long hid, and, to my surprise, he came out with it in the twinkling of an eye."



10.—THE HOODED CROW.

CORVUS CORNIX. *Linn.* Syst. Nat. *Lath.* Ind. Orn.—CORNEILLE MANTELÉE. *Buff.* Ois. *Temm.* Man. d'Orn.—HOODED CROW. *Mont.* Orn. Dict. *Selb.* Illustr.—DIE NEBELKRÄHE. *Bech.*

DESCRIPTION AND PECULIARITIES.—In winter this bird is met with in almost all parts of Germany, but in summer more particularly in the northern parts, where it breeds in woods and gardens which adjoin open fields. The four to six eggs which the female lays are bright green, delicately streaked and spotted with brown. The bird is somewhat larger than the preceding, grey, with the head, throat, wings, and tail black.

When taken young it is taught to speak more readily than the Carrion Crow, and when old is more easily tamed. It should be treated in the same manner as that bird.

OBSERVATIONS OF BRITISH NATURALISTS.—The Hooded Crow is very abundant in the Hebrides, the Shetland and Orkney Islands, and most parts of the northern and middle divisions of Scotland; but is rare in the southern division, and gradually diminishes as we proceed southward. It is not confined to the coast, but is met with in the very centre of the Grampians, and other inland districts; but in winter few individuals are found in the interior. Although somewhat more

social than the Carrion Crow or the Raven, it is not gregarious; for although four or five individuals may often be seen together, more than that number seldom convene unless when attracted by an abundant supply of food. It derives its subsistence from carrion, dead fish, crabs, echini, mollusca, larvæ, grain, and other matters, it being fully as promiscuous a feeder as the Carrion Crow or the Raven, although it certainly prefers fish and mollusca to large carcases, and very rarely feeds upon a stranded whale, or even a domestic animal. Young lambs are favourite delicacies, and in severe seasons, when summer in vain struggles with winter, sometimes afford an abundant temporary supply. I am not, however, inclined to believe that the Hooded Crow often destroys these animals, nor that it ventures to attack sickly sheep. It never disputes a prize with the Raven, much less the Eagle, nor will it advance so near to a dog as the former of these birds, which it resembles in vigilance and cunning, but without showing equal boldness.

Perhaps the most remarkable habit of the Hooded Crow is one which most persons who have observed it consider as indicative of the approach of rain, but which I have not found to have any connection with that phenomenon. In quiet, and more especially in dull close weather, one of them, perched on a stone or crag, continues to croak for a long time, being responded to at intervals by another that has taken a station at some distance. Its voice is not so loud or clear as that of the Carrion Crow, but resolves itself into a rather harsh sound resembling the syllable *craa*, pronounced by a genuine Aberdonian. On ordinary occasions, its flight is peculiarly sedate, being performed by regularly-timed slow beats; but when necessary it can be greatly accelerated, although it never equals in rapidity that of the Raven. It also walks in the same staid manner as the Carrion Crow and the Rook, and in general wears a grave aspect, demeaning itself so as if it were not disposed to indulge in unbecoming levity. It rarely molests other birds, nor is it often attacked by any.—*M'Gillivray.*

11.—THE ROOK.

CORVUS FRUGILEGUS. *Linn.* *Lath.* Ind. Orn.—ROOK. *Mont* Orn. Dict. *Jen.* Brit. Vert. An. *Selb.* Illustr.—FREUX. *Temm.* Man. d'Orn.—LE FREUX OU LA FRAYONNE. *Buff. Ois.*—DIE SAALTKRÄHE. *Beech.*

THE Rook, although it does not come under the character of a chamber bird any more than the Raven, and others of their congeners, is not without its associations with humanity. Whether it is beneficial or prejudical to mankind is a matter of dispute; but it is certain that no more animated picture of rural life can be presented than the bustle of a rookery in a morning of early spring; and the care with which many proprietors watch over the denizens of their rookeries, may perhaps justify our inserting a short history of the Rook in this volume, although it does not occur in the original.

The adult male and female have the feathers of the anterior part of the head abraded; the plumage black, with purple, blue, and green reflections; that of the neck silky, steel-blue, purple, and green; the bill attenuated towards the tip. The young has the head entirely feathered, the plumage black, and less glossy. The male Rook is more

slender and generally somewhat smaller than the Carrion Crow, which it greatly resembles when viewed at a distance. The general form, however, is moderately full. The bill is of considerable length, robust, slightly arched, compressed, and tapering to a point, the tip narrow and considerably prolonged. The eyes are of moderate size; the eyelids feathered, with a papillate margin.

The feet are of ordinary length, rather robust. The claws strong, large, arched, compressed.

The wings are long, much rounded, and reach to near the end of the tail, which is nearly straight and rounded.

The bill, feet, and claws are black; the iris brown. The abraded space about the bill dusky, with numerous whitish scurfy papillæ, each containing the base of a feather; sometimes this part, especially at the base of the upper mandible, is diseased, whence the nostrils are frequently almost closed.

Habits.—The habits of the Rook form an interesting subject of observation, and have been minutely described by various writers. If we walk abroad in the summer mornings, in a place not remote from the haunts of this bird, we find it to be among the earliest astir of those that betake themselves to the open fields. While the dew is yet on the grass, even sometimes in the early dawn, before the sun has emerged from beneath the horizon, it urges its silent flight to some grassy field or hill, where it feasts upon the earth-worms that usually come to the surface under night. Often too you may find it in the streets of the populous city, carefully searching for whatever is applicable to its wants among the garbage that waits the scavenger's cart.

"In a hot day," says the author of the Journal of a Naturalist, "we see the poor birds perambulating the fields, and wandering by the sides of the highways, seeking for and feeding upon grasshoppers, or any casual nourishment that may be found. At those times, was it not for its breakfast of dew-worms, which it catches in the grey of the morning, as it is appointed the earliest of risers, it would commonly be famished. In the hot summer of 1825, many of the young brood of the season perished for want; the mornings were without dew, and consequently few or no worms were to be obtained; and we found them dead under the trees, having expired on their roostings. It was particularly distressing, for no relief could be given, to hear the constant clamour and importunity of the young for food. The old birds seemed to suffer without complaint; but the wants of their offspring were expressed by the unceasing cry of hunger, and pursuit of their parents for supply, and our fields were scenes of daily restlessness and lament."

"In autumn," says M'Gillivray, "the labours of incubation and rearing their young over, and their old plumage exchanged for a new suit, the

Rooks appear to live a happy life, shifting about from field to pasture, searching the potato and turnip grounds, spreading over the recently inundated meadows, examining the stubble-fields, and if extensive mud-flats or sandy beaches are not too distant, making daily or at least occasional visits to them. The food of the Rook consists essentially of larvæ and worms, to obtain which it digs up the roots of plants in which they are lodged, or perforates the earth. If you watch a flock of these birds spread over a meadow, you will observe that if the wind be high they always proceed against it, but if it be calm, move about in all directions, very seldom interfering with each other. Selecting an individual for observation, you see that he walks along in a quiet manner, not ungracefully, with his body elevated considerably in front, his wings tucked up over his tail, his neck rather stretched, and his bill directed towards the ground, indicating that the objects of his search lie there. In a short time he picks up a worm and swallows it, or deposits it in his gular bag; then moves a few steps forward, suddenly stops, eyes the ground attentively for a few moments, rushes onward, and digs with his bill so furiously that the worm which he thus endeavours to seize must be nimble indeed if it can escape him. Now he attacks a large tuft of the hair-grass, *Aira cæspitosa*, and after much labour succeeds in digging it up by the roots, among which you perceive he has found several small grubs. In this manner he goes on for an hour or more, his companions all the time similarly occupied, and generally in silence. But now one of them on the outskirts rises on wing, and with loud cries gives intimation of danger to the rest, who instantly spring up, and amid much clamour and some confusion ascend, and fly off to some distant field.

In their distant flights they commonly proceed at a considerable height, moving with moderate speed, in a straggling disorderly band, often, especially at the outset, with much noise. Their flight is of that kind which I call sedate, being performed by regularly-timed rather slow beats of the expanded wings, direct, without undulations, and capable of being greatly protracted. Sometimes on one of their excursions, when passing over a field or meadow at a great height, something in it appears suddenly to attract their attention, and they descend headlong, performing singular evolutions as they turn from side to side and wind among each other. In general, however, they settle with more caution, sometimes flying repeatedly over the ground, often dropping down one by one, and occasionally perching for a while in the neighbouring trees before venturing to alight.

The cry of the Rook resembles the syllable *khraa*, more or less harsh or soft according to occasion; thence its name in some parts of the country. There is great diversity in the voice of individuals,

some having much louder and clearer notes than others. Although separately their cries are monotonous and disagreeable, yet from a large flock, and at some distance, they are by no means unpleasant; and those who have become habituated to the noise of a rookery, do not generally find it annoying.

Although the staple food of the Rook is larvæ and worms, it also eats shell-fish, crustacea, coleopterous insects, lizards, seeds, especially of cereal plants, acorns, beech-nuts, portions of roots of grasses, and in winter even turnips.

They are sometimes taught to mimic different kinds of animals. Mr. Weir, a correspondent of Professor M'Gillivray, mentions an old woman in Bathgate who kept one for some years, which he again and again heard imitating so remarkably well the barking of several dogs in the village, that had it been placed out of view, it would have been impossible to have discovered the deception.

About the middle of February, the Rooks having returned to their breeding places, which they for the most part desert in winter, begin to inspect their old tenements, and early in the following month commence the repairs rendered necessary by the dilapidation produced by the fury of the winds. From dawn to sunset all is bustle in the grove, where the younger pairs may be seen rearing their first edifice, either in a tree not previously occupied, or at a safe distance from those of the older members of the community, who incessantly, but without confusion, ply their less laborious task. Some are seen flying abroad, others returning and bearing from the neighbourhood twigs of various trees, some of which they have broken from the branches, while others have been picked up from the ground. If you visit the rookery by day at this period, you find probably half the birds at home busily occupied, and so long as you remain at a distance not much alarmed, although now and then one calls out with a strong voice to his fellows to beware. If you advance nearer, those on the neighbouring trees fly off, making a loud and discordant noise, but alight at some distance. This commotion alarms the whole body, and should you go up to the centre of the place, they all fly away, and either keep sailing and circling about, uttering fierce vociferations, or betake themselves to the surrounding trees, whence they spring whenever they judge your proximity too close. If you shoot one of them, which you may easily do, the noise is greatly increased, and the greater part make off to a secure distance. When you have retired, you see them hastening back in groups to continue their labours, and presently all the disturbance which you have caused is forgotten. Thus even amid the anxiety and bustle of this busy season, the Rooks retain their usual vigilance, and are as little disposed as ever to favour the advances of man,

although the desire of forwarding their work induces them to allow a much nearer approach than at other times.

At length by the end of a week or ten days, the bulky edifices are completed; and when the eggs are deposited, the stir abates, although still a considerable bustle is kept up by the males, who carefully feed their mates while sitting. The nest has generally a diameter of two feet, or somewhat more, and is composed of sticks and twigs, some dry, others fresh, of ash, plane-tree, elm, fir, pear, apple, and other trees, frequently hawthorn cuttings; and is lined with fibrous roots and long straws rather neatly arranged, together with wool and other soft substances, varying according to circumstances. The eggs are four or five in number, of a rather elongated subelliptical form, having the larger end narrower than that of the eggs of the preceding species, the length varying from an inch and eleven-twelfths to an inch and nine-twelfths, the greatest breadth about an inch and a quarter. They are of a light greenish blue, blotched, clouded, spotted, dotted, or freckled with greyish brown and light purplish grey, sometimes so closely as nearly to conceal the ground colour. The young are hatched about the middle of April or sooner, when the season is very favourable, although in general Rooks are not much influenced by cold or heat with reference to the period at which they deposit their eggs.

These birds generally select for their breeding places the clusters of tall trees usually found in the neighbourhood of old family mansions; and being in this manner indicative of the antiquity of the house to which they have attached themselves, they become objects of interest to its members, and find protection from them. When the trees in such a situation are not numerous, the nests are crowded upon them in masses, three or four being occasionally contiguous. There are several small rookeries in the heart of Edinburgh, and various authors speak of similar establishments in other cities. Instances of their building on cliffs, towers, and steeples, are also recorded, but they are very unusual.

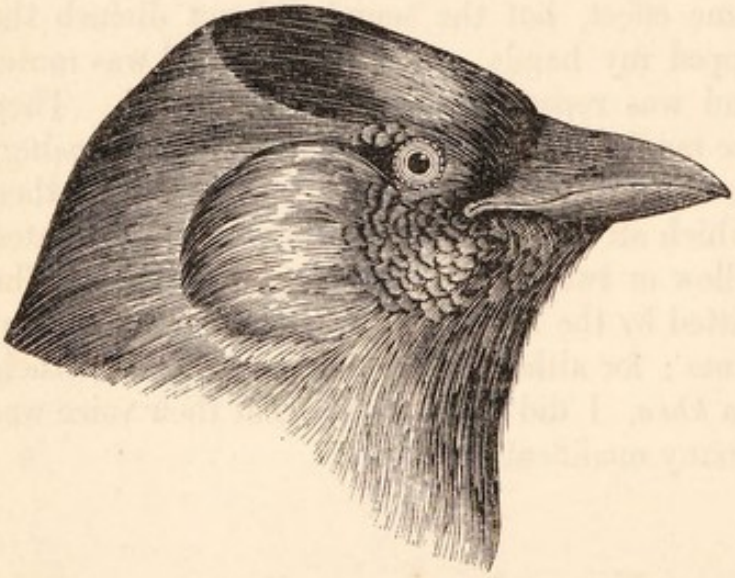
Mr. M'Gillivray thus describes a visit during the night to the rookery at Prestonfield, near Edinburgh:—"When about four hundred yards from it, I stopped to listen, and was surprised to hear several Rooks uttering a variety of soft clear modulated notes very unlike their usual cry. In the intervals I could distinguish the faint shrill voice of the newly hatched young, which their mothers, I felt persuaded, were fondling and coaxing in this manner. Indeed the sounds were plainly expressive of affection and a desire to please. Presently all became still, and I advanced until I could perceive the male birds perched on the twigs in great numbers. They had no doubt observed me, and a few seemed ready to fly off, but it was not until a loud croak from a distance, several times repeated, gave warning to the whole community, that they did so. As I

proceeded, all the males removed, and ultimately, I believe, the females also; but with much less clamour than they would have used had it been day, most of them remaining mute, several uttering a kind of low grunt, expressive of dissatisfaction, others a sort of panting noise indicative of fear, and only a few croaking aloud in anger. I believe the whole colony was on wing, and wheeling over the trees, the young remaining perfectly mute. As I moved along, I heard those whose nests were behind settling in succession on the twigs, and before I had retired to the distance of four hundred yards, they all seemed to have returned. Their flight on this occasion was singularly wavering, undulatory, and undecided, and the strong flappings of their wings were distinctly heard, it being a calm evening. After they had all regained their tranquility, a few croaks being only heard now and then, I broke a stick to see what effect the noise might have, when a few that were on some trees nearer than the rookery flew off in silence. A repetition of the noise produced the same effect, but the sound did not disturb the main body. I then clapped my hands, when presently all was mute, and so long as this sound was repeated, no cry was emitted. They seemed to watch in silence my further proceedings; and on my ceasing, the rookery resumed its natural state: a young bird now and then uttered its faint cry, on which an old one emitted its curious modulated notes, and a gruff old fellow or two croaked aloud at intervals. The great variety of notes emitted by the Rooks under these different circumstances greatly surprised me; for although I had been aware that their cry is not always merely a *khra*, I did not imagine that their voice was capable of presenting so many modifications."

12.—THE JACKDAW.

CORVUS MONEDULA. *Linn.*—JACKDAW. *Mont.* Orn. Dict.—CHOUCA. *Buff. Temm.* Man. d'Orn.—JACKDAW. *M'Gillivray.*—DIE DOHLE. *Bech.*

DESCRIPTION AND PECULIARITIES.—This bird, from constructing its nest in old buildings, houses, castles, towers, and churches, is half domesticated, and becomes wholly so if reared from the nest, when it will remain in the court-yard with the domestic poultry. It lays from four to seven green eggs, spotted with dark brown and black. It is kept, not so much for the purpose of being taught to speak (for it learns but few words, and then only with a great deal of trouble) but for the sake of the amusement produced by its tameness, and its flying to and fro. It is often so tame that it will accompany a person, in his promenades, observing everything which transpires in the house, more especially all that concerns eating and drinking. At the sound of the dinner bell it resorts to the dining-room. Even old ones caught in the autumn whose wings have been cut, and plucked out in spring, so that by degrees they again learn to fly, may be taught to return at a certain call, and on the return of winter they will again resort to the court-yard. The Jackdaw is of about the size of a pigeon, thirteen and a half inches long; the back part of the head is light grey, the rest of the body is black, rather lighter beneath.



During the winter they eat wild garlick in the fields, sometimes smelling quite offensively of it, and they retain the odour even for a week after their return to the house.

Observations of British Naturalists.—In form the Jackdaw is more compact, and in action more lively, than any other British bird of the genus. The plumage of the head and neck is soft, elongated, and blended, excepting on the forehead, where it is of ordinary length and glossy. The rest of the plumage is rather full and soft, the feathers indistinctly defined, their margins loose. The wings are rather long, rounded, very broad at the commencement, but suddenly tapering towards the end.

Of this bird M'Gillivray says, "He is a remarkably active, pert, and loquacious little fellow, ever cheerful, always on the alert, and ready either for business or frolic. If not so respectable as the grave and sagacious Raven, he is at least the most pleasant of the family, and withal extremely fond of society, for not content with having a flock of his own folk about him, he often thrusts himself into the midst of a gang of Rooks, and in winter sometimes takes up his abode entirely with them. His flight is similar to that of the Rook, somewhat more rapid, generally extremely wavering, the bird frequently shifting its direction, now dashing downwards, then curving up again, shooting obliquely to either side, and performing as many evolutions as if it could not follow a direct line, which, however, it sometimes does when in great haste. It is also extremely clamorous, and its note being loud and clear, resembling the syllable *kae* or *caw*, variously modulated, the noise emitted by a large flock, although in no degree musical, is far from being unpleasant.

"Jackdaws inhabit deserted buildings, steeples, towers, and high rocks, especially those along the coast. Sallying from thence at early dawn, they betake themselves to the pastures, meadows, or ploughed fields, to search for larvæ, worms, insects, and in general the same sort of food as the rooks, with which they often associate on their excursions. They walk gracefully, and much more smartly than the rooks, often running under excitement, and frequently quarrelling together, although without any serious results. They do not despise carrion, and on the shore will occasionally feed on shell-fish, crustacea, and fishes, being nearly as omnivorous as the Hooded Crows, although giving a decided preference to larvæ. They are scarcely less vigilant than the Rooks, at least while in the fields, so that it is not always easy to get within shot of them; but in the breeding season one may readily procure specimens by concealing himself in the midst of their haunts.

"This is one of the few birds that habitually or occasionally reside in

the heart of cities, where it selects a steeple, a church tower, or any other high building in which it can find a sufficient number of secure retreats. In Edinburgh, for example, it frequents Heriot's and Watson's Hospitals, the University, the Infirmary, the Chapel of Holyroodhouse, and the Castle, although in the latter it is chiefly in the rock that it takes up its abode. In the country, ruinous castles are its favourite places of resort, and it is found, for example, at Dunottar, Rosslyn, and Tantallon Castles, and the buildings on the Bass. It also not unfrequently finds refuge in high rocks, as at the Cove near Aberdeen, and in other places along the coast; and in defect of more agreeable lodgings, will sometimes settle in a wood.

"A gentleman residing near Chichester informed White, the naturalist of Selbourne, that many of these birds built their nests every year in the rabbit burrows under ground. 'Another very unlikely spot,' White adds, 'is made use of by daws as a place to breed in, and that is Stonehenge. These birds deposit their nests in the interstices between the upright and the impost stones of that amazing work of antiquity; which circumstance alone speaks the prodigious height of the upright stones, that they should be tall enough to secure those nests from the annoyance of shepherd boys, who are always idling around that place.'"

13.—THE JAY.

CORVUS GLANDARIUS. *Linn. Lath.*—LE GEAI. *Buff. Temm.* Man. d'Orn. —JAY. *Mont.* Orn. Dict. *Selb.* Illustr.—THE BLUE-WINGED JAY. *M'Gillivray.*—DER HOLZHEHER. *Bech.*

DESCRIPTION.—This is a handsome bird, which in my youth was frequently kept in cages as a chamber bird, in the forest villages of Thuringia, and taught to speak. It is about the size of a pigeon, and is thirteen and a half inches long. Its beak is like that of a crow, and is black: its legs, however, are brownish, inclining to flesh colour. All its smaller feathers are soft like down, and feel like silk. Its entire body is of a purple ashy grey; the throat whitish; the eyes reddish white; and the vent and rump quite white: the long loose feathers in front of the head, which look black ashy grey and purple red, can be raised like a crest; from the lower mandible a black stripe on each side runs down nearly half the length of the neck; the pinion feathers are blackish; the middle ones edged with white, which form a white spot upon the wings; the coverts of the anterior pinion feathers have externally narrow, glittering, bright blue, and blue black transverse stripes, which contribute to render the bird extremely beautiful, and, like the colours of the rainbow, gently blending into each other. The tail feathers are black, grey at the base; marked towards the point with diluted stripes like the above described beautiful coverts of the wings.

The female is not very easily distinguished from the male. In the neck only she is greyish, whereas the male at this part is more inclined to red, which colouring extends to the back.

HABITAT.—It is found in the forests, both of the mountains and plains, and most frequently where fir trees are intermingled with other forest trees. In confinement it must be kept in a large wire cage, formed in the shape of a house, tower, &c.

FOOD.—It subsists chiefly upon acorns and beech-mast, and if these are not to be obtained, on all kinds of insects, worms, and berries. In the cherry season it is one of the most injurious birds to gardens. If kept in a cage or allowed to run about the room, it is easily accustomed to feed upon bran steeped in milk. It will also eat bread, curds, cooked meat, and almost everything served at table. Acorns and nuts are then delicacies to it. In keeping it much attention must be paid to its cleanliness, otherwise the plumage becomes soiled and unsightly. It is, however, best to accustom this bird to eat merely wheat, for then it does not soil itself so much, and its excrement is not so fluid and offensive. It can be kept many years upon this diet; but he constantly requires fresh water, not merely for drinking, but also for bathing.

BREEDING.—They nestle upon beeches, oaks, pines, and firs, both high and low, and lay from five to seven ashy grey eggs, merging into grey, and sprinkled with minute dark brown spots. The young which are taught to speak must be removed from the nest when a fortnight old, and fed with curds, biscuit, bread, meat, &c. They are easy to rear and to tame.

The adult birds are not easily tamed. They always try to hide when they see a person, and will often fast for a whole day rather than come out of their hiding place.

CAPTURE.—Whoever finds amusement in adult birds of this kind may most readily catch them in the following manner: in the autumn, from Michaelmas to Martinmas, a place is selected in a fir wood, which these birds are seen to frequent numerously, and where a single fir or pine tree stands, but which must be at a distance of from three to six paces from any adjoining tree. From this the superfluous branches should be removed, and only some left in the form of a spiral staircase, each branch about five or six spans in length. These branches must commence at about from ten to thirteen feet from the ground, and extend to within six feet of the summit; they must be covered with limed twigs. Beneath the tree a hut is made, covered with green branches, which should be suited in size to the number of

persons it is to contain. Upon this a living or a dead owl, or one moulded of clay, is placed, or not having such, even a hare-skin will render the same service, only it must be attached to something, so that it may be moved. To attract the Jay, it is necessary to have a pipe made of a bit of wood. The cry of an Owl, the hereditary enemy of the Jay, is then imitated: as soon as it is heard, the Jays flock from all quarters crying and chattering, the bird-catcher shrieking in imitation of them; when they soon perch themselves upon the limed rods, remain attached to them, fall down, and are captured. If the upper roof be covered lightly with pine twigs the birds will fall through it. A multitude of other birds are attracted by the same deceptive call, they wish to save their friends from a supposed enemy, but are caught themselves, and thus in the course of a few hours a multitude of Jays, Magpies, Woodpeckers, Thrushes, Redbreasts, and Titmice, may be obtained. This mode of catching begins at daybreak; but it may be followed also in the twilight.

They likewise frequent the watering-places, where, in July, young birds with only half-grown tails are captured. These also may be rendered tame, and be taught to speak.

Commendatory Qualities.—As I have before said, the tractability of this bird recommends it, for it easily learns to speak, especially if its tongue has been loosened; uttering, however, nothing but solitary words. They learn to imitate also the fanfare of a trumpet, and other melodies of single bars, as well as little airs, and the notes of many birds. Their colours also are inducement enough to make them desirable chamber birds. They may be accustomed to fly in and out; but this is not so easily effected in towns as it is with Ravens and other kinds of Crows; in the country, near woods and fields, however, it may be accomplished.

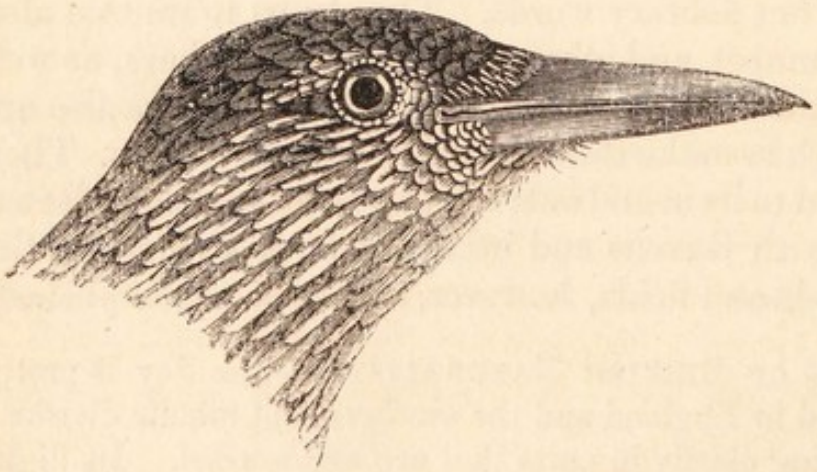
Observations of British Naturalists.—The Jay is pretty generally distributed in England and the southern and middle divisions of Scotland, occurring chiefly in parts that are well wooded. Its flight in an open place is somewhat similar to that of the Magpie or Missel Thrush, being direct, and performed by quick beats, with short cessations at intervals. It glides through the woods and thickets with great ease and dexterity, flits along the hedges, and rarely approaches the habitations of man, except in search of food for its young, its affectionate concern for which will induce it to brave dangers from which on ordinary occasions it would shrink.

"Its common notes," Montagu says, "are various but harsh. It will sometimes in the spring utter a sort of song in a soft and pleasing manner, but so low as not to be heard at any distance; and at intervals introduce the bleating of a lamb, mewing of a cat, the note of a Kite or Buzzard, the hooting of an Owl, and even the neighing of a horse. These imitations are so exact, even in a natural wild state, that we have frequently been deceived."

Its nest is commonly built in high coppice wood or hedges, and sometimes against the side of a scrubby tree. It is formed of sticks, lined with fibrous roots, and the bird lays five or six eggs of a light brown colour, not very unlike those of the Partridge, but smaller, and obscurely marked with a darker shade of brown. Mr. Waterton describes the nests as compact and well put together. The nest is never seen near the tops of trees, like those of the Magpie and Crow. He who feels inclined to study the nidification of this bird must search the lower branches of the oak, or inspect the woodbine mantling round the hazel."

14.—THE NUTCRACKER.

CORVUS CARYOCATACTES. *Linn.*—CASSE-NOIX. *Buff. Temm.* Man. d'Orn.—NUTCRACKER. *Mont.* Orn. Dict. *Selb.* Illustr.—DER TANNEHEHER. *Bech.*



DESCRIPTION.—In size it resembles the preceding: it is twelve inches long, of which the tail occupies four inches and three quarters; the folded wings extend to about its middle; the beak is one inch and a half long, straight, compressed laterally, curved in front, and black; the iris is nut brown: the legs black, one inch and three quarters high. It is variegated like a Starling. The body is blackish brown; above lighter, beneath darker; head, neck, and rump, uniform; a white spot in front of each eye; the cheeks and sides of the neck

are sprinkled with a multitude of white small oval spots; on the back some larger ones, or only some scattered stripes; on the breast many large oval white spots, which are less numerous, but larger, and almost triangular, on the belly; the upper coverts of the tail are black, the lower ones white; the coverts of the wings blackish, the small ones having single triangular white tips: the pinion feathers black; the tail feathers are also black, but these have white tips.

The female is more of a rusty brown than of a black brown.

HABITAT.—It dwells in the profoundest forests, especially when they consist of firs and pines, intermixed with other forest trees, and if there are meadows and springs in the vicinity. Although apparently a permanent bird, yet it flocks in numbers about October to those districts where acorns, beechmast, and hazel nuts are to be obtained. In winter it is even found in the highways, which it frequents to examine the horse droppings. In confinement it must be treated like the Jay.

FOOD.—The Nutcracker, by means of its strong beak, breaks the fir and pine cones, and cracks with ease acorns, beechmast, and hazel nuts. It devours, also, all kinds of berries, or indeed anything that it can obtain; but it chiefly enjoys animal food and insects.

It must be fed like the preceding; but it is much easier tamed, and more easily accustomed to any kind of food. It will eat wheat, but prefers meat. If a live Jay be put into its cage it will be killed and devoured in a very brief space of time: also shot squirrels given whole, which other small birds of prey avoid, he devours without hesitation.

BREEDING.—Its nest is formed in hollow trees. It contains from five to six eggs, which upon a dark olive grey ground have widely separated dark brown transverse stripes. The young is reared upon meat.

CAPTURE.—It is caught in the noose baited with service berries in autumn; but a better bait consists of hazel nuts. It also frequents the watering-place.

COMMENDATORY QUALITIES.—In its comportment it is as amusing as the Shrike. It imitates the voice of various animals, and is as great a chatterer as the Jay. From the peculiarity of its voice and the structure of its tongue, it may

be taught to speak, but it must be caught young in order to be instructed thoroughly.

OBSERVATIONS OF BRITISH NATURALISTS.—The Nutcracker being merely a rare straggler in this country, few opportunities of studying its habits have occurred. Montagu states that "it is rare in England; two instances only on record: one shot in Flintshire, the other in Kent." Mr. Selby adds another, an individual having been seen by Captain Robert Mitford, in Netherwitten Wood, in Northumberland, in the autumn of 1819. There is a specimen in the Museum of the University of Edinburgh, said to have been shot in Scotland; another in that of Mr. Arbuthnot at Peterhead. M. Valmont Bomare informs us that it prefers living in the pine forests of mountainous regions, and feeds chiefly on fir seeds and nuts. Nothing, he says, is more curious than to see it eating one of the latter. Having taken it from its store in the hole of a tree, it fixes it in a fissure, splits it open with a blow of its bill, and then extracts the kernel. Crows, Jays, and some of the Titmice, it may be observed, act in the same manner.

15.—THE MAGPIE.

CORVUS PICA. *Linn.*—LE PIE. *Buff. Temm.* Man. d'Orn.—MAGPIE. *Mont.* Orn. Dict. *Selb.* Illustr.—DIE ELSTER. *Bech.*

DESCRIPTION.—This bird, is about as robust as a Pigeon, but from the length of its tail is eighteen inches long.

It is everywhere sufficiently well known, from its frequenting the vicinity of houses, and is in fact a handsome bird, notwithstanding the simplicity of its colouring. It is variegated black and white, but both colours are exceedingly beautiful, and it is still further ornamented by its wedge-shaped tail, which shines with a purple reflection at its extremity, merging into steel blue.

FOOD.—At large this bird feeds upon insects, worms, all

kinds of roots and fruits; in the bird-cage, or in the chamber or house, it will feed upon bread and cooked meat, and indeed upon anything that comes to table; and if well trained, it will come in at the window at meal times, to receive its food.

If more be given to it than it can eat at once, it will hide what it does not want for another meal. This peculiar instinct exhibits itself also in the young, as soon as they can eat alone.

COMMENDATORY QUALITIES—This is perhaps of all birds, that which is most easily and thoroughly tamed. The nest is built upon trees, in the vicinity of villages, towns, and farm houses, and therein are laid from four to six whitish green eggs, covered with ashy grey and olive brown dots and streaks.

The Magpie imitates all striking sounds, and will learn to speak more readily than any other of the Crow tribe; but to effect this it must be removed early from the nest and trained. Plutarch makes mention of a Magpie, kept by a barber at Rome, which imitated the voices of men and animals, and the sounds of instruments which it heard, at once, and without any instruction, and in short, spoke and sang so well, that throughout the quarter of the city where the barber dwelt it was the usual topic of conversation. This bird may easily be made as tame as the domestic Pigeon, by accustoming it to fly to and fro about the house. It is so excessively fond of raw meat, bread, and other delicacies of the table, that they rarely wander far off at meal time. In order to accustom the bird to this kind of life, it should be taken from the nest when only a fortnight old, fed on bread, soaked in milk or water, and by degrees with chopped meat, and lastly upon anything that is found in the kitchen, even rotten apples and pears. When so far fledged that they can fly to a neighbouring tree, they may be allowed to go, when completely satiated with a full meal; they are then called back to the hand or to the place where it is intended they should remain: this is repeated until they are fully fledged, then the wings are slightly cut, until the winter, a season in which they may be plucked out. They soon become so familiar with their attendant, and the house where he dwells, that they may be allowed their liberty for half a day at a time. When in addition they are taught to speak, they are still more amusing. Adult birds, which are easily caught in winter by means of limed sticks to which bits

of meat are attached, can be thus accustomed to the court-yard—the wings being cut in summer and allowed to grow again in the autumn. They then return without hesitation and associate with the other birds of the court-yard, and will also hatch their young in summer, at a little distance from the house, on the kitchen of which they are constant pensioners. But nothing that is shining should be left in the way of these visitors, for they carry off all metal or glittering things and hide them, as well as all their superfluities of food.

One of my friends writes to me: "I reared a Magpie which became so familiar as to rub itself against me until I stroked it. It learned to fly about by itself, and would follow me for hours, and it was sometimes with the greatest difficulty I could make it keep from me; I was obliged to shut it up if I did not wish to take it abroad. Towards other persons it was wild, but it would observe in my eyes every change of temper or caprice. It would fly off to a distance with its wild comrades, but never attempted to escape with them."

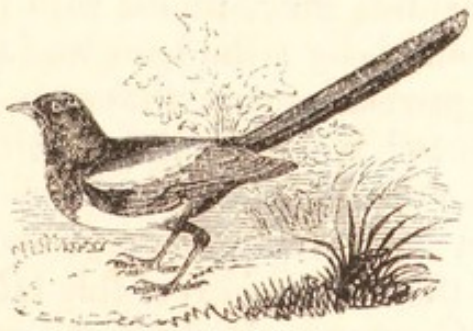
Observations of British Naturalists.—"The Magpie," says M'Gillivray, "is generally distributed in Britain, being more or less common in all the cultivated and wooded districts of England and Scotland, both in the interior and along the coast, although nowhere numerous, on account of the hostility of gamekeepers, gardeners, and sportsmen of all degrees. In the Outer Hebrides, the Shetland and Orkney Islands, it is never seen, and in large tracts of the central regions of Scotland is rarely ever met with, because its habits are such as to induce it to remain at no great distance from human habitations.

"There, on the old ash that overshadows the farm yard, you may see a pair, one perched on the topmost twig, the other hopping among the branches, uttering an incessant clatter of short hard notes, scarcely resembling anything else in nature, but withal not unpleasant, at least to the lover of birds. How gracefully she of the top twig swings in the breeze! Off she starts, and directing her flight towards the fir wood opposite, proceeds with a steady, moderately rapid, but rather heavy flight, performed by quick beats of her apparently short wings, intermitted for a moment at intervals. Chattering by the way, she seems to call her mate after her; but he, intent on something which he has espied below, hops downward from twig to branch, and descends to the ground. Raising his body as high as possible, and carrying his tail inclined upwards, to avoid contact with the moist grass, he walks a few paces, and spying an earth-worm half protruded

from its hole, drags it out by a sudden jerk, breaks it in pieces, and swallows it. Now, under the hedge he has found a snail, which he will presently detach from its shell. But something among the bushes has startled him, and lightly he springs upwards, chattering the while, to regain his favourite tree. It is a cat, which, not less frightened than himself, runs off toward the house. The Magpie again descends, steps slowly over the green, looking from side to side, stops and listens, advances rapidly by a succession of leaps, and encounters a whole brood of chickens, with their mother at their heels. Were they unprotected, how deliciously would the Magpie feast, but alas, it is vain to think of it, for with fury in her eye, bristled plumage, and loud clamour, headlong rushes the hen, overturning two of her younglings, when the enemy suddenly wheels round, avoiding the encounter, and flies off after his mate.

"There again, you perceive them in the meadow, as they walk about with elevated tails, looking for something eatable, although apparently with little success. By the hedge afar off are two boys with a gun, endeavouring to creep up to a flock of Plovers on the other side. But the Magpies have observed them, and presently rising, fly directly over the field, chattering vehemently, on which the whole flock takes wing, and the disappointed sportsmen sheer off in another direction."

Jesse in his "Gleanings," remarks that this bird is fond of butterflies. As he was passing a considerable length of wall one day, he noticed five or six Magpies perched upon it, from which they eagerly darted at the butterflies as they came near them, making a short and elegant circle, and alighting on the wall again to feed on their prey. The imitative powers of the Jay and Magpie are well known, and many amusing anecdotes are told of them in our popular books on Natural History.



16.—THE GARRULOUS ROLLER.

CORACIAS GARRULA. *Linn. Lath.*—ROLLIER D'EUROPE. *Buff.*—ROLLIER VULGAIRE. *Temm.* Man. d'Orn.—ROLLER. *Mont.* Orn. Dict.—ROLLER. *Selb.* Illustr.—DIE MANDELKRÄHE. *Bech.*

DESCRIPTION.—I formerly thought that this bird could not be tamed, but have been convinced of the contrary by Dr. Meyer of Offenbach, and M. von. Clairville of Winterthur, who have frequently reared its young.

In size and figure it resembles the Jay; it is nearly a foot long, of which the tail occupies four and a half inches, and its expansion is two feet. The beak is one inch and a quarter long, very like that of the Magpie, blackish and with naked nostrils; the iris grey; the feet rather more than an inch high, and, together with the toes, of a dirty greyish yellow; head, neck, gorge, throat, breast, and vent, and large coverts of the wings, and all the lower coverts, are of a bluish green; the back, shoulders, and the three last pinion feathers, of a liver colour; the coverts of the tail, the smaller coverts of the wings, and the concealed web of the pinion feathers, on the inner margin, are of an indigo blue; the external web of the pinion feathers is black, from the base half way down bluish green; the straight tail is of a dirty blue green at the base, becoming purer and lighter towards the tip, the two central feathers being entirely brownish green, the first black at the tip, and the second to the fifth, having on the inner web a large blue spot, with a brownish tip, and all these colours shine also beneath.

The female is reddish grey, tinged with bluish green on the head, neck, breast, and belly; the back and the posterior pinion feathers are bright greyish brown; the rump green, with a tinge of indigo blue; the tail blackish, tinged with green and blue, in other respects like the male.

HABITAT.—This bird inhabits Europe and Northern Africa, but not throughout the entire width of this latitude. It is found in but few spots in Germany, chiefly in the oak and pine forests of the plains, especially those having a sandy soil, but not in the mountainous districts. In its migrations it is frequently

found in other districts. When caught it should be allowed to run about with clipped wings.

Food.—This consists of insects and frogs, and, it is said, also of the knotty roots of plants, acorns, grain, and similar things; but in my chamber I have never seen them pick up and eat any vegetable substance, and I therefore doubt if such be the case.

Breeding.—The nest is built in hollow trees, and is formed with twigs, blades of grass, feathers, and hair. It contains from four to seven eggs, very obtuse above, and beneath very pointed; they are white, and hatched by the parents conjointly, in from eighteen to twenty days. The young birds do not acquire this beautiful bluish green colour before the second year, but they have the head, neck, and breast, covered with a greyish white.

The following is Dr. Meyer's mode of training the Roller:—"The bird should be taken half fledged from the nest, and fed with chopped bullock's heart, beef, or offal, until they can feed themselves. They are continued to be fed with the same food, or with half-grown living frogs. It is amusing to observe how they kill and devour these, throwing them frequently up, and catching them again in their open beaks as they fall; they will then take them by the hind legs and strike their heads violently against the ground. This round of throwing up, catching again, and beating against the ground, continues until the frog is nearly quieted, and they then devour it. In my opinion, this is done that the frogs, of which they will eat from three to four successively, should not move about in their crop.

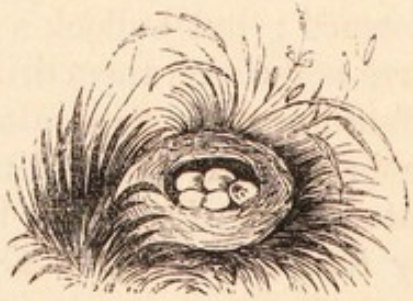
"When these birds have been fed for some time in this manner, barley-meal is mixed with their food. Indeed by degrees I have induced them to eat bread, roll, vegetables, and barley-meal, the latter somewhat moistened; but bullock's heart continues their favourite food. I have never seen them drink.

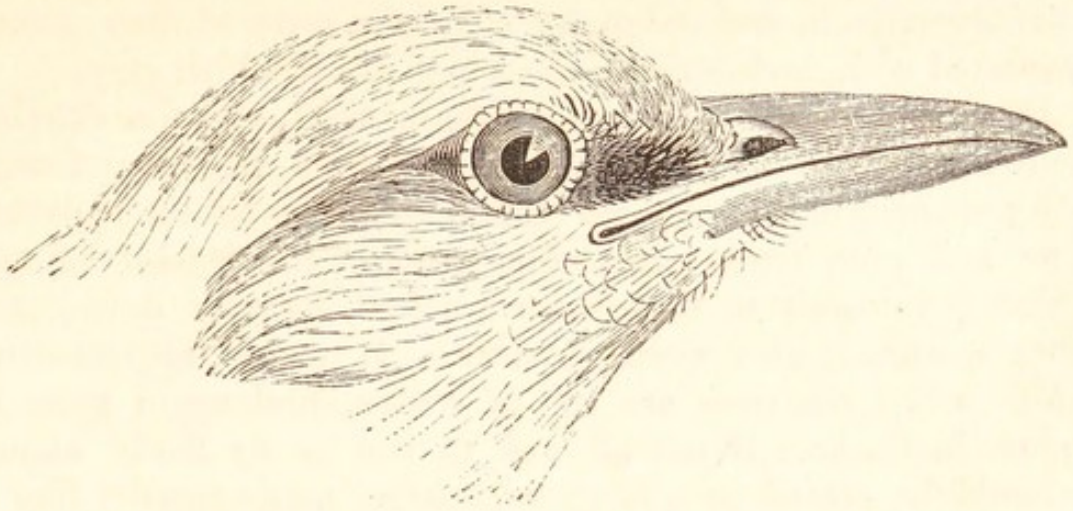
"They become familiar with their attendant: upon a call or whistle they will come to him, and will take their food out of his hand, but without allowing themselves to be touched. They are never thoroughly tamed, but snap about. Excepting at meal times, they sit constantly upon the same spot, and if they chance to hop up and down the room, from the shortness of their legs this appears to be done painfully. They must not be left completely to themselves to fly about in a room, nor are they to

be entirely confined in a cage, as they are exceedingly shy birds, and often strike their heads against the bars, soon destroying themselves. It is best to clip their wings and let them run about. They are very quarrelsome together, and bite each other violently; but comport themselves towards other birds very amicably. For a time I have allowed them to fly about in a large breeding room, in common with different sized birds, and have kept them also, for some time, among those of my Pigeons which did not fly out. They remain as healthy and cheerful alone as in society, but I usually allow them to run about the chamber with other birds."

I have since seen two of these birds at M. von Clairville's, and I also possessed one myself. These were all reared upon bullock's heart. As they could feed themselves, they had it cut into small pieces, and placed in a trough with water. Carrion beetles and other ground beetles are, however, their favourite food.

COMMENDATORY QUALITIES.—Beyond their beautiful plumage, there is not much to recommend them; yet Madame von Clairville had taught one to fly into her lap to receive its food and be fondled; but no one durst look on. They almost always sit upon one spot, but are restless, especially at night; and when confined in a cage, will batter their plumage. Those which I saw were not quarrelsome, but sat tranquilly beside each other during the process of digestion. Their voice consists of a disagreeable cry, resembling that of the frog or the Magpie.





17.—THE GOLDEN ORIOLE.

ORIOLUS GALBULA. *Linn. Lath.*—LORIOT. *Buff. Temm.* Man. d'Orn.—GOLDEN ORIOLE. *Mont.* Orn. Dict. *Selb.* Illustr.—DER PIROL. *Bech.*

DESCRIPTION. — The male of this beautiful species is about the size of a Blackbird, and is nine inches long, of which the tail occupies three inches and a half. The flesh-coloured, brownish beak is an inch long, strong, roundly convex, and curved at the upper end, sharp, and somewhat excised at the point; the nostrils are open; the irides greyish brown; the feet are an inch high, and as well as the toes, are of a dirty lead colour. Head, neck, back, throat, under side of the neck, breast, belly, sides, and lower coverts of the wings are of a beautiful golden yellow, slightly paler on the throat and belly, and upon the rump verging towards green; between the angle of the beak and the eyes there is a black spot; the eyelids are margined with yellow; the wings black; the coverts of the large pinion feathers fringed with pale yellow, which produces a yellow spot upon the wings. The two central feathers of the straight tail are entirely black; the rest, from the base half-way upwards, also black, becoming then of a golden yellow, yet so arranged that the external ones have more yellow than those within, and are upon the narrowest side entirely black.

The female is not so beautiful: she is somewhat smaller, and the golden yellow colour exhibits itself only at the ends of the olive green tail feathers, and on the lower coverts of the tail

and of the wings; the upper portion of the body is of the colour of the Greenfinch, and the under side of a dirty whitish green, intermixed with dark stripes; the wings are blackish grey.

Habitat.—They inhabit coppices in fields and the skirting woods of large forests, where thick and high trees are found, giving a preference to those where there is an intermixture of fir and pine trees. It prefers trees of the densest foliage, so that it is rarely to be seen on a naked branch: during the cherry season it also visits gardens. It comes to Germany in May when the trees are full of leaves, and again quits in August in flocks. If not allowed to run or fly freely about, it should be placed in a large wire cage, made usually like a Nightingale cage or an ordinary birdhouse. At night it is always very restless, even when covered closely with a thick cloth, frequently injuring its plumage by its violence. Like the Roller, it hops obliquely and awkwardly about the room, and is quarrelsome and snappish with all its neighbours.

Food.—It feeds upon cherries, berries, and insects. If an adult male is caught by means of the Owl, it should be placed in a large cage in an unoccupied room or chamber; it may sometimes be preserved for a time alive, by giving it, at first, nothing but fresh cherries, mixing these by degrees with roll and dried ants' eggs steeped in milk, or with the ordinary Nightingale food. Dr. Meyer preserved one of these, which he kept in a Titmouse trap for two years and a half. At first he fed it upon the usual Nightingale food, afterwards upon biscuit and milk, and at last it would eat anything that came to table.

Breeding.—The Golden Oriole breeds but once a year, and exhibits considerable dexterity in building, skilfully hanging its purse-shaped nest in the fork of the bushy branch of a tree or shrub. The nest somewhat resembles a basket with two handles. The female lays from four to five white eggs, which are sprinkled and marked with blackish dots and spots; and the young resembles the mother until the second year. If it be wished to rear them, which requires much labour and attention, they must be taken from the nest half-fledged, and at first fed with fresh ants' eggs and bullock's heart, being by degrees accustomed to the usual Nightingale food, or roll steeped in milk. They may thus be preserved for four years or more. It is to be regretted that they never acquire the beau-

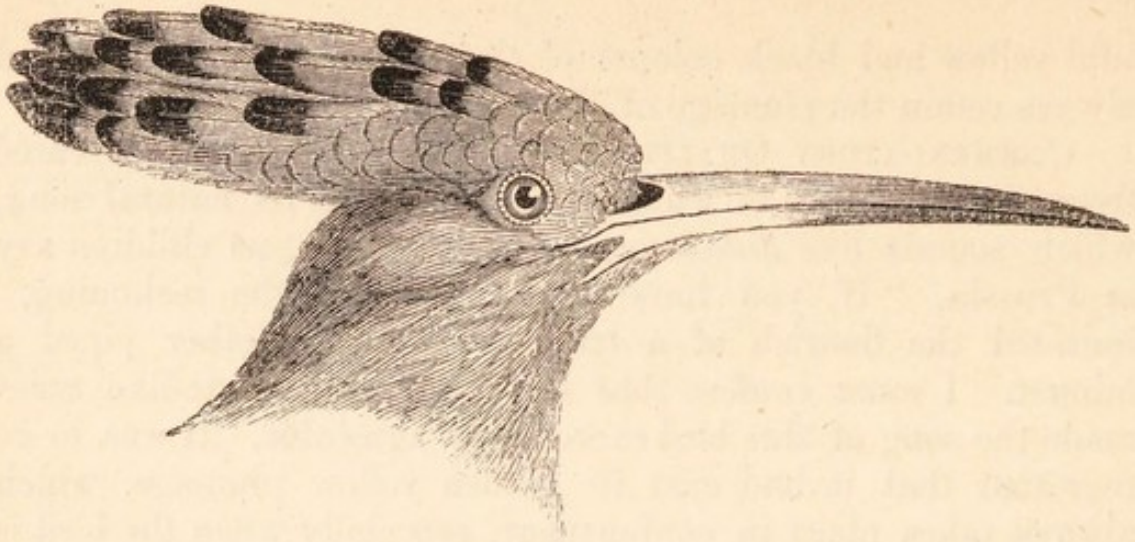
tiful yellow and black colours of the male in confinement, but always retain the plumage of the female.

COMMENDATORY QUALITIES.—I have seen two males reared from the nest, one of which, in addition to its natural song, which sounds like *hidahaya, goigaia*, &c., or, as children say in Prussia, "If you have drank, so pay the reckoning," imitated the flourish of a trumpet; and the other piped a minuet. I must confess that the round, full, flute-like tones made the song of this bird exceedingly agreeable. It was to be regretted that it had cast its golden yellow plumage, which always takes place in confinement, especially when the bird is kept in a room where tobacco is smoked, or where the chimney smokes. Its call-note, whereby in June it distinguishes itself so much from all other birds, is *yo*, or *pewhloh*.

OBSERVATIONS OF BRITISH NATURALISTS.—The Golden Oriole, the only species of the genus that is ever seen in Europe, is said to arrive in Spain, France, and Italy, about the end of spring, and it is not uncommon in many parts of Germany, but is rare in the northern countries, and in England is not a regular visitant, a few individuals only having been seen there at long intervals, so that it ranks among the accidental stragglers.

Its nest is described by some authors as of an oblong form, shaped like a purse, having its aperture above, and suspended from a forked branch, generally towards the top of a tree. It is composed externally of long straws interwoven, internally of mosses and lichens, with a lining of grass, and sometimes wool. Mr. Yarrell, however, states that it is "rather flat and saucer-shaped, generally placed in the horizontal fork of a bough of a tree, to both branches of which it is firmly attached," and composed of wool and long slender stems of grass curiously interwoven. The eggs, four or five in number, are of a regular oval form, smooth, an inch and two-twelfths in length, ten-twelfths in breadth, white, with a few brownish-black spots, among which are frequently others of a paler tint. It is said to be very bold in defending its nest against intruders, and to manifest great attachment to its young.

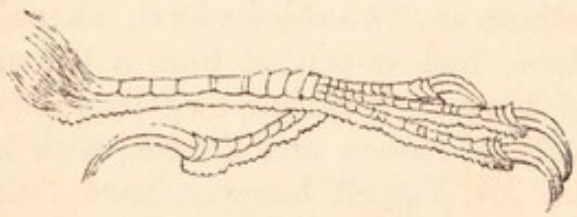
The Golden Oriole has occurred in several counties in England, as well as in a few instances in Ireland; but, I believe, no authentic case of its occurrence in Scotland has been recorded. The young are difficult to rear, and do not thrive well in captivity, otherwise creatures so beautiful would no doubt be great favourites as cage-birds, although their natural notes are loud and harsh, and their song unpleasant.



18.—THE HOOPOE.

Upupa Epops. *Linn. Lath.*—Hupe, or Pupet. *Buff.*—La Huppe. *Temm.* Man. d'Orn.—Hoopoe. *Mont.* Orn. Dict. *Selb.* Illustr.—The European Hoopoe. *M'Gillivray.*—Der Gemeine Wiedehopf. *Bech.*

Description.—In size it resembles a Misselthrush, and is a foot long, of which the tail occupies four inches. The beak is black, two inches and a half long, thin and curved; the legs are short and black, and the form of its tarsi and claws would indicate it to be a climbing or creeping bird; the irides black brown. Its crest consists of a double row of feathers, of which the longest is about two inches; the tips are black, and the lower portion orange: head, throat, neck, breast, and the coverts of the lower wings, are reddish brown; the belly white, in young birds marked with dark brown narrow lines which run upwards. The upper part of the back and the small coverts of the wings are reddish grey; the lower part of the back, the scapulars, and wings, black, banded with yellowish white; the rump white; the tail, consisting of ten black feathers, having about the middle a transverse broad white band, externally bent into an obtuse angle.



Habitat.—During summer it inhabits woods adjacent to cattle pastures and meadows. In August, when the meadows are cut, it migrates in flocks to the plains. It goes away in September, and returns towards the end of April. It fre-

quents the ground more than trees, and should not to be placed in a cage, but allowed to run freely about the chamber. It is exceedingly chilly, and therefore likes warmth; at least it constantly sits near the fireplace, and, from its love of warmth, will rather let its beak be shrivelled up than remove from its position.

Food.—They eat all kinds of beetles and insects, for which they may be seen searching among the dung heaps, and they are sometimes placed in granaries to catch the beetles, spiders, and other insects, in which they are very expert. But the assertion that they eat mice is unfounded. They are easily fed upon meat and roll steeped in milk. They must, however, have occasionally a few meal-worms given them.

Breeding.—They make their nests in high trees, and lay from two to four eggs. The nest is formed of cow-dung and the fibres of roots kneaded into the form of a hemisphere. Although adult birds may sometimes be reared with much trouble, it is rarely successful. In rearing the young from the nest they should be removed and fed with the flesh of young Pigeons until full grown, as they can not feed themselves for six weeks. They feed with difficulty at all times, having a heart-shaped tongue, of the size of half a bean, which which they swallow with great difficulty. They are obliged to throw their food up in the air, open the beak, and catch it in the gullet, as they can take nothing with the tongue.

Capture.—To catch them, it is necessary to observe a place where in August they run about in the meadows; a piece of wood eight inches long is smeared with birdlime, a thread of the length of a finger is tied to it, and to the end of this some meal-worms are fastened; this piece of wood is loosely stuck into a molehill. As soon as they observe the worms they pull at the thread; the limed stick thus falls upon them, and they remain fixed to it.

Commendatory Qualities.—The Hoopoe is pleasing, not only from its beauty, but its grotesque grimaces are also very amusing. It distinguishes itself peculiarly by a constant movement of its head, every time touching the ground with its beak; and at the same time jerking its crest forward and giving a catch with its wings and tail ; when thus advancing onwards, it looks as if it were walking by the aid of a stick. I have

kept several in my chamber, and amused myself with their strange demeanour. When looked steadily at they immediately begin their pantomime. M. von Schauroth writes to me as follows:—"Two young Hoopoes which I had taken from the summit of a lofty oak I reared with difficulty. They would follow me everywhere, and if they only heard me at a distance they made a twittering cry of joy, and would spring towards me; they did not fly much, but with apparent facility when they did so; if I sat down they climbed up my clothes, especially when I fed them, and would seize the milk-jug, eating with great zest its surface of cream. At other times they climbed higher and higher till they reached my shoulder or head, caressing me very affectionately, but I had only to say a word to free myself from their importunity; they then usually retired beneath the stove. They always looked in my eyes to see if I was at leisure, and would suit their conduct accordingly. I fed them with the food given to Nightingales, and at the proper season with beetles, May-bugs and dung-beetles being their favourite food, earth-worms they would not eat, but they would strike at them with their pointed beaks until they had separated the legs and elytra, and nothing but the soft parts remained; this they would throw up into the air, and catch it so that it fell longitudinally into the gullet: if it fell transversely, they would repeat the operation. They do not bathe in water, and only dust themselves in the sand. I took them with me into the neighbouring meadows to let them catch insects, and then observed their instinctive fear of birds of prey. As soon as a Raven or even a Pigeon was seen flying, they would throw themselves down upon the ground, spread out their wings so widely that the outermost pinion and tail-feathers touched each other, and the bird was surrounded, as it were, by a glory of pinion and tail feathers; turning their head back, and holding the beak upright in the air. In this position they looked like a great clod. As soon as the bird was out of sight they would jump up with cries of joy. They basked and stretched themselves with delight in the sun. When pleased they would cry *wek*, *wek*, *wek*, in a floating tone; in anger they had a shrill voice, and the male, which is the reddest, would cry a couple of times *hup*, *hup*. The female often carried her food about the room, rolling around it feathers, small threads, or dust. This formed a ball

in the stomach, of the size of a hazel nut, and the consequence was that she died of indigestion. The male survived the winter, and sat always upon the warm stove, which caused its beak to shrivel so, that it gaped an inch asunder, and it thus died very miserably."

Observations of British Naturalists.—This bird has been met with in most parts of Britain, and even as far north as the Orkneys, although not on the western coast. It seems to make its appearance irregularly—more frequently in the autumn than in the summer, but rarely breeding. The form of its claws would lead us to suppose it to be a climbing or creeping bird; but although it resides chiefly in the woods, it is said also to betake itself to the fields in their vicinity, and to walk about in search of food, which consists of insects and larvæ. It breeds in hollow trees, forming its nest, according to some, of dry cow-dung and roots, or, as other authors assert, of decayed wood, grass, and feathers. It resembles the Kingfisher in the construction of its bill, and especially in the form of the tongue; but the shortness of the latter organ does not render necessary a diet of fish or frogs, as has been asserted, for other birds with short tongues can pick up small insects and larvæ with ease.

The bird derives its name from the crest of tuft (*huppe*, as the French term it) with which its head is adorned. Some, however, derive its name from its peculiar cry, which is said to resemble the sounds *up, up,* or *pu, pu.* It is said to be shy, although it suffers one to approach within gun-shot.

19.—THE CUCKOO.

Cuculus canorus. *Linn. Lath.*—Coucou. *Buff.*—Coucou gris. *Temm.* Man. d'Orn.—Common Cuckoo. *Mont.* Orn. Dict. *Selb.* Illustr.—The Grey Cuckoo. *M'Gillivray.*—Der Gemeine Kukuck. *Bech.*

Description.—It is of the size of a Turtle-dove, is fourteen inches long, of which the tail measures seven. The folded wings extend to three-fourths its length; the beak is an inch long, gradually curving, it is black above, beneath bluish, at its angles saffron yellow, and in the gorge orange red; the forehead and edge of the eyelids are yellow; the nostrils are margined; the legs yellow, and one inch high; two toes in front and two behind form climbing feet. Head, back of the neck, back, rump, and coverts of the wings, dark ashy grey; the back and the coverts of the wings have an iridescent reflection; the under part of the body, as far as the breast, ashy grey; thence white, with blackish grey undulating lines; the pinion feathers dark brown, with white spots on the inner web; the tail feathers wedge-shaped and black, with an oval white spot in the middle, which, upon the centre one, is scarcely distinguishable.

The female is smaller, above dark grey, with dirty brown diluted spots; beneath the neck ashy and yellowish, mingled with dark brown transverse stripes; the belly is dirty white, striped obliquely with dark brown.

Habitat.—As a migratory bird, it arrives in Germany about the end of April, and goes away again in September; and it

may be either allowed to fly about the chamber, or placed in a large wicker cage.

Food.—Many kinds of insects. They collect great quantities of caterpillars from the trees. When caught they must have meat and the general food of biscuit crumbs &c.

Breeding, and other Peculiarities.—It is the only bird which does not hatch its own eggs, but deposits one, or at most two, eggs in the nests of insect-eating birds. It must be reared from the nest. This I have never done myself, but several of my acquaintances have. As in every respect it is a remarkable bird, and possibly many amateurs would like to have one or two in their rooms, I shall insert some observations M. von Schauroth has communicated to me about it. "The Cuckoo possesses scarcely any qualities to recommend it as a chamber bird. Adult, it is too perverse and voracious : its general character is obstinacy and ferocity, or else it sits quite still and melancholy. I have reared several, and the last I found in the nest of the Yellow Bunting ; it was still blind, and yet attacked me with great fury when I removed it. It had scarcely been with me six days, when it would eat, apparently out of rage, all the food, chiefly birds flesh, which I offered to it ; it was, however, very long before it learnt to eat out of its trough, and so violent was it, that it upset all the vessels. The tail grew very slowly, and the bird never was thoroughly tame,—snapping at my hands and face, and indeed at everything that approached too closely, as well as at other birds that chanced to be in its way. It devoured the first general food, and in great quantities, which made it eject a great deal, and it is in many respects a foul feeding bird. It is extremely awkward with its small climbing feet, cannot absolutely walk, making at most great jumps, but it flies with the greatest facility."

Observations of British Naturalists.—Colonel Montagu had a young Cuckoo brought to him in the month of July, just as it could fly, and by great care, he kept it alive till December. For two months after it was caught it never attempted to feed itself by picking ; and even to the last moment seemed to prefer being fed by the hand of its mistress rather than have the trouble of picking up its food, of which it was extremely choice. Of strangers it was very fearful, fluttering in its cage to avoid their attentions ; but it would suffer itself to be caressed by a young lady who had been its kind benefactress.

The Cuckoo arrives in the south of England about the 20th of April, in the south of Scotland towards the end of that month, and in the northernmost parts of Britain soon after the beginning of May. The periods of arrival, however, vary considerably according to the character of the season, and as the birds do not always announce their return by emitting their well-known cry, they may sometimes be met with at a time when their presence is not suspected. There seems to be hardly any part of the country which they do not visit; for while some remain in the southern counties, others settle in the remotest islands of the north, and although they are met with in the most cultivated districts, they also frequent the valleys of the wildest of our hilly and mountainous tracts. Perhaps the most favourite resorts of the species are parks and plantations bordered with fields and pasture-grounds, or the woods and thickets of the upland glens; but on the rocky hills of the most treeless regions, and the bleak moors or ferny braes of the interior, it is found often in great numbers, although never in flocks, for if gregarious during its migrations, as some suppose, it manifests no social disposition during its residence. Whether it be more numerous in the south than in the north seems doubtful, for while it is stated "that they abound in the Malvern Hills, making the whole circuit of them resound with their note," they are as plentiful in the wooded valleys of the counties of Ross and Inverness.

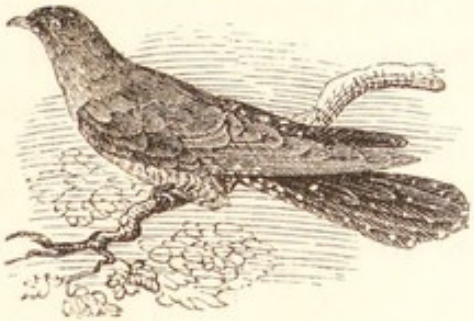
"In the maritime Highlands and Hebrides," says M'Gillivray, "every one is on the look-out for the Cuckoo, which is a great favourite with the Celts, with whom, however, it may be the harbinger of evil as well as good, for should the Cuckoo be first heard by one who has not broken his fast, some misfortune may be expected. Indeed, besides the danger, it is considered a reproach to one to have heard the Cuckoo while hungry, and of such a one it continues to be said that the bird has muted on him, 'chac a chuaig air.' But should the Cuckoo be heard when one has prepared himself by replenishing his stomach, all will go well. The lover of nature, however, whether Saxon or Celt, gladly hails the bird of summer.

'Cuckoo! Cuckoo! O! welcome, welcome notes!
Fields, woods, and waves rejoice
In that recover'd voice,
As on the wind its fluty music floats.
At that elixir strain,
My youth resumes its reign,
And life's first spring comes blossoming again.'

"Early in the sunny mornings of May, and towards the close of day, he who wanders along the wooded valleys will be sure to hear the ever-pleasing cry of the Cuckoo, unvaried though it be, as the bird,

perched on a rock, or litchen-clad block, or balancing itself on the branch of some tall tree, cooes aloud to its mate. Let us pause and listen: the bird is not far distant, and we may describe his song, such as it is. You hear nothing but the same *hu-hu*, or if you please so to syllable it *coo-coo*, repeated at short intervals; but if you attend better you will find that these two loud and mellow notes are preceded by a kind of churring or chuckling sound, which, if you creep up unseen, you will hear to consist of a low and guttural inflection of the voice, during which the throat seems distended.

"The flight of the Cuckoo is swift, gliding, even, rapid on occasion, generally sedate, usually at no great height. In the hilly parts it may be seen skimming over the ground, alighting on a stone or crag, balancing itself, throwing up its tail, depressing its wings, and then perhaps emitting its notes. In woody districts it glides among the trees, perches on their boughs, and makes occasional excursions into the thickets around. On the ground I have seldom seen it unless when cooing, and there it can scarcely walk with more ease than a Swallow; but on trees it alights with facility, clings to the twigs with firmness, glides among the foliage, and by the aid of its tenacious grasp and ample tail, throws itself into various and always graceful postures, as it searches for its prey. Its food consists of coleopterous, lepidopterous, and dipterous insects, in procuring which it must visit a variety of places, and very much of hairy caterpillars, which it picks from among the grass and heath, where, however, it cannot search by walking, like a Plover or Curlew, as its feet are too short, and its toes misplaced for such a purpose. Yet it can hobble round a bush to pick the worms from it, as well as cling to its twigs."



20.—THE LESSER GRAKLE.

GRACCULA RELIGIOSA. *Linn.*—MINO OU MAINATE. *Buff.*—DER MINO ODER PLUNDERER.—*Bech.*

DESCRIPTION.—This bird is about the size of a Blackbird, being ten and a half inches long. Its beak is slightly convex, knife-shaped, naked at the base, one and a half inch long, of an orange colour, and bright yellow at the apex ; its legs are orange yellow ; the nostrils longitudinal, and placed in the middle of the beak ; the iris nut brown; the feathers at the side of the head are short, like shorn velvet, excepting in the middle, towards the back of the head, where they resemble those of other birds ; at each side of the head there is naked skin, which commences beneath each eye and extends to the back of the head, where, however, they do not unite; it is of unequal width, broad near the margins of the eyes, and yellow. At certain seasons of the year, however, and in certain humours of the bird, whether angry or pleased, it somewhat changes its colour. The chief colour of the plumage is black, with a purple, violet, and green reflection, varying according to the light ; there is a white stripe upon the pinion feathers ; the straight tail is three inches long.

PECULIARITIES.—This bird is found in several parts of the East Indies, in the island of Jamaica, in Java, and in almost every island beyond the Ganges. They feed upon vegetable substances, and those which are brought to Europe are very fond of cherries and grapes. When cherries are shown them, and are withheld for a time, they scream and cry like disappointed children. They become exceedingly tame and confiding, pipe and sing admirably, and chatter better than any Parrot. In China they are frequently kept in cages, being conveyed thither from Java, and sold for about five shillings a-piece. In Central Germany, where too distant from the coast, they are rarely to be met with.

SECTION III.—LEVIROSTRES. LARGE-BILLED BIRDS.

In these birds the bills are large, but generally hollow, and therefore extremely light; convex above, and hooked in front; feet short, robust, and in those I shall here describe, chiefly formed for climbing; the tongue is large and fleshy, resembling that of man, and on this account they easily learn to speak. They are all foreign birds, and must be tamed young if they are to be taught to articulate words.

I shall only mention here the ordinary Parrots which are brought from the East and West Indies, and distributed throughout Europe by the bird dealers. If it should happen that one is acquired not described here, it may be treated like those to which it has the greatest affinity.

·Observations of British Naturalists.—This family of birds is most commonly ranged under six divisions, but for the

purposes of the present work, the following three classes are sufficiently distinctive:—The Macaw, including the Cockatoo and Tucan; the Parrot, including the Parakeet; and the Lory.

In the gracefulness of their forms and the richness of their colours, the MACAWS are among the most beautiful of these very showy birds. Their principal distinguishing characters are, the cheeks naked of feathers, and the tail very long. Their attitude is graceful, and the colours of their plumage and also of the metallic reflections, are intensely bright. Screeching is their favourite sound, in the exercise of which they occupy a considerable portion of their time; in other respects they are more sedate, less given to mischief, and do not so habitually tear things to pieces as the Parrots; while their large size, handsome form, rich colours, and graceful deportment, render them favourites in spite of their noise.

They are all inhabitants of the warmer parts of America; and, like the rest of the family, seek their food and spend most of their time upon trees, in the holes of which the majority of them nestle. Some are said to excavate decaying trunks like the Woodpeckers, though one species at least is mentioned as burrowing in the elevated banks of rivers and streams. Their food is the seeds of large forest trees, rather than the succulent pericarps of fruit, whether wild or cultivated; but they attack with great avidity the smaller cultivated fruits, such as coffee. They are not so social as most others of the family; being found in pairs, or at most two or three pairs together, more in juxtaposition than in society.

Of the PARROTS, properly so called, the greater number are natives of tropical America, where the trees furnish them with an ample supply of food. There is one, however, which is a native of Africa, though there are some distinctions between it and the American ones, in the air of the body, the form of the bill and head, a certain portion of the face being naked, the general tint of the plumage, and several other characteristics. These birds are in some respects the most interesting of the whole family. They are by no means the handsomest,

either in their forms or in the colours of their plumage. They are, however, the most dexterous climbers, and some of them at least are the most susceptible of being taught to articulate words. The general characters which distinguish them from the rest of the family are but few in number, but they are well marked and easily observed.

The LORIES are all natives of the east; and many of them are birds of great beauty and highly interesting manners. They are, however, more delicate in their nature than the Macaws, Parakeets, and Parrots; and, therefore, though they are abundant in their native countries, there is some difficulty in bringing them alive to Europe; and a good deal of care is necessary in order to keep them alive after they are brought. The name "Lory," by which the whole are popularly designated, is, like the word "Cockatoo," the call-note of some of the species; though neither the one nor the other is the call-note of all the birds of which it has become the name.

When in their native forests these birds are exceedingly noisy; but it does not appear that any of them have much tendency to attack any other bird or animal. Neither do they seem to have any desire to devour eggs or insects, nor are they quarrelsome with each other.

There is little doubt that the manners of Parrots in their native woods differ greatly from those which they display when kept in a state of captivity by man. Numerous as they are, they belong to wild nature, and their use to man is limited. It is true that the young birds generally, and also the old ones of some of the species, are eaten by the human inhabitants of some of their localities. But there are few human inhabitants in such places; and it is no very easy matter to come at the Parrots, unless when they flock out upon plantations near the woods; and upon such occasions their carcasses do not repay the damage they commit.

Many accounts have been given of the loquacity of Parrots; and some of them are very amusing, as showing the power of imitation and the perfection of execution hereafter to be noticed. We shall content ourselves with little more than a single one, which we give from personal observation. The writer of this article had a friend who received a green Amazonian Parrot from a naval officer, who had just returned from the command of a frigate on the West India station, during the time when the West Indian seas were so much infested by pirates. This Parrot had been taken from a piratical vessel made prize of by the frigate; and as it was docile, and actually communicated some useful hints in the scraps of Portuguese which it repeated, and sung and whistled in loud and clear strains, it soon became a favourite on board the frigate, and was not long in learning all the pipings and words of command which were most frequently repeated.

On the evening of its arrival, its new master had a dinner-party, and, the Parrot being a stranger, was placed on a pier table at the lower end of the room. From the time of its landing it had continued quite silent; and, as the giver had not said one word of its powers, it was supposed to be a dumb Parrot. The party sat down to dinner with a good deal of glee and hilarity, and the bird began to show more activity. In a short time it piped the boatswain's whistle, till all the apartment rung again; and almost immediately after the pipe, it called in a hoarse, stentorian voice—"Steady! take in a little there," which somewhat astonished the party, as they were taking in their dinner and wine. During the afternoon it kept calling, "One point below!" "Thus." After a while it treated them with a very tolerable repetition of the Portuguese hymn, and concluded by a violent fit of swearing in the same language. The age of this specimen when it came into the hands of the gentleman alluded to was not known, neither is the writer acquainted with the sequel of its history, but it was a very amusing bird, though quite wayward and untractable.

21.—THE RED AND BLUE MACAW.

PSITTACUS MACAO. *Linn.*—ARA ROUGE. *Buff.*—DER ROTHE ARAS. *Bech.*

DESCRIPTION.—This, as well as all other Parrots, is kept for the sake of the splendour of its plumage, and its admirable powers of articulation. Some there are, however,—for instance the Ash-coloured Parrot,—which likewise imitate the song of birds, as well as pipe very agreeably. All birds which speak, or at least articulate very distinctly, must, as I have before observed, have a thick, rounded tongue, the band of which, to give it greater freedom, is loosened. Hence it is that Parrots, especially the short-tailed ones, are enabled to speak the most distinctly of any birds, the Ravens, Crows, Jack-daws, and Jays following next in their capacity for imitating articulate sounds; while from the peculiar construction of the throat and larynx, Starlings, Blackbirds, &c. articulate the most distinctly of all.

The Blue Macaw is one of the largest Parrots, being two feet eight inches long, about the size of a moderate fowl. The beak is so strong as to be capable of cracking the stone of a peach; the upper mandible, which is much curved, is white, excepting the tip and base, which are black; the lower mandible is entirely black; the feet are grey; the cheeks naked, and covered with a whitish, rough skin; the irides bright yellow; head, neck,

breast, belly, thighs, the upper part of the back, and the upper coverts of the wings are of a brilliant scarlet; the lower part of the back and rump bright blue; the scapular feathers and largest coverts of the wings blue, yellow, and green intermixed; the pinion feathers have the external web of a beautiful ultramarine and royal blue, the inner web is greyish black; the tail is conical, and the two middle pinion feathers are scarlet, with bright brown tips, the next on either side half blue half red, yet intermingled; the four external ones violet, blue above, and beneath pale red.

The female scarcely differs from the male. These colours are not uniform in all, differences sometimes occurring in the wings and tail, yet not sufficiently to prevent the species being recognised.

Habitat.—It is a native of the Brazils, Guiana, and other parts of South America, and chiefly frequents damp forests in couples. It is usually allowed to go freely about, and for a perch it should be supplied with a smooth stick, crossed by a transverse one: like all the Parrots, this is a very dirty bird, and it is best to place their perches in a wire cage. When elegance of appearance is desired, the cage may be in form like the engraving, and must be from two and a half to three feet in diameter and eight feet high, to prevent injury to the beautiful tail feathers, and to give the space necessary for exercise.

Food.—In its native forests it feeds chiefly upon the fruit of the palm. With us also it will eat all kinds of fruit; but it is best to feed it upon roll steeped in milk. Biscuit also is not hurtful, but meat, as well

as all kinds of pastry and sweetmeats, render it unhealthy, and even if it survives upon this for several years, it becomes sickly, its plumage gets disordered, it frequently bites out its feathers, especially upon the wings, and even gnaws holes in different parts of the body. It drinks but little, being always supplied with succulent food.

Breeding.—These Parrots make their nests in the holes of old trees that have been partially cut down, or rotted away; by means of the beak they will extend the cavity, if not large enough, and line the inside with feathers. The female, like all the American Parrots, lays two eggs twice a-year, which are in size and colour like those of the Partridge. With us also the females will lay, but they are usually unimpregnated; or if not unfruitful, these birds, like all the Parrots when domesticated, lose the instinct of hatching; yet instances have occurred wherein this instinct has been so strong that they have even hatched the eggs of pigeons and hens. Those which are brought to Europe are usually such as have been reared from the nest, especially when they can speak; for adults are not only difficult to tame, but wholly incapable of being taught, and they then utter nothing but the insufferable shriek, whereby they express their emotions.

Maladies.—They are exposed to many maladies, and especially atrophy, which may be cured in the way mentioned at page 20. Like all Parrots, they must be carefully tended whilst moulting, not only that they may be kept healthy, but also that they may obtain a perfect plumage.

Commendatory Qualities.—These Parrots are admired chiefly on account of their beautiful colours; they will also articulate several words very distinctly, fly to and fro, and follow the least sign of the possessor. But its creeping motion, its helping itself along by the beak, and chiefly its uncleanliness, prevents its being a very agreeable chamber bird. It is often also very malicious, capriciously dislikes particular persons, and children must not be left in a room alone with them, as they will fly at the face, and injure the eyes. Their excrement, which is very fluid and unpleasant, must be removed daily.

22.—THE BLUE AND YELLOW MACAW.

PSITTACUS ARARAUNA. *Linn.*—L'ARA BLEU. *Buff.*—DER BLAUE ARAS. *Bech.*

DESCRIPTION.—This Parrot, which is of the size of a Capon, and two feet eight inches long, is, I consider, a handsomer bird than the preceding, although its colours are not so dazzling. The beak is black; the feet dark ashy grey; the cheeks flesh-coloured and naked, striped with a few beautiful black lines of the form of an S, consisting of short feathers; the iris bright yellow; the throat is surrounded by a black band; the forehead, as far as the vertex, the sides of the head, and the small coverts of the wings, are dull green; the rest of the upper part of the body of a beautiful blue; the rump, sky blue; the under part of the body saffron; the thighs orange; the wings, and the very conical tail, of a beautiful blue; of the latter the two central feathers are of one colour; the others play into violet on the inner margin, and nearer the base are margined with black. It varies but little in colour.

HABITAT.—It is brought from Jamaica, Guiana, the Brazils, and Surinam.

PECULIARITIES.—In habits, and the other interesting qualities desirable in an agreeable chamber bird, it agrees with the Red and Blue Macaw: but it does not so easily learn to speak; does not utter the word *Macaw* so distinctly, but the word *Jacob*, the bleating of a sheep, the mewing of cats, and the barking of dogs, it imitates with facility, and very accurately. Its custom of drinking only in the evening appears remarkable.

23.—THE MILITARY MACAW.

PSITTACUS MILITARIS. *Linn.*—DER GRUNE ARAS. *Bech.*

DESCRIPTION.—It is rather smaller than the foregoing, two feet four inches long. Edwards has described and figured it very well. The beak is large and black; the legs fleshy brown; cheeks and circle around the eyes pale flesh colour, interspersed with a few black haired streaks of feathers, curved and very delicate.

The head, neck, back, coverts of the wings, and under part of the body, are grass green ; in some parts brighter, and in others merging into dark or olive green. On the forehead there is a thick band of bright red feathers, which feel like coarse velvet ; the green anal feathers are intermingled with red ; the pinion feathers are black anteriorly, becoming gradually blue behind, the last only, with the scapulars, inclining more to green ; the rump blue ; the central tail feathers are very long, like those of the preceding birds, and, as well as the rest of the tail feathers, blue, with greenish tips, but bright red at the base.

PECULIARITIES.—This Macaw is brought from South America. It is considered a greater rarity, and is dearer than the preceding ones. It is extremely docile, and speaks with facility. That which I saw repeated everything immediately, called all the children in the house by their names, was very patient, obedient, and attached, and thus distinguished itself very advantageously from the preceding.

24.—THE ILLINOIS PARROT.

PSITTACUS PERTINAX. *Linn.*—PERRUCHE ILLINOIS. *Buff.*—DER ILLINESISCHE SITTICH. *Bech.*

DESCRIPTION.—This is one of the most common Parrots to be seen at the bird-dealers'. It is nine and a half inches long. The beak bright ash colour; the eyes surrounded by a bald grey skin ; the iris dark orange ; the feet dark grey ; the prevailing colour green, beneath yellowish grey ; the forehead, cheeks, and throat of a beautiful orange ; the vertex dark green, behind brighter, intermingled with yellow ; the front of the neck ashy green ; the abdomen has some orange spots ; the pinion feathers bluish green, blackish on the inner web, the five last grass green ; the tail conical; the middle feathers of one colour, the others margined partly with ashy grey and partly with bright yellow.

In the female the forehead is dark yellow, and there is no yellow intermixture at the back of the head, or on the abdomen.

HABITAT.—It is a native of the Brazils, Guiana, and Cayenne, where it inhabits the Pampas, and other open places, building in the gangs of the white ants (*termes fatalis*). They are gre-

garious, and are sometimes found in flocks of several hundreds. They are usually kept in pairs in a large wire cage. They are constantly caressing each other, and one will frequently pine to death at the loss of the other.

FOOD.—Feeding gregariously at large, they plant guards to apprize them of the approach of an enemy, on whose appearance they fly off with loud screams. Their food consists of chestnuts, acorns, peas, pulse, and other grain. In confinement we feed them upon roll steeped in milk, and upon nuts.

COMMENDATORY QUALITIES.—They are pleasing to the bird-fancier, from the beauty of their plumage, their familiarity, and especially from the tenderness and affection which they display towards each other. They speak little, if at all, but utter incessantly very discordant sounds.

25.—THE BLUE-HEADED PARROT.

PSITTACUS CYANOCEPHALUS. *Linn.*—PERRUCHE A TETE BLEU. *Buff.*—DER BLANKOPFIGE SITTICH. *Bech.*

DESCRIPTION.—This is a common, but beautiful Parrot, about the size of a Turtle-dove. It is eleven and a half inches long, the tail six inches; and the folded wings reach to its middle. The upper mandible is bright yellow, but of a bright ashy grey at the tip; the lower one of a uniform ashy grey; the circle round the eyes bald and yellow; the upper part of the body green, the under part yellowish green; the forehead merging into red; the head is blue; the throat violet, with an ashy grey reflection; the sides of the neck dark yellow; the pinion feathers green, ashy grey on the inner web, and at the tip; the two central tail feathers greenish, passing into blue at the tip; the next the same, but internally bright yellow; the four external ones green on the outer web, dark yellow on the inner, but bright yellow at the tip; the two central feathers almost four inches longer than the rest; the feet bluish; the claws grey.

PECULIARITIES.—It comes from the East Indies. Its beautiful plumage is agreeable, and it is to be regretted that it does not speak. It must be treated like the preceding.

26.—THE ANGOLA YELLOW PARROT.

PSITTACUS SOLSTITIALES. *Linn.*—PERRUCHE JAUNE. *Buff.*—DER GELBE SITTICH. *Bech.*

DESCRIPTION.—It is of the size of a Turtle-dove, being eleven and a half inches long; the folded wings extend to one-third of the length of the conical tail. The beak and feet are grey; the throat, circle round the eyes, and the cere, bright ashy; the iris bright yellow; the predominant colour of an orange yellow; the back and coverts of the wings olive green, spotted; the rump yellowish green; the vicinity of the eyes, sides, and thighs, red; the coverts of the wings nearest the body olive green, with an orange yellow margin; the anal feathers blue; the large pinion feathers externally blue, internally yellowish green, and the shorter ones of the latter colour; the six central tail feathers yellowish green; the external ones the same, but blue on the outer margin.

PECULIARITIES.—This Parrot comes from Angola, easily learns to speak well, and is kept like the others.

27.—LONG-TAILED GREEN PARAKEET.

PSITTACUS RUTEROSTRES. *Linn.* — LE SINCIALO. *Buff.* — DER ROTHSCHABLIGE SITTICH. *Bech.*

DESCRIPTION.—It is of the size of a Blackbird, and is twelve and a quarter inches long, of which the tail occupies seven inches and a half; the middle feathers are five inches longer than the outer ones; the folded wings extend to one-fourth its length. The upper mandible is blood red, black at the tip, the lower one entirely black; the bald circle round the eyes, the cere, and the feet, are flesh coloured; the iris orange; the predominant colour yellowish green; the margins of the wings brightish yellow.

Many are green, with a variety of shades, and they sometimes have also blue tips to the tail feathers.

PECULIARITIES.—It inhabits various parts of America, the Island of St. Domingo, Guiana, Brazil, &c. It screams and cries incessantly, readily learns to speak, pipe, and imitate the voices of most animals and birds. Confined in a cage where it has but little freedom to move, it constantly squeaks and screams, which frequently makes it almost intolerable. It requires the same treatment as the other Parrots, but does not appear to be quite so delicate.

28.—THE PAVOUANE PARAKEET.

PSITTACUS GUIANENSIS. *Linn.*—LA PERRUCHE PAVOUANE DE LA GUIANE. *Buff.*—DER PAVUAN ODER GUIANISCHE SITTICH. *Bech.*

DESCRIPTION.—This bird is the size of the Missel Thrush, twelve inches long, the tail six and a quarter inches, and the two middle feathers three inches longer than the external ones. The beak whitish, ashy grey at the point; the cere whitish; the feet grey; the claws blackish; the upper parts are dark green, the lower brighter; the cheeks spotted with red (in the young not before the fourth year); the small lower coverts of the wings scarlet (paler in young birds); the larger ones beautiful bright yellow; the pinion feathers, as well as those of the back, margined on the inner side with yellowish green: blackish towards the tip, internally pale bright yellow, the shaft black.

PECULIARITIES.—It inhabits Guiana, Cayenne, and the Carribee Islands. Of all the long-tailed Parakeets, this most readily learns, and speaks also the most distinctly. It is often for sale at the bird-dealers, as it admits easily of transport, and is not very delicate. The mode of treating it is the same as that adopted for the larger parrots.

29.—THE RED AND BLUE-HEADED PARAKEET.

PSITTACUS CANICULARIS. *Linn.* — PERRUCHE À FRONT ROUGE. *Buff.*— DER ROTHSTERNIGE SITTICH. *Bech.*

DESCRIPTION.—This Parrot, which is frequently brought to Germany, is ten inches long, of which the tail occupies the half, the folded wings extending to one-third of the length of the latter. The upper mandible is bright ashy grey, the lower darker, often black; the cere bright ashy grey; the circle around the eyes dark yellow, orange, or even whitish; the iris orange yellow; the feet bright ashy grey, with a fleshy tinge; the forehead is scarlet; the vertex beautiful bright blue, brightest behind; the upper part of the body grass green, the under side more brilliant; the large pinion feathers blue on the outer margin, sometimes

scarlet at the base; the tail above dark green, beneath brownish green, and the two middle feathers are upwards of three and a half inches longer than the rest. The bird which I consider as possibly the female is reddish yellow on the forehead, and bright yellow around the eyes.

PECULIARITIES.—It comes from the southern parts of America. It is handsome, but does not speak well. Like the preceding species it is easily obtained.

30.—THE CARDINAL PARAKEET.

PSITTACUS ERYTHROCEPHALUS. *Linn.*—LE PERRUCHE CARDINALE. *Buff.*—DER CARDINAL SITTICH. *Bech.*

DESCRIPTION.—About the size of the Turtle-dove, being twelve inches long, of which its very conical tail occupies six and three-quarter inches, and the external feathers are four inches shorter than the two narrow central ones. The beak is of a peach-coloured red; the cere ashy grey; the iris yellowish red; the feet grey; the whole head violet, shot with blue and red; a black ring surrounds the neck; the throat black; the upper part of the body dark green; the lower part bright green; the base of the tail bright yellow; the two middle feathers blue with a white point; the rest as well as the under part yellowish green. The female has a yellow beak, dark ashy blue head, without the ring round the neck, in lieu of which there is a yellowish tinge indicating its position.

In young birds the colour of the head is not distinct, but varies from rosy red to green, and the neck-ring is wanting. Three varieties of the Cardinal Parakeet are described:—

1. THE BLOSSOM-HEADED PARAKEET.—*Perruche à tête rouge de Gingi.* Buff.—In this, the head is red, shot with bright blue, especially behind; the black chin narrows into a thin line towards the neck; beneath this there is another narrow bright green line, both forming together a sort of band; the rest of the plumage is green; the under parts have a bright yellow tinge; the tail is green above with a bright yellow inner margin.

2. THE ROSE-HEADED RING PARAKEET.—*Psittacus Erythrocephalus, Benjalensis.* Linn.—In which the upper mandible

is bright yellow; the lower one black; the cere brownish; the apex of the head and cheeks rose colour, the back of the head blue; the throat and the ring around it like the last, as also the red spot upon the coverts of the wings; the two middle feathers are blue; the others olive green, with blue margins.

3. Bornean Parakeet.—*Psittacus Erythrocephalus, Borneus.* Linn.—In which the upper mandible is red, the lower one black; the cere and circle round the eyes ashy coloured; the whole head of a peach blossom red, with a green tinge on the forehead; from one eye to the other, above the cere, there is a black stripe which runs obliquely down to each side of the neck, becoming wider behind; the upper part of the body, as far as the tail, is bright green, but towards the middle of the coverts, passing into bright yellow; the whole of the under part of the body, from the chin, is of a reddish blossom colour, with a chestnut brown tinge; the feathers on the thighs, the vent, and the middle of the abdomen, green, the two middle ones passing into brown; the shafts of all white.

Peculiarities.—The East Indian bird is chiefly distinguished by its beautiful plumage. It is lively, shy, and screams a great deal. It will not learn of its own accord, and is taught with much difficulty to articulate words.

31.—PENNANT'S PARAKEET.

Psittacus Pennanti. *Lath.*—Le Purpure. *Buff.*—Der Pennantsche Sittich. *Bech.*

Description.—The male, which is of the size of a hen-sparrow, has red for its predominant colour, and is called by bird-dealers the Purple Bird; the beak is strong and curving, and with a sharp tooth; the under mandible angular at the sides, merely swollen in the middle, and of a horny blue colour, fading into white at the point; the iris is yellowish red; the cere dark blue, the feet dark flesh colour, or bright brown merging into white, and delicately scaled; head and rump are dark crimson; back and scapulars black enclosed with crimson; all the feathers are black at the base, but on the head and rump the base is concealed, the black thus not being seen. The throat as well as the anterior small coverts of the

wings, and the margin of the middle pinion feathers, are of a bright shining sky blue, with some spots, as if faded, upon the wings; the other coverts, as well as the last pinion feathers, are black, with narrow crimson edges, and beyond this internally enclosed with grass green; the pinion feathers black, the anterior ones, from the base to the middle, enclosed with dark sky blue; the whole of the under part of the body is of a bright crimson, the thighs inclining to bluish; at the rump, many of the feathers are marked, beyond the red end, with a grass green bar, glittering above the black ground colour; the tail is more than half the length of the body, very conical, dark blue, the external feathers merging upon the inner web into a sky blue which fades towards the tip into white, the four middle feathers passing into, and tinged with dark green upon the inner web; the folded wings cover the third part of the body; the pinion feathers are angularly notched upon the external web, the apical portion being shorter than the basal.

The predominant colour in the female, which the bird-dealers treat as a different species, and call the Palm Bird, is greenish yellow. It is of about the size of the cock Sparrow. The head, sides of the neck, and half the breast, are of an intense crimson; the throat pearly blue, with a sky blue marginal reflection; the upper part of the neck, the back, the scapular, and posterior pinion feathers, of a velvet black, and all the feathers are enclosed with greenish-yellow; on the shoulders and neck the enclosure is almost brimstone; rump and vent Parrot green; the long under coverts of the tail crimson, with yellow green margins; the knee-bands merging into sky blue; the under part of the body of a beautiful bright yellow, with several irregular red sprinklings and spots upon the feathers, which at once induce the supposition that it belongs to the preceding species; the base of the tail iridescent, green predominating; the rest of the tail and the wings as in the male.

PECULIARITIES.—These extremely beautiful Parakeets are unfortunately wild, shy, and very intractable. They have a piping voice, which, however, they do not frequently use. The feathers, as in the Amboina Parrot, are so loose, that by merely handling the bird they fall out. They are brought from Botany Bay, and are very costly. Their mode of treatment is as in the other Parrots, but being more delicate they must be very carefully tended.

32.—THE TWO-SPOTTED PARAKEET.

PSITTACUS BIMACULATUS. *Sparrmann*, Mus. Car. Fas.—PERRUCHE À MOUSTACHE.—DER ZWEIFLIEKIGE SITTICH. *Bech.*

DESCRIPTION.—The length of this beautiful Parrot is one foot two inches, of which the tail occupies more than a half, it is therefore of the size of a Turtle-dove, and is very slender. The beak is large, orange, or pale blood-red, with brighter margin and tips, having a deep tooth: the cere flesh coloured, with a bluish reflection; the iris bright yellow, as well as the naked eyelids; the feet ashy grey; the head is of a beautiful bright ashy grey: the vertex with a greenish tinge; the narrow band on the forehead is black, the end towards the eyes naked and pale flesh coloured; the forehead pale yellow; from the base of the beak, passing over the cheeks, and extending to the throat, there is an almost triangular black spot; the whole of the upper part of the body is grass green, with black shafts to the feathers; in the middle of the coverts is a yellowish green spot; the pinion feathers are blackish; upon the external web green, with a brimstone margin; the under part of the body dark rose coloured, the under wings yellow green; the thighs, rump, and vent green; the tail green; the two pointed middle feathers, only two inches longer than the rest, bluish above and dark green at the tip. There is a variety with a black beak.

The supposed female is of a pale orange on the forehead, throat, gullet, and sides of the head and neck; from the angle of the mandibles a black oval stripe runs down to the throat; occiput, neck, shoulders, back, rump, and the upper side of the tail, are grass green; breast, belly, and vent, of a beautiful green.

PECULIARITIES.—It is a delightful, talkative, and very docile bird, excessively tame, and of a tender and caressing character. Its cries sound like *gay! gay! gay!*

It comes from the South Sea Islands, and principally from Botany Bay.

33.—THE ROSE-RINGED PARAKEET.

PSITTACUS ALEXANDRI. *Linn.*—PSITTACUS MANILLENSIS. *Bech.*—PERUCHE À COLLIER COLEUR DE ROSE. *Buff.*—DER ROSENNACKIGE SITTICH. *Bech.*

DESCRIPTION.—This beautiful species is about twenty inches

in length, but twelve or fourteen of that are occupied by the tail. The general colour of the upper parts is green, varying in different shades so as to show off the individual feathers; the turns of the wings are bright red, which extends as far as the bastard wing, forming a large and beautiful spot in the middle of the green ; the throat in front has a deep black collar which narrows toward the nape, and under it there is a collar of brilliant red, advancing forward nearly to the throat on each side, but not meeting ; the bill also is red; the under sides of the wing and tail feathers, and the tips of the latter, are yellow, and the under part of the bird generally green, but of a much lighter tint than the upper parts. The shape and action of the bird are very graceful, its manners are gentle, it acquires great docility, and articulates well. It is therefore a favourite bird, and there is perhaps not one more so in the Parrot family ; because though some of the short-tailed Parrots perhaps speak better, none of them are so handsome or so gentle in disposition.

At this distance of time, it is not easy to say which of the Indian Parakeets was first introduced into the western world, or whether several species may not have been brought together. It is well ascertained that long before Alexander's invasion, the Egyptians carried on a considerable commerce with India ; and as the Indian birds and other animals appear always to have been great favourites in the western world, it is by no means improbable that Parrots were introduced by the way of Egypt even before the invasion of India by Sesostris. Though much nearer in geographical situation, the Parrots of Asia do not appear to have been introduced into Europe till some time after the commencement of the Christian era; and we accordingly do not find any allusions to them in the classical writers, though there are many allusions to the Indian ones. It is worthy of remark, that those handsome and splendid birds have preserved their interest for a period of between two thousand and three thousand years, and that they continue to be sought after with as much avidity as ever.

These tame and delicate birds are natives of the Philippine Islands, especially Manilla. They also occur frequently in Africa. They are beautiful birds, but rarely learn to speak, and when they do, it is only a few words. They are treated like the other delicate Parrots.

34.—THE LUNATED PARAKEET.

PSITTACUS LUNATUS. *Bech.*

DESCRIPTION.—This bird is a little larger than a Turtle-dove; it is eleven and a half inches long, of which the conical tail occupies six inches, and the beak one; the latter is much curved, and has a strong tooth above, and is very obtuse beneath and whitish, with a horny-coloured tip; the circle round the eyes small, bald, and of a greyish flesh colour; the iris bright yellowish red; the feet dark ashy grey; the forehead bright red, as well as a semi-circular stripe at the commencement of the upper breast, where it is widest, and gradually tapering towards the neck; the whole of the upper part of the body is dark, or of a leek green, darkest upon the head, every feather having a black shaft; the pinion feathers dark green, with a bluish green reflection upon the external web; the colour of the upper part of the body merging, upon the tail and upper coverts of the wings, into Siskin green; the coverts of the wings bright red; the under part of the body bright green, with a reddish tinge upon the breast, and with bright red knees; the wings and the tail, beneath, dirty golden yellow.

PECULIARITIES.—This Parakeet is very lively, screams frequently, and very loudly, *gerr, gerr*, and articulates distinctly and agreeably. It is fed like the other Parrots, and appears to attain a very great age in confinement, as is proved by the individual of which I have here given the description.

35.—THE GREY-BREASTED PARROT.

PSITTACUS MURINUS. *Linn.*—LA PERRUCHE SOURIS OU À POITRINE GRISE. *Buff.*—DER GRAUBRUSTIGE SITTICH. *Bech.*

DESCRIPTION.—This pretty Parrot, which is distinguished by its grey colour, is of the size of a Turtle-dove. From the feathers of its head, and especially the grey ones of the cheeks being somewhat puffed up, its beak small, and very obtuse, and the neck always considerably withdrawn, it has greatly the appearance of an owl. It is ten inches long, of which the conical tail occupies the half; the beak three-fourths of an inch long, considerably and unusually curved downwards with four sharp angles on

each side of the upper mandible, and the under mandible truncated, and of a bright greyish, or rather a bright fleshy colour; the iris brownish grey; the small hollow circle around the eyes and the feet bright ashy grey; the forehead, half way up to the vertex, cheeks, throat, breast, and half the belly, bright silver grey, clouded with white upon the breast, which at a distance appears transversely striped, and is on the belly tinged with yellow; the upper part of the body is of a beautiful shining Siskin green, somewhat brighter upon the head and shoulders, therefore merging into a yellowish green; the rest of the under part, as well as the rump, of an apple green; the anterior pinion feathers blue; the tail Siskin green, with blue shafts; the apex merging into greenish yellow; the two central covered feathers bluish green.

PECULIARITIES.—This bird is very tame, and likewise speaks, although but little, and appears to be of an exceedingly melancholy temperament. Its call is a high toned, sharply-sounding *keirsh*. It is the Parakeet of which Parnetty speaks in the Travels of Bougainville. It was found, he says, at Monte Video, where the sailors bought them for two piastres a-piece. They were very tame and docile, and readily learned to speak, and were soon so fond of society that they were never easy when away from the men. It is generally thought, that confined in a cage they only live a year; but this assertion is contradicted by the specimen whence this description is taken.

36.—THE CAROLINA PARROT.

PSITTACUS COROLINENSIS. *Linn.*—LA PERRUCHE À TÉTE JAUNE. *Buff.*—CAROLINISCHE SITTICH. *Bech.*

DESCRIPTION.—It is of the size of a Turtle-dove, and is thirteen inches long. The beak is yellowish, which, as well as the eyes, is surrounded by a bald bright grey skin; the iris is bright yellow; feet and claws mouldy grey; front of the head orange; back of the head, neck, and throat, bright yellow; the rest of the neck, the back, the breast, the belly, the sides, and the upper and lower coverts of the tail, are green; the thighs are also green, but orange towards the joint; the margin of the wings orange; the pinion feathers of the wings green above; beneath, the smaller also green, but the larger ones brown; the anterior

pinion feathers brown on the inside; on the outside, at the base, bright yellow: thence towards the tip, green, merging into blue; the posterior pinion feathers green above, internally and beneath, brown; the tail very conical and green.

PECULIARITIES.—This Parrot is a native of Guiana, and in the autumn migrates in flocks to Carolina and Virginia, where it also breeds. When the fruit is ripe in autumn, it is very injurious to those upon the trees, as it eats away the kernel, and leaves the rest. It is frequently brought to Europe, where it is fed upon hemp seed. It screams a great deal, and speaks but little. But the beauty of its plumage, and its docility, make it an agreeable chamber bird.

OBSERVATIONS OF BRITISH NATURALISTS. — Wilson, the American Naturalist, relates the following experiment on the education of one. The specimen which he used for his purpose was but slightly wounded in the wing, and readily ate the seeds of cockle-burrs almost as soon as it was taken. In travelling through the woods, he bound it up in a handkerchief, which he carried in his pocket, but loosed and fed it always when he rested. He must, however, be allowed to tell part of his own story:—"In recommitting it to 'durance vile' we generally had a quarrel, during which it frequently paid me in kind for the wound I had inflicted, and for depriving it of liberty, by cutting and almost disabling several of my fingers with its sharp and powerful bill. The path through the wilderness between Nashville and Natchez is often bad beyond description. There are dangerous creeks to swim, miles of morass to struggle through, rendered almost as gloomy as night by a prodigious growth of timber, and an underwood of canes and other evergreens, while the descent into these sluggish streams is often ten or fifteen feet perpendicular into a bed of clay. In some of the worst of these places, where I had, as it were, to fight my way through, the Parakeet frequently escaped from my pocket, obliging me to dismount and pursue it through the worst of the morass before I could regain it. On these occasions I was several times tempted to abandon it, but I persisted in bringing it along. When at night I encamped in the woods, I placed it on the baggage beside me, where it usually sat, with great composure, dozing and gazing at the fire, till morning. In this manner I carried it upwards of a thousand miles exposed all day to the jolting of the horse, but liberated at meal-times and in the evening." On arriving at the house of a friend, Wilson placed it in a cage under the portico, and its call-note speedily attracted a number of its fellows. One of these was wounded, and placed beside it, and the attachment which they showed to each other was truly wonderful; when the

last-caught one died, the other appeared quite disconsolate for some days. We must again refer to Wilson for the catastrophe of this most interesting tale of animal history:—"On reaching New Orleans," says he, "I placed a looking-glass beside the place where she usually sat, and the instant she perceived her image all her former fondness seemed to return, so that she could scarcely absent herself from it for a moment. It was evident that she was completely deceived. Always when evening drew on, and often during the day, she laid her head close to the image in the glass, and began to doze with great composure and satisfaction. In this short space she had learned to know her name—to answer and come when called on—to climb up my clothes—sit on my shoulders—and eat from my mouth. I took her with me to sea, determined to persevere in her education; but, destined to another fate, poor Poll, one morning, about daybreak, wrought her way through the cage while I was asleep, instantly flew overboard, and perished in the Gulf of Mexico."

37.—THE AMBOYNA PARROT.

PSITTACUS AMBOINENSIS. *Linn.*—LE LORY PERRUCHE TRICOLOR. *Buff.*
DER AMBOINISCHE SITTICH LORY. *Bech.*

DESCRIPTION.—It has some resemblance to the Ceram Lory. The French therefore call it *L'Aurore*. It is sixteen inches long, half of which is occupied by the tail, which is consequently long, but rounded. The beak is three-fourths of an inch long, very much curved, and pointed; the cere is wanting; the nostrils are seated near the forehead; the base of the upper mandible is orange yellow; the middle brighter; the point and under mandible black; the iris golden yellow; the feet ashy grey; the scales merging into dark brown; the head, neck, and whole of the under part of the body, dark vermilion red; the upper part of the neck is surrounded by an indistinct, narrow sky blue band; the whole of the upper part of the body is of a beautiful green, with a delicate margin of a dark or bluish tinge to the feathers; rump dark blue; the tail black, slightly tinged with blue and green stripes upwards, and merging into green at the base; sometimes the whole of the tail is entirely dark brown; the anal feathers black, with a bright red margin to each; the pinion feathers blackish blue, with green edges; the edge of the wings enclosed with shining light green; the under wings blueish black.

The female is green on the head; the throat, gullet, and breast, the same, with a reddish tinge; the anal feathers dark green, with a red margin; the tail more tinged with green; the

beak horny brown, having both above and beneath a reddish tinge.

PECULIARITIES.—It comes from Amboyna, is wild, shy, screams *geek*, and pipes shrilly, but it does not speak. It is treated similarly to the other parrots. It is remarkable that its feathers are so loose as to come off when the bird is handled, but they speedily grow again.

38.—THE GREAT WHITE COCKATOO.

PSITTACUS CRISTATUS. *Linn.*—KAKATOES Â HUPPE BLANCHE. *Buff.*—DER GEMEINE KAKATU. *Bech.*

DESCRIPTION.—It is of the size of a common fowl, being seventeen inches long. The beak is blackish; the cere black; the irides dark brown; the circle around the eyes bald and white. The entire bird is white, with the exception of the large pinion feathers, and the outermost feathers of the tail, of which the basal half on the inner side are brimstone colour; the crest is five inches long, and is raised or depressed at will.

HABITAT AND PECULIARITIES.—It is a native of the Moluccas. We usually keep it, like the rest of large Parrots, in a wire bell-shaped cage, arched above, and furnished within with two transverse perches, and above these a moveable ring of wire—in this ring they are fond of sitting; or it may be chained to a perch, as in the engraving, and on a warm sunny day be suffered out in the open air. They require the same treatment as the rest of the Parrots; but this, as well as the following Cockatoo, is very fond of all kinds of nuts, mealy seeds, and pastry.

Buffon gives the following account of its habits, which render it a desirable chamber bird. He says "the Cockatoo Parrots (of

which there are about nine species, and all of which are distinguished by the crest) learn with difficulty to speak, but they are easily tamed. Thus, in some parts of India they have become tractable domestic birds, making their nests upon the roofs of the houses. The facility with which they may be reared, appears to result from their docility, in which they surpass almost all the Parrots. They listen more attentively, understand better, and obey at a sign. But they endeavour in vain to repeat that which is said to them; and this defect, it would seem, they strive to compensate by other expressions of feeling, and by tender fondling. Their beauty is much enhanced by their agreeable and gentle demeanour. In May, 1775, there was exhibited at Paris a couple, male and female, which, at the command of their master, raised their crest, saluted with the head, touched objects mentioned with the beak and with the tongue, answered questions in the affirmative or negative, by certain signs, and by a repetition of signs indicated the number of persons in the room, the hour of the day, and the colour of clothing, &c. They exhibited a strong affection for each other. Although Cockatoos, like the rest of the Parrots, make use of their beaks in climbing, yet they have not the same awkward motion; on the contrary, they are quick, bold, alert, and make small and lively jumps."

39.—THE LESSER WHITE COCKATOO.

PSITTACUS SULPHUREUS. *Linn.*—KAKATOES À HUPPE JAUNE. *Buff.*—DER GELBHAUBIGE KAKATU. *Bech.*

DESCRIPTION.—It is fourteen and a half inches long. The beak, cere, and feet are blackish; the irides reddish; the eyes are placed within a bald white skin; the predominant colour is white, having a brimstone tinge beneath, and upon its head a similarly coloured pointed crest; beneath each eye there is a brimstone spot; the lower half of the external pinion feathers is on the opposite side, similarly coloured, as well as the pinion feathers, two-thirds of their length from the base.

It inhabits the Moluccas, and when tamed is exceedingly agreeable; it plays, fondles, and is fond of being caressed.

There are reputed to be two varieties, differing only in size.

40.—THE GREAT RED-CRESTED COCKATOO.

PSITTACUS MOLUCCENSIS. *Linn.*—KAKATOES À HUPPE ROUGE. *Buff.*—DER ROTHHAUBIGE KAKATU. *Bech.*

DESCRIPTION.—This is rather larger than the common Cockatoo, being of the size of the Red and Blue Maccaw. The beak is bluish black; the cere black; the bald circle around the eyes pearl grey; the irides dull red; the feet lead coloured; the claws black; the predominant colour is white, with a pale rosy red tinge; the crest upon the head very large, some of the feathers being six inches long; its lower part of a beautiful orange; the side feathers of the tail, from the base to the middle of the inner barb, brimstone; the under side of the wings have also a similar tinge.

PECULIARITIES.—It is a bird of handsome and majestic comportment, but without the same caressing character as the common species, although capable of being as much tamed. It shrieks its own name, *Cockatoo*, like most of the species, and calls very loudly, in a trumpet-like tone, *Derdeny*. It imitates the cries of all animals, especially those of the domestic cock and hen, but it rarely learns to articulate words. When it screams it likewise claps its wings.

It is a native of the Moluccas, and is easily reared, as it is not a delicate bird.

41.—THE RED-VENTED COCKATOO.

PSITTACUS PHILIPPINARUM. *Linn.*—LE PETIT KAKATOE DE PHILIPPINES. *Buff.*—DER ROTHBAUCHIGE KAKATU. *Bech.*

DESCRIPTION.—It is of the size of the Ash-coloured Parrot, and is thirteen inches long. The beak is white, or pale flesh coloured, grey at the base; the circle around the eyes yellowish red; the feet of a mouldy grey; the predominant colour is white; the head is adorned with a crest, in the form of a muscle shell; which is not however observed until it rises; the feathers of this crest are scarcely one inch and a half long; brimstone at the base, white at the tip; some of the under feathers are bright red, but one only visible when the crest is raised; the two central tail feathers are white, the rest, from the

base to the middle, on the inner web, brimstone; the under belly and coverts of the tail are red, with white tips.

PECULIARITIES.—It is a native of the Philippines. We must be contented with the beauty of its plumage, for it never learns to speak, but becomes very tame, and appears to be exceedingly envious when it observes other Parrots treated kindly. It shrieks horribly *aga* and *myeh*, and not Cockatoo. It must be treated similarly to the other kinds.

42.—THE BANKSIAN COCKATOO.

PSITTACUS BANKSII. *Lath.*—LE KAKATOES NOIR. *Buff.*—DER BANKSCHE KAKATU. *Bech.*

DESCRIPTION.—This is undoubtedly the handsomest of the Cockatoos, but it is also the rarest and the most costly. It is about the size of the Red and Blue Maccaw, being from twenty-two to thirty inches long. Its thick beak is yellowish, with a black point; the irides red; the feet black; the predominant colour is black; the feathers of the head are tolerably long, but lie quite flat in repose, as in the Red-vented Cockatoo; upon the tip of each there is a yellow spot; the coverts of the wings have similar spots; the feathers of the upper part of the breast, and on the arms, have yellowish margins; the under part of the breast and the belly are striped with dark and bright yellow; the tail is tolerably long, somewhat rounded at the end; the two middle feathers are black; the rest, upon the base and on the tip, are also black, but the middle, for about one third of their length, are of a beautiful dark crimson, merging into orange, crossed by five or six black bars, which are about one-third of an inch wide, and a little irregular, especially on the external feathers, where they appear abruptly terminated.

There are several varieties of this beautiful species.

a. Has the beak lead coloured; the crest moderate black, but intermingled with yellow feathers; throat and gullet yellow; the sides of the neck black and yellow spotted; the entire body, as well as the wings, black, without any markings beneath the tail, as in the above.

b. Has the beak bluish grey; the predominant colour is olive, or rusty black; the sides of the head have a yellow tinge, but none

of the feathers are yellowish at the tip, nor has the belly any such stripes. The tail as in the above. Perhaps this is a younger bird.

c. Has the beak of a bluish horn colour; head, neck, and under side of the body, of a dirty dark brown; the feathers of the vertex and the neck margined with olive; the upper part of the body, the wings, and the tail, of a shining black; the middle tail feathers of a uniform colour; the rest scarlet in the middle, but without transverse bands. Perhaps this is the female.

PECULIARITIES.—A superb bird; rare in England, and still more rare in Germany. It is found in different parts of New Holland. In its comportment and mode of treatment it resembles the common Cockatoo.

OBSERVATIONS OF BRITISH NATURALISTS.—It is generally understood, of all the Cockatoos, that they nestle in holes of trees, and have only two eggs in a hatch, which are white without any markings. They are vegetable feeders, and flock together after the young are hatched, at which time they levy pretty severe contributions upon the crops of the colonists inland from Sydney. They are wary birds, and place sentinels, as appears to be the case with all the ranging members of the Parrot family; but the colonists shoot the young of various species in great numbers, and hold them in considerable estimation as game. So few particulars are known, however, with regard to the general habits of this interesting division of the Parrot family, that there are not materials sufficient for forming even a guess at their use in the economy of nature, or the kinds of localities for which they are peculiarly adapted.

43.—THE ASH-COLOURED PARROT.

PSITTACUS ERITHACUS. *Linn.*—PERROQUET CENDRÉ OU LE JACO. *Buff.*
DER ASCHGRAVE PAPAGEI. *Bech.*

DESCRIPTION.—This and the following are the most common and the most tractable of all the Parrots with which we are acquainted. It is of about the size of a pigeon, and is nine inches long. The beak is black; the cere and circle round the eyes of a mealy white; the feet ashy grey; the irides yellowish white; the predominant colour ashy grey; the feathers on the head, neck, and under part of the body, margined with white; the rump and under part of the body whitish grey, with ashy

grey margins, whence the whole body has a scaly or mealy appearance; the short tail scarlet. The male and female closely resemble each other, and have both the same capacity.

HABITAT.—It is usually brought from Guinea, whither it is conveyed for sale from the interior of Africa. It is found also on the Congo, and on the coast of Angola. When tamed, it is usually kept, when we cannot allow it its liberty in a room, in a handsome large trap wire cage, with a ring in the centre.

FOOD.—In its native land it lives upon almost all kinds of fruits and grain, and it becomes fat upon the seeds of the saffron, which is a heating purgative for man. In confinement it will devour anything eatable. But it is kept best upon roll steeped in milk, and fruit. Meat, which it likes, as do all the Parrots, makes it laxative, and it then pulls out its feathers and becomes bald. If carefully attended to it has been known to live for sixty years.

BREEDING.—In its native land it builds in hollow trees, and is the species of which solitary instances occur, even in Europe, of its having hatched its young in a tame state. According to Buffon, M. la Pigeonierre of Marmande had a pair that for five or six years in succession formed a nest every spring, and hatched their young. Every brood consisted of four eggs, one of which was unfruitful. To induce them to breed, a small barrel with one of its ends out was placed in an apartment appropriated to the purpose, and both on the outside and inside perches were fixed, whereby the male could conveniently climb out and in, and be always with the female. It was necessary to enter the apartment with boots to defend the legs from the bites of the jealous male, who snapped at everything which approached too closely to the female.

Both adults and young birds of this species are easily tamed, but the young, which are fresh from the nest—and these constitute the majority brought to Europe—are the most capable of instruction.

They are liable to almost all the maladies of birds, and more particularly so when they are indulged with all kinds of dainty food. Swollen and gouty feet is one of the common evils with which they are attacked. Specific remedies for its cure are as uncertain as in mankind. But these maladies are best prevented by cleanliness, and a privation from all animal food and delicacies.

COMMENDATORY QUALITIES.—This Parrot and the Lories not only readily learn to speak, and to pipe, but also acquire all kinds of actions, grimaces, and tricks; they are especially distinguished by a pleasing and fondling comportment towards their keeper. These are preferred to the Lories, as they do not utter the unpleasant wild shriek of the former, which, when excited or angry, makes them almost insufferable. It takes considerable delight in imitating the voices of children, and therefore children are its best instructors. The extent of its powers of imitation are shown in the instances mentioned by Buffon, who says, "that one of these Parrots was instructed by a sailor on the voyage from Guinea, whose hoarse voice and cough it imitated so naturally, that the crew were often deceived, and thought they heard the sailor when it was his mimic. He was afterwards taught by a young man, and although he then heard no other voice, he still did not forget the instruction of his old master, and it was amusing to hear him pass from the soft and agreeable voice of youth to the hoarse accent and rough voice of the old sailor. This bird had not merely great capacity for imitating the human voice, but it even exhibited great desire for the attainment, which could be recognised in the attention and trouble he took to imitate voices; he was incessantly chattering some of the syllables he had heard, and even sought to prevent his memory from being distracted, by crying louder than any of the voices he heard around him, and which might have interrupted him. Even in sleep—and to this I can myself bear testimony—he dreamt aloud, so deep an impression did the lessons make upon him." If instructed young, the memory of this species is so great that it will learn entire verses, and even axioms. Rhodiginus relates of one of these ash-coloured Parrots that it repeated the Creed without interruption, for which reason a cardinal purchased it at the price of a hundred dollars.

44.—THE CERAM LORY.

PSITTACUS GARRULUS. *Linn.*—LORY DE CERAM. *Buff.*—DER GESCHWÄTZIGE LORY. *Bech.*

DESCRIPTION.—This is about the size of a Pigeon, from ten to eleven inches long; and they vary considerably in colour. It has

usually the following markings: the beak is orange; the cere and bald circle round the eyes ashy; the irides dark yellow; the predominant colour is scarlet, excepting the smaller and under coverts of the wings, which are green and bright yellow intermixed; the large pinion feathers are dark green, scarlet on the inner web, and ashy grey at the point; the two middle tail feathers are green above, then dull red, and green at the tip, the next on each side more than half red, then green, and the four external ones scarlet at the base, then violet, and dark green at the tip; the knees green.

PECULIARITIES.—It comes from the Moluccas, is tractable like the preceding, and requires the same treatment.

45.—THE PURPLE-CAPPED LORY.

PSITTACUS DOMICELLA. *Linn.*—LORY À COLLIER. *Buff.*—DER PURPUR KAPPIGE LORY. *Bech.*

DESCRIPTION.—A magnificent bird, both with respect to its plumage and its comportment. It is of the size of a Dove, and is ten and a half inches long. The beak is orange; the cere blackish, as well as the circle around the eyes; the irides of a dull reddish brown; the feet dark ashy grey; the claws black; the predominant colour is red, darkest upon the back, and brightest upon the neck; the upper part of the head is purple black or black, merging towards the back into bluish purple; at the gullet there is a more or less distinct crescent-shaped bright yellow mark; the edge of the wings and their small coverts are dark blue, passing into bright sky blue, the remainder of the wings grass green, with a bright yellow reflection; the large pinion feathers of a beautiful blue; the smaller ones yellowish green; the tail rounded, very slightly conical at the tip, of a bluish purple colour, with a reddish brown tinge; the knees blue, slightly tinged with green.

The female is smaller. The ring at the neck is wanting, or is merely indicated; the bluish glittering colouring of the head occupies less space; the edge of the wings blue, intermixed with green, and the rest of the blue upon the wings wanting. Varieties of this species are found, having the lower part of the back, the rump, the under part of the belly, and thighs, white

and rosy coloured; the upper and under coverts of the tail red and white; the coverts of the wings green, intermixed with bright yellow; the beak bright yellow; the other parts as usual.

PECULIARITIES.—In its comportment this Lory is like its congeners, but it seems to be the most capable of them. It is talkative, and is the tamest, most pleasing, and most delicate of all the Parrots. It utters *Lory*, speaks incessantly, and as hollow as a ventriloquist, pipes everything, and in clear round tones. But it requires to be incessantly amused and caressed. It learns everything rapidly.

This Parrot, from the difficulty of transport, is one of the rarest and most expensive ones. It requires also to be carefully attended to.

It comes from the Moluccas, but is found likewise in New Guinea.

46.—THE BLACK-CAPPED LORY.

PSITTACUS LORY. *Linn.*—LORY DES PHILIPPINES. *Buff.*—DER SCHWARZ KAPPIGE LORY. *Bech.*

DESCRIPTION.—This Lory is smaller than the preceding, but the difference is scarcely perceptible. It is ten and three quarter inches long. The beak orange; the cere and circle round the eyes dark flesh colour; the irides orange red; the feet blackish; the vertex black, with a blue tinge; neck and body scarlet, excepting a blue spot between the neck and back, and another at the lower part of the breast, both of which are interspersed with red feathers; the wings green above, the inner web of the pinion feathers yellow, excepting towards the end, where they become dark brown, and the middle pinion feathers towards the margin yellow; the edge of the wings yellowish; the lower part of the thighs, the belly below, and the vent, of a beautiful blue; the upper side of the tail blue, the central feathers dark green, the inner web of all the other feathers yellowish, whence the tail beneath looks yellow.

PECULIARITIES.—These birds inhabit the Philippines. They are less frequently brought to Europe than the preceding, and are consequently dearer. They are reputed to be as capable, tame, and attached.

47.—THE WHITE-FRONTED PARROT.

PSITTACUS LEUCOCEPHALUS. *Linn.*—AMAZONE À TÊTE BLANCHE. *Buff.*—DER WEISZKÖPFIGE AMAZONEN PAPAGEI. *Bech.*

DESCRIPTION.—This Parrot is of the size of a Pigeon, and is one of the common and tractable kinds. The beak is found sometimes flesh coloured, sometimes bright yellow and whitish ; the irides nut brown ; the circle round the eyes white ; the feet dark brown ; sometimes the head as far as the vertex is white, and sometimes only the forehead ; in the male the vertex, and nearly the back of the head, is of a bright blue, but sometimes with red spots, in the female green; the predominant colour of the plumage is green, the feathers margined with dark brown, which is peculiarly observable upon the anterior portions ; the cheeks, the throat, and anterior part of the neck of a beautiful scarlet ; the belly green, intermixed with red ; the large pinion feathers blue, but black upon the inner web; the posterior ones green ; the two middle feathers of the short tail green, the three next, for one-third of their length from the base, red, the terminal points green, the external ones the same, but outwardly bluish ; the edge of the wings in the male red.

PECULIARITIES.—This bird comes from Martinique, Jamaica, and Mexico, and is also very tame and talkative, but more trouble is required to instruct it than the preceding, particularly when it is wished to teach him German words after he has acquired Dutch or English. The voices of animals, especially of cats, dogs, and sheep, it imitates immediately. It requires the same treatment as the former.

48.—THE COMMON AMAZON PARROT.

PSITTACUS ÆSTIVUS. *Linn.*—PEROQUET AMAZONE. *Buff.*—DER GEMEINE AMAZONEN PAPAGEI. *Bech.*

DESCRIPTION.—This bird is so frequently brought to Europe that it is to be seen everywhere in England and in Holland. It is also very cheap, notwithstanding its size, which is that of a large Pigeon.

Many varieties of it are seen. The following is a description

of its ordinary appearance : the beak is blackish ; the feet ash coloured ; the pupil golden yellow ; the forehead, and the space between the eyes, bluish ; the rest of the head and the throat bright yellow, the feathers with a bluish green margin ; the rest of the body light green, merging on the back and belly into bright yellow ; the margin of the wings red, the upper coverts of the wings green ; the pinion feathers green, black, bright yellow, violet, blue, and red ; the tail green, but extended, the feathers appear enclosed with a black, red, and blue margin.

PECULIARITIES.—This bird comes from Guiana, the Brazils, and Mexico, learns to speak with difficulty, but is a very social and confiding bird. It must be treated like the preceding.

49.—THE YELLOW-HEADED AMAZON PARROT.

PSITTACUS OCHROCEPHALUS. *Linn.*—PSITTACUS NOBILIS. *Linn.*—L'AMAZONE À TÊTE JAUNE. *Buff.*—DER GELB KAPPIGE AMAZONEN PAPAGEI. *Bech.*

DESCRIPTION.—It is of the size of a moderate domestic Pigeon, is one foot two inches long, of which the beak occupies an inch and a half, and the tail five; the beak, which is strong, is at the sides of the upper mandible, and at the base of the lower one, orange, the remainder dark ashy grey, or horny brown ; the oval spaces round the eyes are bald, and of a bright ashy grey ; the irides golden yellow ; the cere black ; the strong feet ashy grey, the claws blackish ; the forehead, back of the head, neck, back, scapular feathers, coverts of the wings, and hindermost tail feathers, are dark and leek green ; the under part of the body, as well as the coverts of the under wings, yellowish green ; the upper margin of the wings bright red, intermixed at the anterior joint with bright yellow ; the vertex, as well as a narrow band round the knees, bright or golden yellow ; the anterior pinion feathers black, externally enclosed with green, with a blue tinge upon the shaft, and towards the interior ; the middle pinion feathers likewise black, the anterior half, upon the external web bright red, towards the tip tinged with blue ; the posterior pinion feathers green upon the external web, otherwise like the anterior half ; the lower pinions bluish green ; the tail green, greenish yellow towards the tip, the three

external feathers having one half of the inner web from the base bright red, laterally intermixed with yellow. The following varieties occur:—*a*. The forehead is pale bright yellow, and the colours usually brighter. *b*. Forehead and sides of the head bright yellow. *c*. The yellow of the head intermixed with green.

PECULIARITIES.—It inhabits South America. It would seem to be deficient in capacity, and that we can derive pleasure only from its rarity and beautiful plumage: for the one I have before me utters nothing but a loud shriek, and appears unwilling to learn.

50.—THE BLUE-FACED PARROT.

PSITTACUS AUTUMNALIS. *Linn.*—LE CRIK À TÊTE BLEUE. *Buff.*—DER HERBST-KRICK PAPAGEI. *Bech.*

DESCRIPTION.—It is of the size of a moderate Pigeon. The beak is horn coloured, having, on each side of the upper mandible, a long orange stripe; the irides orange; the circle round the eyes flesh coloured; the feet are dark flesh colour; the claws black; blue around the front of the head and on the throat; the lower part of the neck as far as the breast red; the rest of the body green, excepting the large pinion feathers, which are blue, but some of them red, with blue tips; the posterior pinion feathers are likewise green, and the tail feathers half green, yellowish green towards the tip; the side feathers, internally towards the base, red.

Three or four varieties of this species occur:—1. Instead of being red and blue, the head is red and whitish. 2. The forehead scarlet; the vertex blue, and beneath each eye an orange spot; the upper margin of the wings bright yellow. 3. The forehead and throat red, behind and beneath the eyes the colour is blue; the vertex yellowish green; the lower margin of the wings red; the tail has merely a pale bright yellow tip. 4. The entire upper part of the body blackish, merely on the breast the feathers dark brown, edged with red. A very rare variety which was in the possession of the Duke of Saxe Meningen.

PECULIARITIES.—These birds are from Guiana. They do not learn much, and scream incessantly *gir, gir*.

51.—THE BLUE-THROATED PARROT.

PSITTACUS MENSTRUUS. *Linn.*—LE PAPAGEI À TÊTE ET GORGE BLEUE *Buff.* Ois. *Lath.* Syn.—DER BLAUHALSIGE PAPAGEI. *Bech.*

DESCRIPTION.—This rare bird is of the size of the ash-coloured Parrot, and has the same character and manners. The beak is of a dark horn colour, with a red spot on each side of the upper mandible ; the red brown eyes lie in a greyish flesh coloured circle ; head, neck, and a portion of the breast are of a beautiful indigo blue, with a somewhat purple tinge upon the breast ; on each side of the head is a black spot ; the back, belly, thighs, and wings, are green, and on the belly the feathers have bluish tips ; the coverts of the wings yellowish green, merging into golden colour ; the vent scarlet, the tips of the feathers bluish ; the tail feathers green, from the first to the third feathers, blue at the tip, the base of the inner web red ; the feet robust and grey.

52.—THE RED-HEADED GUINEA PARAKEET.

PSITTACUS PULLARIUS. *Linn.*—PERRUCHE À TÊTE ROUGE OU MOINEAU DE GUINEE. *Buff.* Ois.—DER ROTHKÖPFIGE GUINEISCH PARKIT. *Bech.*

DESCRIPTION.—The bird-dealers call this beautiful Parrot, which is not larger than the common Crossbill, the Guinea Sparrow, and a multitude of them are now met with in Europe, and are much esteemed on account of their beauty, sociality, and affection. The beak is red, with a pale tip ; the cere and the bald space around the eyes ashy ; the feet grey ; the irides bluish; the predominant colour green, brightest on the lower parts; the front of the head and the throat red ; the edge of the wings and the lower part of the back blue; the upper coverts of the tail green, beneath this a small black stripe, and the tips green, the two middle feathers entirely green.

The female is nearly similar, but the colours are not so strongly marked; the red colour of the face is much paler and brighter, and the edge of the wings bright yellow.

PECULIARITIES.—These birds inhabit Guinea, Ethiopia, the East Indies, and Java, and appear to be distributed throughout

the southern latitudes of the Old World. Formerly they seldom reached Europe, but they are now to be met with at the bird-dealers' in multitudes; perhaps their mode of treatment upon the journey is better understood. They are so social that it is requisite to keep them at least in pairs together, and if one of the pair dies, and it is wished to retain the other alive, it is necessary to hang a looking-glass close to the cage that he may see himself, and be thus deceived into the supposition that he is not alone. The male is excessively tender towards the female, offers her the seeds supplied for their food, and is constantly caressing her in the most gentle and affectionate manner. At large these birds do crops considerable injury. With us they are fed upon Canary seed, and also upon milk and roll. It is to be regretted that they cannot be taught to speak, and that they also make a disagreeable noise. A couple should be placed in a tin bell-cage, a little larger than the cage used for canary birds.

53.—THE LITTLE BLUE AND GREEN PARAKEET.*

PSITTACUS PASSERINUS. *Linn.*—ETÉ OU TOUI-ÈTÉ. *Buff.* Ois.—DER SPERLINGSS PARKIT. *Bech.*

DESCRIPTION.—It is not larger than a common Sparrow, only four inches long. The beak, cere, circle around the eyes, and feet, orange; the predominant colour green; the rump blue; the small coverts of the wings and the tail also green.

PECULIARITIES.—This pretty little bird, which lives as affectionately with its mate as the preceding, is rarely seen. It comes from the Brazils and Guiana. It is to be regretted that it does not speak. It is fed with canary and hemp seed.

54.—THE YELLOW-BREASTED TOUCAN.

RHAMPHASTOS TUCANUS. *Linn.*—LE TOUCAN À GORGE JAUNE DU BRESIL. *Buff.*—DER TUKAN ODER GELBBRÜSTIGE PFEFFERVÖGEL. *Bech.*

DESCRIPTION.—All the Toucans—this, therefore, as well as the following—have a disproportionately large beak, which is

* There may be other Parrots brought to Europe occasionally, although rarely, which I have not seen. They may in general be treated in the same manner as the preceding.

convex above, and gradually curves to the point; it is hollow, very light, and toothed like a saw at the margins. They are brought in summer, when least likely to suffer from the cold, from North America to England and Holland, whence they are forwarded to Germany, but must be considered as rare chamber birds. In confinement they eat all that is cast before them, fruits, berries, especially grapes, bread, roll, meat, frogs, &c. They swallow everything whole by throwing it up into the air and catching it again. They are taken out of the nest, which is placed in hollow trees, and contains two young ones, and reared, when they speedily become very familiar and agreeable.

The Toucan is nineteen inches long; the beak being five inches in length, grey at the base and black at the end; the upper part of the body greenish black; the cheeks, the throat, and anterior part of the neck, are orange; there is a crimson band upon the breast; the upper part of the abdomen is of a beautiful red, its lower part blackish; the pinion feathers and tail blackish; the upper coverts of the tail are brimstone, the lower ones crimson; the feet and claws are lead coloured.

Observations of British Naturalists.—Toucans are so far social in their habits that they are generally seen in small troops of ten or twelve—usually on the wing or on trees. On the ground they do not walk, but leap in a very ungainly way, their feet being wide apart. On the wing their flight is straight forward, their great bill being raised above the body. They have no song, but only a harsh grating cry bearing some relation to the Raven's; and are easily tamed when captured young.

55.—THE BRAZILIAN TOUCAN.

Rhamphastos piscivorus. *Linn.*—Le Toucan à Gorge blanche du Brezil. *Buff.*—Der Brasilische Pfeffervögel. *Bech.*

Description.—This bird is twenty-one inches long, of which the beak occupies six; the beak being also three thick at the base. The upper mandible is of yellowish green, with orange and serrated margins; the lower one of a beautiful blue; the tips of both, scarlet; the irides nut brown; the bald circle around the eyes greenish yellow; the upper part of the head, neck, back, belly, wings, and tail, black; sides, throat, and breast, whitish yellow;

between the breast and the belly there is a beautiful half moon; the upper coverts of the tail are white, the lower bright red; the feet bright blue.

It inhabits Cayenne and the Brazils.

56.—THE PREACHER TOUCAN.

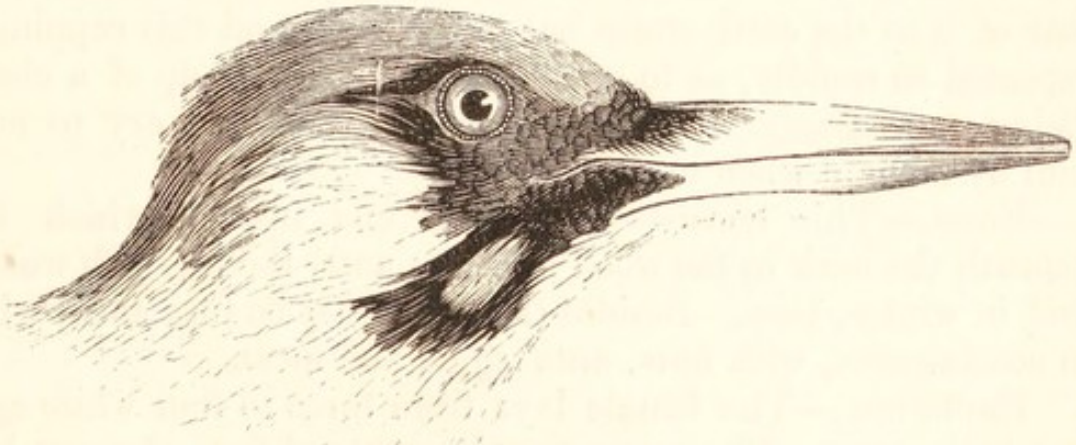
RHAMPHASTOS PICATUS. *Linn.*—LE TOUCAN À VÊNTRE ROUGE. *Buff.*—DER PRIDIGER PFEFFERVÖGEL. *Bech.*

DESCRIPTION.—It is one foot eight inches long; the beak is six inches long, and almost two inches thick at the base, and of a yellowish green, reddish at the tip; head, throat, neck, upper part of the back and shoulders, are of a brilliant black, with a greenish tinge; the lower part of the back, the rump, the upper and under coverts of the wings, also clothed with an ashy tinge; the breast of a beautiful orange; belly, irides, thighs, and lower coverts of the tail of a beautiful red; the pinion feathers, as well as the back, duller; the equal tail of a greenish black, with red tips, beneath black; feet and claws black.

PECULIARITIES.—It is a native of Guinea and the Brazils, and derives its name of Preacher from the cry it constantly makes. It is very easy to tame, and will eat everything presented to it.

SECTION IV.—PICI. THE WOODPECKERS.

In these birds the beak is usually straight, rarely curved even slightly, generally angular, not thick, and moderately long; feet short and adapted to climbing.



57.—THE GREEN WOODPECKER.

PICUS VIRIDIS. *Linn.*—PIC VERD. *Buff.*—GREEN WOODPECKER. *Mont. Selb. Yarrel. M'Gillivray.*—DER GRUNSPECHT. *Bech.*

DESCRIPTION.—About the size of a small domestic pigeon, is twelve inches and a half long, of which the tail measures about four and a quarter, and to the middle of which the folded wings extend; the beak is one and a half inch long, three-edged,

sharply pointed, and of a dark leaden colour; the iris of a bright lead colour, with a bright brown circle round the pupil; the tongue, as in all the Woodpeckers, is about five inches long, and furnished with a hard horny tip for piercing insects; the feet are of a greyish lead colour; the toes adapted for climbing; the vertex, as far as the neck, is of a brilliant crimson; a black stripe runs down each side of the neck, which in adult birds has a reddish tinge; the body above is of a brilliant olive green, beneath dirty greenish white, with indistinct transverse lines upon the abdomen, which become more apparent at the sides.

The female has less red about the head, the colour even approaching to grey when not more than one year old.

Habitat.—During the summer it frequents the open woods, but in winter, when the snow is heavy and the temperature severe, it resorts to the gardens in the vicinity of houses in the country, flying from one to the other. During the night it conceals itself in the hollows of trees. When these are diseased, it hacks with its strong beak deep round holes in the wood to reach the insects within, but it never touches a sound tree. It is, therefore, a great mistake for gamekeepers to destroy it as a bird injurious to the timber. The Woodpecker often knocks upon a tree to attract the insects beneath, which have as instinctive a fear of it as the earth-worm has of the mole, and this rapping is repeated so rapidly, as to sound like the winding up of a clock. Being exceedingly wild and refractory it is necessary to curb him by a chain when in confinement.

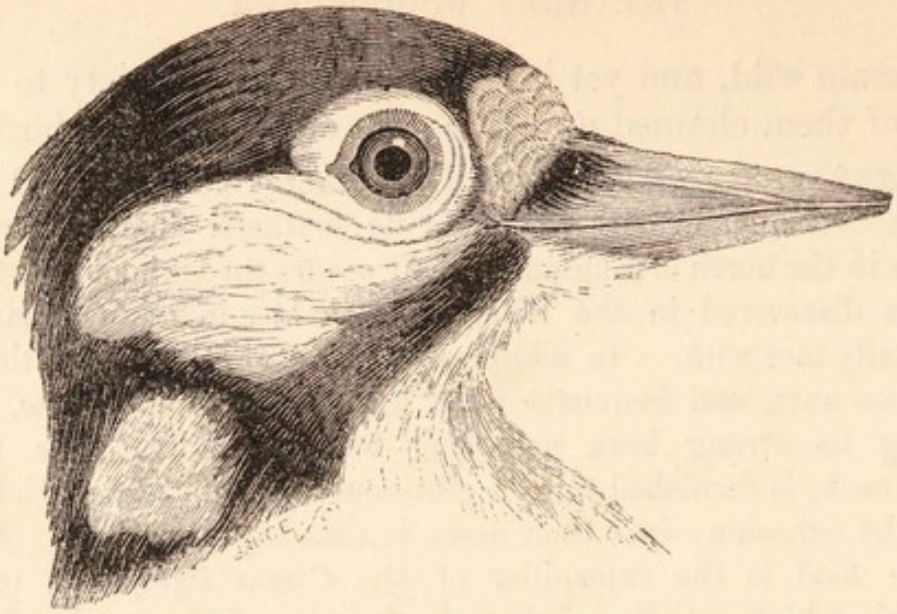
Food.—This consists of larvæ and insects which live beneath the bark in the wood of trees; ants, the larvæ of wasps, and in winter, bees. Besides these it must be furnished, when in confinement, with nuts, ants' eggs, and meat.

Breeding.—The female lays from three to four white eggs in a hollow tree. The young must be removed from the nest half fledged to be reared. They are not to be tamed in the adult state, for, from my own experience, I know that they will not eat when captured.

Commendatory Qualities.—Whoever may wish to possess a rare and unusual chamber bird, which, from its fierceness, intractability, and boisterous deportment, must be curbed by a chain, may have this and the rest of the Woodpeckers recommended to him. I have never yet seen one which was to be reclaimed. They

ever remain wild, and yet it affords a pleasing variety to have a couple of them chained up among the other chamber birds.

Observations of British Naturalists.—This bird is not found in Scotland, or but rarely, in its southern districts, and it is also rare in the north of England, but it occurs throughout Europe, and has been discovered in the Himalayas. White individuals have been occasionally met with. In addition to the food already mentioned, it preys upon ants, and frequents their hillocks for the purpose, where, thrusting its strong beak and long tongue—which, like that of the Wryneck, is furnished with a glutinous substance for withdrawing its prey by adhesion—into their nests, it thus captures them. Another favourite food is the caterpillar of the *Cossus ligniperda*, or large goat-moth, which usually inhabits the interior of the trunks of pollard willows, and occasionally, when having fed frequently upon these, it acquires their extremely offensive odour. It flies in undulations, the last before it alights being the longest. Its mode of ascending the branches or trunks of trees is vertically or spirally, and by the conformation of its short strong legs, and hooked claws, aided by the peculiar structure of the feathers of the tail, it is enabled to do so with facility, the tail being thereby frequently so worn as to have the appearance of being slit, the barbs extending beyond the tip of the shaft. It never, however, descends in the same way, as has been erroneously asserted. Its note resembles a loud shout of laughter, from which it derives one of its provincial names, and this is never varied excepting by its more clamorous repetition during the spring and early summer months, and by the peculiar cry of *plui, plui, plui*, by which it is reputed to indicate the approach of rain. The male assists the female in preparing the place for the reception of the eggs, which is a hole dug into a decayed stem, and carried obliquely to the depth of a foot or more, made perfectly round at the orifice, which is only sufficiently large to admit the bird, but enlarging below, at the bottom the eggs being deposited upon the bare wood, without the intervention of any lining.



58.—THE GREAT SPOTTED WOODPECKER.

PICUS MAJOR. *Linn.*—THE GREATER SPOTTED WOODPECKER. *Mont.*—THE PIED WOODPECKER. *M'Gillivray.*—EPEICHE OU PIC VARIÉ. *Buff.*—DER BUNTSPECHT. *Bech.*

DESCRIPTION.—It is rather larger than the Song-thrush, being about nine inches long, of which the tail occupies three and a half inches; the folded wings extend a little beyond the middle of the latter. The beak is almost one inch long, and has five edges, it is of a darkish horn colour, beneath bluish; the feet are thirteen lines high, and of a bluish olive green; the iris bluish, with a white ring; the forehead yellowish brown; the vertex black, enclosed behind with a crimson band; the back black; the shoulders white; wings and tail striped with black and white, and having a yellow tinge; the under part of the body reddish dirty white; the vent crimson.

The female has not the red band upon the neck.

PECULIARITIES.—This Woodpecker frequents woods and gardens. Insects, hazle-nuts, the mast of the beech, acorns, the seeds of the cones of firs and pines, constitute its food. It fixes its nuts in a crevice to break them.

The female lays from three to six eggs, in the hollow of a tree. The young birds have a red head until they moult, and they must be removed half grown from the nest to be tamed; they require to be fed with ants' eggs, meat, and mice. In other respects they must be treated like the preceding.

THE MIDDLE SPOTTED WOODPECKER.—*Picus Medius.* Linn.—This is a little smaller than the Greater Spotted Woodpecker, but otherwise greatly resembling it. The beak is smaller, much

thinner, and exceedingly pointed; the vertex crimson, and the vent rose-coloured.

It is also less common than the preceding species. The young are not so intractable when reared, although they do not become thoroughly tame; but, like the following species, it may be placed in a cage, attached by a chain.

59.—THE LESSER SPOTTED WOODPECKER.

PICUS MINOR. *Linn.*—PETIT EPEICHE. *Buff.*—THE LESSER SPOTTED WOODPECKER. *Mont.* Orn. Dict. *Yarrel.*—STRIATED WOODPECKER. *M'Gillivray.*—CRANK BIRD. *Rennie.*—DER GRASSPECHT. *Bech.*

DESCRIPTION.—Is about the size of a Lark, being five and a half inches long, of which the tail occupies two inches, and the folded wings extend to one-half its length; the beak is seven inches long, and greenish black; the feet as long, and of the same colour. The rump is white; the vertex crimson; the occiput black; the back white, with blackish transverse stripes; the under side of the body red, greyish white, marked on the sides with a few black stripes.

The female has not the vertex red, and has the upper part of the head white.

PECULIARITIES.—It is a rare bird in Germany, and occurs in woods. Its food consists chiefly of insects, which it seeks in the bark and the moss of trees. It also frequently hops among the grass-seeking insects. Reared from the young it should be placed in a cage, attached by a chain.

OBSERVATIONS OF BRITISH NATURALISTS.—This species, which is said to be more abundant in the northern parts of Europe than in France and Germany, has not hitherto been met with in Scotland, or even in many parts of England, although it occurs in most of the southern, eastern, and midland counties, extending as

far north as Derby, and westward to Shrewsbury and Hereford. It is said by several observers to be not uncommon in some districts. Thus, Mr. Gould, in his beautiful "Illustrations of the Birds of Europe," says, "In England it is far more abundant than is generally supposed; we have seldom sought for it in vain wherever large trees, particularly the elm, grow in sufficient numbers to invite its abode: its security from sight is to be attributed more to its habit of frequenting its topmost branches than to its rarity." The Reverend Mr. Bree states that "it is by no means of rare occurrence in his neighbourhood, where, however, it is more readily heard than seen. Its loud, rapid, vibratory noise—most extraordinarily loud to be produced by so small an animal—can hardly fail to arrest the attention of the most unobserving ear. Though I have watched the bird during the operation, and within the distance of a few yards, I am quite at a loss to account for the manner in which the noise is produced. It resembles that made by the boring of a large augur through the hardest wood; and hence the country people sometimes call the bird the 'pump-borer.'" Mr. Dovaston informs us that it is a very frequent, but uncertain, visitor to the woods near Shrewsbury, never failing in April to astonish him "with his prodigiously loud churr, which may be heard more than a mile off. It much resembles the snorting of a frightened horse, but louder and longer." He then states that the bird, in performing this sound, "vibrates its beak against the tree; the motion is so quick as to be invisible, and the head appears in two places at once. It is surprising, and to me wondrously pleasing, to observe the many varieties of tone and pitch in their loud churry as they change their place on boughs of different vibration, as though they struck on the several bars of a gigantic staccato. When actually boring they make no noise whatever, but quietly and silently pick out the pieces of decaying wood, which, lying white and scattered beneath on the ground, leads the eye up to their operations. They have several favourite spots, to which they very frequently return. Their note is a very feeble squeak, repeated rapidly six or eight times, *ee, ee, ee, ee, ee.* They bore numerous and very deep holes in decayed parts, where they retire to sleep early in the evening; and, though frequently aroused, will freely return. Whatever be the purpose of this enormous noise, they certainly do very nimbly watch, and eagerly pick up, the insects they have disturbed by it. They fly in jerks like their congeners, and always alight on the side of a tree." These notices are extracted from the earlier volumes of Mr. Loudon's "Magazine of Natural History," a work replete with information respecting our native birds.

60.—THE WRYNECK.

YUNX TORQUILLA. *Linn.*—TORCAL. *Buff.*—THE COMMON WRYNECK *Mont. Yarrel. M'Gillivray. Selb.*—DER GEMEINER WENDEHALS. *Bech.*

DESCRIPTION.—This bird is about the size of a Skylark, being six and a half inches long, of which the tail occupies three and a quarter inches. The beak is straight, pointed, and one-third of an inch long — in summer lead coloured, in winter of an olive green; the irides brownish yellow; the feet are short, strong, and lead coloured, with two toes in front and two behind.

The head is ash coloured, with fine black and rusty coloured spots, interspersed with solitary white dots; the vertex and half the back is divided, longitudinally, by a broad black stripe, tinged with a rusty colour; the rest of the upper part of the body is striped and mottled with a beautiful grey, black, white, and rusty colour; from the posterior angle of the eye a chestnut brown stripe runs down half the neck; the cheeks, the throat, neck, half the breast, and the vent, are of a reddish yellow, with delicate black undulating lines; behind the angle of the beak an ashy grey stripe extends, and which is transversely and delicately marked with black; the lower part of the breast and the abdomen are yellowish white with scattered blackish brown triangular marks or transverse spots; the coverts of the wings and the posterior pinion feathers are brown, beautifully striped with grey and black, and sprinkled with white and black spots; the remainder of the pinion feathers are black and rusty, with black undulations on the outer web; the tail has ten large and two small auxiliary feathers, is pale grey, sprinkled with black, and having four broad black transverse stripes.

The female is paler beneath, and the general tints somewhat duller.

HABITAT.—This is a bird of passage, which leaves during

the first half of September, and returns towards the end of April. It is found in coppices and gardens. In August it descends into the cabbage fields and gardens. It occurs as abundantly in Thuringia in the autumn of some years as Linnets; but it is not a social bird, flying solitary. It cannot be conveniently kept in a small cage, as the action of its breast and abdomen, in making its strange motions and grimaces, would then destroy its feathers. It must therefore be placed in a large cage, or in a separate compartment of a chamber, or it may be allowed to fly about a room.

Food.—Its food consist of insects and their larvæ. It projects its long round tongue, which is hard and pointed at the tip, into the crevices and fissures of trees and of the earth in search of its prey. Ants' eggs are its favourite food. During its autumnal migrations, when there is a paucity of insects, it feeds upon elder-berries.

It is rather delicate and requires to be fed at first on ants' eggs, which are then afterwards intermixed with the general food directed in the introduction, to which it speedily accustoms itself. If it be wished to preserve it any length of time it must be fed upon nightingale food. It is interesting to observe him thrusting his worm-shaped tongue into the crevices of the room searching for insects, and no greater pleasure can be given him than to have ants' eggs placed in such spots. All food that adheres together he takes up by the tongue; and it affords much entertainment to observe him when ants' eggs are placed in a saucer or other vessel in front of his cage; he posts himself directly opposite, and fetches them out with the greatest rapidity by means of his tongue. Soft food only, which does not adhere together, he takes up with his beak. He is also fond of ants themselves.

Breeding.—Its nest is found in hollow trees, and consists of moss, wool, hair, and blades of grass. The female lays eight or nine shiny white eggs. Adult birds are not easily tamed, but the young are reared very readily upon ants' eggs, and the general food of crumbled roll.

Capture.—They may usually be captured near the nest by means of limed twigs. But they are so bold that in spring, when they creep through the hedges, they may even be caught by the hand. That which is now running about me in the room, was brought to me by a boy who captured it in this manner.

COMMENDATORY QUALITIES.—The motions which have procured for it its name of Wryneck, recommend it strongly as a chamber bird. Thus it frequently lengthens the neck so much, and twists the head so completely, that the beak appears in the middle of the back. It usually sits upright, makes frequent slow bows, at the same time spreading its tail like a fan, erecting the plumage of his head and neck. When irritated, or when his food vessel is held to him, he bows his body slowly forwards, raises the feathers of his head, lengthens and twists his neck, turns up his eyes, bows, spreads his tail, rolls hollowly in the throat, usually making at the same time the most extraordinary gestures. His general deportment is melancholy. In spring he frequently and loudly utters *gigigigi!* which is the call whereby he attracts his mate. He is also recommended by his colours, which, though not brilliant, are beautifully arranged.

M. von Schauroth informs me that the two Wrynecks he reared became so excessively tame as to cling to his clothes. They utter a chirp whenever they hear their master, or if they see him even at a distance; and once he was so irritated with one which would not cease chirping, that he threw it out of the window. But in the evening, when he called it, it replied, and allowed itself to be caught. When perched upon a high tree, it was only necessary to hold forward its food vessel, and it would fly down.

OBSERVATIONS OF BRITISH NATURALISTS.—The additions made by British naturalists to the history of this bird are very few. It reaches this country about the time named by M. Bechstein—April, generally preceding the Cuckoo; and is soon dispersed over the country, as far north as Midlothian and Fifeshire. It is not uncommon in the south-east and midland counties of England, but, according to Montagu, it is rare in the western parts.

Mr. Knapp describes it as "Shy and usually timid, as if all its life were spent in the deepest retirement, away from man, it remains through the day on some ditch-bank, or basks with seeming enjoyment, in any sunny hour, on the ant hills nearest to its retreat; and these it depopulates for food, by means of its long, glutinous tongue, which, with the insects, collects much of the soil of the heaps, as we find a much larger portion of grit in its stomach than is usually met with in that of other birds. When disturbed, it escapes by a flight precipitate and awkward, hides itself from our sight, and, were not its haunts and habits

known, we should never conjecture that this bustling fugitive was our long-forgotten spring visitant, the Wryneck."

But although it thus frequents the ground in quest of foot, it also searches the trunks and branches of trees, and has been observed clinging to walls. "I once," says a correspondent in the "Magazine of Natural History," vol. iv., p. 450, "saw it climb the perpendicular face of an old tall wall in the botanic garden at Bury St. Edmund's; it was seeking either insects or grit, and proceeded as if in neither haste nor fear, but uttered its Hawk-like note at intervals." This note is a shrill cry, which has been compared to the scream of the Kestrel, and which is more frequently heard in the earlier period of its sojourn with us.

From its appearing about the same time as the Cuckoo, it is named in various parts of England, the Cuckoo's mate, maid, attendant, or messenger. The name of Wryneck is derived from its habit of moving its head and neck in various directions, and probably was originally Writheneck, corresponding to Torquilla and Torticollis. When surprised in its nest, it is described as making a hissing noise, which some compare to that of a Turkey-cock, others to that of a snake, erecting the feathers of its head, which it moves to either side, stretching itself at full length, and sometimes so frightening the intruder as to make its escape. It has thus obtained the names of the Snake-bird and Turkey-bird.

"The Wryneck," says M. Manduyt, "is remarkable for the habit which has given it its name, that of twisting the neck with a slow undulatory movement, like that of a snake, turning its head back and closing its eyes. When caught, it never ceases this motion, which it also performs when at liberty, and even the young, while yet in the nest, have the same habit. If one should go near a male Wryneck confined in a cage, it immediately ruffles up the feathers of its head, spreads out those of the tail and raises them, advances and retires, striking the bottom of the cage with its bill."

It is said to be generally distributed on the Continent, and to be common among the Himalayan Mountains.

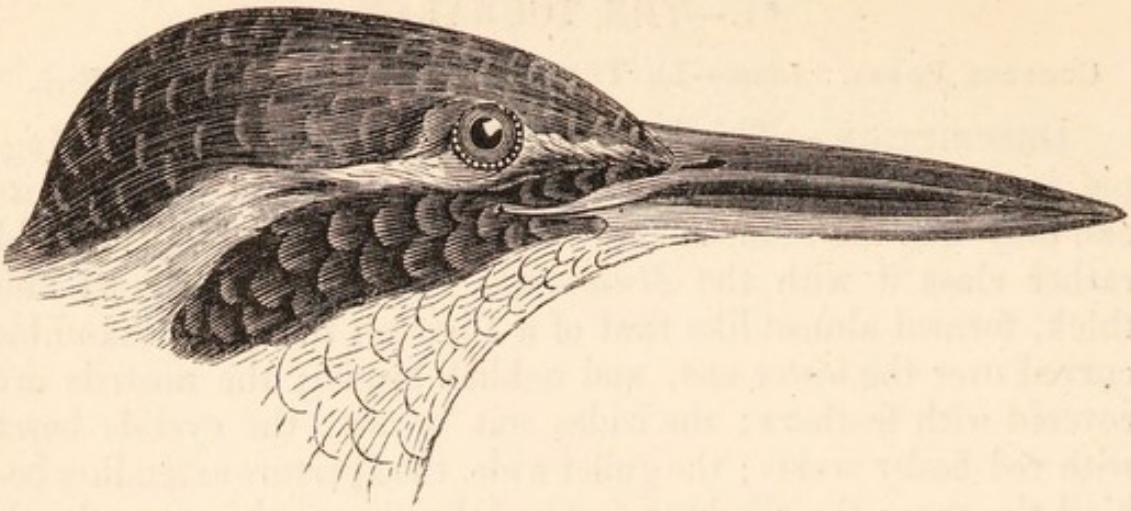
61.—THE TOURAKON.

CUCULUS PERSA. *Linn.*—LE TURACO. *Buff.*—DER TURAKO. *Bech.*

DESCRIPTION.—This bird, which is about the size of a Magpie, is generally classed with the Cuckoo, to which perhaps its call only was the inducement. But its beak and habits would rather class it with the *Musoptaga*. The beak is short and thick, formed almost like that of a Pigeon ; the upper mandible curved over the lower one, and reddish brown; the nostrils are covered with feathers ; the irides nut brown ; the eyelids beset with red fleshy warts ; the gullet wide, the aperture extending behind the ears ; the climbing feet and the claws ashy grey ; head, throat, neck, upper part of the back, breast, upper part of the abdomen, and sides, are covered with soft silky feathers, of a beautiful dark green, as are also the upper coverts of the wings ; the feathers of the vertex gradually increase to a high triangular crest, which the bird can raise and depress at will, the tip of this is reddish ; on each side of the head there is a black stripe, widest in the middle, which commences at the angles of the mouth, and extends to the back of the head, passing through the eyes ; above and beneath it there is a narrow white line ; the lower part of the back, the rump, the upper coverts of the tail, the scapulars, and the large coverts are of a bluish purple; the lower part of the abdomen, the vent, the thighs, and the under coverts of the tail are blackish ; the large pinion feathers crimson, margined externally and at the tip with black ; the long tail is of a bluish purple. The green crest is sometimes intermixed with white.

PECULIARITIES.—It is one of the prettiest and tamest of foreign chamber birds. Its call is *kuk*, *kuk*, *kuk*, at first singly, and then quickly, in rapid succession, *kukkukkuk*, &c. It neither hops nor climbs, but runs across the room as fast as a Partridge, and makes frequently, even with the wings closed to the sides, rapid leaps of ten feet or more. No tongue is observed in its mouth; it therefore swallows all that it eats whole. It is fed with small pellets of fruits and bread, and has a crop.

Buffon says that one from the Cape was said to eat rice, but my bird leaves it untouched ; the pips of grapes, and pieces of apples and oranges, it devours greedily. Hence it appears that fruits constitute its natural food.



62.—THE KINGFISHER.

ALCEDO ISPIDA. *Linn.*—MARTIN PECHEUR OU ALCYON. *Buff.*—HALCYON KINGFISHER. *M'Gillivray.*—DER EISVOGEL. *Bech.*

DESCRIPTION.—A very handsome bird, but which, when adult, can very rarely be accustomed to the atmosphere and diet of the chamber. It is about seven inches long, of which the tail occupies one and a quarter. Its feet, slightly tinged with red, are four lines high, and adapted for walking, the external toe being united with the middle one as far as the first joint. The beak is one and a half inches in length, strong, straight, rather compressed, laterally pointed, and of a horny brown colour, but within of a saffron yellow; the irides dark brown. The vertex and coverts of the wings are of a deep green, the first transversely marked with brilliant ultramarine, and the last with similarly coloured ovate spots; a broad orange red stripe extends from the nostrils beyond the eyes. Behind the ears there is a large white spot; from the lower angle of the mouth, as far as the neck, a broad stripe extends, of the same colour as the vertex; the scapular and back are of a brilliant sky blue; the throat reddish white; the remainder of the under side of the body of a dirty orange red, rather brighter upon the abdomen; the pinion feathers blackish, the narrow web bluish green; the tail, above, dark blue, beneath, blackish.

In the female the colours are darker, and the ultramarine becomes grass green.

HABITAT.—It is a solitary bird, residing the whole year

through in the vicinity of ponds, rivers, and brooks. During winter it sits near holes in the ice, perched upon a twig, prop, or stone, and there awaits its prey. It neither walks nor jumps, but perches or flies. It must, therefore, either be supplied with a grass tuft in a corner of the room, or branches must be placed about on which it may perch; but it is better to confine it in a large cage, fitted up with proper perches. It sits constantly upon one spot.

Food.—Small fish, leeches, and perhaps water insects, constitute its natural food; it must, therefore, be supplied with similar things in confinement, as also earth-worms, and it may also be gradually accustomed to eat meat. If caught adult it rarely survives, although I have seen one so captured which would eat dead fish. It should be furnished with a vessel of water, and the fish or meat thrown into it; but this must not be a small pan, or he will upset it. It does not descend from its perch to feed, but stretches itself forward to reach its food with its beak. In the chamber it will not feed whilst it is observed.

Breeding.—The nest is constructed in holes made by water in banks: it is built exclusively of roots, and lined with a few feathers. There are usually eight white eggs. Before the young see, they are enveloped by long unexpanded quills, and look like hedgehogs. When the feathers begin to develop, the young must be removed from the nest and be fed with meat, earth-worms, ants' eggs, and meal-worms, and subsequently they may be accustomed to meat. They will live longer if their food be cast into fresh water, than when made to pick it up from the ground.

Capture.—They may be easily caught if the spot be observed which they frequent, and which is usually where the water makes an eddy. Springes must be placed upon a pole, or limed rods may be set upon a branch or pole, provided it does not hang immediately over the water, as there would be some risk of the bird falling into the water when entangled.

Commendatory Qualities.—Its beauty is its chief recommendation. As a chamber bird its rarity enhances the acquisition. They are clumsy birds, and boisterous in all their actions, and much patience, as well as considerable attachment to the pursuit, is necessary to induce any one to take the trouble of habituating them to their domicile.

Observations of British Naturalists.—Professor M'Gil-

livray thus eloquently describes the habits of this, the most beautiful of our indigenous birds :—"The woods," he says, "are resuming their green mantle, and the little birds chanting their summer songs. From afar comes the murmur of the waterfall, swelling and dying away at intervals, as the air becomes still, or the warm breezes sweep along the birchen thickets, and ruffle the bosom of the pebble-paved pool, margined with alders and willows. On the flowery bank of the stream, beside his hole, the water-rat nibbles the tender blades ; and on that round white stone in the rapid is perched the Dipper, ever welcome to the sight, with his dusky mantle and snowy breast. Slowly along the pale blue sky sail the white fleecy clouds ; as the Lark, springing from the field, flutters in ecstacy over his happy mate crouched upon her eggs under the shade of the long grass, assured that no rambling urchin shall invade her sanctuary. But see, perched on the stump of a decayed willow jutting out from the bank, stands a Kingfisher, still and silent and ever watchful. Let us creep a little nearer, that we may observe him to more advantage. Be cautious, for he is shy, and seeks not the admiration which his beauty naturally excites. There he is, grasping the splint with his tiny red feet, his bright blue back glistening in the sunshine, his ruddy breast reflected from the pool beneath, his long dagger-like bill pointed downwards, and his eye intent on the minnows that swarm among the roots of the old tree that project into the water from the crumbling bank. He stoops, opens his wings a little, shoots downwards, plunges headlong into the water, reappears in a moment, flutters, speeps off in a curved line, wheels round, and returns to his post. The minnow in his bill he beats against a decayed stump until it is dead, then tossing up his head, swallows it, and resumes his ordinary posture, as if nothing had happened. Swarms of insects flutter and gambol around, but he heeds them not. A painted butterfly at length comes up, fluttering in its desultory flight, and as it hovers over the hyacinths, unsuspicious of danger, the Kingfisher springs from his perch, and pursues him, but without success. There, swift as the barbed arrow, darting straight forward, on rapidly moving pinions, gleams his mate, who alights on a stone far up the stream, for she has seen us, and is not desirous of our company. He presently follows, and our watch being ended, we may saunter a while along the grassy slopes, inhaling the fragrance of the primsose, and listening to the joyous notes of the Blackbird, that from the summit of yon tall tree pours forth his soul in music."

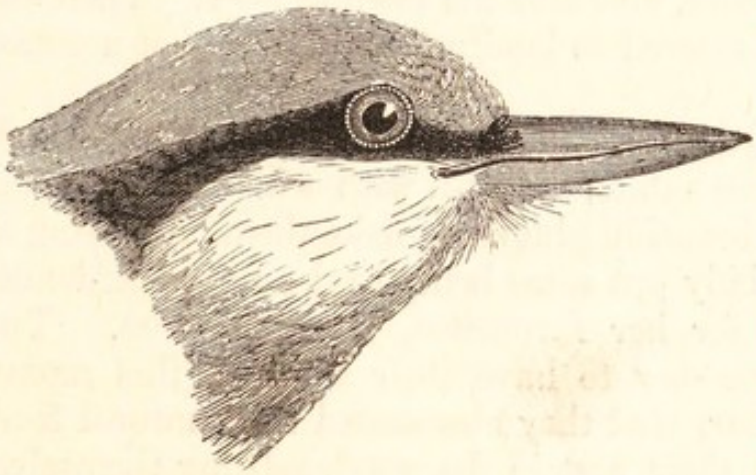
It is chiefly by the still pools of rivers and brooks that the Kingfisher is met with, and it is met with in all parts of Britain. Towards the beginning of May the Kingfisher prepares a place for its eggs, and in June the young come abroad. The female makes no nest ; the eggs

being laid, six or seven in number, perfectly white, and rather round, are deposited in a hole generally in the bank of a stream or fish pond. The Kingfisher will use the same hole year after year, and this even when the nest has been plundered.

63.—THE NUTHATCH.

SITTA EUROPÆA. *Linn.*—SITTELLI OU LE TORCHE-POT. *Buff.* EUROPEAN NUTHATCH. *Mont.* Orn. Dict. *M'Gillivray.*—DER GEMEINE KLUBER. *Bech.*

DESCRIPTION.—The Nuthatch is nearly as large as a Sky-lark, being six and a half inches long, of which the tail measures only one and a half inches ; the beak is nine inches long, strong, straight, slightly compressed at the tip ; the upper mandible of a steel blue ; the lower bluish white ; the irides greyish brown; the feet yellowish grey, and furnished with strong claws for clinging ; the forehead of the male blue ; the rest of the upper part of the body as well as the coverts of the wings bluish grey; cheeks and throat white ; a black stripe extends from the base of the beak through the eyes to the back; breast and abdomen of a dark orange, the side, thigh, and anal feathers cinnamon brown, the latter with yellowish white tips; the pinion feathers blackish; the two central of the twelve tail feathers are of the colour of the back ; the lateral feathers are black, the two external ones with a white bar, becoming a beautiful bluish green towards the tip.



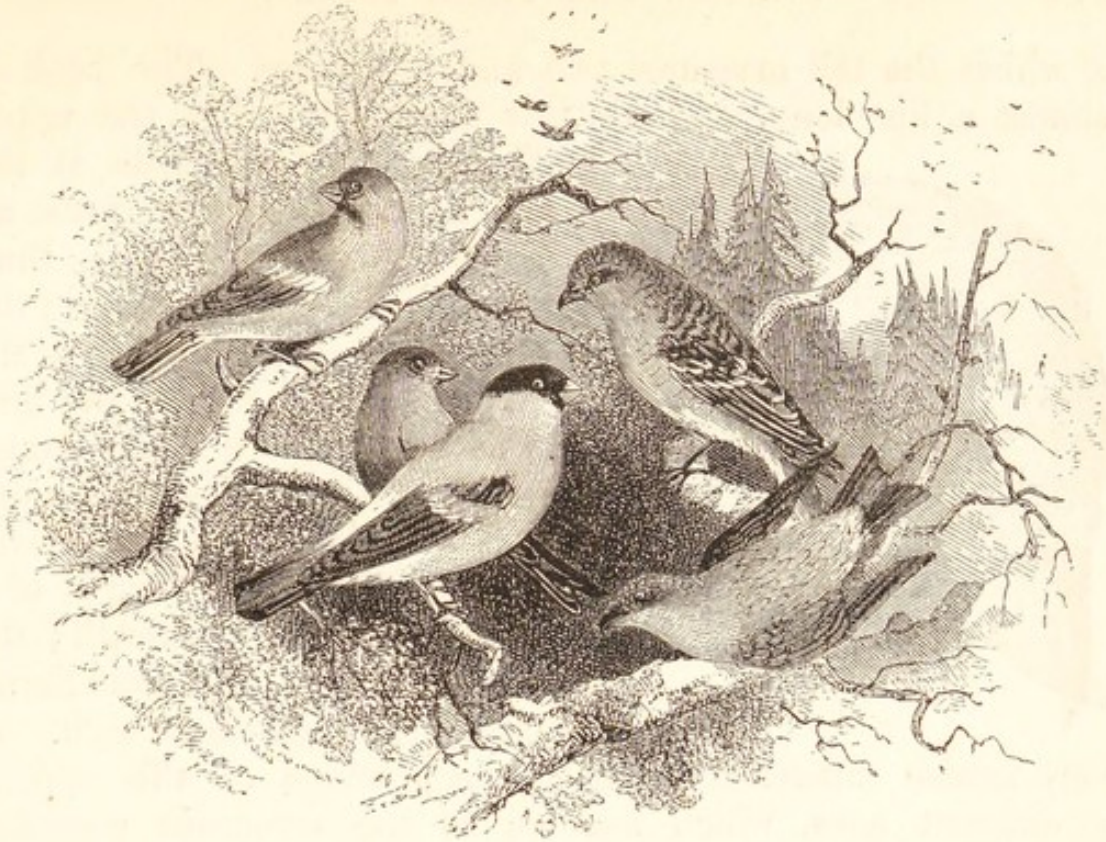
HABITAT. They are found throughout the whole year in beech and oak woods, but most abundantly where there is an intermixture of pines and firs. In winter they frequently resort to the villages, or fly into barns and stables. If it be wished to keep them, they must be placed in a cage made entirely of wire, for they chip and hack all wooden ones to pieces.

FOOD.—They feed upon all kinds of insects, which they seek in the crevices of trees: for this purpose they climb both upwards and downwards. Nuts and beech mast they fix in a crevice, and thus eat it. In confinement they are easily kept upon hemp seed and barley meal. They will also eat bread and oats. The bird will stop up every cranny with oats, the obtuse end of the grain being placed outwards, that it may the more readily be split. If allowed its liberty in a room, it conceals the major part of the food with which it is supplied in a manner similar to the Titmice, thus most providently reserving for themselves a subsequent meal. But from its habit of hacking holes in the wood work, it cannot be conveniently kept in a room.

BREEDING.—They breed in old hollow trees. The female lays from six to seven eggs, white, beautifully spotted with red.

CAPTURE.—They visit the Titmice traps for the oats and hemp seed strewed there, and also the fowling floor. Their call is *grew, deck, deck!* uttered so loudly as to be heard at a considerable distance.

COMMENDATORY QUALITIES.—Their cheerfulness, their exceedingly adroit and active habits, the skill with which they conceal their food, and their beautiful plumage, make them interesting as chamber birds. A lady put some hemp seed and cracked nuts on the window-sill, for her favourites, the Blue Tits. Two Nuthatches came one day to have their share in this repast, and became so familiar, that they abandoned their natural food, and ceased to build their nest in the wood, settling themselves in the hollow of an old treee near the house. As soon as their young ones were able to fly, they brought them to the hospitable window for their food, and soon after disappeared entirely. It was amusing to see these two new visiters hang or climb on the walls or blinds, whilst their benefactress put their food on the board. The pretty creatures, as well as the Tits, knew her so well, that when she drove away the Sparrows which came to steal what was not intended for them, they did not fly away, but seemed to know that this was done to protect and defend them. They remained near the house for the whole summer, rarely wandering far, till one fatal day, at the beginning of the sporting season, on hearing the report of a gun they disappeared, and were never seen again.



SECTION V.—PASSERES. THE SPARROW AND FINCH TRIBES.

In these birds the beak is conically pointed, usually strong, both mandibles being moveable, to enable them to peel the seeds. Like the songsters they have delicate, divided feet. Some feed upon insects as well as grain and seed. Those which feed upon seeds alone, feed their young from the crop; but those which also eat insects, feed them by the beak. They generally build very artificial nests, and the females alone hatch, relieved in some instances by the male for short periods.

This and the following order contain the genuine chamber birds, kept for the pleasure afforded by their song. As a general rule, all seed-eating birds may be tamed, both adult and young.

64.—THE CROSSBILL.

LOXIA CURVIROSTRA. *Linn.*—BECCROISÉ. *Buff.*—COMMON EUROPEAN CROSSBILL. *M'Gillivray. Mont. Yarrel.*—DER KREUZ SCHNABEL. *Bech.*

DESCRIPTION.—This is a remarkable chamber bird. It is about the size of the Bullfinch. Six inches eight lines long,

of which the tail measures two and a quarter. The beak is almost a line long, and has this peculiarity, that the upper mandible curves downwards at the tip, and the lower one upwards, as represented in the engraving, thus passing each other and crossing; the upper mandible crosses either to the right or to the left, just as the bird may have accustomed it whilst young, when the parts were pliant and soft: from this peculiarity the bird derives its name. Its general colour is of a horny brown, brighter beneath; the irides nut brown; the feet horny brown; the shin eight lines high. A considerable difference exists in the plumage of this species at different ages, which has led to the erroneous assertion that the changes occur in each bird at least three times a-year. These varieties are as follows:—The young male, which is grey brown, when it first changes its plumage, becomes of a bright red, darker above, brighter beneath, with the exception only of the blackish pinion and tail feathers. This happens usually in April and May, and it is only at the second moult that this colour is changed into its permanent greenish yellow. Red Crossbills, therefore, are only one year old, and the greenish yellow ones the adults.

The female is always either entirely grey, intermixed with some green on the head, breast, and rump, or irregularly checkered with this colour.

The following description of the adult male is taken from one caught in the nest in the forest of Thuringia:—The forehead, cheeks, and eyebrows green, spotted with greenish yellow and white; the back Siskin green; rump golden yellow; the under part of the body greenish yellow; the vent spotted with white and grey; the thighs grey. But wherever the green and yellow prevails, the dark grey ground colour gleams through, making the parts appear mottled, especially the back; for properly the feathers are all grey, being yellow or green only on the tips. The wings are blackish, the small coverts tinged with Siskin green, the two large rows margined at the tip with whitish yellow,

as are also the last pinion feathers; all the pinion feathers are, however, very delicately margined with green, as are also the blackish tail feathers.

When, therefore, grey or checkered Crossbills are spoken of, they are young ones; red ones are one year olds, which have just moulted; crimson red ones are such as are about to moult the second time; red and yellow spotted ones are the two year olds when moulting. All these changes are frequently met with if the birds are not sought for at breeding time; for as they do not all breed at one season, neither do they moult at one period, which leads to their presenting such varieties of plumage: and moulting, it is well known, powerfully influences the colour of the plumage.

Hence, it appears that Crossbills undergo a change of plumage similar to Linnets, and it is their red hue alone, which they wear for a year, which distinguishes them so remarkably from other birds.

It is, however, singular that the young, of which many are reared by bird-fanciers in Thuringia, never acquire this red plumage in captivity, but during the second year either remain grey, or immediately acquire the greenish yellow colour of the male which has twice moulted.

Habitat.—The Crossbill inhabits Europe, Northern Asia, and America. It resides in pine and fir woods, and is only found where fir and pine cones occur. It requires to be placed in a wire bell-cage of the form and size of that of a Canary. It may also be allowed to be at large in a room, if supplied with a young fir, to roost or sleep in; but it must not be placed in a wooden cage, as it indulges in a habit of gnawing away all wood-work.

Food.—It consists principally of the seeds of the pine, which it either extracts from the cones, by means of its crooked beak, or picks up from the ground. It eats also the seeds of the fir and the alder tree, and the buds and blossoms of the pine. In a cage it must be supplied with hemp, fir, and rape seed, and also juniper berries; but at liberty, in a room, it will become habituated to the second kind of general food described in the introduction.

Breeding.—The time of breeding is perhaps the most remarkable circumstance respecting this bird, for this takes place from December to April. They build in the upper branches of firs and pines, and make their nests of the delicate twigs of those

trees; within the outer wall of this nest is a thick layer of ground-moss, followed inwardly by a lining of very delicate coral moss. But it is not paid over with rosin as has been asserted. The female lays from three to five eggs, which are greyish white, and surrounded at the thick end with a coronal of reddish brown spots, lines, and dots. The heating quality of their food protects, at this season, both young and old from the cold: the young are fed from the crop, like all the kernel-eaters (*Loxia*). They are reared upon roll, steeped in milk, mixed with poppy seeds.

Maladies.—In confinement all vapours act injuriously upon this bird, and therefore in the society of man they are always sickly, get bad eyes, and swollen and lumpy feet. Countrymen, living among the mountains of Germany, imagine, therefore, that they attract to themselves their pains and maladies. This induces many to keep them in their cottages. It is also a vulgar superstition that the Crossbill, whose upper mandible passes to the right side of the lower one, attracts to it the flux and other maladies of men: and that those in which that mandible passes to the left has a similar effect upon the maladies of the female sex. In other districts those whose upper mandible bends down to the left are considered the most available for this purpose. Simple people also drink daily the water left by the bird in its drinking vessel, as a remedy against epilepsy.

These birds are also subject to both apoplexy and epilepsy.

Mode of Capture.—They are very easily caught in the autumn and spring with the call-birds. It is usually effected by means of the so-called climbing-pole, which is nothing more than a high pole to which large limed sticks are attached. These are placed in an open space in forests frequented by these birds: a call-bird is then placed near, which is sure to attract those which are passing by its frequent *gip, gip, gip, gip!*

In some parts of the forests of Thuringia the summits of the firs (for they perch by preference at the summit) have nooses fixed in them, and a good call-bird is hung in one of the upper branches. As soon as the first bird perches, the rest all follow; they are caught, and fall down: then usually as many Crossbills are caught as there are nooses on the tree, provided they are so placed that the stepping-board only projects upon which they must perch.

COMMENDATORY QUALITIES.—The Crossbill is a simple bird, but in the cage it uses its beak and feet just like the Parrot, to help itself along. When thoroughly well it moves its body to and fro like the Siskin, and then utters harsh shrill notes with but little melody. One bird will try to surpass the other: and those are most esteemed by the fancier which repeat frequently a sound like *reits* or *croits*, and which is called the crowing of the Crossbill. It will become so tame as to admit of being carried upon the finger into the open air, and may also be accustomed to fly in and out.

OBSERVATIONS OF BRITISH NATURALISTS.—In this country the Crossbill makes its appearance at irregular periods. Several years may elapse without their being heard of, when suddenly they arrive in great flocks. "In the autumn of 1821, when walking from Aberdeen to Elgin," says M'Gillivray, "I had the pleasure of observing a flock of several hundreds of these birds, busily engaged in shelling the seeds of the berries which hung in clusters on a clump of rowan trees. So intent were they on satisfying their hunger, that they took not the least heed of me. They clung to the twigs in all sorts of postures, and went through the operation of feeding in a quiet and business-like manner, each attending to its own affairs. It was indeed a pleasant sight to see how the little creatures fluttered among the twigs, all in continued action, like so many bees on a cluster of flowers in sunshine after rain. Their brilliant colours, so much more gaudy than those of our common birds, seemed to convert the rude scenery around into that of some far distant land, where the Redbird sports among the mangolia flowers. In that year flocks of these birds were observed in various parts of Scotland; but although I have obtained numerous specimens in a recent state, I have not since had an opportunity of seeing living individuals."

A correspondent of the "Magazine of Natural History," writing in January, 1834, has a minute description of the habits of this bird:—"From October, 1821 to the middle of May, 1822, Crossbills were very numerous in this country, and, I believe, extended their flights into many parts of England. Large flocks frequented some plantations of fir trees in this vicinity from the beginning of November to the following April. I have seen them, hundreds of times, when on the larch, cut the cone from the branch with their beak, and, holding it firmly in both claws, as a Hawk would a bird, extract the seeds with the most surprising dexterity and quickness. I do not mean to assert this to be their general habit; but it was very frequently done when feeding on the larch. I have never seen them attempt the like method with cones

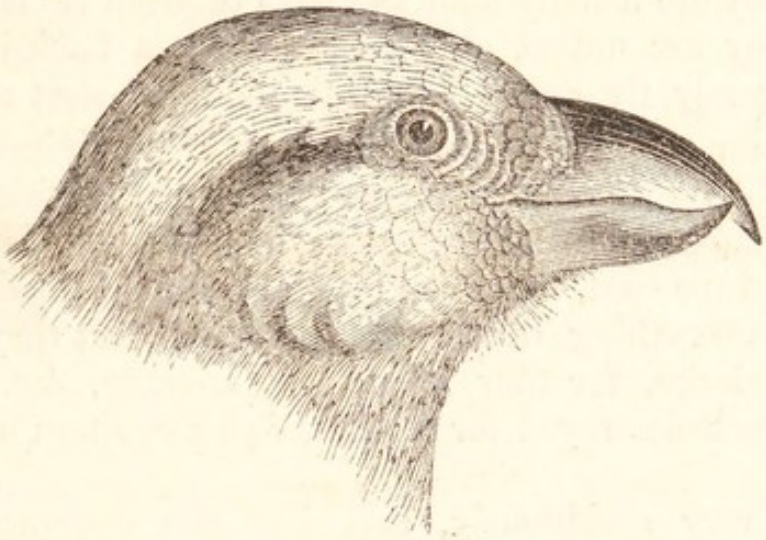
of the Sootch or other species of pine, which would be too bulky for them to manage. Their method with these, and, of course, most frequently with the larch, was to hold firmly on the cone with their claws; and, while they were busily engaged in this manner, I have captured great numbers; many with a horse-hair noose, fixed to the end of a fishing-rod, which I managed to slip over the head when they were feeding, and by drawing it quickly towards the body, I easily secured them; others I took with a limed twig, fixed in such a manner in the end of the rod, that on touching the bird it became immediately disengaged from it, adhered to the feathers, rendered the wings useless, and caused the poor bird to fall perfectly helpless on the ground. In this manner, in windy weather, I have taken several from the same tree, without causing any suspicion of danger. On warm sunny days, after feeding a considerable time, they would suddenly take wing, and, after flying round for a short time in full chorus, alight on some lofty tree in the neighbourhood of the plantations, warbling to each other in low pleasing strains; they would also fly from the trees occasionally for the purpose of drinking, their food being of so dry a nature.

"In captivity they were quickly reconciled, and soon became very familiar. As, at first, I was not aware what food would suit them, I fixed branches of the larch against the sides of the room in which I had confined them, and threw a quantity of the cones on the floor. I found that they not only closely searched the cones on the branches, but, in a few days, not one was left in the room that had not been pried into. I gave them Canary and hemp seed; but, thinking the cones were both amusement and employment, I continued to furnish them with a plentiful supply. I had about four dozen of them; and frequently, whilst I have been in the room, they would fly down, seize a cone with their beak, carry it to a perch, quickly transfer it to their claws, and in a very short time empty it of its seeds, as I have very many times witnessed, to my surprise and amusement. As the spring advanced, the male birds in the plantations were frequently singing on the tops of the firs, in low but very agreeable notes; yet they continued in flocks, and were seen in some parts of the county until the beginning of June. I had hopes of their breeding in confinement, and I accordingly kept them in different rooms, fixing the tops of young fir trees on the floor, and against the walls, and supplying them with as great a variety of food as possible; but all to no purpose, as neither those I had confined in this manner, nor those in cages, ever showed any inclination to breed. They are amusing birds in confinement, as they have some of the habits of the Parrot tribe; climbing about the cage with both beak and claws."

65.—THE PARROT CROSSBILL.

Loxia Pytiopsittacus. *Bech.*—Loxia Curvirostra major. *Lath.*—Bec-croise Perroquet. *Buff.*—Parrot Crossbill. *Selb. Yarrel. M'Gillivray.*—Der Kiefern Kreuzschnabel. *Bech.*

Description.—This Crossbill is usually confounded with the preceding, and considered as the same bird. This I myself was induced to do, until I kept both in the same apartment, and thus had the opportunity of comparing them more closely together. It is of the size of the common Hawfinch or Waxen Chatterer, being about eight and a quarter inches long, of which the tail comprises two and three quarters; the expanded wings extending to thirteen and a half inches. The beak is one inch long, horny black, and much thicker than in the preceding, crossed at the top, but so that the lower mandible does not reach higher than the ridge of the upper one; the tip is also much shorter, and not so slender as in the common Crossbill; the feet are three-quarters of an inch high, and the middle toe is one and a quarter inch long. Both head and body, as well as the beak, are more robust than in the preceding. The majority of the males I have seen were either bright or dark vermilion, intermixed with greyish brown, this being the ground colour of the plumage; the neck, breast, and rump only are of a pure red; pinion and tail feathers dark grey, black on the shaft. It would appear that this bird, as well as the preceding, varies with age, for I possessed a Parrot Crossbill of an olive green colour which sang very well, and was, in all probability, an adult male. The female is dark grey, with an olive green tinge upon the back; Siskin green upon the rump; the abdomen and vent whitish.



PECULIARITIES.—Wherever there occurs a succession of connected pine forests in Germany, there this Crossbill may be found. If not detected in summer, it will certainly be found in winter, by the number of cones bitten off by them, which may be observed beneath the pines with the seeds removed. They are not often heard, for they sit very still, eating almost the whole day long; and only when passing from one tree to another they call almost like the common Crossbill, only rougher and stronger, *gep, gep, gep!* They are usually seen in flocks of from twelve to twenty-four. They are not at all shy, for when a flock is fired into the rest rarely fly away, but will allow the shot to be repeated several times. They prefer sitting upon the highest trees, and are caught like the common Crossbill. In confinement they must be supplied with pine cones; but they are also fed with hemp seed, rape seed, the second kind of general food, and will eat almost everything that comes to table. But they should not be let at large, for they nibble books, shoes, &c.; two of these birds once destroyed for me a new pair of shoes in a single day.

The males sing very assiduously, and like the common Crossbill, but deeper and more intermittingly. The bar *grey, gep, garrye!* are distinctly audible. They are not only very sociable together, but also with the preceding bird, for they bill and feed each other incessantly, and whither one flies thither follows the other. They are sometimes troublesome from their incessant call, but so tame that they will allow themselves to be handled.

I never found their nest; but it is said to be built on the summit of the highest pines, and that they hatch in May, and rear from four to five young ones.

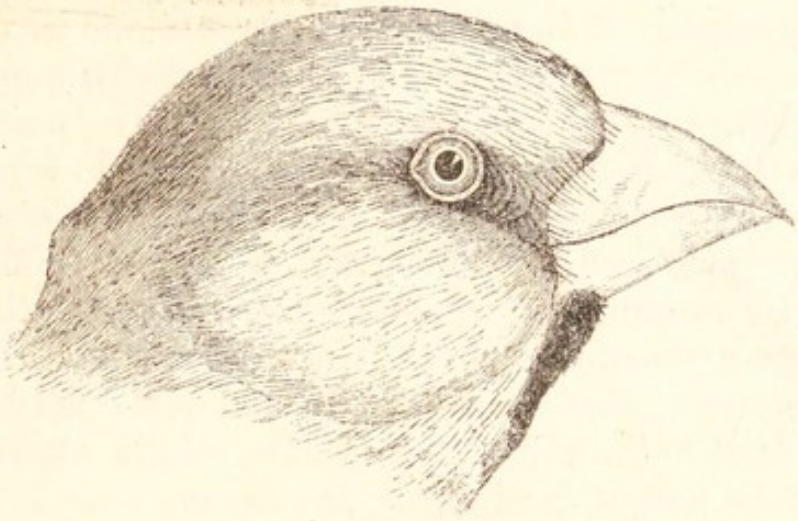
This bird can only be considered as a straggling visitor in Britain, only one or two specimens having been described by British authors.

The Blue Grosbeak is in England commonly called the "Hawfinch".

66.—THE PINE GROSBEAK.

Loxia Enucleator. *Linn.*—Durbec ou Grosbec de Canada. *Buff.*—Der Hakenkreuzschnabel oder Fichtenkernbeisser. *Bech.*

Description—This bird is allied to the Crossbills in figure and habits of life; but the lower mandible does not cross, and the upper one has only a large hook which hangs over the under. It is the largest Grosbeak in Germany, of about the size of the Waxen Chatterer, eight and a half inches long, of which the tail comprises three inches. The beak is six inches long, short and thick; the upper mandible considerably hooked over the lower one, and dark brown; the feet are brownish black, one inch high. Head, neck, breast, and rump of a bright carmine, with a bluish tinge. From the nostrils, which are covered with dark brown feathers, a black line extends to the eyes. The back and the small coverts of the wings are black, with reddish margins, and the large coverts have white tips, which thus form two transverse bands across the wings. The pinion feathers are black: in the shorter ones the external edge is white, and the larger ones have grey margins. Abdomen and vent are ashy coloured; the tail rather forked, and marked like the pinion feathers.



The female is chiefly of a greyish green, with here and there a reddish or yellowish tinge, more particularly upon the vertex.

Whether this bird when at large varies in its plumage, like the common Crossbill, is uncertain, as more yellow than red ones are seen; but that it does so in confinement is confirmed by experience. They become of a deep reddish yellow, not only

after the first moult but even previous to it. This change commences at the beak, passes down the back to the breast, until all that was previously red becomes yellow. This yellow colour is rather darker than lemon; the plumage in the yellow varieties, as in the red, is ashy grey at the base of the feathers.

PECULIARITIES.—This bird inhabits the northern countries of Europe, Asia, and America, and is therefore often found in Northern Germany, in Mecklenburg, and Pomerania, but rarely farther to the south. It lives in forests of pines and firs, and feeds upon the seeds of those trees. It autumn and winter it roams about seeking berries, and therefore is a bird of passage. The nest is built in lofty trees, and the young have a brown appearance, with a yellowish tinge: even during the first year the males are pale red, subsequently becoming carmine or crimson. In autumn and winter they are caught with the springe, and upon the fowling-floor, by means of service berries and juniper berries; they are so simple that in the north a rounded wire is fixed to the end of a long pole, within which are placed some hair nooses, and these are drawn over the heads of the birds. In their native home they are kept by fanciers in cages, for the sake of their song and their great tameness; they afford much pleasure, especially by their habit of singing at night. In this sort of confinement they sing the whole year through; whereas, when wild, this only takes place during the summer months.

OBSERVATIONS OF BRITISH NATURALISTS.—The Grosbeak is an irregular visitant in the northern parts of the island, appearing here and there in various parts of the country towards the beginning of winter. It is more frequently met with in England than in Scotland. Montagu, who is perhaps more to be depended upon than any other British ornithologist, makes the following statement, as the result of his observation :—

"These birds usually visit England in the autumn, and continue with us till the month of April. They appear in small flocks, seldom more than four or five, feeding on the hawthorn berries. The facility with which they break the hard stones of that fruit to get at the kernel is astonishing. It is done apparently with as much ease as other small birds break hemp seed.

"No instance has been recorded of its breeding with us; but Dr.

Latham assures us he had one sent to him in the summer months. What the song of this bird may be in the season of love, authors are silent about; but it has been heard to sing pleasantly, in low plaintive notes, even in winter, when the weather has been unusually warm. The nest is very beautifully constructed of lichens, liverwort, and vegetable fibres, lined with feathers and other soft materials, placed in the upper branches of a tree. The eggs are from three to five in number, of a bluish green, spotted with olive brown, with a few irregular black markings."

Mr. Jesse, in his "Gleanings," informs us, however, that it not only stays with us all the year, but breeds in this country, the nests being frequently found amongst the Hornbeam pollards in Epping Forest, where the bird may be seen at all periods of the year. He further states that it has bred for some years past in the grounds of Lord Clifden, at Roehampton, where a nest with four young ones was taken in the summer of 1834. It was built at the extremity of a horse-chestnut, near the lodge, and was composed chiefly of twigs of the privet and birch, and lined with hair and fine grass.

According to Mr. Doubleday, they are permanent residents in Epping Forest, and very abundant, although so extremely shy that it is almost impossible to approach them within gunshot. "Their principal food," he states, "is the seed of the Hornbeam, which is the prevailing species of tree in the forest; but they also feed on the kernels of the haws, plum-stones, laurel berries, &c., and in summer make great havoc amongst green peas in gardens. About the middle of April they pair, and in a week or two commence nidification. The situation of the nests are various, but it is most commonly placed in an old scrubby whitethorn bush, often in a very exposed situation. They also frequently build on the horizontal arms of large oaks, the heads of pollard hornbeams, in hollies, and occasionally in fir trees in plantations, the elevation of the nest varying from five to twenty-five or thirty feet." The nest is said by Latham "to be composed of the dead twigs of oak, honeysuckle, &c., intermixed with pieces of grey lichen. The quantity of this last material varies much in different nests, but it is never absent. In some, it is only very sparingly placed among the twigs; in others, the greater part of the nest is composed of it. The lining consists of fine roots and a little hair. The whole fabric is very loosely put together, and it requires considerable care to remove it from its situation uninjured. The eggs vary in number from four to six, and are of a pale olive green, spotted with black, and irregularly streaked with dusky colour."

67.—THE BULLFINCH.

LOXIA PYRRHULA. *Linn.*—BOUVREUIL. *Buff.*—BULLFINCH. *Mont.* Orn. Dict. *Yarrel. M'Gillivray.*—DER GIMPEL, ODER DOHMPFAFFE. *Bech.*

DESCRIPTION.—This favourite is short and thick, like most of the species of the genus *Loxia*. Its length is six inches and three quarters, of which the tail measures two inches and three quarters. The beak is half an inch long, black, short, and thick; the irides chestnut; the feet are slender and black, and the shin eight lines high. The vertex, the margin of the base of the bill, and the chin as well as the beginning of the throat are of a shining velvet black; the upper part of the neck, the back, and the scapulars, dark ashy grey; the rump of a beautiful white; the front of the neck, the robust breast, and the upper part of the abdomen of a beautiful carmine, paler in the young, redder in the adult; the rest of the under part of the body white; the pinion feathers blackish, the darker the nearer they approach the body; the posterior ones of a steel blue on the external margin, the last red upon the external web; the large covert of the wings of a beautiful glittering black, with reddish grey tips, the middle ones ashy grey, the smallest blackish ashy grey, with reddish edges; the tail somewhat forked, and of a glittering steel blue black.

The female differs materially from the male, having all the red parts reddish grey, the back brownish ashy grey, with the feet paler. She is also smaller.

There are, besides, other varieties found in confinement:—

a. THE WHITE BULLFINCH, of a somewhat ashy grey white, or entirely white, with dark spots upon the back.

b. THE BLACK BULLFINCH.—It is particularly the females which become black, either in youth, when they are withdrawn entirely from the sun, and hang in a dark place, or in old age, when they are too exclusively fed upon hemp seed. Some re-

sume their original plumage after moulting; others remain always black, but varying considerably—some being of a glittering jet black, others only of a smoky black, rather brighter upon the abdomen. There are also some with a bright black head, and the rest smoky; again, others black, and intermingled with red only on some few of the upper parts of the lower side; others, again, black, with an entirely red abdomen; and, lastly, some few years back I saw one which was from the head to the breast black both upon the upper and under part of the body, the rest rusty, but with white wings and a white tail. This was a very handsome bird, rather larger than a Robin, and was a female.

c. THE VARIEGATED BULLFINCH.—The predominant colour is white, or indeed black, spotted with white and ashy grey.

d. THE BASTARD BULLFINCH.—This variety springs from a young reared female Bullfinch and a male Canary bird; it partakes of the form and colouring of both parents, and sings very agreeably, although not so loudly as the Canary. It is, however, a very great rarety; for the young of this intermixture are reared with difficulty.

There are other varieties which have indeed been treated as distinct species, namely, a larger kind, of the size of a Redwing Thrush; one of middle size, as large as a common Chaffinch; and a smaller, which is said to be considerably less than a Chaffinch; but they are all accidental varieties, such as occur in all birds. I can the more safely assert this, having had the opportunity of seeing together, yearly, some hundreds, not only of wild ones, but also of tame and instructed ones; and I have seen them occasionally as small as a Robin, and as large as a Grosbeak, taken from the very same nest.

HABITAT.—In Europe it is found as high up as Sweden and throughout Russia. In Germany it is very common in the mountain forests. Male and female associate in pairs almost throughout the year. In winter they roam hither and thither in search of berries. When caught they may be placed in a room or a cage with other birds; they soon get reconciled to the change. Birds already instructed should be placed in a large handsome bell-shaped cage, which ought be hung in a separate room, otherwise the notes of other singing birds would speedily spoil their acquired melodies.

FOOD.—Their food consists of the seeds of the fir and pine,

the kernels of almost all kinds of berries—such as the ash, the maple, the hornbeam, and the buds of the red beech, maple, oak, and pear trees; also bruised rape seed, millet, nettle, and grass seeds. Those which are left to run about the room should be fed with the usual general food, mixing it occasionally, by way of variety, with rape seed; while the instructed bird should be fed with hemp seed and rape seed, with now and then some unflavoured biscuit. They live longest upon rape seed steeped in water, without any hemp, the latter being so heating as to produce blindness, or superinducing atrophy. They require occasionally some green food, such as water-cresses, a bit of apple, berries of the service tree, or salad.

Breeding.—Bullfinches are exceedingly affectionate birds, both at large and in confinement. The male and female are rarely found separated, calling to each other in a languid voice, and incessantly billing. The female will frequently drop her eggs in the room; and they breed like Canary birds when furnished with a similar cage, or with a box provided with a fir tree and moss, but they rarely rear their young. At large they hatch twice a-year, building their nests in pines and fir trees, or in quickset hedges: the latter they prefer light, thick, and situated in old and unfrequented road-ways. The nest is badly built, and consists externally of delicate twigs, and internally of ground moss. The female lays from two to six obtuse eggs, of a bluish white, having at the thick end a coronal of violet and brownish spots. The young are hatched in fourteen days. If it is wished to instruct them in artificial music, they must be removed from the nest when about twelve to fourteen days old, just as the tail feathers begin to push, feeding them with rape seed, and mixed with roll or buck-wheat grits, steeped in milk. The male is immediately recognised by the breast being tinged with red; and the connoiseur may select them in the nest if he wish only to rear male birds, for although the female learns to pipe, she never succeeds so readily, nor so well, nor is she so handsome as the male. They never pipe until they can feed themselves; but as soon as they are brought home their education should commence by piping to them. I would, however, deprecate their being taught by means of an organ. Birds taught in this way have generally the high screeching note of the instrument. A high pure manly whistle is best suited

to them. They learn to imitate this in a very full, round, flute-like tone. It must also be observed that, like the Parrot, they are most attentive, and therefore they learn most quickly immediately after feeding. For nearly nine months they must be whistled to before it can be said that they are perfect; for if the instruction cease at an earlier period they either mutilate their tones, learn false bars, or transpose them, and usually forget them again upon their first moult. It is best to keep them away from all other birds, even when their education is completed; for, being quick at learning, they easily catch up extraneous notes, and intermix them in their tunes. At times, also, when they stop, they must be assisted, especially at moulting time. When they are silent the tune must be piped to them, otherwise there is a hazard of obtaining false tones, which is the more unpleasant as a good Bullfinch is usually an expensive bird.

MALADIES.—Wild birds, that is to say, such as are not acquainted with any artificial tunes, and have been caught adult by means of the snare or noose, will live for eight years, without being sick. Reared ones, however, are exposed to several maladies, partly because their first nourishment consists of unnatural food, and partly also because pet birds have all kinds of delicacies given to them. They, therefore, rarely attain to the age of six years. They remain most healthy and live longest when they have neither sugar nor pastry, nor other delicacies given to them, but are fed constantly upon rape seed, intermixed occasionally, by way of treat, with hemp, and occasionally a little green food, which cleanses their stomachs. They are more healthy also if they have some water and sand placed in the cage, that they may pick up grains, to assist in the process of digestion.

The maladies to which they are exposed are—1. *Constipation.* 2. *Dysentery.* 3. *Epilepsy.* 4. *Melancholy* and *Dejection*, in which state they sit apart without being absolutely sick, but do not sing. Delicacies must then be withheld from them, and they should be fed exclusively upon steeped rape seed. 5. *Moulting.* The remedy for this is a rusty nail placed in the drinking vessel, good food, and ants' eggs, if accustomed to the latter when young.

CAPTURE.—Few birds are more easily attracted by the call than the Bullfinch. They may be caught not only by the ordi-

nary call with the decoy bushes, but also upon the climbing-pole, like the Crossbill, or upon small trees beset with limed sticks, to which they may be attracted by the call-bird. In winter they are frequently caught in the trap, attracted by the bait of bind-weed berries *(Viburnum Opulus)*. In spring and autumn they will alight upon the fowling-floor when baited with sorbs and other berries. Then even a call-bird is not required, a gentle call of *tui, tui,* from the hut being all that is necessary.

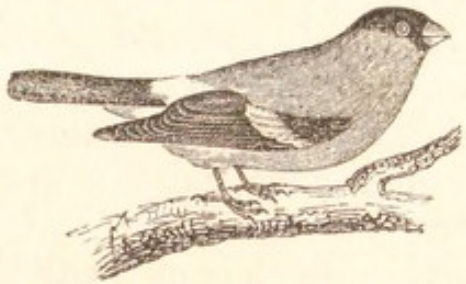
Commendatory Qualities.—Bullfinches have considerable capacity; and although both sexes have a harsh, creaking, natural tone, which frequently renders them intolerable, yet well bred young birds learn all kinds of songs, airs, and melodies, such as are taught them. In Hesse and the district of Fulda, where they are prepared for the markets not only of Germany, but also of England and Holland, they are taught three distinct pieces, in a soft, pure, round, flute-like note, which becomes the more agreeable if they are taught by means of a flute or of the mouth. They are at the same time extremely tame, pipe when desired, and make a variety of very delicate motions with the body, bending now to the right and now to the left; and doing the same with their tails, which they expand also occasionally like a fan. However, if it be desired that a Bullfinch should sing perfectly, it ought never to be taught more than one melody, in addition to the usual fanfare, which is always added by way of surplus. The Bullfinch will also imitate the songs of other birds, but this is not usually permitted. On the contrary, when it is to be thoroughly trained, it is only taught to pipe songs or other musical pieces. The varying degrees of the capacity of animals is also exhibited here; for one bird learns quickly and readily what others learn with difficulty. It has also been observed that those which have a weak memory do not readily forget that which they have once thoroughly acquired, not even during moulting time.

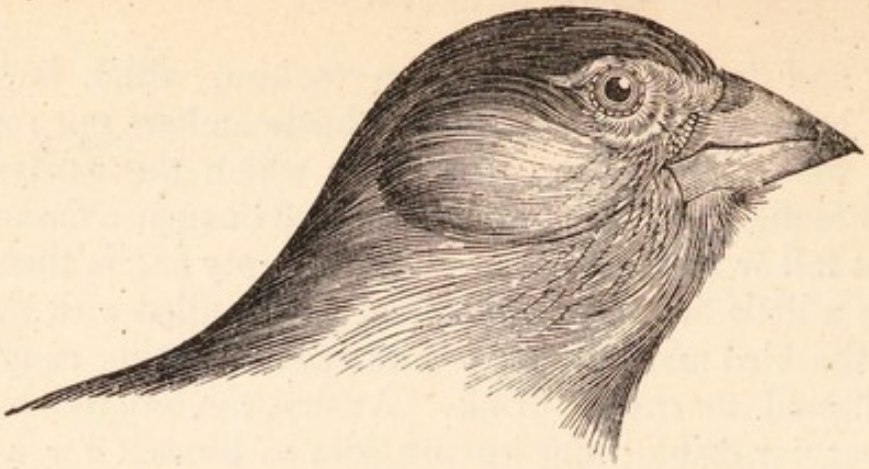
Adult birds when first caught are kept not only on account of their beauty, but also because they allow themselves to be made so exceedingly tame, that, like the lesser Redpole and Siskin, they will fly upon and eat out of the hand and the mouth, and will even permit themselves to be handled as if they had been reared from the nest. The usual process for taming Bullfinches so caught is as follows:—When first caught, the bird is placed in

a cage, and the usual food is given to him, which he readily eats. A brace is then made, such as bird-catchers put round the body or the wings of the call-bird, to which the newly-caught bird is attached by a line a foot long, and in such a manner that it cannot fall or flutter about. A little empty bag is then taken, to which a little bell is attached, and this is filled with the usual food of the bird and handed to him, the bell being rung, when he is allowed to eat or drink. At first the fettered bird will neither eat nor drink ; but leaving him to himself for a day or two at meal time, he will soon learn to eat out of the bag and to drink out of the drinking cup. After two or three days the trainer may approach while it feeds. In this manner, and in the course of four or five days, the Bullfinch may be trained to fly to the hand, as soon as he hears the little bell ring. To complete his training it is necessary to throw occasional difficulty in the way of his getting the food out of the bag, by leaving it only partly open, or by closing it suddenly, or by giving him rape seed only in his cage, and putting the more agreeable hemp seed in the bag. He will also speedily learn to drink out of the mouth, if water be withheld from him for half a day.

This bird may likewise be easily accustomed to fly in and out of the window, if you do not reside too near a wood. To entice him back again more speedily, his female, with clipped wings, may be put in a cage at the window, or in the room. His affection for his mate will certainly prevent his flying away.

In England the Bullfinch occurs in wooded districts, not very common anywhere, and seldom associating with other birds. It resides with us during the whole year. It is an active lively bird, with a hollow and sweet voice.





68.—THE GREENFINCH.

Loxia Chloris. *Linn.*—Grosbec Verdier. *Buff.*—Green Linnet. *M'Gillivray.*—Greenfinch. *Mont.* Orn. Dict. *Yarrel.*—Green Grosbeak. *Selb.*—Der Grünling. *Bech.*

Description.—Is rather more robust than the Chaffinch, and about six inches long, of which the tail measures two and a half inches. The beak is five lines long, flesh coloured, darker above, brighter beneath, in winter bright brown; the irides dark brown; the feet bluish flesh colour, eight lines high. The predominant colour is a yellowish green, beneath brighter or Siskin green, brightest on the rump and breast, and merging towards white on the abdomen.

The female is smaller, and differs from the male by having the upper part of the body more of a greenish brown, and the under part inclining to an ashy grey. The lower coverts of the tail rather tend to white.

Gamekeepers and bird-catchers speak usually of three kinds:—*a*. The large Greenfinch, which is entirely yellow. *b*. The middle one, which has the abdomen, especially, bright yellow; and *c*. The smaller one, which is said to be more approaching green. But these differences arise from the age of the bird, whence the body is robust or slender, and the plumage more or less beautifully marked. *d*. The bastard Greenfinch is remarkable; it springs from the intermixture of a male Greenfinch reared from the nest, and a female Canary, which produces a bird of a robust frame, green and grey in colour, but which is always a bad singer.

Habitat.—The Greenfinch is met with all over the Continent of Europe, but it does not frequent high northern latitudes. In Germany it is one of the commonest birds. In summer it is

found on the skirts of woods, in coppices or where gardens and willows occur; but in winter it migrates in flocks of thousands. In March it returns to its old quarters.

In many woody districts it is an ordinary chamber bird, and is kept in a bell-shaped or square cage. Placed in a room, or aviary with other birds, it is only tranquil when supplied with abundance of food; otherwise it snaps and bites, and will allow no other bird to approach the feeding trough, biting them severely, and speedily plucking them bald if they are not removed.

Food.—The Greenfinch feeds upon all kinds of seeds, hemp, linseed, dodder grass, rape, the kernel of junipers, spurge laurel *(Mezereum)*, unripe barley, the seeds of turnips, thistles, salad, and especially the seed of wolf's milk *(Euphorbia Helioscopia)*, which almost all other animals abhor. When allowed to run about it feeds on the second kind of general food, and becomes stout and fat upon it: by way of change, a little hemp and rape seed is occasionally mixed with it. In the cage it has only the seed of summer cabbage; and if it is wished to make him sing sharply after moulting, this is given him, mixed with hemp seed. To retain him in health it is also necessary to give him occasionally some green food, such as salad, chick-weed, cole-wort, and juniper berries.

Breeding.—It usually constructs its nest upon the thick branch of a tree close to the trunk, more rarely in a thick hedge, or at the summit of an old willow. The nest is well made, externally of wool, coral moss, and lichens, and lined with the delicate fibres of roots and hair. The female lays, twice a-year, from four to five acute, silvery white eggs, with a few scattered cinnamon or bright velvet dots. The young are at first of a greenish grey; but the males are at once recognised by their yellowish tinge. If taken from the nest and reared, they will learn all the songs of chamber birds, even when they are very difficult; but as they sing the whole year through, it is best to let them learn from a Chaffinch. What they once learn they never forget.

Maladies.—They are of a more robust nature than the majority of the other chamber birds, and may be preserved for a dozen years with moderate care.

Capture.—They may be caught until December, on the fowling-floor, by means of a call-bird. In spring the call-bird

is placed upon the decoy banks. They call, when flying, *yack, yack*, and when perched *shwoinz*. They allow themselves also to be allured by Linnets. They readily accustom themselves to eat, if crushed hemp seed be thrown upon the floor to them.

COMMENDATORY QUALITIES.—Although their native song is not a pleasing one, yet it is not disagreeable, and some persons prefer it to that of the Linnet, but with this I certainly cannot agree. The great tameness to which, like the Bullfinch, it may be reduced, makes it an exceedingly pleasant chamber companion. It may be accustomed not only to fly in and out of the room, but may even be brought to build in a room where a garden or shrubbery is at hand. To effect this it is requisite to adopt the following course:—The young must be removed from the nest and placed in a cage in a hole beneath a tree, placing over it a trap-cage or a titmouse-trap. The old ones, wishing to feed the young, step upon the springe and are caught; both old and young are immediately removed into a large store-cage, and fed until the young are nearly fledged. At this stage of training they are allowed to fly in and out of the store-cage, and even out of the window. Hunger immediately constrains them to return; and while the pleasure of trying their wings induces them to a short flight, when first they fly out, the old ones are placed at the window to recall them; if they are accustomed to their trainer at the same time, they will never fly away. If this course is not adopted, they may be kept until the winter, and the windows only opened when it snows; they then fly out they can be recalled by placing some of their fellows in a cage at the window. To adopt a still more secure course, such arrangements are made at the window that females with clipped wings may be allowed to run in and out. They breed very freely in rooms, in company with Canary birds, and as they hatch well, Canaries' eggs are sometimes placed under them.

They may also be accustomed, like Siskins and Goldfinches, to draw up water.

69.—THE GROSBEAK.

LOXIA COCCOTHRAUSTES. *Linn.*—GROSBEC. *Buff.*—HAWFINCH. *Mont.* Orn. Dict.—BLACK-THROATED GROSBEAK. *M'Gillivray.*—DER GEMEINE KERN BEISSER. *Bech.*

DESCRIPTION.—None but an ardent bird-fancier would think

of keeping this bird. It is seven inches long, of which the tail measures two inches and one-third. In proportion to its body its beak is very thick, round, obtuse, and conical; in summer dark blue, and in winter blackish at the tip, with that exception flesh coloured; iris bright grey; the vertex, cheeks, and coverts of the tail are of a bright chestnut brown; the nape and the back of the neck of a beautiful ashy grey; it has a mark like a halter, which forms at the chin a black quadrate elongation; the back dark chestnut brown, the abdomen of a dirty fleshy red, merging into white at the vent; the small coverts of the wings black, the larger ones white in front, brown behind, whence a white spot appears upon the wings; pinion feathers black, steel blue at the tip, the anterior ones having a large white spot upon the inner web, the posterior ones angularly truncated at the tip, as well as the pinion feathers, terminating abruptly, as if cut off; the tail black, the two central feathers becoming ashy grey at the tip, and all the external ones are white on the inner web of the terminal half and at the tip.

In the female the head, cheeks, and upper coverts of the tail are brown, or reddish grey; the black colouring of the throat, the wings, and the tail blackish brown; the white spot upon the wings more of a bright ashy grey; the under part of the body reddish grey, passing into white on the abdomen.

Habitat.—It is found throughout the temperate portion of Europe and Russia. In many parts of Germany it is very common, especially in mountainous forest districts, where the red beech grows. It may be called a bird of passage in preference to a migratory bird, returning in March to its usual place of resort. It should be placed in a bell-shaped cage, where it speedily becomes tame. It may be allowed to run freely about, if it has not too many companions, and is always plentifully supplied with food, otherwise it is excessively snappish.

Food.—It is particularly fond of cherries, the stone of which it breaks by means of its powerful beak with the greatest facility for the sake of the kernel. It feeds also upon the seed of the red beech, hornbeam, juniper, ash and maple, service berries, and haws, as well as dodder grass, and the seeds of hemp,

It is intermediate between a Grosbeak and a Chaffinch, for its beak is too thin to connect it with a Grosbeak, and too strong for that of a Chaffinch. It is rather larger than the Aberdevine, being four inches and three-quarters long, of which the tail measures one inch and three-quarters. The beak is very short and stout, brown above, white beneath ; the irides dark chestnut brown ; the legs six lines high, and, as well as the toes, flesh coloured. The plumage of the male is very similar to that variety of the Canary which is called the grey or green. The forehead, circle around the eyes, a stripe above the eyes extending to the neck, breast, and rump, are greenish yellow; back of the head, cheeks, temples, and small coverts of the wings, are Siskin green, and reddish grey, intermixed with blackish longitudinal spots ; the two large series of coverts are blackish, and the superior one distinctly margined with yellow, but the lower one with reddish yellow, hence the wings appear to have two yellow bands ; the pinion feathers are black, margined with Siskin green ; and the tail, which is slightly forked, is similarly coloured. The spots with which the plumage is sprinkled are not distinctly separated, but flow into one another in small longitudinal stripes. The head is delicately dotted, and even the sides and vent have distinct black spots and stripes.

The female can be distinguished from the female Siskin only upon very close examination, and chiefly by the shorter beak, longer tail, and the generally slighter frame ; the colours are similar, having only a rusty grey tinge. From the male it is chiefly distinguished by having its greenish yellow breast striped with black.

Peculiarities.—This bird has been usually confounded with the Citril Finch. The Siskin may be used as a call-bird for it in spring and autumn : it is caught in this manner in Thuringia.

The following observations upon the natural history of this bird have been contributed by my friend, Dr. Meyer, of Offenbach :—" Of all the chamber birds with which I am acquainted, the Serin is one of the most vivacious and indefatigable. Its voice is not strong, but melodious, and, exclusive of the intermixture of some strophes of the song of the Lark, it has a most deceptive resemblance to that of the Canary. At large it sings incessantly, sitting either upon the extreme branches of a tree, or

just rising into the air and descending again, or flying from one tree to the other during its song. Its call-note is precisely that of the Canary, which bird it also greatly resembles in all its proceedings."

HABITAT.—It was first observed in the neighbourhood of Offenbach, about twenty years since. Every year it arrives in great multitudes in March, and leaves again towards the end of October; yet a great many remain throughout the winter. In January 1800, when the temperature was as low as 21°. of Reaum., several were caught there as late as the end of February.

FOOD.—It feeds upon small seeds which it finds in the fields, and it is particularly fond of the seeds of the groundsel, plantain, and chickweed. In the cage it is best kept upon rape seed mixed with poppy seeds, but it may sometimes have hemp seed and shelled oats.

BREEDING.—It generally constructs its nest upon the lower branches of apple and pear trees, or beeches, and occasionally upon oaks, but never upon willows or near water. The nest is made with some degree of skill; externally of the delicate fibres of roots, interwoven with moss, and lichens (especially of the *Lobaria farinacea*) and densely lined with feathers, cow hair, together with some horse hair and bristles. The female lays usually from three to four, rarely five, and never six eggs, which in form exactly resemble those of the Canary, being only a little less. They are marked with a coronal of irregular, glittering, reddish brown spots and dots upon a white ground, particularly at the thicker end. The hatching time lasts from thirteen to fourteen days, during which the male feeds the female upon the nest, and afterwards helps to feed the young from the crop. In the nest, the young closely resemble the grey Linnet, remain grey until their first moult, and only subsequently acquire the plumage of their parents. The young are easily reared upon soaked rape seed, but the best plan is to catch the parent birds also, and put all together in a cage, when the old ones will immediately feed the young. In confinement they never acquire the beautiful plumage which they have at large, and after a few years' confinement the old birds become pale, or even white, on those parts which were yellow. They will breed with Canaries, Siskins, Red-poles, and even Goldfinches.

CAPTURE.—They are readily caught upon the fowling-floor

with call-birds and limed rods, and are very easily captured feeding upon plantain. One of these birds which I possessed died of atrophy.

71.—THE CARDINAL GROSBEAK.

Loxia Cardinalis. *Linn.*—Grosbec de Virginie.—*Buff.* Der Cardinal Kernbeisser. *Bech.*

Description.—This bird is eight inches long, of which the tail comprises three inches. It inhabits several of the States of North America. Its beak is robust and bright red, like its fect; the irides unusually brown; the head decorated with a crest, the feathers of which when raised form a point; around the beak and on the throat it is black; the rest of the plumage is of a beautiful bright red, the pinion feathers and tail being duller than the rest, and always brownish in front.

The female is chiefly reddish brown.

Peculiarities.—This bird has been very justly compared to the Nightingale, for its song is most agreeable, and has a very great resemblance to that songster. The male sings so loudly that his note rings in the ears. In a cage he will sing the whole year through, moulting time only excepted. In its native haunts it feeds upon maize and buckwheat, of which it often collects large quantities, covers it artificially with leaves and twigs, leaving open only a small aperture as entry to its magazine. It may be fed upon millet, Canary seed, rape, and hemp, and will live for many years upon these.

72.—THE JAVA GROSBEAK.

Loxia Orycivora. *Linn.*—Padda, ou Oiseau de Riz. *Buff.*—Der Reis Kernbeisser. *Bech.*

Description.—It is of the size of a Bullfinch, being five inches long, of which the tail comprises two inches. The robust beak is of a beautiful rosy red, brightest towards the tip; the feet pale rosy red; the eyelids bald, surrounded with a rosy colour; the head, throat, and a stripe enclosing the white cheeks, black; the rump also black; the remainder of the upper part

of the body, the breast, the coverts, and the posterior pinion feathers, dark ashy grey; the anterior pinion feathers, and the tail, black; the belly purplish grey; the vent white.

In the female merely the back and abdomen are brighter; and the young are not only paler, but also irregularly spotted with dark brown upon the cheeks and vent.

PECULIARITIES.—Seamen bring this bird in multitudes from Java and the Cape of Good Hope, where it is considered as injurious as the Sparrow is with us, devastating entire rice fields. It is its beauty which makes it agreeable. Its call sounds like *tack, tack;* and its song is very uniform, consisting of two strophes, of which the last has but two syllables, *dirr, dirr, dirr, dahee.* The first strophe has a rolling sound, and the second is a clear high-sounding note.

73.—THE WAXBILL.

LOXIA ASTRID. *Linn.*—SENIGALIRAYÉ. *Buff.*—DER GEMEINE SENEGALIST. *Bech.*

DESCRIPTION.—This bird is scarcely so large as a Robin, being about four and three-quarter inches long. The beak is raised at the base, and bright red; a similar bright red stripe extends between the eyes, and the middle of the breast and abdomen are of a beautiful brown. The upper parts of the body are brownish grey, the lower bright ashy grey, covered all over with the most delicate black undulating lines, which gives the plumage a very soft and silk-like appearance: pinion feathers and tail brown, the latter conical, and striped transversely with dark brown lines; the feet also are brown.

This bird, like the Amandavade Finch, changes its colours, and some are found, therefore, which have a uniform brown tail; others are crimson upon the rump, and the rest of the body brown above, white beneath; others, again, are yellow upon the abdomen, and spotted with white above; and others are bluish upon the neck and throat, and the rest of the under part of the body white, mixed with rusty red, and blue on the upper part of the body, &c.

PECULIARITIES.—They inhabit the Canary Islands, Madeira, Senegal, Angola, the Cape of Good Hope, and India, and are

The Java finchbeak (or as it is commonly called the "Java Sparrow") may be fed on canary seed, with occasional oats or hempseed of which especially the latter they are exceedingly fond. They should also be well supplied with clean water every day, both for drinking and bathing, as they have a decided weakness for washing themselves.

often brought to Europe. Their pleasant form and caressing nature, which is shown not merely by the sexes, but likewise towards each other, when a dozen or more are placed together in a cage, make them exceedingly interesting. Their song, however, is of no moment. They are fed upon millet, which they eat also in their native country, and in consequence are frequently injurious to crops of this seed.

74.—THE AMANDAVADE FINCH.

Loxia Amandavade. *Linn.*—Bengali Piquete. *Buff.*—Der Getiegerter Bengalist. *Bech.*

Description.—This handsome little bird is brought frequently from Bengal, Java, Malacca, and other parts of Asia, and is not more than four inches long. From its form I class it with the kernel feeders, although others place it among the Finches. The beak is four lines long, thick, and of a deep blood red colour; the irides bright red; the feet pale flesh colour, half an inch high. In the male the head and abdomen are of a fiery red; the upper part of the body dark grey; but all the feathers are so broadly margined with red, that this gives the predominant colouring; the rump of a glittering yellowish red, with broad yellowish red margins; the abdomen and vent black; all the feathers of the back, coverts of the wings, posterior pinion feathers, tail feathers, and side feathers of the breast and abdomen, and of the rump and vent, have beautiful white spots at the tip; the coverts of the wings and pinion feathers blackish.

The female is one-third less than the male, and has a black stripe upon the posterior ridge of the beak. The head and upper part of the body, as well as the coverts of the wings, are of a very dark grey; the cheeks bright grey; the rest of the under part of the body of a pale brimstone; the pinion feathers blackish; the posterior and large coverts of the wings have delicate white spots; and the tail feathers whitish grey tips.

The male of this bird varies for several years, until it acquires the above plumage. It is, therefore, found with a grey back tinged with red; and abdomen black, variegated with yellow, also reddish grey above, sprinkled with fiery red; and the abdo-

men brimstone with black rings, and likewise more or less dotted, &c.

PECULIARITIES.—These birds are as social as the former. When there are twenty or thirty together in a cage, they sit closely together upon the perch; and what is most singular, they sing successively one after the other, all but the singer being quiet at the time. They sing both summer and winter, and their song resembles that of the Yellow Wren. The female, however, does not sing, as has been asserted. They are exceedingly rapid in their motions, bow frequently, spreading the tail like a fan. In their native countries they eat millet and other seeds: we give them Canary seed and millet. They eat a great deal, but drink still more. They should have a confined wire bell-shaped cage. They live from six to ten years.

75.—THE PARADISE GROSBEAK.

LOXIA ERYTHROCEPHALA. *Linn.*—CARDINAL D'ANGOLA *Buff.*—DER PARADIES KERNBEISSER. *Beech.*

DESCRIPTION.—It is nearly six inches long. The beak and feet flesh coloured; head and chin red; hinder part of the neck, back, rump, and wing coverts bluish grey; the upper coverts of the tail margined with grey; the under parts white, with brown and black spots on the sides; the coverts of the wings have white tips, and these form two white stripes upon the wings; pinion feathers and tail are dark ashy blue with grey tips. The male and female are alike.

PECULIARITIES.—The male sings throughout the year, but so feebly that the least noise drowns it. Attempts to breed them have succeeded. They feed upon millet and rape seed, which is occasionally intermixed with hemp seed.

76.—THE DOMINICAN GROSBEAK.

LOXIA DOMINICANA. *Linn.*—CARDINAL DOMINICAIN. *Buff.*—DER DOMINICANER KERNBEISSER. *Beech.*

DESCRIPTION.—It is about the size of a Lark, and comes from the Brazils. The upper mandible is brown, the lower of a bright

flesh colour; the feet ashy grey; the head, the throat, and the front of the neck are blackish, slightly intermixed with white; the coverts of the tail and scapulars grey, intermixed with a few black spots; the sides of the neck, the breast, and the abdomen whitish; the pinion feathers black, with white margins; the tail black.

PECULIARITIES.—This bird is distinguished solely by its beauty; it does not sing, and only occasionally utters a shrill call-note. It should be placed in a handsome bell-cage, which it may be said to merit not only on account of its beauty, but also from its costliness.

77.—THE GRENADIER GROSBEAK.

LOXIA ORIX. *Linn.*—LE CARDINAL DU CAP DE BONNE ESPERANCE. *Buff.*—DER GRENADIER-KERNBEISSER. *Bech.*

DESCRIPTION.—It is nearly the size of a Sparrow. The beak is black; the irides chestnut; the feet dark flesh colour; forehead, sides of the head, thin end of the breast, and abdomen velvet black; rump, tail, throat, neck, and upper part of the breast crimson or fiery red and velvety; the back and shoulders more darkly clouded than the neck; at the upper part of the neck the feathers do not lie so close as usual, hence that part appears swollen; the thighs are reddish grey; the wings dark brown or blackish grey with reddish white shafts.

The male takes the same colours in confinement at the second moulting, but the markings are darker; the plumage of the upper part of the body being blackish, with broad reddish grey margins to the feathers, and the stripe above the eyes is pale brimstone. At large, the male, after pairing time, which is after January, loses its red feathers, and then resembles the female, but resumes its beautiful plumage in July, when pairing time recommences. They are very handsome whilst moulting, for then, with their variegated head and body, they have a beautiful red neck and tail.

PECULIARITIES.—These birds are as common in all the colonies of the Cape of Good Hope, and do as much injury to the wheat blossom and ripening ears, as Sparrows with us. Upon their return in the evening, in flocks of thousands, from the cul-

tivated lands, to their resorting place among the reeds, their dissonant chirping may be heard to a considerable distance. Their call is *deeb*, *deeb*, somewhat like that of Sparrows, and their song is in a low weak voice like a Siskin. They build an artificial nest, composed of small twigs, interwoven with wool. It has one entrance, but consists of two compartments, the upper one for the male, and the under one for the female. The colour of the eggs is green.

These birds should be placed in small cages, and fed with Canary seeds. Male and female like to be together. But there is no instance on record of their having bred in Europe.

78.—THE CAPE GROSBEAK.

LOXIA CAPENSIS. *Linn.*—LE PINÇON NOIR ET JAUNE. *Buff.*—DER KAPSCHE KERNBEISSER. *Bech.*

DESCRIPTION.—I have one of these beautiful birds. It is about the size of a Bullfinch. Its length is six inches and a quarter long, of which the conical tail measures two inches and a half. The upper mandible is whitish, compressed laterally, and very pointed at the tip; the irides dark brown; the feet dark flesh colour; head, neck, upper part of the back, the whole of the under part of the body, and the tail, are of a velvety black; the remainder of the back and rump, as well as the small wing coverts, of a beautiful golden yellow; the larger coverts and pinion feathers blackish, or deep dark brown edged with greenish yellow; the scapulars bright brown with broad greyish red margins.

The female is bright brown, spotted with black in the middle of all the feathers; the sides of the head and coverts of the wings are greyish white, striped with black; the smaller coverts of the wings and the rump bright yellow; the tail margined with grey; the beak pale or horny grey.

The male, after pairing time, or after the second moult, resembles the female.

PECULIARITIES.—This bird comes from the Cape of Good Hope. It is easily kept in the room, but its song is unattractive. It should be placed either alone or with a female in a cage, and be fed upon hemp and Canary seed. In its native home it

resorts to the vicinity of brooks and rivers, feeds upon seeds, but is not so injurious to crops as the preceding. The eggs are grey, spotted with black. Its flesh is very good.

79.—THE KAFFRE GROSBEAK.

Loxia Caffra. *Linn.* — Le Kaffre. *Buff.* — Der Mohren Kernbeisser. *Bech.*

Description.—This bird is rather larger than a Bullfinch, and its cocked tail is longer, or indeed twice as long as the bird itself; but this ornament is only the costume of the pairing season. The beak is greyish brown; the feet grey; the predominant colour velvety black; the shoulders blood red; the wing coverts white; the pinion feathers brownish grey with white margins.

The female is grey, and only red upon the shoulders.

At the commencement of November the male puts off his handsome black dress, and changes it for the female costume, after breeding time or in January.

Peculiarities.—This Grosbeak is a native of the Cape of Good Hope, far inland to the north-west. It builds in marshes. It is rarely brought to Europe. It requires a large cage, on account of its long tail. At large this tail considerably impedes its flight; and in the rainy season it is, in consequence, easily caught by the hand. It should be fed upon Canary seed.

80.—THE BLUE GROSBEAK.

Loxia Cærulea. *Linn.*—Le Bouvreuil bleu d'Amerique. *Buff.*—Der Dunkelblaue Kernbeisser. *Bech.*

Description.—It is as robust as the common Grosbeak, but rather longer, being six inches and a half long, of which the tail measures two. The beak is strong, and of a dark brown; the feet black; the chin surrounded with a black stripe, which extends as far as the eyes; the whole of its plumage is of a deep blue, excepting the large coverts of the wings, the pinion feathers, and the central tail feathers, which are dark brown; there are also some red spots upon the shoulders; the under side of the wings and tail incline to green.

The female is brown, with a slight intermixture of blue.

PECULIARITIES.—I have observed this bird in the aviary of the Duke of Meiningen. It is fed upon Canary seeds. It calls but little, and sings very softly; but its plumage is agreeable. It is a native of the Northern States of America, Carolina, Brazil, Cayenne, &c.

81.—THE ULTRAMARINE GROSBEAK.

LOXIA CYANEA. *Linn.*—DER LAZURBLAUER KERNBEISSER. *Bech.*

DESCRIPTION.—This Grosbeak is usually considered as a variety of the preceding, but I have seen both together, and they appear to me to be really different birds. It is rather smaller than the preceding; the beak lead coloured; the irides nut brown; feet blackish; the plumage dark sky blue or ultramarine; collar, pinion, and tail feathers black, those of the two latter margined with blue; the margins of the wing coverts golden yellow; the thigh and vent feathers edged with white.

PECULIARITIES.—This very beautiful bird comes from Angola. It can be kept for a long time upon hemp, Canary seeds, and crushed oats. Its song is soft but agreeable, resembling that of the Siskin. It is very cheerful, and becomes so tame that it will feed from the hand.

82.—THE YELLOW-BELLIED GROSBEAK.

LOXIA FLAVIVENTRIS. *Linn.*—GROSBEC JAUNE DU CAP DE BONNE ESPERANCE. *Buff.*—DER GELBAFTERIGE KERNBEISSER. *Bech.*

DESCRIPTION.—I have seen this bird in the collection of the Duke of Meiningen, but I am not sure that it is the *Loxia flaviventris* of Linnæus. It is of the size of a common Chaffinch, and five inches long. The beak is moderately strong, and approaches to that of the Finches, and is of a horny colour; the feet are dark brown; the head and neck bright blue, but not shining; the whole of the upper part of the body is of an olive green; and the under side, from the breast to the vent, bright orange.

The Yellow Grosbeak of the Cape of Good Hope is thus described:—Head, back of the neck, and back olive green, with brown stripes; rump olive green; the under part of the body dark yellow; a yellow band over each eye; pinion feathers and tail brown, with olive green margins.

The colours in the female are duller.

PECULIARITIES.—This bird was stated by the dealer to be the female of the Blue Grosbeak, with which it is placed in the same cage, and they agree very happily together. It is a native of the Cape of Good Hope.

83.—THE GOWRY GROSBEAK.

LOXIA PUNCTULARIA. *Linn.*—GROSBEC TACHETÉ DE JAVA. *Buff.*—DER GETÜPFELTE KERNBEISSER. *Bech.*

DESCRIPTION.—It is the size of a Linnet, and four and a quarter inches long. The beak and feet black; the whole of the upper part of the body, or in the lower, as far as the breast, chestnut brown; a purple spot upon the cheeks, which does not, however, occur in the young, and the incompletely moulted bird; belly and sides white; all the feathers with a heart-shaped edge; the lower portion of the belly and vent reddish white; the rump feathers margined with grey; the tail, short and conical, dark brown like the wings, with a tinge of the colouring of the upper part of the body.

The female has no red spot on the cheeks; the beak and feet dark brown; the back reddish brown; the sides white with dark brown spots; the vent whitish.

PECULIARITIES.—These birds come from Java. They are kept in cages, and fed upon Canary seed. They call *deeghy!* and sing softly, caressing and chirping almost like a Siskin.

84.—THE BANDED GROSBEAK.

LOXIA FASCIATA. *Linn.*—DER GEBÄNDERTE KERNBEISSER. *Bech.*

DESCRIPTION. — It is the size of a Linnet, and is about four and a half inches long. The beak is thick at the base,

compressed in the middle, runs to a sharp point, and is bluish grey ; the short feet are flesh coloured ; the upper portion of the body is dark reddish ashy grey, each feather having two blackish bars, only one of which is perceived ; the belly black, with ovate reddish white spots ; the rest of the under part of the body and the rump reddish grey brown, with blackish margins to the feathers ; a dark purple band passes round the cheeks and chin.

The female is paler ; the band round the neck is wanting ; under part of the body is reddish brown, with a dark margin to each feather.

PECULIARITIES.—These birds are called by the bird-dealers "Indian Sparrows," although they come from the coast of Guinea. They call *deeb* like the Sparrow, and have a very similar voice. They feed upon Canary seed.

85.—THE BROWN-CHEEKED GROSBEAK.

LOXIA CANORA. *Linn.*—DER BRUNWANGIGE KERNBEISSER. *Bech.*

DESCRIPTION. — It is the size of a Siskin, and is four inches long. The beak is short and thick, and horny brown ; the feet are flesh coloured ; the brown cheeks have a yellow margin, extending from the throat to behind the ears ; head, back, wings, and the conical and rounded tail of a dirty pale green ; breast and belly ashy grey. The female has not the yellow margin to the cheek.

PECULIARITIES.—This pretty little bird comes from Mexico. It has a soft and flute-like song, and its comportment is animated and agreeable. It is placed in a cage and fed with Canary seed and millet.

86.—THE MALACCA GROSBEAK.

LOXIA MALACCA. *Linn.*—JACOBIN. *Buff.*—DER MALACKISCHE KERNBEISSER. *Bech.*

DESCRIPTION.—It is the size of a Greenfinch, and four and a half inches long, of which the thick ashy blue beak occupies five lines, and the tail one and a half inches. The feet are ashy

blue; head, neck, a stripe extending from the middle of the belly to the vent, and the thighs, are black ; the breast and the sides of the belly white ; back, wings, and tail bright chestnut brown, the latter two dark brown beneath. It is a robust and large-headed bird.

I have frequently seen males which have sung and moulted, and have remained the same after moulting, without any white on the breast or black on the belly.

Edwards, who has figured it, has added a female which was in the same cage and lived very contentedly with it. It was ashy brown above ; the sides of the head and the under parts reddish, or rather rose coloured ; the pinion feathers and tail blackish ; the feet flesh coloured.

The black pinion and tail feathers would indicate that this bird is not the same species ; its familiarity is no proof, as all seed-eating birds are social together, and fondle each other with the bill.

PECULIARITIES.—This bird is brought from the East Indies. It becomes very tame and familiar, and is also very animated. It has a strong voice, calls shrilly *yap*, and sings some strophes which are not unpleasant, although strong and intermixed with harsh tones. It is fed upon hemp and Canary seed, upon which it thrives very well, and lives long.

87.—THE CLOUDED GROSBEAK.

LOXIA NUBILOSA. *Bech.*—DER SCHWARZWÖLKIGE KERNBEISSER. *Bech.*

DESCRIPTION.—I have seen two of these birds. They appear to resemble the *Loxia Molucca et nigra ;* but their descriptions do not exactly agree. They are about the size of a Sparrow. The beak is thick, and whitish grey; the feet are large, and lead coloured ; the plumage generally is black, white upon the rump and at the vent ; the lower part of the body clouded with whitish grey, and the coverts of the wings with reddish grey ; but black appears to be the predominant colour, for after each moulting the under side of the body and the wings become more brightly clouded.

PECULIARITIES.—It is said to come from Africa, especially

from the Cape of Good Gope. It becomes very tame, and eats millet, hemp, Canary, and rape seed. Its song is a continuous gingle, with little melody. It calls *zeeb*, and lives many years.

88.—THE RED-BILLED GROSBEAK.

LOXIA SANGUINIROSTRIS. *Linn.*—DER ROTHSCHNÄBLICHE KERNBEISSER.—*Bech.*

DESCRIPTION.—This bird is the size of a Sparrow. It is brought from Africa. Its beak is thick, the base very bald above, and of a dark blood red colour; the forehead, vicinity of the eyes, and chin, black; the upper part of the body greyish brown, with blackish longitudinal stripes, very like the Tree Sparrow; the under part of the body of a bright brown red; pinion and tail feathers dark brown, edged with reddish grey; the feet fleshy red; the irides yellow red; the eyelids flesh coloured.

The female is much paler; the black markings of the head are deficient; and the under part of the body is yellowish white.

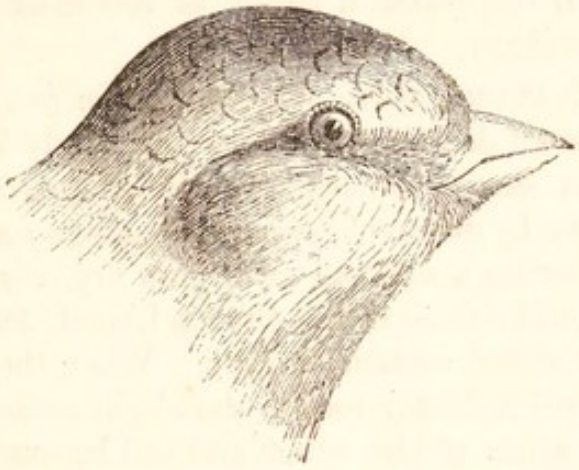
PECULIARITIES.—This bird is fed upon millet and Canary seed. It is a pleasing bird, not only on account of its beauty, but also from its soft song, which resembles that of the Red Wren. The male and female are incessantly billing, but do not pair, nor do they make a nest in the cage.

89.—THE SNOW BUNTING.

EMBERIZA NIVALIS. *Linn.*—ORTOLAN DE NEIGE. *Buff.*—SNOW-FOWL. OAT-FOWL. THE SNOW-LARK BUNTING, OR SNOW FLAKE. *M'Gillivray.* DER SCHNEEAMMER. *Bech.*

DESCRIPTION.—Naturalists describe the summer and winter dress of this bird as differing very remarkably. I will not vouch for the truth of this (but I fancy that the variation arises from differences in age, as is the case in many birds), and shall restrict myself here to a description of its winter dress, and that which it takes in confinement, as we do not observe it at other seasons, for in summer it resorts to the highest latitudes far within the Arctic circle. It is about the size of a Skylark, and is

six inches and a half long. The beak, as in all the Buntings, is conical, with a hard ridge on the palate yellow, and only black at the tip, but during the singing season it is entirely black; the head, neck, and whole of the under part of the body white; the head sometimes sprinkled with a yellowish brown colour; back and rump black; the feathers of the back margined with white, and those of the shoulder and rump with brownish yellow —in spring darker, in summer paler; the tail is forked, the first three feathers white, with a black stripe at the tip, the following four are black, margined with reddish.



The female is rather smaller; the head and upper part of the neck white, intermixed with yellowish brown or cinnamon brown, and across the white breast a series of similar spots extend resembling a kind of broken band. The young, caught in winter, are recognisable by their dark brown beak and back, the feathers margined with greyish white, and the young male bird is always sprinkled with yellow brown at the back of the head; but the young female has yellow brown cheeks and a speckled breast.

Peculiarities.—In severe winters this bird is found in Germany from December to May, especially in the northern districts, where it even visits villages. If due observation be made in March when snow falls, it may with certainty be found on its passage homewards, congregating with Larks in the fields and highways. It may then be caught upon the droppings of horses placed under a tree or covered with limed twigs; and in the fields also, upon spots cleared from snow and strewed with oats. I had a couple in my aviary for six years; but they may be be placed in a large bell-shaped cage. They will feed upon the ordinary food; but in the cage they should have poppy seed, hemp, oats, millet, and dodder grass. They are fond of bathing. They are restless birds, which hop and run about during the night. Their call-note is clear and strong, like the loud whistle of a man. Their song is an interrupted twittering, with

some high noisy tones gradually lowering, intermixed with a long continuous shrill note and other strong solitary piping tones, and is pleasing enough. To preserve them any length of time they must not be placed in too warm a room, or too near a fire, which they cannot at all endure.

Observations of British Naturalists.—Assembled in large straggling flocks, or scattered in small detachments, these birds may be seen flying rather low along the shore, somewhat in the manner of Larks, moving in an undulating line by means of repeated flappings and short intervals of cessation, and uttering a soft and rather low cry, consisting of a few mellow notes, not unlike those of the Brown Linnet, but intermixed at times with a sort of stifled scream or chirr. When they have found a fitting place, they wheel suddenly round, and alight rather abruptly, on which occasion the white of the wings and tail becomes very conspicuous. They run with great celerity along the sand, not by hops, like the Sparrows and Finches, but in a manner resembling that of Larks and Pipits; and, when thus occupied, it is not in general difficult to approach them, so that specimens are easily procured.

About the middle of April, or sometimes a week later, these birds disappear, and betake themselves to their summer residence.

The nest and eggs of this species are unknown to me, and indeed have not hitherto been detected in Britain.—*M'Gillivray.*

90.—THE TAWNY, OR MOUNTAIN BUNTING.

Emberiza Montana. *Linn.*—Ortolan de Montagne. *Buff.*—Der Bergammer. *Bech.*

Description.—It is rather smaller than the Snow Bunting. The beak is short and strong, yellow, but black at the tip; the head almost flat; the forehead bright chestnut; the back of the head and cheeks brighter; the back of the neck and back ashy, the latter spotted with black, causing it to resemble the female Yellow Bunting; the gullet white; the breast and eyes rusty red, with a brownish red band across the former, but which in young birds is indicated only by a cloudy tinge; the coverts of the wings blackish grey, margined with white; the feet black.

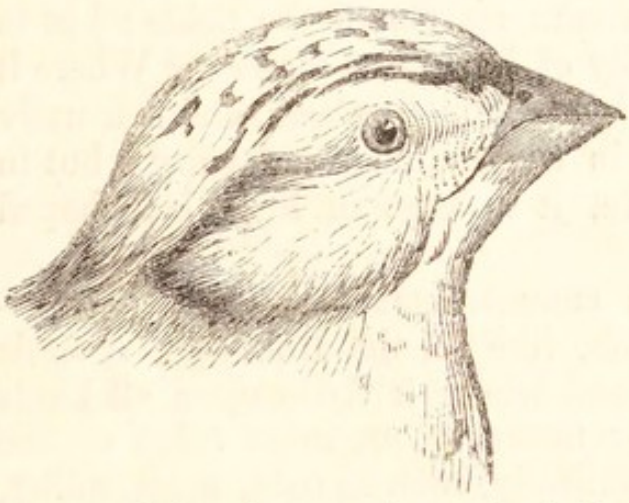
The female has the head alternately black, reddish yellow, and white; red mixed with yellowish grey at the back of the neck; on the belly approaching to white.

PECULIARITIES.—This handsome bird is a native of the northern parts of Europe, but it certainly is nowhere common. In Thuringia (as also possibly throughout the rest of Germany) it is found every year in March, especially when there is a continuance of stormy weather and deep snow. It occurs usually in pairs, upon roads and highways, where they search for food amongst the dung of animals. Its call-note is *zirr, zirr!* Its song, which is clear, and not unpleasant, is, like all the other Buntings, broken and abrupt. These birds are easily kept either in a room or in a large cage, and should be fed upon oats, poppy seed, bread, hemp, &c. They are very restless at night, especially at pairing time, uttering their call-note even during the darkest night.

At times, in a flock of these birds, some are found which are reddish grey upon the upper part of the body, yellowish upon the head, and spotted with dark brown upon the back; these are young ones. They are caught in the same way as the Snow Bunting.

91.—THE YELLOW BUNTING.

EMBERIZA CITRINELLA. *Linn.*—LE BRUANT. *Buff.*—YELLOW HAMMER. *M'Gillivray.*—DER GOLDAMMER. *Bech.*



DESCRIPTION.—As well known as this bird is, still its description is necessary, as young males and old females are often confounded with each other. It is six inches and a half long, of which the forked tail occupies three inches; the beak is five lines long, in summer of a dirty dark blue, and in winter ashy; the irides dark brown; the feet are light brown, and nine lines high; the head in old birds is of a beautiful light yellow, having occasionally some dark olive brown spots upon the cheeks and upon the vertex, and only in very old ones is the head as well as neck of a pure golden yellow; the neck is olive green; the back black and greyish red

intermixed ; the rump orange red ; the throat, the under side of the neck, and the belly, of a beautiful golden or light yellow ; the breast, especially at the sides, and the vent, spotted with orange red and yellow ; the small coverts olive, the large ones and the last pinion feathers black, intermixed with a rusty colour ; the anterior pinion feathers blackish, margined with greenish yellow ; the tail feathers blackish ; the two external ones with a conical white spot, the rest yellowish, and the central ones margined with rust colour.

The female is rather smaller ; on the head, throat, and neck scarcely any yellow markings are seen, the head and cheeks being so much intermixed with brown, and the neck with olive spots ; the breast only is spotted with rusty colour, and the coverts of the wings alone are marked with reddish white ; it therefore looks more grey than yellow.

Young males in the early spring resemble old females ; but yet they have already upon the vertex a yellow spot, as well as a golden yellow stripe above the eyes, and another on the throat ; the rusty coloured breast and rump are also more of an orange red and without spots.

White and spotted varieties are also occasionally met with.

Habitat.—The Yellow Bunting is found throughout Europe and Northern Asia. In summer it inhabits coppices and the margins of woods, and in autumn resorts to the fields ; but in winter it frequents the vicinity of barns and stables. Where it occurs abundantly it is not held in much esteem, and is usually allowed to run freely about in the chamber or aviary ; but in other places, where it is rare, it is kept in large bell-shaped cages.

Food.—Its chief food in summer consists of insects, especially caterpillars, with which, like all the Buntings, it feeds its young ; but in autumn and winter it feeds upon all kinds of seeds and corn, which, by means of an inner ridge on the palate, it is enabled to shell skilfully, such as oats, spelt, millet, and Canary seed ; but poppy and rape seed, and other small seeds, it swallows whole. Oats is their favourite food. To preserve them for several years their diet must be varied, and they require to be fed with oats, roll crumbs, bread, meat, poppy seed, bruised hemp, &c. Running about in the aviary, the second general description of food suits them best. It is, perhaps, in

order to accelerate digestion, that they frequently eat fresh black mould. This, at least, I have observed in all that I have kept in my aviary. They are fond of bathing.

BREEDING.—As resident birds they hatch twice in the year; the first time very early, towards the end of March or the beginning of April. The nest is built in hedges or shrubs, or indeed upon the ground in moss, and consists externally of blades of grass, very artificially interwoven, lined internally with cow and horse hair. The female lays from three to five eggs of a dirty white, sprinkled and edged with pale and bright brown. Reared from the nest, the young males will learn the song of the Chaffinch, and also short strophes of the song of other birds.

MALADIES.—They are very subject to consumption; and their moulting is often accompanied with difficulties, as they always sicken some time afterwards, and frequently die. To prevent this they must have given to them, as well as to all the species of Buntings, fresh ants' eggs, which very much accelerate this periodical change.

CAPTURE.—In winter they may be caught in gardens with the fowling-net, within which oats are strewn as a bait; they will often get under a sieve or basket supported by a little bit of wood, to which a string is attached, by which the supporting prop is drawn away when they are beneath. They also visit the fowling-floor singly by placing a call-bird there, and in spring the fowling-bushes, when attracted in the same way.

COMMENDATORY QUALITIES.—It is recommended by its beauty, although the golden yellow eventually becomes very pale after it has been kept some time in the house, where it will live for about five or six years; and also by its song, which, although it possess nothing peculiarly distinguishing, is yet agreeable; this consists of from seven to nine clearly ringing notes, *te*, *te*, *te*, *te*, *te*, *te*, *twyee*, all the first being of one sound, but the last constituting a triple note. Though delicate, yet its call-note sounds to a great distance. But this bird comports itself very awkwardly in the chamber and cage, notwithstanding its cheerful and vivacious habits when at large.

OBSERVATIONS OF BRITISH NATURALISTS.—Towards the beginning of April the winter associations break up, and they choose their partners without the manifestation of angry feelings, they being

less addicted to quarrelling than most small birds. When vegetation has advanced, they repair to bushy places and willowy sides of brooks and streams, and commence the construction of their nests, which are bulky, composed externally of coarse grasses and small twigs, and neatly lined with fine grass, fibrous roots, and hair. The nest is usually placed on the ground, under a bush or among the twigs close to the ground, or sometimes in a clump of thick grass or herbage.

These Buntings evince much anxiety about their charge, and when deprived of their eggs or young continue some days about the place, chanting at intervals their dolorous ditty, which, though unaltered in its notes, must doubtless be meant as an expression of their grief.—*M'Gillivray.*

92.—THE COMMON OR CORN BUNTING.

EMBERIZA MILIARIA. *Linn.*—PROYER. *Buff.*—CORN BUNTING. *M'Gillivray.*—DER GERTENAMMER. *Bech.*

DESCRIPTION.—This bird which is found throughout Europe and in Northern Asia, is even less adapted to inhabit the chamber than the preceding, being neither distinguished by its song nor by its plumage. It is larger than a Skylark, which it resembles in its plumage. It is seven inches and a half long, of which the tail occupies three

The beak is short and strong, six lines long, and grey brown like the feet. In summer the lower mandible of the former is yellowish; the feet are ten lines high; the whole of the upper side of a pale

reddish grey; and the under side yellowish white, spotted all over, like the Larks, with blackish brown, rather coarse above, but delicate beneath. The pinion and tail feathers are dark brown.

The female is rather paler.

HABITAT.—In several parts of Germany it is very abundant throughout the whole year. In the more northern countries they only occur during their migrations, being unable to endure the winter in their native home. In March they are found with the Larks in the fields. They prefer plains to wooded districts, and therefore they may be observed in meadows, or on cross-roads, perched upon a willow or a rail-post, a landmark or a clod of earth. They are usually allowed to mix with the other birds in an aviary, or they may be placed in a large Lark's cage.

FOOD.—Their food is similar to that of the Yellow Bunting, and they may be fed upon oats and millet, and the usual bird food. They are more delicate than that bird.

BREEDING.—They usually build among the high grass, under overhanging bushes, but do not place their nest upon the ground. It consists of dry blades of grass, and is lined with the hair of animals. The eggs, from four to six in number, are ashy grey, with reddish brown spots, and striped with black.

CAPTURE.—In autumn they are caught upon the fowling-floor by means of the call-bird. In spring they are attracted to the fowling-bush by the call of the Yellow Bunting; and in the winter they may be captured in the vicinity of barns by means of nets and limed rods.

COMMENDATORY QUALITIES.—The song of the male is shorter and rougher than that of the Yellow Bunting, and may be noted by the following syllables—*tye, tye, tye, terity!* The last note rattles, and it is therefore called in some districts the stocking-weaver.

OBSERVATIONS OF BRITISH NATURALISTS.—M'Gillivray, who appears to have given close attention to the habits of these birds, says:—"When surprised in a field, or roused from a corn-yard, they fly off with a direct rapid motion; but often when an individual, which has been resting on a twig or wall-top, starts away, it allows its feet to hang for a short time before it commences its bounding flight. I believe there is no other bird of the order, with us, that has this habit.

"Although somewhat similar to the song of the Yellow Bunting, it is by no means so lugubrious; but if not sufficiently melodious to call forth exclamations of delight from him whose delicate ear is hurt even by the jingle of the Lark, yet to those who love to study nature in all her variety, it forms a pleasing counterpart or contrast to the sweet notes of the mellow-throated warblers.

"To the ornithologist the scream of the Heron and Eagle, the croak of the Raven, the wail of the Kittiwake, the chatter of the Magpie, and the chirp of the Sparrow, are as interesting as the clear, mellow, and modulated song of the Thrush, filling the lone valley at eventide with its soft echoes.

"The song of the Bunting, such as it is, may be heard occasionally at all seasons, especially in calm weather; but during the breeding time it is more frequent, and then the male, perched on a wall, a stone, a twig, or a tall herbaceous plant, especially a dock or a bur, continues to utter at short intervals his singular cry, which, although not loud, extends to a great distance."

93.—THE ORTOLAN BUNTING.

EMBERIZA HORTULENA. *Linn.*—L'ORTOLAN. *Buff.*—GREEN-HEADED BUNTING. *Mont.*—ORTOLAN. *Selb.*—DER GARTENAMMER ODER ORTOLAN. *Bech.*

DESCRIPTION.—An accurate description of this bird is rendered the more necessary, because naturalists and bird-dealers call different species of birds by this name, and the latter make no scruple to sell them as Ortolans.

It is about the size of the Yellow Bunting, but is rather more robust in the breast, and has a thicker beak. It is six and a half inches long, of which the tail occupies two and a half.

The beak is thick at the base, long, and of a yellowish flesh colour; the irides dark brown; the legs are flesh coloured, and ten lines high; head and neck are ashy grey olive; the throat bright yellow, and a stripe of the same colour extending from the angle of the lower mandible down the neck; the back and shoulders reddish brown, spotted with black; the rump dirty greyish brown; the under part of the body reddish yellow; the tail feathers blackish, the two external ones with a conical white spot; all the rest edged with reddish yellow.

The female is rather smaller, the head and neck passing into ashy, and marked with small blackish lines; the breast is also less brown in hue, and the whole body paler.

The young male before the first moult has the throat of a light yellow, with an intermixture of grey, and the breast and belly are reddish yellow sprinkled with grey. They are, therefore, not very dissimilar to the young Yellow Bunting; but the connoiseur may distinguish the differences of sex even in the nest. There are also *white*, *yellowish white*, *variegated*, and, occasionally in the chamber, *black* varieties of this bird.

HABITAT.—This bird inhabits the southern and temperate parts of Europe, and is not rare in some of the provinces of Germany; but, if due care be taken, it is to be found in every direction during its migrations, even although it should not remain during the summer; for it stops occasionally in its course, and does not fly over entire districts at once. If the spot be observed where it has been once met with, especially in spring, it will certainly be again found there at the same period, so invariable is their route. They travel in families, rather than in flocks. In Germany they are met with towards the end of April or the beginning of May, and they may be found in gardens or in fields where there are insulated bushy spots or coppices, and, at breeding time, in gardens and skirting woods, especially in the vicinity of millet crops. In August, they visit the fields in families, and quit us after the oat harvest in September. As a celebrated and well known bird, it is placed in a handsome cage, but it may be allowed to occupy the aviary, as is usually the case where it occurs abundantly.

FOOD.—It eats not merely all kinds of insects, but also millet, oats, buck wheat, hemp, &c. If placed in a cage, it must be fed with millet, poppy, and shelled oats; at large in the

aviary, it feeds upon the usual general food. But it is a delicate chamber bird, and can be rarely preserved for more than four years.

Maladies.—It is subject to all the ordinary ones, and frequently dies of atrophy and consumption. To cure or prevent this, great care is necessary in affording the bird a supply of animal and vegetable food properly varied.

Capture.—In the spring it is caught upon the fowling-bushes, where a call-bird of its own species, or merely a female Yellow Bunting, is placed to allure it.

In August a small fowling-floor, like that made for Finches, is formed upon some green spot in the vicinity of bushes, and is surrounded with a low hedge, and bunches of oats are scattered around. In the vicinity of the floor one or several call-birds of its own species are placed, and one is tied up—that is to say, its wings are placed within a band, to which a string with a little peg is attached, by means of which the bird can be pinned down to prevent its straying beyond a certain spot. This has also food and drink given to it, that the attracted birds may the more readily resort to the floor, perhaps thinking, "Yonder is one of my fellows enjoying himself!" Birds thus tied up are called *runners*, and they are often more necessary than the call-bird itself.

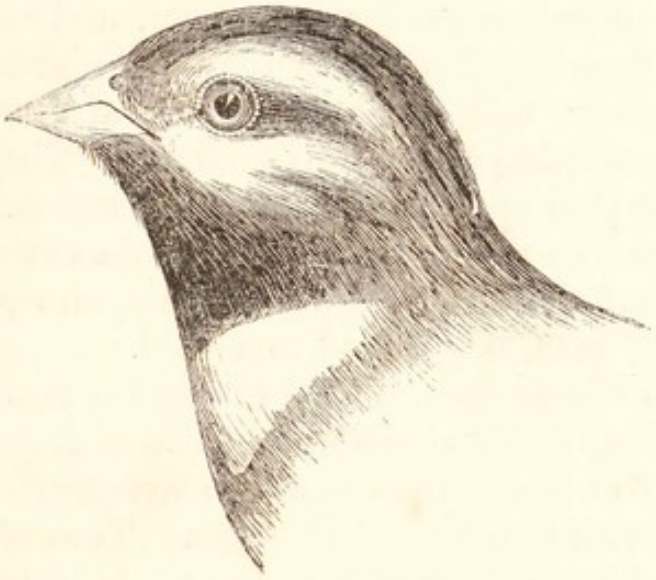
Commendatory Qualities.—Its beautiful form and colour render this bird agreeable, and it is made still more so by its flute-like, mellow, and pure song, which has some resemblance to that of the Yellow Bunting, whose notes, however, are deeper.

This bird has long been a favourite dish with epicures; and to gratify their pampered taste, much care is bestowed in fattening them. For this purpose they are placed in a room lighted by lanterns, that they may not observe the difference between night and day; they are then plentifully fed with oats, millet, and milk rolls, intermixed with spices, speedily becoming so fat that they must be killed at the right time to prevent their being suffocated. Ortolans thus fed become mere lumps of fat of about three ounces in weight.

94.—THE CIRL BUNTING.

EMBERIZA CIRLUS. *Linn.*—BRUANT DE HAYE. *Buff.*—DER ZAUNAMMER. *Bech.*

DESCRIPTION.—This bird is nearly the size of the Yellow Bunting, five and a half inches long, of which the tail measures two and a half. The small and much-compressed beak is



brownish blue above, and beneath bright brown; the feet are flesh coloured, eight lines high; the vertex and upper part of the neck olive green, with small black stripes from the upper angle of the beak, and golden yellow stripes extend beneath the eyes to the middle of the neck, and transversely through these a black one crosses, which beyond the under yellow eye-stripe inclines downwards, and unites itself with the black throat; the back and the small coverts of the wings are cinnamon brown, intermixed with black and greenish yellow; the rump feathers are olive green, with black stripes; the large coverts of the wings and the pinion feathers blackish grey, the former as well as the posterior pinion feathers margined with brownish, and the anterior pinion feathers with greenish yellow; the tail slightly forked, the two external feathers black, wth a white conical spot, all with a greenish yellow edge; a golden yellow spot upon the lower part of the neck; the breast of a beautiful olive green; at the sides, and towards the belly, of a bright chestnut brown; the rest of the under part of the body of a golden yellow.

The female is much duller in colour. The head and upper part of the neck olive green, and more striped with black; the back is bright brown; the rump is olive with black streaks; the tail more of a blackish grey than black; above and beneath the

eyes there is a bright yellow stripe, which crosses a blackish line which is united to the black margin of the cheeks; the throat is brownish; at the lower part of the neck a bright yellow spot; the breast bright olive, with brownish side spots; the rest of the under part of the body bright yellow.

The young before the first moult are bright brown, spotted on the upper part of the body with black, and beneath bright yellow, striped with black; the older they become the breast inclines the more to an olive green tinge.

HABITAT.—The southern and temperate parts of Europe are its native dwelling. It is found in gardens, coppices, and the skirting woods of large forests. They are migratory birds, which withdraw in November, and return in April, and are then often to be found associating with the Chaffinch. They must be treated, as regards food and habitat, like the Ortolan.

FOOD.—During summer they feed principally upon the caterpiller of the cabbage butterfly, and upon the insects upon ripe wheat and barley, and upon oats, millet, and rape-seed.

BREEDING.—They build in hedges and bushes by the roadside, and deposit in their nest, which is made of blades of grass, and lined with the hair of animals, from three to five greyish eggs, which are sprinkled with reddish brown spots. Towards the end of July whole families are met with in the fields, especially in rape fields, where there are willows in the vicinity.

Their MODE OF CAPTURE and MALADIES are the same as the Ortolan.

COMMENDATORY QUALITIES.—The male is very handsome—more so than the Ortolan; but his song is of no moment. It has some resemblance to that of the Yellow Bunting. These birds are easily tamed, and may be preserved in the cage for five or six years.

OBSERVATIONS OF BRITISH NATURALISTS.—Colonel Montagu, an indefatigable naturalist and observer of the habits of British birds, was the first to discover that the Cirl Bunting was a visitant of Britain. In the winter of 1810, he procured several specimens, killed in the neighbourhood of Kingsbridge. Tracing their flight with great perseverance, he was at last rewarded by soon afterwards discovering their nest. Devon and the south-western counties seem their more peculiar residence, and they breed and remain throughout the year.

95.—THE FOOLISH BUNTING.

EMBERIZA CIA. *Linn.*—LE BRUANT FOU. *Buff.*—DER ZIPAMMER. *Bech.*

DESCRIPTION.—It is rather smaller than the Yellow Bunting, six inches long, including the tail, which is two and a half inches. The beak is five lines long, sharply pointed, the upper part dark ashy grey; the irides blackish brown; the feet brownish flesh colour, nine lines high; the head ashy, sprinkled with red, having at the side an indistinct black stripe, and marked in the middle with delicate blackish stripes; the cheeks are bright ashy grey, and there extends from the nostrils and over the eyes a dirty white stripe; a black stripe passes through the eyes, which unites itself with another of the same colour that commences at the angle of the lower mandible and encloses the cheeks; the back is brownish red, spotted with black; the rump bright brown; the throat bright ash colour; the under side of the neck, half way down the breast, ashy; the rest of the under part of the body rusty, brighter on the abdomen; the tail feathers slightly forked, the two first black with a white conical spot upon the inner web, the two central ones tipped and edged with a dark rusty colour.

The female differs but little. The head is ashy grey, with a reddish tinge, sprinkled with black, and has all the stripes of the male, but more indistinct, dirty white, and dark brown; the ashy grey throat is also striped with black, and has a reddish tinge, and the under part of the body paler than in the male.

HABITAT.—These birds are fond of solitude, and commonly inhabit mountainous districts in the south of France, in Italy, and Austria. They do not every year remain throughout the winter in these districts: they also occasionally migrate in flocks. They occur in mountainous districts, in central Germany, about March and April. They are kept sometimes in cages, and are also occasionally allowed to run freely about. The latter suits them best, especially when they have a large enclosed place where they can sleep and rest.

FOOD.—Like the rest of the Buntings, they feed upon seeds and insects, and require the same treatment as the Ortolan.

They may be preserved in perfect health for about six years. I possess two of this species, which I have had for that space of time.

Mode of Capture.—They are easily attracted to the call-bush and the fowling-floor by the Yellow Bunting; indeed they are so simple that they derive their name from the facility with which they allow themselves to be decoyed into any noose.

Commendatory Qualities.—They are handsome, active, and cheerful birds. Even during the winter they are incessantly uttering their shrill call-note, and sing very like the Yellow Bunting, only shorter and purer. Their song continues from spring to autumn. They live very familiarly with their allies, the Yellow Bunting, in the aviary; wherever one goes the other follows, and what one eats the other also picks up.

96.—THE REED BUNTING.

Emberiza Schænilus. *Linn.*—Ortolan de Roseaux. *Buff.*—Ring Bunting. *M'Gillivray.*—Der Rohrammer. *Bech.*

Description.—It is of the size of a Tree Sparrow, and is five inches and three-quarters long, of which the tail occupies two inches and a half. The beak is four lines long, above black, beneath whitish; the irides dark brown; the feet dark flesh colour, nine lines high; the head is black, here and there sprinkled with reddish; from the lower mandible a white band extends, running all round the head, and which is broadest beneath the cheeks, and narrowest at the neck, the back of the neck ashy grey; the back black, spotted with rust colour and white; the rump alternately grey and yellowish red; the gullet and throat black, sprinkled with white; the rest of the under part of the body dirty white on the breast and sides, with solitary brown spots; the small coverts rust coloured; the larger ones black, with rust coloured and occasional whitish shafts; the pinion feathers dark brown, with bright rusty coloured shafts; the forked tail blackish, the two external feathers with a large conical white spot, and the two central ones with a yellowish brown edge.

In confinement the head of the male, after moulting, never becomes so black as when it is at large, but at each change turns browner, and becomes clouded with reddish white.

In the female the head is rusty brown, spotted with black; the cheeks are brown; above the eyes a reddish white stripe extends and unites itself with another, which passes from the

angle of the lower mandible around the cheek; on each side of the throat a black brown stripe extends downwards; the throat and under side of the body are reddish white, thickly striped with dark brown upon the breast; the colour of the back is paler, and not so bright as in the male.

HABITAT.—It inhabits the whole of Europe as far north as Sweden, and also Northern Asia. In October it migrates in small flocks, but returns in March in very large bodies. The females migrate separately from the males, but it is an erroneous notion, possessed by some, that the males only migrate. In winter they are also occasionally met with, associating with the Yellow Bunting. They frequent marshy places by the side of rivers and ponds, amongst the rushes and reeds, and climb up and down the stalks of these water plants, but are rarely seen upon trees. I allow them to run freely about in the room; but they may also be kept in a cage.

Food.—They feed upon the seeds of aquatic plants and of grasses, as well as upon insects; and they will freely eat the first general food, and poppy seeds, and remain in a healthy condition from four to six years. They usually die of consumption, or, as I have frequently observed, of a scald head.

Breeding.—It builds its nest among reeds and in bank bushes, and lays from five to six dirty greyish white eggs, with some blackish brown waving lines and spots rather indistinctly marked.

Capture.—In autumn it is caught with the Chaffinch trap, and in spring, during snow, it frequents barns and dung heaps, in company with the Yellow Bunting, and may then be easily captured there, as well as upon open places in fields, and on hedges, with nets and limed twigs.

Commendatory Qualities.—Its song is variable, soft, and somewhat hurried. The simple notes *te*, *te*, *tu*, *te*, and the occasional discordant *ruytsh*, distinguishes it from all other singing birds. It sings all through the summer, and even at night. It becomes the tamest of all the Buntings, and is particularly attached to music, and will approach the instrument unhesitatingly, as I have observed in several, exhibiting its delight by opening and shutting its wings and tail feathers like a fan, and so strongly and so frequently that the webs become quite worn off. The female also sings, but not so loudly as the male.

Observations of British Naturalists.—"This bird may be seen perching on willows, reeds, sedges, and other aquatic plants. Although shy, it is easily shot, as it seems to consider itself safe at the distance of thirty yards or so. Its flight is rapid and undulatory, like that of the Yellow Bunting, and it alights abruptly, like it, expanding its tail to break the descent, when the white of that part becomes conspicuous. Although stationary in England, this species is migratory in most parts of Scotland, departing in October and reappearing about the beginning of April. In winter these Buntings form small loose flocks, which break up towards the end of March, when the different pairs betake themselves to their summer haunts."—*M'Gillivray.*

97.—THE PASSERINE BUNTING.

EMBERIZA PASSERINA. *Linn.*—ORTOLAN PASSERIN. *Buff.*—SPERLINGSAMMER. *Bech.*

DESCRIPTION.—This bird has certainly been confounded with the preceding, otherwise it would be better known in Germany, where it is not rare in the autumn and spring. It is rather smaller and more slender than the Red Bunting, five inches long, of which the tail comprises two inches and a half. The beak is black above, light brown beneath; the irides dark chestnut; the feet of a dirty flesh colour, nine lines high. The general colouring is that of the female Reed Bunting. The male has the upper part of the head rusty red, with an olive grey tinge along the vertex, and spotted all over with black, arising from the black basal colouring of the feathers shining through; from the nostrils there extends, above the eyes, and also somewhat beneath them, a dirty reddish white stripe, which enlarges beyond them; the temples are chestnut brown, with black glittering through, and which becomes a black spot at the sides of the neck; from the lower angle of the beak there runs downwards, on each side of the neck, a yellowish white stripe, and which indistinctly connects itself with the dirty reddish white eye-stripe behind the temples; the gullet and throat are black, as in the Sparrow, clouded with whitish grey; the rest of the under part of the body is greyish white, spotted at the sides with dark chestnut brown; the vent pure white; the upper part and sides of the neck olive grey, with a reddish tinge; the small coverts of the wings of a beautiful rusty red; the larger ones with broad rusty red margins; the pinion feathers blackish, margined with olive grey, the hinder ones with rusty red margins; the forked tail black, the two outer feathers with a conical white spot, and the central one with a rusty red margin.

The female is much paler in colour. At the vertex no black is seen; above the eyes a reddish white stripe extends, as well as down the sides of the neck, from the chin half way down the neck; on each side there is a brownish black stripe; the gullet and throat are of a dirty reddish white; the rest of the under part of the body is similarly coloured, but becomes paler

towards the vent, but of a beautiful hue upon the breast, and striped at the sides with reddish brown; the occiput and neck are reddish grey; and the back covered with rusty grey and black longitudinal spots.

In confinement the black head-dress of the male disappears, and it resembles that of the female; the under side of the neck also becomes whitish grey, spotted longitudinally with dusky brown.

PECULIARITIES.—Dense bushy woods, in mountainous districts, are the favourite resort of these birds, into the very depth of which they creep. They are birds of passage, and quit us in October and November, returning again in April. In Thuringia they are not rare, especially in spring and autumn, during their migrations. It was formerly supposed that they inhabited Russia only. They eat the seeds of all kinds of grapes, as also insects; and they must be fed like the Reed Bunting. They have a soft and not unpleasant song, which much resembles that of the Reed Bunting; and in their comportment they also resemble that bird, and are caught in the same manner.

98.—THE WIDAH BUNTING.

EMBERIZA PARADISEA. *Linn.*—VEUVE À COLLIER D'OR. *Buff.*—DER PARADIESAMMER. *Bech.*

DESCRIPTION.—This beautiful but also costly chamber bird, which, from its colour, has been called the *Widow*,* is of the size of a Linnet, and, to the lateral tail feathers, five inches and a half long, for its other tail feathers increase its length considerably. The beak is lead coloured; the irides chestnut brown; the feet flesh coloured; the head, chin, and front of the neck, the back, the wings, and the tail, black; the neck behind bright orange; the breast and the upper part of the abdomen white; the vent black; the two central tail feathers four inches long, very broad, and terminate in a long filament; the two next are more than thirteen inches long, in the middle very broad, smaller at the end, and tapering to a point; the rest of the tail feathers are only two inches and a quarter long, the two central of the long

* Others say that the word is a corruption in the European tongues of Widah, a fortress in Africa, in the vicinity of which the bird is very common.

ones are inserted rather obliquely, like the tail feathers of the domestic cock, have a more glossy appearance, and are more brilliant than the rest.

The female is entirely dark brown, almost black, but does not acquire her perfect plumage under three years; whilst young, it closely resembles the male in his winter dress.

These birds moult twice a-year. The male loses the long tail feathers for six months in its first moulting, which takes place in November. It then acquires a plumage of a black and reddish intermixture, with a black and white striped head. At its second moult, late in the spring, it obtains its summer dress. The tail feathers are, however, scarcely perfect before June, and are cast again in November.

PECULIARITIES.—These beautiful birds come from Angola and other parts of Africa. They are vivacious birds, in constant motion, unceasingly move their tail up and down, and take pleasure in frequently preening and bathing themselves. Their song is not powerful, but of a very pleasing melancholy sound. They live from six to twelve years; and feed freely upon Canary seed, millet, and barley grits, and it is necessary occasionally to give them green food. That they may not injure their long and beautiful tail, they require to be placed in a large, broad, bell-shaped cage.

99.—THE DOMINICAN BUNTING.

EMBERIZA SERENA. *Linn.*—VEUVE DOMINICAINE. *Buff.*—DER DOMINI KANERAMMER. *Bech.*

DESCRIPTION.—This bird is smaller than the preceding, its entire length being only six inches and three-quarters. It is also rarer and more costly, and comes from Africa. The beak is red; the feet grey; the upper part of the head black, the top reddish white, which runs forwards, uniting with the under parts, which from the chin and temples are also of the same colour; the neck and back are black, with dirty white margins; the inner wing coverts white, hence the folded wings appear white; the rest of the wings black; the pinion feathers margined with white; the tail black, its two middle feathers pointed at the tip, and more than two inches longer than the rest, which all become

gradually shorter as they proceed laterally; three of them, those next to the middle ones, have white tips, and the two external ones are white on the inner, and of a bright yellow red on the outer web. The female is of a uniform brown, and her tail feathers all of the same length. This bird also moults twice a-year, like the last mentioned, and loses likewise its longest tail feathers, and the white becomes less pure.

PECULIARITIES.—It requires the same treatment as the former, and sings very pleasingly.

100.—THE SHAFT-TAILED BUNTING.

EMBERIZA REGIA. *Linn.*—VEUVE À QUARTRE BRINS. *Buff.*—DER KÖNIGS AMMER.

DESCRIPTION.—This bird is also more rare than the Widah Bunting. It is almost as large, and is four inches and a half long to the end of the short tail feathers. The beak and feet are red; the upper part of the plumage black; the sides of the head near the eyes, the under part of the body, and around the neck, of a yellow red; the back of the neck spotted with black; the under part of the thighs and the vent black; the four central tail feathers nine or ten inches long, and only furnished with filaments about two inches from the extremity. The female is brown, and has not the long tail feather. During the winter moult the male becomes as grey as a Linnet, the colours being slightly brighter.

PECULIARITIES.—These birds inhabit Africa, whence they are brought to Europe. They are as agreeable chamber birds as both the preceding, and also sing excellently.

101.—THE INDIGO BUNTING.

EMBERIZA CYANEA. *Linn.*—LE MINISTRE. *Buff.*—DER INDIGO AMMER. *Bech.*

DESCRIPTION.—Its length is five inches, being about the size of a Siskin. The beak is dark lead colour; the feet brown; the whole plumage of a beautiful blue; the vertex of a shining dark

colour; the large pinion feathers brown, with blue margins; the tail brown, with a light tinge.

The female resembles the Linnet in colour, as also does the male at moulting time; for it is blue only when the plumage is perfect. But at this period the female may be distinguished from the male by the band of the wings being of a lighter grey than in the female.

PECULIARITIES.—They are natives of Carolina, and also common at New York, where they arrive at the commencement of April, and visit the orchards when the fruit trees are in blossom. They prefer hilly districts. Their song has some similarity to that of the Linnet, and is very agreeable. Its beauty also recommends it as a chamber bird. Its food is Canary seed, millet, poppy seed, and crushed hemp.

102.—THE PAINTED BUNTING.

EMBERIZA CIRIS. *Linn.*—VERDIER DE LA LOUISIANA. *Buff.*—DER GEMALTE AMMER. *Bech.*

DESCRIPTION.—It is of the size of the Linnet, and is five inches and three-quarters long; the beak greyish brown; the irides nut brown; the feet brown; head and neck violet; circle round the eyes red; the upper portion of the back and the scapular yellow green; the lower part, the rump, and the whole of the under side of the body red; the small wing coverts violet brown, with a red tinge; the larger ones dull greenish; the pinion feathers brown, some with greyish, others with red margins; the tail brown, the two central feathers playing into red, and the rest externally margined with the same colour.

The upper part of the female is a dull green colour, and beneath yellow green; the pinion feathers are brown, bordered with green; the tail also brown and green intermingled.

There are many varieties of this bird, as they do not acquire their perfect plumage before the third year. At first both male and female are of the same colour. The male acquires its blue head in the second year. The rest of its plumage, however, is bluish green; and the wings and tail are brown, with bluish green margins. The colour of the female at this time strongly inclines to blue. They moult twice in the year: it is, therefore, no

wonder that scarcely two agree. Some are also found which have the under side yellowish, with the exception of a red spot on the breast, becoming wholly white beneath during moulting.

PECULIARITIES.—These birds are natives of the warm parts of Canada, and throughout the country lying between Mexico, Brazil, and Guiana. None are seen in Carolina at less than one hundred and thirty miles from the sea. They are only to be seen during summer, and build in orange and other trees. They have been bred in aviaries wherein orange trees were placed. In the cage they are fed with millet, chicory, and Canary seed, poppy seed, &c., upon which they may be preserved for eight years or longer. They have a soft and pleasing song.

103.—THE CHAFFINCH.

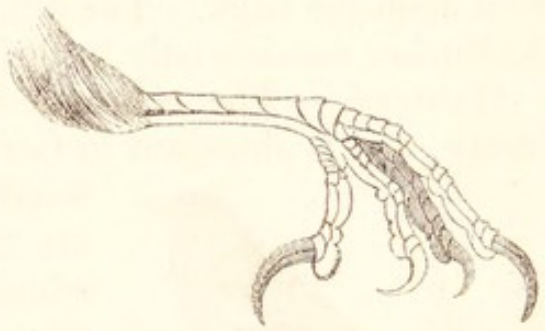
FRINGILLA CŒLEBS. *Linn.*—PINSON. *Buff.*—PINK. BEECHFINCH. HORSEFINCH. CHAFFY. *M'Gillivray.*—DER GEMEINE ODER BUCKFINK. *Bech.*

DESCRIPTION.—From its pleasing and excellent song this bird is a general favourite with all who keep birds for amusement and pleasure; and therefore a precise description here will be superfluous for the bird-catcher. I incorporate it, therefore, chiefly for the guidance of young persons, and for the sake of the completeness and uniformity of this work; moreover, it will permit me to insert some observations, which, from their novelty, may be worthy of attention.

In the forest of Thuringia the fancy for these birds is so universal, that throughout the entire district scarcely a Chaffinch is heard with a good song, so much are they pursued. No sooner is a good songster heard than a multitude of bird-catchers are instantly on the alert, and do not rest until they have caught it.

Hence, from causes easily determined, only bad singing is perpetuated, as the singing which the young hear in their parents, and by all the other Chaffinches, has nothing that is at all attractive.

This bird is about the size of a Sparrow, and is six and one-third inches long, of which the tail comprises two and three-quarter inches. The beak is conical and pointed, as in the entire genius of Finches (*Fringilla*); in winter white, but in the spring, when pairing time approaches, and when it begins singing, it becomes dark blue, which colour it retains until moulting time. The blueness of the beak therefore indicates whether a Chaffinch has already sung or not. The irides are chestnut brown; the feet dark brown, and nine lines high; the claws very sharp and pointed, and require to be cut off every six weeks, otherwise they catch the bird up, and when not speedily relieved, it dies; the forehead is black; the vertex and neck greyish blue, (in very old birds dark blue,) with a few upright hair feathers; the upper part of the back chestnut brown, tinged with olive green; the lower part of the back and rump Siskin green; the cheeks, throat, breast, and belly, reddish chestnut brown, merging into white towards the vent; the thighs grey; pinion feathers black, externally with a greenish, and internally with a whitish edge, white also at the base; the small coverts white, the large black, with white tips, whence there appear to be two white stripes across the wings; the tail feathers black, the two central with an ashy grey tinge, the two external ones with a large conical white spot, of which the third has usually only a small indication in the form of a small spot; they are all in a slight degree margined with greenish.



After moulting time, at the commencement of winter, almost all these colours are brighter; the forehead only dark brown, the vertex and neck playing into greyish and olive brown, and the reddish brown on the breast brighter. The young birds have these colours also throughout the second year, especially if they are birds of the last brood, and are called by bird-catchers grey-heads. These persons therefore know well how to distinguish in spring the young males from the old ones, and prefer the

former to the latter, because if they are caught early, they are still in a condition to learn a good song from a chamber bird, whereas the old ones either never or very rarely adopt any other song, retaining only their original wild notes.

The female can be very readily detected, being smaller ; and the head, neck, and upper part of the back grey brown. The whole of the under part of the body dirty white, but reddish grey upon the breast ; the beak in spring greyish brown, in winter whitish grey.

There are also varieties : White Ringfinches, with a white ring around the neck ; and Spotted Finches. I possess one at present which is dirty white, blackish upon the head and Siskin green upon the back. The difference between wood and garden Chaffinches consists only in their place of resort.

Habitat. — The common Chaffinch is found throughout Europe, and is abundant in Germany, and inhabits all kinds of woods, coppices, and gardens. They are migratory birds, although some winter with us. The passage continues in autumn from the commencement of October to the middle of November, and also in the spring throughout the whole of March. They migrate in large flocks. In the spring the males arrive a fortnight before the females. Our bird-catchers are well aware of this fact, and when the males have passed they no longer continue their sport.

These birds are kept in separate square cages of different forms, but these must be at least nine inches nigh. Mine are made of woven wire, arched above, and have two perches, one in the vicinity of the trough, and the other towards the water glass. The trough is placed on one side, divided into compartments by wires, that the bird may not scatter the seed ; and on the other side the drinking glass is placed. If a larger cage is wished, it should be made with a roof, and with two bows in front for vessels containing food and water, and the sides enclosed with wooden rods, which are useful, as they prevent wild birds from injuring their plumage. It is not advisable to place them in a bell-shaped cage, as they hop forward and not upwards, and easily acquire the habit of twirling. They must also be so hung in a room, that they do not see one another, otherwise they

interrupt each other's singing. When allowed to run about the room, for which inferior songsters are selected, they have either a trellice on which they may perch, or small branches to which they may retire at night. They rarely sing so well or so assiduously as when they are confined in a cage, where they may be said to give their whole attention to their song.

Food.—This consists of all kinds of insects, with which also it feeds its young. In the woods it picks up the seeds of pines and firs, and in the fields dodder grass, linseed, rape, and oats ; and in gardens it feeds upon salads, cabbage, and mustard seed. Like all birds of the genus they are expert in peeling or shelling the husk from the grain.

When confined they may be fed constantly upon either dry or soaked rape seed, upon which they continue very healthy. As much as is required for a day's consumption should be soaked for four-and-twenty hours in water, and given to them in the morning. In spring, when it is wished that they should sing loudly, some crushed hemp seed (*Galliopsis Cinnabina*. Linn.) may be given to them as a delicacy, but this must not be placed in the trough where the rape is placed, otherwise they scatter the latter away to seek for that which is most palatable. You have to supply them with a separate little trough, which may be placed on one side between the wires of the cage. For the purpose of keeping them in sound health some green food is occasionally requisite, amongst which there must be groundsel and chickweed (*Alsine media*); and in winter a bit of apple is most suitable. Fresh water should be given them daily to drink and to bathe in ; and a few meal-worms and ants' eggs will tend to enliven them very much.

Those which range the room feed freely upon the usual food of the aviary, and eat bread and roll crumbs, meat, and all kinds of seeds, rape seed (which does not require to be soaked), millet, oats, and dodder grass.

Breeding.—The Chaffinch builds on the branches of trees, and constructs a very handsome nest. It is formed like a ball, a little depressed on the upper part, as round as if turned on a lathe, consisting beneath of spiders' webs and hair, woven to the twig, and intermingled very artificially with moss and delicate twigs ; well lined with feathers, the down of thistles, and the

hair of all kinds of animals, and covered externally with lichens. It is fastened, by means of spiders' webs, as firmly to the branch as if glued to it, and this is done, doubtless, to conceal the nest as much as possible from its enemies; at all events it is very difficult for the human eye to distinguish it from the rind of the tree upon which it is placed. They breed twice a year, and lay from three to five eggs, which are of a bright bluish grey, and sprinkled with coffee brown spots and stripes. The first brood produced (and this is an observation applicable to all birds) consists almost exclusively of males; but at the second they are almost all females. Fanciers easily distinguish the young males, when selecting them from the nest. These are marked by a reddish tinge upon the sides of the breast, the rings round the eyes are more yellow, the wings blacker, and the bright stripe of the wings whiter, although otherwise they much resemble the mother. To be absolutely certain, pluck some of the feathers out of the breast of the young bird; in a fortnight these feathers are replaced, and the presence or absence of the red colouring will then indicate which are males and which females. When the tail-quills have sprouted, the birds must be removed from the nest, that they may not acquire a bad style of singing, for these birds early commence imitating the song of those in their vicinity, even before the tail and pinion feathers are half grown. They are reared upon soaked rape seed and roll crumbs. Little trouble is wanted to keep them well until moulting time; at this period they should be given ants' eggs and meal-worms, which greatly recruits such as are languishing. Chaffinches thus reared become exceedingly tame, and sing as soon as they are desired, or as soon as friendly motions are made with the hands or head in front of their cage. If it be wished that they should learn speedily and accurately any song piped to them, they must be kept constantly in a dark part of the room, and not be hung at the windows until May. This is the most certain method of obtaining birds perfect in their tune. If well managed the full-grown finches reject their old song, and acquire the good one sung to them by the bird of which they learn. The most essential thing requisite is to select a dark and obscure place to hang the cage in when a good singer is desired.

Instances have occurred of Chaffinches pairing with female

Canaries and producing hybrids; and it is also said with the Yellow Bunting.

It is an erroneous opinion that garden Finches lay whitish eggs, and wood Finches greenish eggs, or that the two birds are distinct species, for alike in nests found in gardens and in woods are whitish eggs seen, and indeed all become whitish after being laid some time.

MALADIES.—They are subject to a stoppage of the fat glands, and also to dysentery. The first is cured in the ordinary manner, and the last may be remedied by a rusty nail or a little saffron being placed in the drinking vessel.

When the scales upon the legs become too large, the upper ones are gently loosened by means of a penknife, otherwise the bird soon becomes lame and gouty; but great care must be taken in doing it. They also easily become blind, especially if fed exclusively upon hemp seed. As blindness approaches gradually, it does not prove prejudicial to their song, nor does it hinder them from finding their food and hopping about the perches. If well attended to, they will live for twenty years.

CAPTURE.—From Michaelmas to Martinmas, and in the spring throughout the whole of March, they will visit the fowling-floor if there are good call-birds. In winter, those which remain behind, or which return too early, may be caught, by means of the large clap-net, in gardens or in large court-yards where oats are strewn about.

In spring they are usually caught by bird-catchers by means of lures and limed twigs. The cry of the call-bird to those passing is like *yack, yack*, and *fink, fink!* when these, expecting to obtain mates, settle upon the limed rods and are caught. This mode of capture continues as long as the birds are migrating, and commences at day-break and lasts until nine o'clock: thus long do these birds of passage fly, after which they descend into the fields to eat, sing, and rest the remainder of the day. In the same manner the Mountain Finch, the Linnet, the Goldfinch, the Siskin, the Lesser Redpole, the Yellow Bunting, the Bullfinch, the Greenfinch, &c., may be caught.

The bird-catcher takes advantage also of the jealousy of the Chaffinch as a means of capturing it, using a peculiar kind of trap. As soon as he hears a Chaffinch which has a good song, he takes another male Chaffinch, which he knows will

frequently utter its natural note, *fink, fink!* ties his wings together, and places upon the tail a very thin forked twig, half a finger long, well smeared with bird-lime; and thus prepared, he lets the bird loose near the place where the bird he wishes to catch has taken its stand, or beneath the very tree upon which it sits. Scarcely has the lure bird hopped many steps beneath the tree and uttered its call, when the other, incited by jealousy, fiercely pounces down, and seizes him, remaining sticking to the bird-lime. Instances have occurred where the decoy bird has been at once struck dead by the pounce of its adversary. But the following is the safest mode of capture:—A male is made use of; it is bound beneath the wings with a soft leather brace, and attached to this a band about a foot long, which is fastened to the ground by means of a small peg, about which the bird can freely run. This bird, which has been taught to run about without fluttering, is called the runner, and it is encircled with limed rods. A trained Chaffinch, within a cage, is placed in a bush close by. As soon as it begins singing,* the other, as swift as an arrow, instantly pounces from the tree upon the runner, which he considers to be the singer, entangles himself in the limed sticks, and is caught. A bird thus caught, before Whitsuntide, will sing the same year in the cage, but after this season it will pine and die, doubtless through yearning for its mate and young ones. Ignorant bird-catchers, who take pleasure only in this singular mode of capture, without regard to the value of the song, will thus in one hour, during breeding time, deprive from ten to twelve females of their mates, and numerous young ones of their guardians.

When the young Chaffinches have commenced flying in summer, bird-catchers note the spots to which they resort at midday to drink, and there they place sticks with limed rods attached. These unwary little birds perch upon them and are caught. They are called James's Finches, being caught about St. James's day. One of these Chaffinches, if it have a good memory, will still learn in confinement a good song, and is more hardy than one reared. For this reason bird-fanciers greatly

* Care must be taken that this bird has a song which is sung by wild birds, else the birds which it is sought to catch will be shy, from being unacquainted with the song, and will not be readily caught.

esteem them, and collect them in considerable numbers, assured that some will succeed in the training.

COMMENDATORY QUALITIES.—In this category we may first allude to its song. The Chaffinch has a great variety of notes, expressive of its wants and desires, very interesting to the fancier. The delicate note by which it seems to indicate a change of temperature is a *treef, treef!* the call-note which it uses chiefly upon its migration, and excited by it falls into the hands of the bird-catcher, is a repeated *yack, yack!* a spontaneous sound appears to be the *fink, fink,* which it reiterates frequently, and from which its German name has originated. Still more remarkable than these notes is its clear and trilling song. For this it is distinguished beyond almost every other bird, approaching more to distinct articulation, and is, therefore, called a quaver. Every bird has one, two, three, and even as many as four different songs, each of which lasts a couple of seconds, and consists of several strophes. The Chaffinch may be enumerated amongst the most agreeable chamber birds. Not only has all its songs been noted, but even all their syllables have been numbered; and endeavours are continually making to improve its natural notes. As I am myself a great admirer of its song, and consequently have always about me in cages a number of birds with the best songs, it would not be difficult for me to fill several sheets with observations upon the music of the Chaffinch. In this place I merely introduce my chief remarks upon the subject.

Every song of the Chaffinch, from closely approximating to the articulate tones of the human voice, is named after the terminal syllable of the last strophe; and in Thuringia the following songs are especially esteemed, and which I arrange in a certain definite order:—

1. THE HARZ DOUBLE SONG consists of five long strophes, the last of which terminates with a distended *Winegay, Hodozeeah.* Whether a Chaffinch ever perfectly sang it at liberty, as it may now be heard at Ruhl, or as two sing it which I myself possess, I very much doubt. It is a song perfected in the chamber. From its difficulty no Chaffinch can learn it unless reared from the nest; and it is rare to hear it so perfect that no portion is left out. A high price must be given to obtain a bird that sings it entire with exactness and vigour; and it has also this disadvantage, that it is soon forgotten. Together with the

Wine song, it constitutes the favourite beat of the Ruhl bird-fancier.*

2. The Ritezoog, or Riteherzoog.—Of these there are two kinds. *a*. The first is called that of the mining districts, or of Voigtland, and has only recently become known in Thuringia. It may be heard in wild birds upon the eastern side of the forest; but reared birds sing it more slowly, stronger, longer, and in other respects superior. It is a powerful piercing song, consisting of four short strophes, the first of which is very high, and has before the syllable Ritezoog a pause, which must be a quaver for the beat to be good. The last syllable is distinctly Ritezoog, with a snap, as the fancier says, or with the note *zap!* *b*. The second is the *Oberland* or *Breitenbach*. It is more full, and sounds more flute-like; but the last syllable sounds *Rietezoog*. Both are excellent songs. Whoever has not heard the *Hartz* double beat, is apt to consider this as the most perfect song; but in this, as in everything else, it depends wholly upon taste.

3. The Ritehorn.—A common chamber song in the Meiningen upper land, especially at Steinbach and Lanscha. It must not be confounded with the *Ritezoog*. It consists of a long, high, piercing, and falling, and somewhat hissing strophe, which has at the end *Rite* or *Reethorn*, with the terminal *zap*. It sounds striking, and is very good.

4. The Videyman.—There are both the chamber and forest *Videyman*. The first is common in Voigtland, and is incorrectly called *Rowter*. At a distance it sounds like the *Broytegam;* but the two first strophes have more distinct pauses, strong and sharp, and the chief beat sounds distinctly like *Videyman zee ous*. The wild song is much shorter at the commencement, and

* Ruhl is a factory village in the forest of Thuringia, the inhabitants of which, chiefly knife smiths, are such great fanciers of Chaffinches, that not only instances are known that they have gone from thence to the Hartz, that is to say, sixteen German miles, to catch a good bird, but also that for a good beater they have given a cow. The proverb, therefore, *this Chaffinch is worth a cow*, is not unfrequently heard in the forest villages. A genuine Ruhl Chaffinch-fancier becomes quite delighted when he hears mention made of a good double beater. I have often heard them say that a genuine double beater is able to talk, so distinctly will it utter every syllable. In Ruhl, therefore, exceedingly excellent Chaffinches are reared. Good Chaffinches are also found in other places in the forest of Thuringia; for instance, in Tambach, Schmalkald, Breitenbach, and Steinbach.

not so coarse, and is heard only in Franconia, in the oak and beech forests.

5. THE WINE SONG.—There are five kinds. *a.* The *Good* or *Langsfeld.** This is an exceedingly beautiful song, common only in some of the forest villages of Thuringia, especially Ruhl. It has four short strophes, which, to be genuine, must be sung with a tone similar to that of the oboe. The last syllable sounds *Winegay* or *Weengee.* This also is a song taught in the chamber, and is never heard in wild birds. *b.* The *bad Wine song* is not so disagreeable in itself, but is only called so in comparison with the preceding. It has three strophes, of which the penultimate must sound five times *zap* to be good. *Winegeeh* is also the last syllable. Wild birds sometimes utter these notes ; such birds are soon caught. *c.* The exact *Winegeeh* or *Winegay*, a beat composed as it were of the bad and sharp wine song. The last syllable sounds loudly and piercingly. It is a wild song in Franconia, especially about Meiningen, and not unpleasing. *d.* The *sharp Wine song*, called also merely the *sharp*. This never ends in *Winegee*, but with a positively long drawn *Winegay*. This is also an acquired beat, which is met with in Ruhl and some other Thuringian forest villages. It has three strophes, of which the first must sound and ring high; and upon the penultimate, or both that and the antepenultimate, an accent must lie.

6. THE BROYTEGAM.—Of this there are—*a.* The *good*, which is only to be heard in the chamber. It has two strophes, of which the first is soft and high, and the second increasingly piercing. *b.* The *bad*, which is sung in the forest. It is also a pleasing beat, and consists of three strophes, but which to the ear of the connoiseur are not so agreeable as the former.

7. THE DOUBLE TRILL.—This song consists of two long strains, with a distinct pause in the middle, which is called the shake. Of this there is—*a.* the *common*, which may be again subdivided into, *a.* the *coarse*, or Schmalkald, double beat,† which song sounds coarsely and long, but is improved by reared birds ; *b.* the *clear ; c.* the *long ;* and *d.* the *short.* These songs are heard also wild. Those Chaffinches that sing *a* and *b* are

* A village on the Rhön, where this song was first discovered.

† In some parts of Franconia—for instance, about Meiningen—it may be met with in the forest, and indeed tolerably perfect. It is to be regretted that the majority of Chaffinches which sing it have a bye-beat with it.

eagerly sought after by bird-catchers. In Thuringia the double beat is thus expressed:—the Tambach double beat is merely a chamber song,* which sounds so deeply and strongly that one would scarcely believe that a Chaffinch could sing so low. It commences piano, increases in strength, and makes of the whirl a strophe of five grating tones, then calls from three to five times *pfaff*, and closes slowly with the syllable *reedideea*. When a Chaffinch sings the double beat, either alone or also with the good Broytegam, as it is reared at Tambach, it is an expensive purchase.

8. The Gootyar, so called from the sound of the last note. There are—*a*. the *common*, consisting of two strophes, of which the fifth must warble five times before the word *gootyar* comes. It is a common forest song. *b*. the *Hartz;* a chamber song, which has two remarkable and rather pleasing strophes. Chaffinches which sing the Ruhler *sharp Wine song*, and the *Hartz Gootyar*, are very high priced, and are now rare; and they are only to be met with in Eisenach and Ruhl.

9. The Keeneuyl or Quakeea, because the last syllable sounds so. There is—*a*. the *double*, and *b*. the *simple*. The first consists of two strophes, the latter of one. Tne former was much admired, and was heard in the woods and the chamber, but it has been scarcely heard for some years past. With us all that sang it in the forest have been caught; and in the chamber the *good Wine song* has superseded it. I possess a bird of this kind, and do not think another exists. It was formerly required that such Chaffinches should also sing the double beat to be agreeable songsters. Mine also sings both these songs.

10. The Paraykeekar.—In no song is the chief word more distinctly uttered than in this. It is heard at large on the western side of the forest of Thuringia and in Franconia. As a chamber song it is most perfect at Wazungen.

11. The Peethea or Treweethea.—An exceedingly pleasant song, which is still heard occasionally in the mountain recesses of the forest of Thuringia; but in the Westphalian

* An accident produced this double beat about eight years ago. A shoemaker, of the name of Schmidt, in Tambach, had five young Chaffinches hanging near a very coarse double singer, one of which composed this song for itself. This subsequently taught several others; so that now this song has become quite a favourite one in the Thuringian forest villages of that district.

mountain villages it is much hunted after. Reared from the nest it is still more perfect. A strophe must ring at the commencement, and then the note *zack* be repeated several times. There were formerly birds which sang it, as well as the common *sharp Wine song*, and which were much esteemed.

12. The Shwartzgabeer.—An ordinary Chaffinch song in the Meiningen mountain land, especially Sonnenberg and Steinbach, which is heard wild, but is also reared perfect in the chamber. It consists of three strophes, of which the third sounds peculiarly harsh and undulating. The terminal word is distinctly heard, and it ends with *pink*. This is taught to a bird together with the *Ritezoog;* and a Chaffinch which has perfectly learnt both these songs is much admired.

These are the Chaffinch songs most esteemed in Thuringia, and throughout Saxony and Franconia. Many of them, as I have before observed, are heard wild, but usually not so perfect; that is to say, not so long and with so strong and pure a voice. If a bird sings but one of these songs, it usually sings it slower, with more syllables louder and deeper, and is the more esteemed when at the end of each beat it adds *pink* or *zap*, which bird-catchers call the Amen.

It is remarkable that the song of these birds varies according to the district they inhabit, so that different songs are sung in the forest of Thuringia to what are sung in the Hartz; and by this the taste of amateurs is regulated.

The Chaffinch is so tractable that when reared young it will not only acquire the song of any other Finch, near which it may may be hung, but will even pick up a portion of the song of the Nightingale or Canary. Among them, as well as in other tamed birds, differences of memory are observable, for sometimes one will take half a year to acquire a single song, whereas another will catch it on the first hearing, and sing it well. There are some that cannot give even one song without a fault, while others may be found that will sing it perfectly, and even extend and embellish it.

It is also remarkable, that these birds must also, in a peculiar way, re-learn their song every year. This is done in the midst of a rattling and hissing noise, which they make for four weeks and more, into which they gradually introduce, very gently, first some, and then several syllables of their song.

This is called recording; and those may be considered as geniuses among them, which take only a week or a fortnight for this purpose, before breaking out into full song. Other birds, which sing only at certain periods of the year, are heard only softly at first, and intermix with their song also foreign and harsh notes; but none have such peculiar notes so totally dissimilar to their own song. The least attention will show that this exercise is not so much a re-learning of the song as an effort to bring back the throat, unaccustomed for some time to sing, to its natural pliancy.

Wild Chaffinches commence recording shortly after their arrival in the spring, those in the house still earlier, even at the commencement of February; but they practise also longer, indeed sometimes for almost two months before they sing aloud. Usually their singing time lasts only to the end of June; but some chamber Finches, reared young, will even sing until Michaelmas and Martinmas.

Many fanciers, by a very barbarous contrivance, procure themselves the pleasure of hearing these birds sing both day and night, with all its fulness. They place the cage in a dark situation, and thereby accustom them to seek their food in obscurity, and then blind them by burning the pupil with a red hot needle, or passing it over the eyelids to unite the two margins together.

The Chaffinch possesses other talents besides its skill in singing; for some have been seen which, for instance, could count and put letters and colours together like the Canary. Such an one was in the possession of an Alsatian of the name of Jeantet. It was not, however, so thoroughly skilful as the Canary which he had with him.

Observations of British Naturalists.—"The male Chaffinch is one of the most handsome of our common small birds, and in his general deportment is as lively as he is handsome. Thus distinguished by bright colours and active habits, and being besides very numerous as a species, and confident in behaviour, allowing the near approach of observers without exhibiting much alarm, the Chaffinch is extremely well known; and as his gay appearance and song, frequently noticed as early as February, points him out as one of the first of our indigenous birds to afford an indication of returning spring, he is for these various reasons a general favourite. With our continental neighbours the Chaffinch is one of their most common cage birds; and in

France, from the lively colours and demeanour of this bird the term 'gay as a Chaffinch' is a proverbial phrase in frequent use.

"The Finches, generally, are remarkable for the neatness and beauty of the nests they construct, and the Chaffinch is no exception to the rule. The outside of their nest is composed of moss, studded with white or green lichens, as may best accord with the situation in which it is built; the inside is lined with wool, and this is again covered with hair and some feathers. The eggs are usually four or five in number, of a pale purplish buff, sparingly streaked and spotted with dark reddish brown. The place chosen is variable; sometimes it is fixed in the fork of a bush in a hedge-row, on a branch of a wall-fruit tree, frequently in an apple or pear tree several feet above the ground. A correspondent in the 'Field Naturalist's Magazine,' relates that a pair of Chaffinches built in a shrub so near his sitting-room window as to allow him to be a close observer of their operations. The foundation of their nest was laid on the 12th of April; the female only worked at the nest-making, and, by unwearied diligence, the beautiful structure was finished in three weeks; the first egg was deposited on the 2nd of May, four others were subsequently added, and the whole five were hatched on the 15th. During the time of incubation, neither curiosity nor constant observation from the opened window disturbed the parent bird; she sat most patiently; the male bird often visited his partner, but it was not discovered whether he ever brought her food."—*Yarrel.*

104.—THE MOUNTAIN FINCH.

FRINGILLA MONTIFRINGILLA. *Linn.*—PINSON D'ARDENNES. *Buff.*—DER BERGFINK. *Bech.*

DESCRIPTION.—It is six inches and a half long, of which the tail occupies two inches and a half; the beak is half an inch long, in winter brown, in summer yellowish, and black at the tip; the feet are dark flesh colour, nine lines high; the head, as far as the neck, as well as the throat, are shining black, with a dark reddish yellow margin to the feathers, which, in young birds, is deeper. Very old ones have a completely black head; the occiput and belly powdered with white; the back black, with a broad dark yellow margin to the feathers; the rump white; the front of the neck and the breast, as well as the small

coverts of the wings, orange yellow ; the belly white ; the large coverts black, with white tips ; the pinion feathers dark brown, with yellowish margins ; the tail black, slightly forked.

The female is of a more uniform colour, and is brown where the male is black, and yellowish red grey where he is yellow red.

There are varieties with a white head, white back, &c.

HABITAT.—It is distributed throughout Europe, but resides during the summer in the north. During the three other seasons it is found throughout Germany, especially in the forest districts. When beech-mast is plentiful in the Thuringian forest, there have been instances of their wintering in that district to the number of a hundred thousand.

Where it is common it is not considered worth keeping in a cage; but where more rare this is done for the sake of its beauty. With us it is allowed to run freely about.

FOOD.—Its food is similar to that of the Chaffinch, both at large and in confinement.

CAPTURE.—Its call-note is *yack*, *yack*, *quaak ;* and as the first note resembles the call of the Chaffinch, it can be decoyed by this, and flies also in its society. This, as well as the Chaffinch, most freely visit the fowling-floor, for with one cast several scores are frequently taken. In winter they are caught near barns, in sieves and nets ; and in spring they visit the call-bushes, even if there are no birds of their species to allure them, and merely a common Chaffinch calls.

COMMENDATORY QUALITIES.—The song is not agreeable, for it utters nothing more than insulated lisping and twittering tones like those of the Common Chaffinch when they are recording, intermixed with which it occasionally utters a loud *raitch !* and yet it will learn some of the notes of the Chaffinch, although imperfectly, if hung near it for some years. This bird, when kept in the house, must not be placed in an apartment with many other birds, as he is very quarrelsome, especially if he has not got an abundance of food. In our district he is kept in cages chiefly as a call-bird for the fowling-floor. It is said that he is more easily taught to fly in and out than the Common Chaffinch.

OBSERVATIONS OF BRITISH NATURALISTS.—This fine species is a native of the northern parts of Europe, and in the more temperate and southern districts is only known as a winter visitant, arriving in the neighbourhood of London generally about Michaelmas, and depart-

ing northward early in the month of March—never having, as yet, been satisfactorily ascertained to breed here. Their numbers vary greatly in different seasons, the direction and extent of their migration being, in all probability, regulated by the state of the weather.

In habit, and in their manners, they closely resemble the Common Chaffinch, with which they frequently associate; and in hard weather may sometimes be seen hopping familiarly about the farm-yard, or in the middle of the road, in the manner of that bird.

105.—THE SPARROW.

FRINGILLA DOMESTICA. *Linn.*—LE MOINEAU FRANC. *Buff.*—THE HOUSE SPARROW. *M'Gillivray.*—DER HANSSPERLING. *Bech.*

DESCRIPTION.—Although this and the following bird may not be classed among agreeable songsters, I must not pass them over, as they are easily kept, and possess all kinds of pleasing qualities, that other chamber birds distinguished for their beauty and their colour do not possess.

The description of this bird is almost superfluous, being so very common throughout the whole of the old world, and especially in Europe. It is five and three-quarter inches long. The beak is stout and blue black; the feet grey brown; the vertex and cheeks ashy grey, behind the eyes a broad reddish brown stripe; black around the eyes; the back of the neck grey; the back spotted with red, brown, and black; the throat as far as the breast, black, the latter clouded with white; the abdomen greyish white; the small coverts of the wings red brown, the penultimate row of large ones with white shafts, and this margined with red brown; the pinion feathers dark brown, as well as the tail feathers.

The female is very different; red grey upon the upper surface, spotted with black upon the back; the abdomen of a dirty white grey.

The young until the first moult nearly resemble the female.

There are also several varieties ; the white, the yellow, the tawny, black blue, entirely ashy grey, and variegated.

Habitat.—It is sufficiently well known that throughout Europe it has accustomed itself to the habitations of man. He is allowed to run freely about with other birds in the chamber, or he is placed at night in a cage. He will soon acquire the habit of freely entering.

Food.—It is but too well known that they are frequently injurious to ripe wheat and barley crops, to pea fields, cherry trees, &c., where it seeks its food ; but in compensation they are frequently serviceable in gardens and woods, by their consuming whilst breeding an innumerable quantity of May-bugs and fruit caterpillars. They will feed upon oats, and indeed everything that is thrown to them. In a cage they must be supplied with rape, hemp, poppy seed, oats, and other grain and seeds, &c.

Breeding.—From two to three times a-year they will hatch from five to seven young ones, in a very irregular nest, built beneath eaves, in fissures of walls, old swallows nests, &c.

Capture.—They are cunning, and skill is required to catch them in nets or by means of limed rods. In autumn many may be caught by sticking plenty of lime upon bushes in fields where flocks of them are seen. In cherry trees, and on houses, they are caught with landing nets which are held before them when they have retired to rest.

Commendatory Qualities.—Whoever keeps many birds running at large in a chamber, will also admit the House Sparrow into their society. Children also adorn him with a red crown or grenadier's cap. He is most useful in the chamber for the production of hybrids with the hen Tree Sparrow. A wooden hole, or a jug, should be placed in some bye spot, wherein they can build a nest and rear their young.

They may also be easily accustomed to fly in and out, especially if the winter be selected for the purpose, and they are placed for a month at the window in a large cage, and well supplied with millet, meat, and roll steeped in milk. They will then make their nest in such a cage, if a small box be placed in it with a small aperture to admit of their creeping in. An invalid at Paris (Journal de Paris, July 18, 1809) had made a young Sparrow so tame, that it would follow him wherever he went. It used to fly about with a little bell round its neck, and would not

permit any one to catch it. When its master became bed-ridden, it would not quit his side. It was once caught and deprived of its bell. In a couple of days it freed itself and returned; but continued dejected, and would not eat until it had a new bell placed round its neck. It lived a long time, and was universally admired.

OBSERVATIONS OF BRITISH NATURALISTS.—The social propensity is more apparent in the Sparrow than in any other British species of its family; for even during the breeding season it is seen searching for food in small groups, and in autumn and winter it is decidedly gregarious, although irregularly so, for the individuals of a flock do not seem to consort with each other exclusively, and betake themselves to the same roosting places. The flocks, on the contrary, are accidentally formed by individuals casually meeting with each other, and are liable to be broken up by slight causes. Its usual places of resort are those in the immediate vicinity of human habitations; and at night it reposes under the eaves of houses, about chimneys, in holes and crevices of buildings, and among ivy covering walls. During a great part of the year it subsists chiefly on the fragments of ejected food which it finds about the doors, on the streets, or on dung-hills. But it also feeds upon grain, which it obtains abundantly during several weeks in autumn on the standing corn, and less profusely in winter, when it searches the stubble fields.—*M'Gillivray.*

106.—THE TREE SPARROW.

FRINGILLA MONTANA. *Linn.*—FRIQUET. *Buff.*—DER FELDSPERLING. *Bech.*

DESCRIPTION.—It is a handsomer bird than the preceding, and about five inches and a half long; the beak is dark brown; the feet bluish flesh colour; the vertex, as far as the neck, red brown; the cheeks white with a black spot; the neck surrounded by a white ring; the upper part of the back rust colour spotted with black; the lower part of the back and rump brown grey; the throat and gullet black; the breast bright ashy grey; the belly dirty white; the pinion and tail feathers dark brown; the small coverts rust colour, the large ones black, with rust coloured edges, and white tips, which form two white bars.

There are also white and variegated varieties, which are brown yellow upon the upper part of the body, the wings, and tail; in

other respects of the usual colours, and have a black throat and brown head.

Habitat.—It inhabits northern Asia and America, and most parts of Europe, but it is not so common throughout Germany as the House Sparrow, for there are parts where it is never seen. It is found in gardens and fields where hedges and trees occur. They are seen in large flocks in autumn, plundering the barley and wheat fields.

In confinement it may be allowed freely to range the room. Its mode of standing is, however, disagreeable ; for its feet, as in the House Sparrow, are short, and it appears therefore to rest upon its belly, even when it hops.

Food.—The same as that of the preceding.

Breeding.—Its nest may be found twice a year, usually in hollow fruit trees, in gardens, and in hollow willows on the banks of water.

Mode of Capture.—It is caught like the preceding, and being less shy, in winter it may be caught with the sieve near barns.

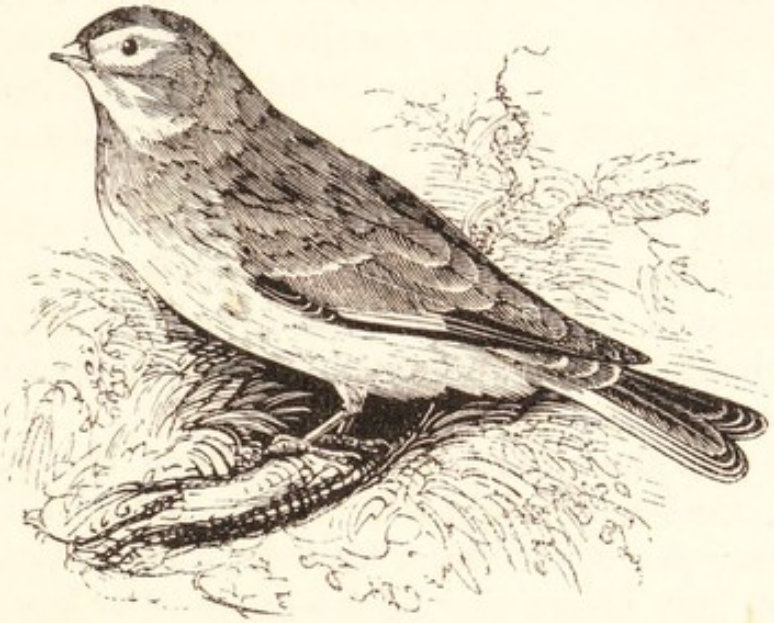
Commendatory Qualities.—It is handsomer than the preceding, chirps also some distinct notes, which constitute its song ; but which, although it sounds agreeably, is lost amid the songs of other chamber birds. When living in the country they may also be accustomed to fly in and out, which is to be effected as in the preceding species.

These birds do not live so long in confinement as the former, and usually die of consumption.

107.—THE LINNET.

FRINGILLA CANNABINA. *Linn.*—LINOTTE. *Buff.*—WHIN LINNET, LINTIE. GREATER RED POLE. BROWN LINNET. *Mont.*—DER HÄNFLING. *Bech.*

DESCRIPTION.—The length of this well-known chamber bird is above five inches, of which the tail measures two inches and a quarter. The beak is six lines long; in summer dirty blue, in winter white grey, with brown tip; the irides dark brown; the feet black, and eight lines high. A very striking difference occurs in the colouring of the male Linnet, which is not observable in the female, and which is the result of age and of the season; and this, which is anything but a specific difference, has led to considerable confusion in works on natural history. Even bird-catchers are still persuaded that these birds are distinct. I hope to prove in this description, which is founded upon the continued observation and experience of many years, that our Common Linnet (*Fringilla Leneta.* Linn.), the Greater Redpole (*Fringilla Cannabina.* Linn.), and also, according to every probability, the Mountain Linnet (*Fringilla Montana.* Linn,), are one and the same species.



An old male, at least one of three years, is marked as follows, in the spring, and is known by the name of the Redpole. The forehead is blood red, the rest of the head reddish ashy grey, with some black spots on the vertex; on the cheeks, sides of the neck, and around the eyes, reddish white spots; the upper part of the back rusty brown with brighter margins; the lower part of the back white and grey mixed; the upper coverts of the tail black, margined with reddish white with dotted reddish grey spots; the sides of the abdomen

bright rusty colour, the rest of it reddish white ; the first row of coverts black with a reddish white margin, the rest rusty brown with brighter shafts; the pinion feathers black, with dirty white tips; the primaries on each side, nearly as far as the tip, margined with white; the margin of the narrow web forms a white bar parallel to the pinion feathers; the tail forked and black ; the four outward feathers on each side with a broad white margin, the two central ones narrower and reddish white.

After moulting in the autumn the blood red forehead is no longer seen, the feathers becoming red from the base upwards, and the breast is without the beautiful shining red, for the reddish white border is still too broad ; but on the approach of winter all these colours assume their proper hue.

The males of the first year have no red upon the head, more black spots, the breast bright rusty colour, watered light and dark. The inner part of the breast feathers, which is usually red, is of a reddish grey brown shining colour, more or less distinct, but their margins are always of a reddish white. The rust coloured back has solitary dark brown and reddish white spots. These are what are called Grey Linnets.

After the second moulting, there is observed on the forehead, when the reddish ashy grey feathers are raised, blood red spots, and the red of the breast is only concealed by the broad yellowish white margins of the feathers. These are the Yellow Linnets, or Rock Linnets, as they are called in Thuringia. But I have myself taken Linnets which, instead of the red upon the breast and upon the brow, were of a bright reddish yellow. These are called by bird-catchers Yellow Linnets. These are degenerated red ones, caused probably by sickliness in moulting ; also sometimes very old birds. Bird-catchers are not incorrect in attributing to these a very beautiful song.

I have caught several of them at various times, and have always retained them on account of their rarity. They sang beautifully and purely, but could never be tamed, and soon died of sorrow and melancholy, and I concluded from these circumstances that they were very old. Between these three differences

of colour in the male Linnet, there are different intervening grades, which are occasioned by great age and the autumnal and spring seasons. The older they are, the redder they become upon the head. I have in my cabinet specimens of the successive gradations. Birds which are brought young into the chamber never acquire the beautiful red colour upon the head and breast, but always remain coloured like the birds of the first year, or the common Grey Linnet. Old red ones, however, lose their beautiful colour upon first moulting in confinement, and resume the colours of the birds of the first year.

In the female no changes of colour are observable. It is rather smaller than the male ; the whole of the upper part of the body grey, spotted with dusky brown and yellowish white ; reddish white on the rump spotted with grey brown, strongest upon the breast ; the coverts of the wings dirty rusty brown. It may be distinguished from the male, even in the nest, by the colour of the back being more grey than brown, and by its thickly sprinkled breast, which is very like that of the Lark. Bird-catchers usually remove only the males from the nest, leaving the females behind.

Habitat.—This bird is met with all over Europe. They are found throughout the summer in the skirting wood of large forests, and indeed wherever coppices, hedges, and bushes abound. In the autumn they resort to the fields in large flocks. They are birds of passage which, during winter, go hither and thither in search of food wherever the earth is free from snow. In March they are again to be found in couples in their native place. They are usually kept either in bell-shaped cages, or in small square Chaffinch cages. In the latter they sing better and are not so readily subject to giddiness. They are not usually allowed to run freely about, as they are too melancholy, always sitting upon the same spot, and are in danger of being trod upon. But with little branches in the room they may be permitted to range about, for they will then almost constantly remain perched upon them, quitting only to eat and drink, and sing nearly all day long.

Food.—In their wild state their food consists of all kinds of seeds, which they peel and soften in the crop before passing into the stomach. They eat the seeds of all kinds of plants, especially rape seed, cabbage, hemp, poppy, and dodder grass seed.

In confinement they require nothing but summer cabbage seed,* which does not require to be soaked as for Chaffinches, as

Linnets being merely seed-eating birds have a powerful crop and stomach, and can therefore better digest it. Hemp they must not have at all. They must not be too well fed in the cage, for, taking little exercise, they would soon die from over-feeding. They like salt, and it is therefore well occasionally to intermix some with their food; and this is an excellent preventive against various maladies. When Linnets are allowed to run about, they readily feed with other birds on the usual universal paste. Some green food must occasionally be given to them, as also sand and water, as they like to bathe and dust themselves.

Breeding.—Linnets breed twice a-year, and lay each time from four to six eggs, which are bluish white, and covered all over, especially at the upper end, with flesh coloured and reddish brown spots and stripes. The nest is most frequently found in young fir and pine plantations, also in thick bushes and hedges, particularly of the black and white thorn. It is well built, and formed externally of delicate fibres of roots, blades of grass and moss, and lined with wool and hair. The parent birds feed their young from the crop, and still continue to feed them if captured near the nest and placed with it in a bird cage. The young ones, when it is wished to teach them a different song to their own, must be removed from the nest as soon as the quills have sprouted, that they may avoid learning any portion of the song of their parents. The males may be recognised in their earliest

* Winter cabbage seed, which does not injure them when at liberty, soon kills them in confinement.

stage by the white ring round the neck, and the white on the tail and wings.

MALADIES.—They are peculiarly subject to constipation, consumption, and epilepsy; but they will in general live from twelve to sixteen years in confinement.

CAPTURE.—These birds are shy and distrustful, and very difficult to catch. Even with a call-bird and runners it is not easy to entice them to the fowling-floor. In the spring, before they pair, they may be caught upon decoy bushes, if you have a good call-bird in the cage. When observed in autumn to resort to the stalks of lettuces, as they frequently do, it is only requisite to hang these with nooses and limed twigs and several may be taken. Shepherds catch them throughout the summer, making traps of the cribs used for feeding sheep, so placing them that the Linnets coming to gather the grains, overturn them, and so are captured. Their favourite call-note is *gecker!*

COMMENDATORY QUALITIES.—The Linnet has a very agreeable, loud, and flute-like song, which consists of many connected strophes, and is the more beautiful the oftener it utters some high-sounding notes, which are called its crowing, from its resemblance to the crowing of a cock.* It sings both summer and winter, excepting moulting time. If removed from the nest and reared upon a mixture of soaked roll, rape seed, and boiled eggs, it will not only learn the song of all the birds that it hears in the room—for instance, Nightingales, Larks, Chaffinches, &c.—but also imitates, if hung alone, melodies of airs and dances which are piped to it; it will even learn to repeat some words. From its natural flute-like voice, this bird excels all others in its power of imitating melodies beautifully and purely, and for this it is especially esteemed. A young Linnet, taught by a Nightingale, has an exceedingly pleasing song. I have one which has the complete song of the Nightingale, and which delights me the whole year through with this beautiful chaunt, when my Nightingales themselves are silent.

These birds may also be accustomed to fly, go, and come at command. This is to be effected whilst they are young, or during the winter. For this purpose, when sufficiently tamed,

* As in all other birds, one will sing better than another, so, likewise, old ones better than young ones: the preference, therefore, is given to the Yellow Linnet.

they are placed in a large cage, hung near a window which looks upon a garden, and they are then fed with crushed hemp, and the effect of this food is to still their anxiety for freedom, especially at a time when but little food is to be found. But it is necessary, to accomplish this, to proceed cautiously with so timid and shy a bird as the Linnet.

It is well known that hybrids, between the Linnet and the Canary, may be easily reared. The young thus produced can scarcely be distinguished from other Grey Canaries, and they learn to pipe exceedingly well any kind of melody.

Observations of British Naturalists.—The Common Linnet, variously denominated the Brown, Grey, and Rose Linnets, is generally distributed in Britain, being found at all seasons in most parts of England and Scotland. Towards the end of autumn individuals collect into flocks, which unite as the winter advances, and betake themselves to the lower districts, where, in the neighbourhood of towns and farm-steadings, they search the fields, and in severe weather frequent the corn-yards, to procure seeds of oats, and various plants, on which they subsist entirely from the middle of autumn until the beginning of summer. The flocks glide and wheel, the individuals crossing the direction of each other in a very beautiful manner. On ground it is equally active. Its voice is soft and mellow, and its song varied, and remarkably sweet. It is easily reared from the nest, and feeds when grown on Canary, rape, and hemp seed, with chickweed and groundsel. In this state it pairs with the Canary and Goldfinch.

When the fine weather commences in spring, the flocks break up, and the individuals betake themselves to their summer haunts, in the hilly and mountainous parts of the country, especially where there are thickets of broom, whin, or sloe, or even, in defect of these, where the heather attains an unusual size on the slopes of the craggy braes and glens. There the mate, perched on a twig or stone, pours forth his sweet notes, while his mate is brooding over her precious charge. But the song of the Linnet, pleasant as it may be when heard in a room, has little effect on the hill side, compared with that of the Mavis or Merle, although to the shepherd swain, reclining on the soft moss, on a sloping bank overgrown with "the lang yellow broom," or the weary traveller resting awhile by the wayside, it may seem gentle as the melody of the primeval groves of lost paradise, filling the soul with pleasing thoughts.

108.—THE LESSER REDPOLE.

FRINGILLA LINARIA. *Linn.*—SIZERIN. *Buff.*—SMALLER REDPOLE LINNET. *M'Gillivray.*—DER FLACHSFINK. *Bech.*

DESCRIPTION.—In colour this bird resembles the Linnet, but in figure, size, and mode of life the Siskin. It is five inches and a quarter long, of which the tail occupies two inches and a quarter.

The beak is only four lines long, very pointed and yellow; the feet are black; the shin eight lines high; the vertex brilliant shining crimson; the upper side of the body dark brown, spotted with whitish and rusty yellow; the rump rosy red; the throat black; the under side of the neck and breast bright rosy red, with white margins to the the feathers; the rest of the under side of the body white; the coverts of the wings dark brown, the two large rows with reddish white tips, whereby two white transverse bars are formed, the smaller clouded with rusty yellow; the pinion feathers dark brown, as well as the tail. The female is paler; the red on the breast is wanting, and only very old ones have a slight indication of red there, and also upon the rump; the upper side of the body is spotted with white and dark brown, and the breast sprinkled with the same colour. By the latter they are distinguished particularly from the young, and from the males of the first year, which also want the red breast, but which have the rusty yellow and also the darker colouring of the back of the male.

In confinement the male loses the red colour upon the breast at its first moult, and on the second moult usually also the crimson of the pole, which becomes greenish yellow; and I possess a male which, on moulting the third time, acquired a golden yellow pole, and has preserved it now for six years.

HABITAT.—It is met with throughout Europe; but it properly resorts in the summer to northern countries—Scotland, Sweden, Lapland, and Greenland. As a bird of passage, it arrives here in flocks during the latter half of October, and quits

us again in March and April. During winter it resorts to spots which abound in alders, the seeds of which it is very fond of. Where it is a rare bird its beauty claims a bell-shaped cage, but it is to be regretted that this beauty is so transitory.

Food.—The berries of the ash is their favourite food, but it also eats linseed and rape seed, the seed of the fir, &c. Being exclusively seed-eating birds, the crop has the power to soften the grains before passing into the stomach. They may be fed upon poppy seed and hemp, particularly relishing the first. When free in the aviary, their food consists of the first general paste.

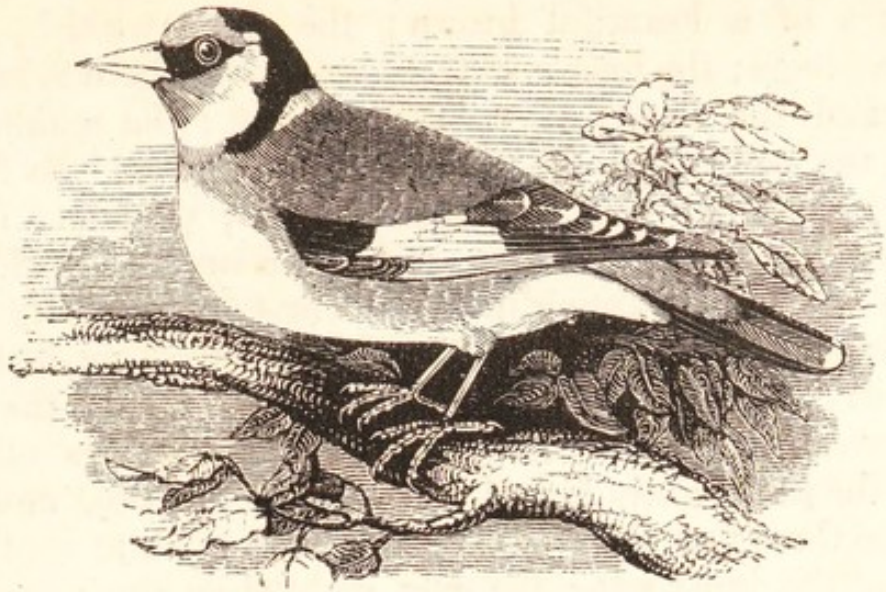
Breeding.—Occasionally a pair that have not migrated breeds with us, but this is rare.

Maladies.—It is subject usually to the same as the Siskin; but bad feet is more prevalent amongst them, when one toe after the other will fall off. They live for eight years and more.

Capture.—In autumn and spring they visit the fowling-floor in flocks, if furnished with call-birds of their own species, or even with a Siskin; and the call of this bird will also attract them to the call-bush. They are so simple* that they perch frequently upon the limed twigs or in the nets, when even a person is standing by and securing their comrades that have been caught. They call *peewit* and *kreck, kreck, hayid!*

Commendatory Qualities.—Their personal beauty is greater than their powers of song; for this is but a soft and indifferently connected jingle. They may be accustomed to draw water by a chain, and learn besides many other similar tricks. They will also become exceedingly tame, and will eat the instant after they are captured. When males and females are kept together they are so fond of each other that they are constantly billing, which they also do with Linnets, Goldfinches, Siskins, and Canaries. It would be easy, therefore, to produce hybrids between these birds.

* This is characteristic of birds of the far north, which breed where they rarely or never see a human being; and thus are less watchful in their habits, not being pursued, when young, like birds in densely populous districts.

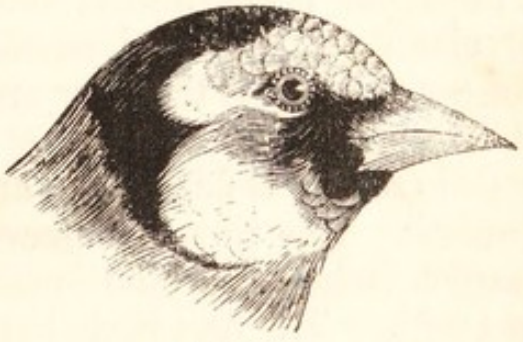


109.—THE GOLDFINCH.

FRINGILLA CARDUELIS. *Linn.*—CHARDONNERET. *Buff.*—RED-FRONTED THISTLE FINCH. *M'Gillivray.*—DER STEIGLITZ ODER DISTELFINK. *Bech.*

DESCRIPTION.—Of all chamber birds this is one of the most delightful, alike from the beauty of its plumage and the excellence of its song, its proved docility, and remarkable cleverness. It is five inches and three-quarters long, of which the tail occupies two inches. The beak is five lines long, sharply pointed, and very slightly bent, compressed at the sides, whitish, with a horny coloured tip; the slender feet are brownish, and six lines

MALE.



FEMALE.

high; the front of the head is of a bright scarlet red; a broad margin of a similar colour surrounds the base of the beak; the chin and reins black; the vertex black, terminating in a stripe, which passes the back of the head, and descends the neck on each side; beyond the black occiput there is a white spot;

the cheeks and front of the neck white; the back of the neck and back of a beautiful brown; the rump whitish, with a brownish tinge; the longer feathers are black; both sides of the breast and the flanks of a bright brown; the middle of the breast, the belly, and the vent whitish, many of the feathers having a browish tinge; the thighs greyish; the pinion feathers velvet black, with whitish tips, which are smallest in old birds, and are sometimes wanting in the two first feathers; the middle of the external web with a golden coloured stripe an inch long, which, in conjunction with the golden yellow tips of the hinder large coverts, forms a beautiful spot; the coverts otherwise black; the tail slightly forked and black; the two, and sometimes the three first pinion feathers having a white spot in the centre of the inner web; the rest with white tips; sometimes also the third is likewise entirely black at the sides.

The female is a little smaller, not so broadly and beautifully red about the beak; the chin brownish; the cheeks intermixed with bright brown; the small coverts of the wings brown, and the back of a deeper dark brown.

The size and even deficiency of some of the white tips of the pinion feathers cannot be taken as a distinguishing characteristic between the sexes, as some bird-catchers assert; and as little may we adopt their opinion that the size and number of these spots constitute different varieties. These distinctions are accidental, and depend on the state and age of the bird. Bird-catchers, however, fancy that the first are distinct species. In Thuringia, consequently, the first—the large ones, which are of about the size of Linnets—are called by them Pine Goldfinches, and these they say are bred in pine and fir woods; and the smaller ones, which are of about the size of a Redbreast, are called Garden Goldfinches, and are assumed to be bred only in gardens. But these differences are quite imaginary, for large Garden Goldfinches and small Pine Goldfinches are frequently met with. The first birds hatched are usually the largest, as they generally take the food from the more recently hatched ones when the old come to feed them; this is the ordinary cause of the differences of size in the same species of birds.

The characteristics which mark the following varieties are better established:—*a*. The Goldfinch with the yellow breast; *b*. The White-headed Goldfinch; *c*. The Black-headed Goldfinch

(of this variety four were taken out of the same nest); *d*. The White Goldfinch; *e*. The Black Goldfinch. These are either entirely black, which is caused by age or being fed upon hemp, or they retain the yellow spot upon the wings. The last will somesomes happen in the cage. Mr. Shelbach, of Cassel, reared a nest of Goldfinches, which he kept entirely from the light of the sun, covering the cage with cloths. These birds were of a jet black, with yellow spots, but they changed colour after moulting. Those Goldfinches which became black before old age, resume the colour after moulting, but then do not usually live much longer.

HABITAT.—In their wild state Goldfinches are found throughout Europe. During summer they resort to gardens, skirting woods and coppices, and especially in those mountainous districts where woods and fields are interspersed. They remain with us permanently, but in autumn collect in flocks numbering from fifteen to twenty, and are numerous in spots where there is an abundance of thistles, and only change their residence when the snow lies thick upon the ground, removing to those places clear from snow, where food may be procured. When kept in a cage, the ordinary Chaffinch cage is preferable to a bell-shaped one, as they are not fond of hopping upwards. If they run freely about the chamber, they are supplied either with a recess or a dwarf fir to roost. From their habit of perching high, they select the top branch whilst singing as well as sleeping.

FOOD.—They feed upon all kinds of seeds, groundsel, succory, salad, cabbage, rape, Canary, thistle, and alder seed; also linseed, dodder grass, &c. In the cage it must be fed upon poppy seed and hemp seed, the first being given as its usual food. If allowed to run freely about, it will accustom itself to the second description of universal food. I possess one which has been used to take all kind of green food and vegetables that come to table, and even to eat meat, although when at liberty an insect of any description is disagreeable to it. He may also have given to him all sorts of green things, such as salad, cabbage, lettuce, and water-cresses. They eat voraciously, and therefore, when allowed to run about in the chamber, they perch upon the trough, and chase away, with a threatening gesture, every bird that approaches; whereas they will feed with other birds that have any kind of resemblance to them, at least with

respect to the character of their food, such as Canary birds, Siskins, and particularly the Lesser Redpole, whether male or female.

BREEDING.—Goldfinches prefer building in gardens and in large orchards. In skilfulness and neatness of structure their nest stands next to that of the Chaffinch ; externally it is formed of delicate mosses, lichens, the delicate fibres of roots, neatly interwoven, and inside lined with wool, hair, and thistle down. It is hemispherical. The female lays rarely more than once a-year (consequently these birds never greatly increase), and then from four to six eggs, which upon a pale sea green ground are marked with pale red spots and dots, and deep red stripes. The young are fed from the crop. These, before they first moult, are grey upon the head, and are called Grey Heads by bird-catchers. If males only are wished to be removed from the the nest, those must be left behind which have a narrow whitish ring at the base of the beak. They can be reared upon poppy seeds and roll steeped in milk or water. They have greater facility in imitating the song of the Canary than that of any other bird ; and with this bird they will produce fertile hydrids. To effect this a male Goldfinch is placed with one or two hen Canaries, and they very readily pair, especially if the Goldfinch has been reared from the nest. The birds which spring from this union are not only beautiful in colour and plumage—often yellow, with the head, wings, and tail of the Goldfinch—but they will be found to excel in the sweetness and variety of their song. If you are apprehensive that a pair of valuable Canaries will not thoroughly hatch their eggs, or let their young ones die, remove them to the nest of a Goldfinch ; they will not only hatch them, but will also feed the young, which, when nearly full fledged, may be placed in a cage until they can feed themselves, when no further trouble attends their rearing.

MALADIES.—They are very subject to epilepsy. If they happen to have bad and swollen eyes, they should be anointed with fresh butter. Heaviness and greediness, occasioned by feeding too exclusively upon hemp seed, may be removed by giving them in lieu of it soaked salad and thistle seeds. It contributes much to their health if occasionally supplied with the head of the thistle.

In old age they become blind, and they then lose the beautiful red and yellow colours of the head and wings.

Although frequently subject to sickness, there are instances of their having lived to the age of sixteen and even twenty-four years.

Capture.—In spring they are caught by means of a decoy-bird upon call-bushes. They will also visit the fowling-floor if strewed with bundles of thistles; but are very difficult to capture, being extremely cautious of approaching nets and limed rods. In winter several bundles of thistles are tied together, and springes are placed about them, in which they are caught; in autumn and spring limed rods are used. The capture is effected with greater certainty, if a bundle of thistles be fastened to a tree, and this be covered with limed twigs.

Its call is *ziflit* or *sticklit;* and the latter is also its Bohemian name.

Commendatory Qualities.—The Goldfinch is a beautiful and animated bird, whose body is in incessant motion—now moving to the right and now to the left. Its song is shrill, agreeable, and heard during all seasons, excepting only at the period of moulting. It contains, besides many warbling and twittering notes, on which it dwells more or less, and the oftener the syllable *fink* is repeated the more it is admired. Some utter these notes only once or twice in their song, and others four or five times in succession. They also repeat airs, and the songs of other birds, but with difficulty, for they have not the same capacity as Linnets and Canaries for these acquisitions.

Their tameness is extraordinary, for they will even learn to fire small cannons and imitate death. They may be taught to draw up their food and water in a little bucket. The apparatus consists of two lines of broad soft leather in which there are four holes, through which their feet and wings are passed, and the ends are held together beneath the belly by a ring, to which is attached a delicate chain that supports the buckets containing the food and drink. A bird, thus equipped, will then draw up the chain by its beak, retaining the drawn-up links by its feet, and thus succeeds in obtaining what it wishes. Another mode is sometimes adopted, in which he is fastened, by means of a chain, to the perch upon which he sits, and two vessels are made to pass over a pulley, so that as one ascends the other descends, thus obtaining his food and water in turns.

I have also seen Goldfinches and Siskins placed in different cages, a little bell being hung to the trough, against which they struck with their beak when eating. These bells were arranged harmoniously, and an agreeable kind of music was thus produced. But indeed such trifling soon becomes irksome.

This bird is taught to go and come at command much sooner than the Linnet, though the latter learns quite as soon to build in the cage. To effect this, a Goldfinch must be taken in the winter, and one not too much accustomed to the warmth of the chamber, and in its cage placed every day at the window, or on the sill, or upon a board, where it cannot be reached by mice, and near the cage some hemp seed must be strewn, with a little bunch of thistle heads, the seeds of which are to be scattered among the hemp. Soon afterwards other Goldfinches, attracted by the call of the one in the cage, will fly thither to seek this food. When this is the case, it is no longer necessary to hang the decoy-bird in the cage at the window, which also would be eventually injured by the cold; and it is then only hung within, a trap-cage being placed outside, not for the purpose of immediately catching these birds, but to check the visits of the Sparrows, and prevent them eating the seed. The fall of this trap-cage must be connected, by means of a string passed through a hole in the window, with the inside, so that it may be caused to fall at pleasure. The Goldfinches should be allowed to visit it without disturbance until the snow begins to melt, and before flying off to some other locality they are captured, tamed in a bird-cage, and subsequently accustomed to fly about a room. The cage must be so constructed that the door will close when it is required, by means of some spring that the bird can act upon without being scared. A bird thus trained may safely be allowed its liberty at the time it moults in August. It is pretty certain to return again in December, when the snow falls, and will sing far better than if it had been kept in confinement. Its nest ought to be kept constantly at the window, supplied with food, that it may find what it wants when it returns. But it rarely presents itself before the commencement of winter; and then in order to recapture it, the cage must be placed so that it will close when the bird enters. But the most certain method is to attract it by a call-bird. When recaptured, it may be kept shut up till its season of liberty again arrives.

Chaffinches, Greenfinches, and Tits, may be taught to go and return in a similar manner; and it has been found that birds so trained sing more sweetly than when constantly confined.

Observations of British Naturalists.—Mr. Syme, in his excellent treatise on British Song Birds, gives the following amusing particulars respecting this species :—"The Goldfinch is easily tamed and easily taught, and its capability of learning the notes of other birds is well known; but the tricks it may be taught to perform are truly astonishing. A few years ago, the Sieur Roman exhibited his birds, which were Goldfinches, Linnets, and Canaries. One appeared dead, and was held up by the tail or claws without exhibiting any signs of life; a second stood on its head with its claws in the air; a third imitated a Dutch milkmaid going to market with pails on its shoulders; a fourth mimicked a Venetian girl looking out at a window; a fifth appeared as a soldier, and mounted guard as a sentinel; and the sixth acted as cannoneer, with a cap on its head, a firelock on its shoulder, and a match in its claws, and discharged a small cannon. The same bird also acted as if it had been wounded. It was wheeled in a barrow, to convey it, as it were, to the hospital; after which it flew away before the company. The seventh turned a kind of windmill; and the last bird stood in the midst of some fireworks, which were discharged all round it, and this without exhibiting the least symptom of fear."

The Goldfinch is very generally distributed, occurring in most of our wooded and cultivated districts. Its song commences about the end of March, and continues till July or August. It may often be found in company with Linnets, whose flight it somewhat resembles.

"Observe," says M'Gillivray, "how buoyantly they cleave the air, each bird fluttering its little wings, descending in a curved line, mounting again, and speeding along. They wheel round the fields, now descending almost to the ground, now springing up again. Some of them suddenly alight, when, the example thus set, all betake themselves to the tiny thicket of dried and withered leaves, and in settling display to the delighted eye the beautiful tints of their plumage, as with fluttering wings and expanded tail they hover for a moment to select a landing place amid the prickly points, that seem to stand forth as if to prevent aggression."

110.—THE SISKIN.

FRINGILLA SPINUS. *Linn.*—TARIN. *Buff.*—THE ABERDEVINE. BLACK-HEADED THISTLEFINCH. *M'Gillivray.*—DER ZEISIG. *Bech.*

DESCRIPTION.—This well-known chamber bird is four inches and three-quarters long, of which the tail measures one inch and three-quarters. The beak is four lines long, very narrow towards its sharp point, brown at the tip, the remainder bright ashy grey, and white in winter; the shin seven lines high and, like the toes, dark brown; the vertex and throat black; neck, cheeks, and back green, the latter spotted with black; the rump, a stripe through the eyes, the lower part of the neck, and the breast, of a greenish yellow; the belly, vent, and flanks, whitish yellow, the two latter with black spots; the pinion

feathers black externally, margined with yellow green ; the base, half way upwards, is yellow on the external web ; the small coverts of the wings green, the larger ones with a yellow edge, which form a yellow stripe ; the tail forked ; the basal half yellow, and the terminal half, as well as the two central feathers, black.

The female is paler ; the head and back more grey and spotted with black ; the throat and the sides whitish ; the breast and the neck white, spotted with greenish and blackish ; the feet greyish brown.

The male, before the second year, usually wants the black throat ; and as it gets older the more yellow and green it becomes, and consequently the more beautiful.

There are also varieties—black, white, and variegated Siskins. A few years ago, also, I shot one which had an entirely black breast.

Habitat.—The Siskin is found throughout Europe. In Germany they are very common, and are birds of passage. They remain together during the whole of the winter, and wander in search of food in those parts where there is an abundance of alder. In confinement they may be allowed to run about the room or kept in a cage, which must be smaller than a Chaffinch's and of a bell shape ; it soon becomes very familiar.

Food.—In summer they eat the seeds of pines and firs ; in autumn hops, thistle, and burdock ; and in winter the seeds of the alder, and also the buds of trees. It may be kept upon poppy seeds, intermixed occasionally with crushed hemp. If allowed to run at large in the chamber, it will eat the first kind of universal food. It is exceedingly voracious, and, though so small, eats more than the Chaffinch ; and, therefore, when it occupies the apartment with other birds, it will sit the whole day long upon the trough, snapping and biting at all. It is as great a drinker, and requires fresh water daily. It bathes but little, but dips its beak in the water and sprinkles its feathers ; but it frequently preens itself, and its feathers are always in good order.

Breeding.—The Siskin chiefly inhabits pine plantations, and builds its nest at the extremity of lofty branches. It is made of spiders' webs, the cocoons of insects, and coral moss, fastened to a tree, and externally these materials are inter-

mingled with little twigs, and lined with very delicate fibres and roots, and very well built. It lays from five to six eggs, of a greyish white, sprinkled with purplish brown dots. They hatch twice a-year, and the young males improve in beauty until their fourth moulting.

Hybrids are produced between Siskins and Canaries, somewhat resembling both parents, and are beautifully spotted when a yellow Canary is used for the purpose ; but the pairing is not so effective as when a green Canary is paired, which naturally much resembles the Siskin.

Maladies.—Besides the ordinary maladies, it is very subject to epilepsy, of which they frequently die. They may, however, be kept in confinement from eight to ten years.

Capture.—In autumn or winter, by using a call-bird of the same species, they will visit the fowling floors in flocks ; in this way they may be caught in scores at a time.

In spring they frequent the call-bushes in multitudes. Siskins are not at all shy, for fanciers who reside near a brook, fringed with alders, need only place a Siskin at the window, surrounded with limed twigs, and they may be caught in great numbers. I have caught some at the window in a cage opened and strewed within with poppy seeds and hemp, a bird which was in the room serving as a decoy, while I was at hand to close the door with a string as soon as they entered.

When the spot where they drink at noon is discovered (especially in alder bushes), many may be easily caught by simply placing limed rods over the water.

Commendatory Qualities.—Both appearance and voice recommend the Siskin. In its twittering song there are some very peculiar tones, which greatly resemble the noise produced by the loom of a stocking-weaver ; and this bird is, therefore, frequently an especial favourite with those mechanics. He will also imitate the song of other birds, especially of the Tits, Chaffinch, and Lark, but it would be difficult to teach him an air. His song is only interrupted during moulting time, and in the chamber he often excites the other birds to sing by his incessant warbling. He so little cares for the loss of his liberty, that as soon as he is placed in a cage he will eat, and even the next minute exhibit no sign of timidity. He may be accustomed to draw his water, and other feats, which he will boldly execute. He is very easily taught to fly in and out, if the discipline be commenced in

winter, by hanging his cage at the window, with the door open, sprinkling some hemp and poppy seeds around. He generally comes back, bringing with him many companions. But it is not well to let him loose in March, September, and October, for these are the migratory periods, although instances have occurred of such tamed birds having returned after being some time away.

OBSERVATIONS OF BRITISH NATURALISTS.—The Siskin is a visitor of this country, arriving in flocks from the north in autumn, in company with the Lesser Redpole. It appears to be more plentiful in Scotland, and the northern counties of England, than in the southern parts; and there seems no doubt that many pairs remain and breed annually in the fir woods and plantations of these districts. It is not uncommon from September to April, and is most frequently seen in small flocks, sometimes by themselves, but more frequently in company with Linnets and Redpoles, twittering almost incessantly as they fly, apparently for the purpose of keeping them together, while they search the alder, birch, and larch, for seeds as food; their voice also very much resembles that of the Lesser Redpole.

111.—THE RING SPARROW.

FRINGILLA PETRONIA. *Linn.*—SOULCI. *Buff.*—DER GRAUFINK. *Bech.*

DESCRIPTION.—This bird, were its beak not seen, might be thought a female Yellow Bunting, so closely does it resemble that bird both in size and colour. It is five inches and three-quarters long, of which the tail occupies two. The beak is five lines long, thick at the base, grey brown above, white beneath; the feet are ten lines high, and grey brown; the head as far as the neck is reddish ashy grey, spotted with dark brown; round about the head, commencing at the eyes, there runs a dirty white ring; the back is brown, with reddish grey margins, whereby it appears spotted with grey; the rump and sides are grey brown; the abdomen reddish grey, intermixed with white; the front of the neck yellow, margined with ashy grey at the sides; the wings are grey brown; the large coverts have white tips; the tail feathers grey brown, with a brighter margin.

The female is more grey upon the upper part of the body, and has a small pale yellow spot in front of the neck.

PECULIARITIES.—This bird is occasionally found in great numbers in the forests of Germany; only migrating in the colder

regions. Its food consists of seeds and insects. It may be fed upon rape and poppy seeds, and also with the first description of chamber food. It feeds, like the House Sparrow, upon seeds and insects, and builds in hollow trees. It is famed more on account of its rarity and beauty than for its song, which is of a very ordinary character.

112.—THE CITRIL FINCH.

FRINGILLA CITRINELLA. *Linn.*—VENTURON DE PROVENCE. *Buff.*—CITRONENFINK. *Bech.*

DESCRIPTION.—This bird is sometimes confounded with the Serin *(Loxia Serinus)*, but the form of the beak is different. In figure and colour, and in its food, it very nearly resembles the Canary, but is smaller, while its notes are not so powerful. It is so closely allied to this bird, that I should consider it as the progenitor, were not these also found at large. It is five inches long, of which the tail occupies two; the wings spread eight inches. The beak is brownish; the feet of a pale flesh colour; in its plumage it resembles the male Greenfinch, and is generally of a green yellow, marked with ashy grey and dark brown. The forehead, the back, and rump are yellow green; the back of the head, the sides of the neck, as far as the throat, is ashy grey; the face, throat, breast, and abdomen are of a beautiful green colour; the vent greenish yellow; the small coverts of the wings yellowish green, the larger ones brown black, with broad yellow green margins; the pinion feathers dark brown; the anterior margined with whitish yellow, and the posterior with yellow green; the slightly forked tail is dark brown, edged with yellow green upon the narrow web, and with whitish green upon the broad one.

The female is not so purely coloured or beautifully marked; the yellow on the head and abdomen is dirtier; the grey colouring of the back of the head and neck extends all round the throat, and has greenish yellow spots.

PECULIARITIES.—This bird inhabits the southern countries of Europe, and is also found in the southern districts of Germany, extending upwards as far as Franconia. Its song is very pleasing, and it is much sought after and prized. They should be

treated like Canaries. During its migration in autumn and winter it is fond of resorting to spots where trees are felled, and where there are occasional seed trees. In its native home, which appears to be the southern Alps, it makes its nest upon stout pines, densely covered with branches, and feeds upon their cones.

113.—THE LAPLAND FINCH.

FRINGILLA LAPONICA. *Linn.*—GRAND MONTAIN. *Buff.*—DER LERCHEN-FINK. *Bech.*

DESCRIPTION.—This bird is very like a Lark, both in colour and from the long spur with which it is furnished, and which causes it at the first glance to be mistaken for one. There would be more frequent opportunity of observing these birds in Germany, if sportsmen, who often capture them in their Lark nets, did not take and kill both indifferently. It is about the size of the Yellow Bunting, six inches and a half long, of which the tail occupies about two. The beak is yellow with a black tip ; the feet are dark brown ; the head blackish, with yellow reddish white spots, in some entirely black ; a white stripe extends from the base of the beak and passes over each eye, whence it descends down each side of the neck, curving towards the breast ; the upper part of the body yellow red, with brown spots ; the throat, gullet, and breast, bright yellow red, in some the middle downwards black ; belly, thighs, and vent, white ; the small coverts of the wings bright yellow red ; the middle ones black, with yellow margins and white tips, which gives the appearance of a white bar across the wings ; the pinion feathers black with yellowish margins ; the tail the same, and a little forked.

The female is brighter ; the breast spotted with grey and black ; in other respects the colours resemble those of the Sky-lark.

PECULIARITIES.—This bird is found in the north of both continents ; in the winter migrating southward. In its outward journey it is met with among the Skylarks, and on its return amongst the Snow Buntings. Its call-note is a strong *pfeff!* and its song resembles the Linnet's. The female also sings, but harshly. It runs about the room like the Lark, but will also

perch like a Chaffinch when placed in a cage. In the chamber it is fed with hemp, poppy, and rape seed, upon which it will continue healthy for many years. But it is most easily preserved upon the first description of universal food. It will also eat meal-worms, and in summer it feeds like the Common Chaffinch upon insects.

114.—THE SNOW FINCH.

FRINGILLA NIVALIS. *Linn.*—PINSON DE NEIGE OU NIVERROLE. *Buff.*—DER SCHNEEFINK. *Bech.*

DESCRIPTION.—The name of this bird may have been taken either from its white colour, from its inhabiting the highest mountains, or from its resemblance to the Snow Bunting. It is of the size of a Skylark, and is seven inches and a quarter long, of which the tail measures two inches and a half. The beak is nine lines long, glossy black, thick at the base, and very pointed at the tip ; the feet dark chestnut brown, the shin-bone ten lines high; its plumage is agreeably coloured ; vertex, cheeks, temples, occiput, neck, and sides of the throat, are dark ashy grey ; the wings grey, spotted with white ; the back grey brown with dark and light waterings ; the tail feathers white with black tips, the two external ones white, and the two middle ones entirely black.

The female differs but little from the male ; the ashy head has a reddish tinge, and the whole of the under part of the body is snowy white, with a dirty tinge on the breast, and spotted with black at the sides.

PECULIARITIES.—This bird inhabits the southern mountains of Europe, but migrates further northward to central Germany. In Thuringia I have observed it in small flocks of Mountain Finches, with which it visits the call-bushes. It is a lively bird, which, when kept in a cage, comports itself very boldly. It may be fed upon rape seed, millet, and hemp ; but it seems to prefer the seeds of the pine and wild hemp *(Gallopsis Cannebina)*. Insects may also form a portion of its natural food, as it will readily eat meal-worms in the cage. Its call-note is a loud *kipp, kipp !* It sings a great deal, but not so agreeably as the Mountain Finch, with which it has a strong affinity in every respect. To the fancier its beauty is its chief recommendation.

115.—THE CANARY.

FRINGILLA CANARIA. *Linn.*—SERIN DE CANARIE. *Buff.*—DER CANARIENVAGEL. *Bech.*

DESCRIPTION.—This bird, which is now kept and reared throughout the whole of Europe, and even in Russia and Siberia, on account of its pretty form, striking capacity, and, above all, its excellent song, is a native of the Canaries, where it breeds on the banks of small streams, in the pleasant valleys of those delightful islands. It has been known in Europe since the commencement of the sixteenth century. The arrival of this bird is thus told :—A ship, which, in addition to other merchandise, had a multitude of Canaries on board that were consigned

to Leghorn, was wrecked on the coast of Italy, and the birds, which thereby obtained their liberty, flew to the nearest land. This happened to be Elba, where they found so propitious a climate, that they multiplied without the intervention of man, and would probably have naturalised themselves, had not the wish to possess them been so great as to occasion their being hunted after till they were entirely extirpated. In Italy we therefore find the first tame Canaries, and they are still reared there in great multitudes. At first their rearing was attended with considerable difficulty, partly because the mode of treating these delicate strangers was not sufficiently understood, and partly because males chiefly, and not females, were brought to Europe.

Their original grey colour, which merges into green beneath, almost resembling the colours of the Linnet, has by means of domestication, climate, and intermixture with other birds (in Italy with the Citril and Serin, in Germany with the Linnet, Greenfinch, and Siskin), become so multifarious, that Canaries may now be met with of almost every colour; but grey, yellow white, blackish, and red brown continue the chief colours, but which are individually seen in every degree of shade or combination, and thus presenting innumerable differences. Were it not fully proved that the Canary birds were natives of the Fortunate Islands, we might attribute their origin to the Serin and Siskin, or to the Linnet, Greenfinch, and Citril. I have seen a bird of the two first species which had exactly the appearance of that variety of the Canary called the Green. I have also seen hybrids of grey hen Canaries, in which was no trace of their true origin.

Those which, like the Linnet, are blackish grey, or greyish brown above and greenish yellow beneath, like a Greenfinch, are the most common, the strongest, and approach the most closely to the original colour of their progenitors. The yellow and white ones have usually red eyes, and are more delicate. The chestnut are the most uncommon, and in strength and length of life are intermediate. The colours of most Canaries consist of a mixture of these, and that bird is the most prized the more regularly it exhibits the combination of these various colours. That which is most admired at present is one with yellow or white upon the body, and of a dun yellow colour on the wings, head (especially if this is crowned), and tail. Next in degree of

beauty is that which is of a golden yellow, with black, blue, or blackish grey head, and similar wings and tail. There are blackish ones, or grey with yellow heads, or ring about the neck, white with brown and black markings, ashy grey, almost black with a yellow breast and white head and tail, and these have a prominent value. Others, which are irregularly marked, and are variegated or checkered, are less esteemed.

The female is scarcely to be distinguished from the male, but the latter has generally deeper and brighter colours ; the head is rather thicker and brighter ; the body in general throughout more slender ; and the temples and the space around the eyes are always of a brighter yellow than the rest of the body.*

The Canary is about the size of the Linnet ; five inches long, of which the tail comprises two inches and a quarter ; the beak is five lines long, stout, sharply pointed, and whitish ; the legs are flesh coloured, and eight lines high.

I proceed to name the most favourite hybrids. *a.* The cross between the Canary and Goldfinch. The colours of this hybrid consist of a very beautiful intermixture of those of the parents. The handsomest which I have ever seen, and which I possess myself, was thus marked : the middle of the crest was ashy grey; the rest of the head and the upper part of the neck of a silvery white ; a bright orange red ring round the base of the beak ; a snow white ring round the neck ; the back grey brown, striped with black ; the rump white ; the under part of the body snow white ; the vent, the wings, and the first pinion feathers white ; the rest, as well as the coverts, black edged with yellow, and with a golden yellow spot in the centre of the wings ; the tail white, with a black lateral spot ; beak and feet white, the former with a black tip. The mother of this fine bird was white, with a green grey crest. In general the handsomest birds are produced when yellow or white birds are paired with Goldfinches.

b. The cross between the Canary and the Siskin. It is perfectly like the female Siskin if the female bird is a Green

* It is a mistaken idea that differences of food produce the differences of colour observed in Canaries, for birds at large feed upon more varieties of food than those confined in a room, and yet among them such variations are not remarked. Domestication, want of exercise, and of their natural food, are probably the causes. My birds receive very simple food, and yet a variation takes place in their colours.

Canary. Bnt if this be white or yellow, it becomes rather brighter, but always retains the colours and figure of the Siskin.

c. The cross between the Canary and the Serin is distinguished only by its smaller size and by its short thick beak from the common Grey or Green Canary, unless produced by a White or Yellow hen Canary.

d. The cross between the Canary and the Linnet. When the descendant of a Grey Canary, its only difference is a slightly longer tail ; but it is variegated or speckled when the Canary is yellow or white.

The other hybrids are more difficult to rear, as shall be hereafter noted.

HABITAT.—Except during the breeding season the males are kept in small bird cages, generally of the shape of a bell, and made of wire, and must be at least one foot high and eight inches in diameter, and furnished with two transverse perches. But the female is allowed either to have freedom in the room with its wings clipped, or is placed in a large breeding cage with plenty of room, to keep its limbs in constant exercise, and preserve them in health and strength. In the bell-shaped cages, wherein it must be understood only one bird should be placed, both the eating and drinking vessels must be placed on the outside, at the extremities of the lower perch. These should be surmounted with a cap of tin, so that the bird may not scatter its food easily. Cleanliness will often prevent these delicate birds from suffering many disorders, and it is very

desirable that the floor of the cage should be made moveable, that it may be more easily cleansed and strewed with coarse sand. Being inhabitants of a warm climate, and rendered delicate by constant residence in rooms, and so in a manner habituated to a temperature similar to that of their own country, great care in winter is necessary that the same temperature be preserved, avoiding the exposure to cold air, which, however refreshing in summer, cannot be otherwise than prejudicial to them, causing sickness and even death. To keep them in a healthy and happy frame, it is very important to observe that in summer they must be frequently hung in a cage, in brilliant daylight, and if possible placed in the warm sunshine, which, especially when bathing, is very agreeable to them.

Food.—This is a most important consideration. The more simple and true to nature the food is, the better does it agree with these birds; whereas, when too artificially compounded, it renders the birds weak and sickly. The best food for them is the summer rape seed which is sown in spring, distinguished from the winter rape seed which is sown in autumn, and is larger and blacker than the former. Like the Linnet, they thrive very well on this food, but it should be occasionally intermixed with some crushed hemp seed and Canary seed, for the sake of flavouring it, and this especially in the spring, when they are intended for breeding. As a treat, we may give them a mixture of summer cabbage seed, whole oats or oatmeal, with millet or some Canary seed. Here, as in everything else, we should strive to imitate nature. With this simple mode of treatment I have reared numerous Canaries, and kept them healthy for many years; whereas others, who have attended theirs with the greatest labour and care, have incessantly complained of all kinds of vexatious and unfortunate casualties. Besides a multitude of short essays upon the mode of treating Canaries, lengthy volumes have also been written upon it. These contain a variety of very artificial modes of treatment, all of which effect no more than what the few simple ones here described will do. The hen is likewise supplied with this food; but in winter they are contented with roll or merely barley grots, moistened in milk, if given to them fresh every day, to keep it from becoming sour. Besides, both males and females have given them in summer some green cabbage, salad, gorse, groundsel, and water-cresses, which must

be previously washed and cleansed from anything prejudicial, and in winter fed with pieces of sweet apple.

They require fresh water daily both for drinking and bathing, and at moulting time a rusty nail should be occasionally placed in their drinking vessel, as this tends to strengthen the stomach.

They pick up the little angular grains of sand with which the bottom of the cage may be strewed, and which very much assists their digestion.

These kinds of food are for the full-grown bird; the young require different nourishment, at least as long as they require the care of their parent birds.

BREEDING.—The rearing of these birds is accompanied with many difficulties, rendered still more so by reason of the innumerable artificial means that are resorted to.

For breeding, males of the second and the fifth year are chosen; and when the female is the older bird, experience teaches us that more males than females will be produced. A bird is known to be old by the prominent blackish scales of its legs, and by its strong and long claws.

Good breeders are rare and costly. Some males are always dejected, sing but little, are indifferent to their mates, and consequently unfitted for breeding; others are too choloric, incessantly snap at and hunt the female about, and indeed often kill them and their young; others, again, are too ardent, persecute the female while she is hatching, tear the nest, throw out the eggs, or continually excite the female to pair, until she quits the eggs or neglects the young.

The females have also their defects. Some merely lay, and immediately quit their eggs as soon as laid; others feed their young badly, bite them, or pluck out all their feathers; others lay with much exertion and labour, and when they should hatch become sickly, or lay each after a long interval.

To correct all these defects of character and temperament in both sexes, certain remedies are said to be efficacious; but they are almost all deceptive, and the fancier, notwithstanding all his attention to them, is often exposed to many disappointments. The best plan, however, is to remove the birds having these faults, and substitute others which are without them.

To obtain birds of a brilliant plumage, it is requisite to pair together such birds as are of similar markings, and whose colours are distinct and regular. This is best effected in separate breeding-cages. Variegated and checkered ones are often produced in aviaries where the birds pair together indiscriminately. Birds of a greenish

and brownish colour paired with bright yellow ones, often produce beautiful dusky white or other favourite colours. A requisite precaution to be observed is, that a tufted and a smooth-headed bird should be paired, for if two crested birds be placed together they usually produce the young with a part of the head bald or otherwise deformed. Towards the middle of April is the best time to place the birds in the breeding cage. Of these there are two kinds, either a large cage made of wire, in which it is better to place one male and one female, than one male and two females together; or the range of an entire room.

Both breeding places must enjoy the warmth and light of the sun, and be hung about with nests made of turned wood or little wicker baskets (two for each pair). About the room there ought to be placed some dwarf pines, which, being cut down in February, will not readily lose their leaves. If a wire enclosure be made, projecting from the window, to keep the birds in it, so that they may enjoy the fresh air and be able to sun themselves, it will greatly contribute to make the young ones much healthier and stronger.

Those birds which are to be paired for the first time should be paired together in a small cage for a week or ten days, to be accustomed to each other. If two females are to be paired with one male, the females must previously be accustomed to each other's society, by being kept in a small cage; and the breeding cage should have two compartments, separated by a board, in which a sliding door has been made. In the one compartment a lively male is enclosed with a female. When she has laid eggs the sliding door is moved, and the male is admitted to the other female; and when they have both laid, the sliding door may be kept open: the male will then visit both females alternately, and they

will not trouble themselves about each other; otherwise, without this precaution, jealousy would incite them to destroy each other's nests and throw out the eggs. In a room or aviary a male has sometimes two or even three females placed beside him; with one of these the male will more especially pair. But when this favourite is about to sit, the others will receive a share of his attentions, and from the latter usually the greatest number and the best birds are reared.

If an apartment thus appropriated be supplied with fine ground moss, it is scarcely necessary to furnish them with any other materials for their nests. But they may also have given them cow and deer hair, and hogs' bristles, dry and delicate hay, pieces of thread cut about a finger's length, and paper shavings. The coarser material they use for the external structure, and the finer for lining the inside. They will sometimes show indications of their instinct by building nests after their own fashion, generally being irregular in figure and not nicely finished, at least externally.

The female, as in the majority of birds, is usually the architect, the male only selecting its place and procuring the materials. It is in the nest itself where the pairing takes place, the female attracting the male by a continuous piping note, repeated more quickly the nearer she is to laying. An interval of seven or eight days elapses between the first pairing and laying the first egg. Every day afterwards, nearly at the same hour, an egg is laid, their number varying from two to six. After laying is ended, the pairing begins during the time of incubation.

When the birds are good breeders, it is superfluous to attempt to assist nature by artificial means, and it is best to leave the birds entirely to themselves. In other cases it is customary to remove the first egg, and replace it by an ivory one, placing it in a box filled with clean dry sand, and so taking away all the eggs till the last is laid; all are then returned to the nest to be hatched. They lay three or four times a-year, from April to September, and some are so assiduous in pairing, that even moulting does not interrupt them. The eggs are sea green, marked at one of the ends with reddish brown or violet spots or stripes. The period of incubation lasts thirteen days. If from the sickliness of the male or of the female any of the eggs are unimpregnated, they must be taken out of the nest when the hen has sat for six or eight days, held lightly between the fingers in the sunshine or in a bright light; the good ones will then appear filled with veins, while the bad will appear quite clear or already addled, and these must be thrown away. The male rarely relieves the female in hatching, nor does she very willingly permit it. Immediately after feeding she returns to the eggs, and if the male should not immediately leave the nest, he will be speedily compelled by pecks and blows. The young are

killed in the egg occasionally through loud and near noises, such as the firing of a fowling-piece, slamming of doors, and any other loud knocking; but perhaps the most frequent cause is through a bad sitter.

As soon as the young are hatched the old birds should be supplied with one-fourth of hard-boiled egg minced very fine, with some roll steeped in water, and this pressed out again; and, in another vessel, some rape seep which has been boiled, and has been re-washed in fresh water to take away its acidity. Some use biscuit instead of roll, but this is unnecessary. It is merely requisite to take care that this soft food does not become sour, otherwise it will kill the young, and the cause is often not suspected. Some persons give them merely their usual food, intermixing it with some finely powdered biscuit and hard-boiled egg, but I have always found the diet above prescribed more efficacious, especially until the young are fledged.

It is now that the male takes the chief part in rearing the young, and upon him devolves the duty of feeding them, to allow the female to recover from the exhaustion of incubation.

If it is necessary to feed the young by hand, grated roll or pounded dried biscuit is taken, and it is mixed with pounded rape seed, and this food is kept in a box. As often as it is necessary to feed them, a little of it is moistened with some yolk of egg and water, and it is given them from a quill. This must be done ten or twelve times a-day; about four quills full is the portion necessary for each meal.

Until the twelfth day the young remain almost naked, and require to be covered by the female;* but after the thirteenth they will feed themselves. When they are a month old they may be removed from the breeding cage. With the usual food of the old birds they must be fed for some weeks upon the above kinds, for the sudden removal of soft food often occasions death, especially in moulting. It is asserted, and not without reason, that those Canaries which are reared in an arbour, where they have space to fly about within an enclosure of wire, are more long-lived and are stronger than those which are reared in a chamber.

I must here also communicate an important observation which has frequently been made, that often, when there are two females with one male in a cage, and one dies, the other will hatch the eggs laid by her

* It will also sometimes happen, especially in cold dry years, that the birds scarcely get any plumage. An experiment of Mad. * * * proves that a tepid bath accelerates their growth. This lady has also facilitated the disclosure of the young from shells that were too hard, and which the young could not break themselves, by means of warm water. This beautiful experiment may be profitably applied to the eggs of other birds.

co-mate, and rear the young as her own, and, during this foster-mother's care, cautiously avoid the caresses of her mate.

Canaries may also be paired with other birds which have a natural affinity to them. The best adapted for this purpose, as we have above seen, are the Linnet, the Lesser Redpole, the Goldfinch, the Siskin, the Serin, and the Citril. But successful experiments have also been made with the Greenfinch and the Bullfinch. It is well known that Sparrows, Chaffinches, and Yellow Buntings, have been paired with Canaries; but from their marked differences it must be a very difficult matter. But Dr. Jassay, of Franckfort-on-the-Maine, writes me that he has reared hybrids between the male Bullfinch and the female Canary, but which were hatched and fed by other Canaries; and that in Bohemia many of these hybrids are reared. "My Bullfinch," he says, "is so social, that as soon as removed from his companion he cries incessantly, and will not agree with any other bird."

Either these birds are reared for the purpose of being removed very young from the nest, in which case, as regards pairing, the difference of species is of no consideration; a tamed adult male bird is most frequently associated with a hen Canary. The young combine the plumage of the parents. The hybrids produced from Linnets and Goldfinches will learn to sing well, but those with the Siskin and Redpole very indifferently. These hybrids, also, especially those of the Goldfinch and Siskin, will breed. But this difference is observed, that in the first year they lay eggs no bigger than a pea, and produce very weakly young ones, but in the following years larger and stronger broods are produced.

When the young birds can eat alone (which happens on the thirteenth or fourteenth day, and often before quitting the nest), the males commence warbling, and the females also, but less connectedly, and from this the sexes may be distinguished. To teach a young bird to pipe, he must now be separated from his comrades, and also from other birds, and placed in a small wire cage, which must, at the commencement, be covered with linen, and subsequently, by degrees, with thicker woollen cloth, and then a short air or other musical piece must be whistled to him, or a flute or small organ may be used. His lessons should be repeated five or six times a-day, especially in the evenings and mornings, and in five or six months he will be able to acquire the air, according to the power of his memory.

Canaries may be accustomed to fly, but the trouble and risk are so great, that it is hardly worth the time and care necessary to teach them. The male is first allowed its liberty in a place where there are trees, and the female is hung at the window, which speedily attracts the male back to the cage. This teaching must be continued for five or six days, but no handling or violent attempts to take it should be used.

But in autumn, previous to the migratory period, they must not be allowed to go free, as they are apt to stray with the Linnets, with which they associate when at liberty.

MALADIES.—These domesticated birds, rarely or never enjoying the open air, and having little exercise, are subjected to all the maladies noticed in the introduction. In addition, they are subject to the following, many of which are peculiar to Canaries :—

1. *Rupture.*—This is a common malady, especially in young birds, and is a kind of indigestion which causes inflammation of the intestines. The symptoms of this malady are a lean, transparent, blown-up body, full of small red veins, and in which all the intestines seem to have fallen to the lower part of the body, and seem black and tangled. Too much nutritious food is the cause of this evil. All remedies seem ineffective against this malady, but assistance is sometimes obtained from a spare and simple diet, with some alum or salt put into the drink.

2. *The Yellow Gall in the head and eyes* may be cured by refreshing food; but if there be a tubercle of the size of a hemp seed, it must be cut off, and the wound must be anointed with fresh butter.

3. *Sweating.*—Some females whilst hatching have the sweating sickness, which is injurious to the brood, and may be detected by the feathers of the lower part of the body being quite wet. The body of the bird should be washed with salt and water, and the entire body with fresh spring water to wash off the salt, and be dried rapidly in the sun. This is repeated once or twice a-day. This sickness, however, is not so prejudicial as is usually considered.

4. *Sneezing*, occasioned by a stoppage of the nostrils, may be removed by a very small feather being passed through them.

5. *Loss of Voice.*—If the male, after moulting, lose his voice, he must have diet similar to that given to young birds. Some persons give them a bit of bacon to peck at.

6. *Constipation* is cured by giving them plenty of green food, such as water-cresses, salad, &c.

7. *Epilepsy* is commonly brought on by too great a delicacy of treatment, and also by timidity. They ought to be kept free from alarm, either by catching or tormenting them in any way. It can be cured in the manner prescribed in the introduction.

8. *Overgrown Claws or Beaks* require to be pared with sharp scissors. Care must be taken, however, not to cut the claws too close, else the birds may lose too much blood, and become lame. The end of the red ray or vein, both in the beak and claws, when held against the light, show exactly how far they may be cut. During hatching, also, the nails of the female must be sometimes cut, that they may not be caught by them when in the nest.

9. *Lice* are sometimes a cause of annoyance to them, especially when not kept clean. Frequent bathing, cleanliness in the cage, and dry sand, mixed with bruised aniseed, scattered upon the floor, are remedies against these enemies.

If used in breeding, their age scarcely extends longer than from seven to ten years; in other circumstances, when carefully attended to, they may be preserved for eighteen or twenty years.

COMMENDATORY QUALITIES. — These birds have always been agreeable to the fancier from their beautiful plumage, elegant shape, singular capacity, and attractive familiarity, no less than by the charms of their melodious song. Besides, an admirable opportunity is presented of observing the differences of character and temperament which exist in these as in others of their species. We find some melancholy, others cheerful; some angry, others peaceful; some intelligent, others dull; some industrious, others idle; some greedy, others frugal. But they have chiefly made themselves beloved by their animated, powerful, and varying song, which lasts almost throughout the whole year (with some even during moulting time). Those are highly prized that sing at night, when candles are lighted, but few birds can be taught this habit. Those birds which intermix in their melodies several strophes of the song of the Nightingale are considered the finest singers. They are called Tyrolese Canaries, as it is said they originated in the Tyrol, where many birds of this kind are reared. After these follow the English singers, which imitate the song of the Lark. In Thuringia the best singers are those which can descend through an octave, in a clear silvery tone, occasionally introducing a loud burst, like a trumpet. In breeding time, some of the males sing so incessantly and powerfully, that they rupture the small vessels of the lungs, and suddenly drop down dead in the midst of their song.

In the spring, as soon as the breeding instinct is excited by the eager calls of the male, the female emits some solitary, broken, and inharmonious notes; and old ones, past breeding, often do so throughout the whole year.

These birds are also distinguished by their correctness of ear, the remarkable skill they possess of imitating all tones, and their excellent memory. It is very delightful to hear them when they have learnt the song of the Nightingale. Not only do they imitate the notes of other birds, and by mixing them with their own greatly improve them (hence originates the extraordinary variety of their song), but they will even learn to utter short words with some degree of correctness.

When you wish to possess and retain a good songster, it would be as well to observe the following rules, which, from experience, I have found

to be useful. In order that the bird should acquire a good style of singing, his education and training ought to begin when he leaves the nest, carefully secluding him from all birds but the one whose song it is wished that he should acquire. The same course must be adopted during his first and second moulting; after that time, as he must, as it were, relearn his song, he but too easily intexmixes with it anything that he may just have heard, and of which he was entirely ignorant the preceding year. Here also one bird is distinguished beyond another in its capacity. Care also must be taken to observe whether the bird prefers solitude or the society of its comrades. Many birds will continue silent for years unless kept by themselves; others, on the contrary, will only sing loudly when excited by the presence of other birds. It is an important matter to attend to their food, so that each bird may have its simple allowance for the day given to it each morning; they will then enjoy good health, and sing vigorously and cheerfully. A Canary requires for its daily consumption about two teaspoons full of the above mentioned dry food. That which remains the following day is thrown to the chamber-birds, which live upon the universal food, and will prove a change to them.

116.—THE GLOSSY FINCH.

FRINGILLA NITENS. *Linn.*—MOINEAU DE BRESIL. *Buff.*—DER GLÄNZENDE FINK. *Bech.*

DESCRIPTION.—It is rather smaller than the domestic Sparrow, and is four inches and a half long. Beak and feet are flesh coloured; irides white; the whole plumage blue black, or jet black, with a shining steel reflection.

The female is black above, with yellow brown margins; behind the eyes there is a black stripe; the rump grey; the under side of the body dark yellowish brown; the tail black with grey margins; the feet reddish.

PECULIARITIES.—This bird is found in the forests about Carthagena and in Cayenne. It has a delicate and pleasing voice, and exerts itself so much in singing that both the head and neck feathers stand upright. It feeds upon all kinds of seeds and fruits, and is very easy to tame. In the cage it is fed upon poppy seed, rape seed, and millet.

117.—THE PURPLE FINCH.

FRINGILLA PURPUREA. *Linn.*—BOUVREUIL VIOLET DE CAROLINE. *Buff.*—DER PURPUR FINK. *Bech.*

DESCRIPTION.—This bird is nearly the size of the Common Chaffinch, and is five inches and a half long. Its colour is dark violet or purple red, with some dark brown; the pinion feathers are internally brown; the abdomen white; the tail rather forked.

The female is entirely dark brown, with a spotted white breast, somewhat like a thrush.

PECULIARITIES.—In summer these birds are abundant in Carolina, but migrate in small flocks in winter. When wild they live chiefly upon juniper berries. In confinement they are fed with rape seed, Canary seed, and an occasional treat of juniper berries. They speedily accustom themselves to all kinds of chamber diet. Their beauty is in more esteem than their song.

118.—THE AMERICAN GOLDFINCH.

FRINGILLA TRISTIS. *Linn.*—CHARDONNERET JAUNE. *Buff.*—DER AMERIKANISCHE, ODER GELBE STIEGLITZ. *Bech.*

DESCRIPTION.—It is about the size of a Linnet, and is four inches and one-third long; beak and feet are white; irides nut brown; front of the head black; the rest of the body yellow; the thighs and coverts of the tail black, with a white transverse bar, which is formed by the tips of the white coverts; pinion feathers black; the margins and tips of the posterior ones white; the tail black.

The female wants the black colouring of the forehead; the upper part of the body is of an olive green; throat, breast, and rump, bright yellow; belly and vent white; wings and tail as in the male, but less lively.

The young bird at first resembles the female in every particular, excepting only that it has a black forehead.

These birds hatch twice a-year, in the autumn and in the the spring. Their plumage changes on the approach of winter. The male becomes black upon the vertex; the throat, the entire neck, and the breast, are yellow; the vent is also yellow, inclining to white; the back olive brown, with brighter margins

to the feathers ; wings and tail black, and almost all the feathers edged with white. The female is very similar, the colours being less brilliant throughout. From this it is seen that the winter plumage of this bird nearly resembles that of our Siskin.

PECULIARITIES.—This bird is found in North America, and during summer in New York. Like our Goldfinch, they live upon the seed of the thistle. They are treated in the same way in the cage, becoming exceedingly tame.

119.—THE BRAZILIAN FINCH.

FRINGILLA GRANATINA. *Linn.*—LE GRENADIN. *Buff.*—DER BRASILISCHE FINK. *Bech.*

DESCRIPTION.—It is about the size of a Siskin, four inches and three-quarters long. The beak is of a coral red ; the irides dark brown ; the eyelids scarlet ; the feet light grey ; the sides of the head around the eyes purple ; the base of the beak blue ; above the throat, the lower part of the abdomen, and the thig hs black ; the under side of the head and body chestnut brown ; the back and the scapulars inclining to brown ; the vent blue ; pinion feathers brown ; the tail conical and black.

The female has a red beak, and a slight purple tinge beneath the eyes ; the vertex reddish yellow ; the back grey brown ; the throat and the lower parts bright red yellow ; the lower part of the abdomen and the vent whitish ; the rest very like the male, but less lively.

PECULIARITIES.—This beautiful bird is a native of the Brazils. It resembles the Goldfinch in the form of its beak, and may be treated in the same way. Its movements are lively, and its song is very agreeable.

120.—THE BLUE BELLIED FINCH.

FRINGILLA BENGALUS. *Linn.*—LE BENGALI. *Buff.*—DER BLAUBÄUCHIGE FINK. *Bech.*

DESCRIPTION.—It is four inches and a quarter long, of which the beak comprises four lines, and the conical tail one inch and

a half. The beak is compressed at the sides, very pointed at the tip, and of a flesh colour; the irides nut brown; the feet pale brown; the vertex and upper part of the body ashy brown, with a purple tinge; the sides of the head, the under part of the neck, the breast, the abdomen, the rump, and vent, sky blue; at the sides it has ashy grey spots; beneath the eyes there extends towards the occiput a curved purple spot; the pinion feathers are dark brown, with ashy brown margins; the tail is blue.

The female wants the red spots under the eyes.

PECULIARITIES.—These birds come from Africa, being brought to Europe chiefly from Angola and Guinea. They are very animated and pleasing. The song of the male is agreeable, but not loud. They are fed with Canary seed, crushed hemp, and poppy seed.

121.—THE GREEN GOLDFINCH.

FRINGILLA MELBA. *Linn.*—CHARDONNERET VERD. *Buff.*—DER GRÜNE STIEGLITZ. *Bech.*

DESCRIPTION.—It resembles our Goldfinch in size and figure, is four inches and a half long, of which the beak occupies half an inch, and the tail one inch and a half. The beak is compressed laterally, and terminates in a long point, hooked slightly at the apex, and is flesh coloured; the irides chestnut brown; the feet grey; the forehead, as far as behind the eyes, and also the throat, bright red; the reins ash coloured; the vertex, upper part of the neck, and back, yellowish green; the coverts of the wings, and the posterior pinion feathers, greenish, with red margins; the large pinion feathers dark brown, delicately edged with yellowish green; the breast olive green, playing into white towards the abdomen; the whole of the under part of the body covered with dark brown longitudinal spots; the rump and tail red, the latter ashy grey beneath.

The female has a bright yellow back; vertex and neck ashy; the small coverts of the wings, and the rump, yellowish green; the tail brown with pale red margins; in other respects like the male.

PECULIARITIES.—This bird comes from the Brazils. The male sings delightfully, and this, with its beautiful plumage, makes it a desirable chamber bird. In the cage it is fed with Canary and rape seed, upon which it will live for many years.

122.—THE ANGOLA FINCH.

FRINGILLA ANGOLENSIS. *Linn.*—LA VENGOLINE. *Buff.*—DER ANGOLISCHE HÄUFLING. *Bech.*

DESCRIPTION.—In form and manner this bird resembles our Linnet. It is four inches and a half long, of which the slightly forked tail measures one inch and three-quarters; the beak is short, roundish, obtusely pointed, and of a dirty flesh colour; the feet are flesh coloured; round the beak, as far as the eyes and throat, it is black; around the eyes, and at the sides of the throat, spotted with white; the vertex, upper part of the neck, back, and the small coverts of the wings, are of a brownish ashy colour, each feather having a dark brown oval spot, which are also seen at the sides of the neck; the under part of the body is orange, brightest at the breast, and darkest towards the vent; the rump bright yellow; the large coverts of the wings and the pinion feathers dark brown, with a yellow margin; the tail dark brown with rusty grey edges and tips.

PECULIARITIES.—These birds come from Angola. They have a flute-like note, resembling that of our Linnet, but more melodious. They are fed upon Canary and rape seed. The young birds resemble the female.

123.—THE LIVER-COLOURED FINCH.

FRINGILLA HEPATICA. DER LEBERFARBENE FINK.—*Bech.*

DESCRIPTION.—It is of the size of the preceding, but is shorter, being four inches long, of which the beak comprises four lines, and the conical tail one inch and three quarters. It resembles it also in its colours, but differs in its comportment. The beak is shaped like that of the sparrow, blood red with a black tip; the eyelids are yellowish and naked; the irides red brown; the feet flesh coloured; cheeks, throat, half the breast, sides, and rump, are of a dirty greenish blue; there is a dark purple spot upon the cheeks; the upper surface of the body is of a dark liver colour; the abdomen pale liver; the wings dark brown; and all the visible margins of the feathers the same colour as the back; the tail internally dark brown; externally with a bluish tinge, and with black tip.

PECULIARITIES.—This bird is brought from the Western Coast of Africa, is very lively, calls *zay*, and sings softly like a yellow Wren. It is fed upon Canary seed, and attains often a great age.

SECTION VI.—OSCINES. SONGSTERS.

These are characterised by a conical beak, in some more cylindrical, and pointed at the tip, generally slender, and the upper mandible of which is immovable. Their food consists chiefly of insects, but they also eat berries and worms. One species lives entirely on aquatic insects and mollusca, in search of which it goes into the water, diving to the bottom. Some are almost equally insectivorous and granivorous, as the Larks; others essentially insectivorous, as the Wheatear and Whinchat. Their nest is artificially made, and both male and female participate in hatching.

These birds, considered collectively, are obviously more deserving of the name of Songsters than any others, their vocal powers being of the highest order, in general possessing more musical talent than all the other groups together; but several species among them, for example, the Skylark, the Woodlark, the Wood Thrush, the Common Thrush, the Blackbird, the Nightingale, the Black Cap, and the Garden Warbler, excel all competitors in the variety, melody, and compass of their song.

124.—THE SKYLARK.

ALAUDA ARVENSIS. *Linn.*—ALOUETTE. *Buff.*—FIELD LARK. LAVEROCK. *M'Gillivray.*—DEI FELDLERCHE. *Bech.*

DESCRIPTION.—This well-known bird scarcely requires a description; but I give it here for the sake of those who reside in large towns, and who rarely see this bird at liberty, that they may be able to distinguish it from the other species of Larks. The Lark is larger than the Yellow Bunting, and is seven inches long, of which the tail occupies nearly three. The beak is slight, straight, cylindrical, and terminating in a point; the mandibles of equal length, and separate beneath; the colour above is of a horny black, beneath whitish; the irides grey brown; the feet grey brown, in spring yellow brown, nearly one inch high, and the hinder claw (the spur) longer than the toe itself; forehead and vertex of a rusty yellow, spotted longitudinally with black brown; the head feathers can be raised when excited; above the eyes extends a white grey line, and one rather indistinctly indicated surrounds the grey brown cheeks; back of the head and neck whitish grey, striped with black brown; the back is black brown, with a broad partly pale reddish brown and partly whitish grey enclosure; the lower part of the neck, the breast, and the sides, dirty white, with a rusty tinge, and with delicate black brown stripes; the wing coverts grey brown, and the large one with a pale reddish brown enclosure; the pinion feathers dark brown, with white on the margins, those next to the body, which are again larger than the middle ones, are whitish grey; the tail feathers black brown, the most central ones on the inner side with a rusty brown, and on the outer side with a whitish grey broad enclosure, the two external ones on the outer and half of the inner side white.

The female is to be recognised by being rather smaller than the male, and also by being marked with more numerous and stronger black spots upon the back and breast, and by the white or brighter colour of the breast, which is not so strongly tinged with rusty colour.

In confinement we also see the following two varieties :—

1. *The White Skylark.* It is either of a pure white or yellowish white. It is also found wild.

2. *The Black Skylark.* Its plumage is of a smoky black, with a rusty colour gleaming through. I do not know if this has been observed in the wild state ; but in confinement it is not rare, especially when the Larks are kept in a place where the light of the sun is excluded. But they usually change to their natural colour upon moulting, which the white variety does not.

HABITAT.—The Skylark is found in almost every region of the world. It frequents ploughed fields and meadows, chiefly upon plains. It is a migratory bird, usually arriving early in February, and leaving in October in large flocks. It is the first of the migratory birds that appears. Its principal food is insects ; but it will also feed upon seeds of any kind, as well as young sprouts, so that at this early season, should severe weather occur, it can hardly want food. It may be either allowed to fly about the room, generally preferring a dark corner to roost in at night, or it may be kept in a cage, in which they certainly sing better than when at large. This cage, which may be of any shape, should be one foot and a half long, nine inches wide, and fifteen inches high. Upon the floor there is a moveable board, which should be covered with sand, as these birds like to dust themselves. The top of the cage must be covered with cloth, instead of wire, that the birds, which have a

habit of springing upwards, especially when they are not sufficiently tame, may not strike and injure their heads. The vessels for their food and drink should be of glass, and placed outside the cage, or, what is more preferable, they may have a trough for the food made to push in at the side. When allowed to run freely about the room, great cleanliness is necessary, as they are apt to get their feet entangled in hair or wool that may lie about. If this be not attended to, the hair will speedily cut into their feet, and make them either lame or cause the loss of their toes.

Food.—The food of Skylarks consists of insects, and also of the larvæ and eggs of insects, small seeds, such as poppy seed, and oats, which they peel from the shell by beating against the ground, their beak being too weak to break them. Grass and the leaves of young plants they seem to be fond of. They require sand to assist digestion. The general paste, described in the introduction, suits them very well in confinement. They may have poppy seeds, crushed hemp, shelled oats, barley meal, and bread crumbs, and occasionally mixed with water-cresses, cabbage, and salad. They are also fond of lean meat and ants' eggs. All these things should be given occasionally to those which run about the room, as it tends to make them lively, and induces them to sing better. If adult birds be introduced into the aviary, in order to reconcile them to the change it is merely requisite to throw some poppy seeds and oats to them.

Breeding.—Larks make their nest in some little cavity on the ground, very artificially constructed of dry grass and hair. They prefer fields which are fallow, or have summer crops. They breed usually twice a-year. They lay from three to five eggs; these are whitish grey, with dark grey spots and dots. The hatching occupies fourteen days, and even as early as the end of April the young appear; these are fed with insects, and often run from the nest before they are full fledged. The young, previous to the first moult, are spotted all over the upper part of the body with white. For rearing they should be removed from the nest when the tail feathers are about three-quarters of an inch long, and they must be fed with roll and poppy seeds steeped in milk; a few ants' eggs given to them will make them grow strong and healthy. The yellow colour indicates the young male. If it is intended that they should learn a melody or song, it must be whistled to them before they are full fledged; about that time the males commence practising their native song. They require to be kept quite separate from other birds.

I have had adult Larks in my room that have acquired the song of the Chaffinch and Nightingale.

Some females, even without pairing, will lay eggs, but these are unfruitful. If placed in gardens, in an open aviary, where they have plenty of room, their hatching is more likely to have a successful result.

MALADIES.—They are subject to all the ordinary maladies of birds; but most frequently liable to yellow scurf round about the beak. To cure this, I know of no other means than to feed them well, and to give them the second kind of universal food, mixed with green vegetables, ants' eggs, and meal-worms. In confinement they live for eight years and upwards; indeed instances occur of their having attained thirty years of age.

CAPTURE.—There are many ways of catching Larks, to describe which fully would occupy too much room, and is unnecessary, as these birds may be obtained in autumn, in great numbers, by means of the day and night nets, known also as Lark nets.

Whoever wishes to catch a good singing male bird in the spring, should take a Lark and bind its wings together, placing over them a little forked limed twig, and go to the spot where a bird is heard singing. As soon as the Lark, hovering in the air, observes the other upon the ground, excited by jealousy, it descends like lightning upon it, and gets fixed to the bird lime.

COMMENDATORY QUALITIES.—The Skylark is one of our most agreeable songsters. Its song consists of several strains, which are all composed of trilling and warbling notes, variously modulated, occasionally interrupted by a powerful whistling. It is a bird also, as I have before remarked, of singular capacity; and not only do the young learn the notes of any other birds which hang near them, but the adult birds also, although in them, as among men, their memories vary in power. Some also sing better, with a strong and melodious note. In confinement some begin as early as December, and continue until moulting time; others, less able, only begin in March, and finish singing as early as August. When wild they usually become silent about St. James's day, although exceptions occur; and Larks are sometimes even heard singing at Michaelmas.

OBSERVATIONS OF BRITISH NATURALISTS.—"The Skylark is very generally distributed in Britain, and is plentiful even in the most northern parts of the mainland and islands of Scotland. It remains all the year, but in winter the aggregated individuals repair to the lower districts. Although not confined to arable land and green pastures, it is rarely met with on heathy tracts.

"The song of this bird is familiar to most persons, even to those who reside in cities. Sometimes the Lark sings on the ground, perched on a clod, or even crouched among the grass; but generally in commencing

its song it starts off, rises perpendicularly or obliquely in the air, with a fluttering motion, and continues it until it has attained its highest elevation, which not unfrequently is such as to render the bird scarcely perceptible. Even then, if the weather be calm, your hear its warble coming faintly on the ear at intervals."—*M'Gillivray.*

125.—THE CRESTED LARK.

ALAUDA CRISTATA. *Linn.*—COCHEVIS, OU GROSSE ALOUETTE HUPPÉE. *Buff.*—DIE HAUBENLERCHE. *Bech.*

DESCRIPTION.—It is about the size of the preceding, but more robust, the colour of the plumage also similar, but rather brighter. It is seven inches long ; the beak lead coloured, horny brown at the tip ; the irides dark brown ; the feet yellowish ashy grey, one inch high ; head, cheeks, upper part of the neck, and back, reddish grey, all the feathers black brown in the middle ; from the nostrils to the ears there extends a reddish white stripe, which is scarcely observable above the eyes, but beyond them it becomes darker ; upon the head there are from eight to ten long pointed blackish feathers, which, rising on the head, form a very handsome crest, nearly upright ; nearly the whole of the upper part of the body is of a dirty reddish white ; the tail feathers black ; the two central ones rather paler ; and margined with reddish grey.

The female has the crest less prominent, and the breast is marked with numerous round black spots.

HABITAT.—Only in autumn and winter is the Crested Lark found in central Germany in towns and villages, on the high-roads, near stables and barns, among Sparrows and Yellow Buntings. They are found nearly in every part of Europe from Sweden to Italy. In summer it frequents woods skirting arable land, roads through forests, and even high-lying villages. They leave in October. It may be allowed to run about the chamber, or it may be placed in a cage similar to that appropriated to the Skylark. I know no bird whose feathers grow more quickly. If the wings have been clipped, it is requisite to renew the clipping every four weeks, for within this time the feathers are so much grown that they may serve for flight.

FOOD.—It feeds upon insects, small seeds, and oats, and will feed upon the same things as the Skylark, but is more hardy than that bird, does not so easily sicken, and will live about twelve years.

BREEDING.—Their nest is formed upon the ground, beneath dry bushes, or under clods; in gardens beneath vegetables, or upon mud walls. They will even build upon thatched roofs. They lay from four to five whitish grey eggs, mottled with rusty grey, and spotted with dark brown upon the upper end. The young before the first moult have a mottled white appearance. If intended to be taught airs or the song of other birds, they require to be removed early from the nest.

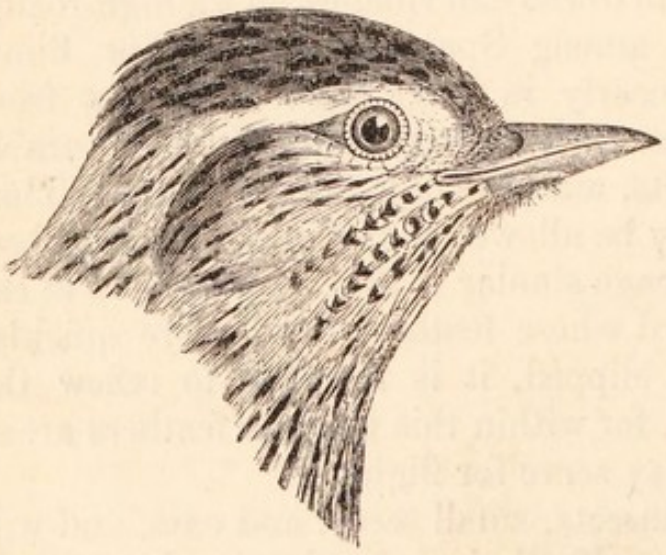
CAPTURE.—In winter a place where they are frequently seen running about is cleared from snow, and set with limed twigs, a clap net, or even a sieve; and poppy seeds or oats are scattered about as bait, and in this way they are easily caught.

COMMENDATORY QUALITIES.—Their song is exceedingly agreeable, and very varied, although to my taste not so beautiful as that of the Skylark. It resembles the song of the Skylark and Linnet combined. They also sing at night, and may be heard from February to August; but birds reared from the nest will sing still longer. I have already mentioned that they possess great capacity. It is an agreeable chamber bird, and has not the rolling gait of the Skylark, but runs rapidly across the room, making all kind of playful motions with its crest, raising it perpendicularly upwards.

126.—THE WOOD LARK.

ALAUDA ARBOREA. *Linn.*—ALOUETTE DES BOIS OU CUJELIER. *Buff.*—DIE WALDLERCHE. *Bech.*

DESCRIPTION.—This admirable bird is more than one-third less than the Skylark, being only six inches long; but otherwise similar to it in figure and appearance. The beak is black above and brown beneath, merging into flesh colour towards its tip; the feet are three-quarters of an inch high, and of a bright brown flesh colour; the vertex is reddish brown, with four black brown stripes; it has a few long straight feathers, which make the head appear broad, and



which when under excitement it erects as a crest. The head is surrounded from eye to eye by a whitish grey coronal; the temples are brown; the back of the neck and the upper part of the back are reddish brown, with black brown spots; the lower part of the back grey brown; around the cheeks, the throat, neck, and breast, are whitish yellow, with black brown spots; the rest of the under side of the body yellowish white; the coverts of the wings dark brown, with a pale reddish brown margin, but at the joint of the wing, the shoulder, and the four first coverts, there is a white spot; the pinion feathers are dark brown, edged with yellowish white upon the narrow web; the tail feathers broad, black brown, the first and second with a reddish white conical spot, and a white tip: the two middle ones entirely greyish brown, like the long upper coverts which extend almost to the end of the short tail.

The female is a handsomer bird; the ground colour is of a lighter shade; the markings darker; the breast more spotted; the coronal more distinct; and the enclosure of the cheeks brighter.

Habitat.—It is a native of the temperate parts of Europe. In summer they are found in pine forests, on plains where there are fields and meadows in the vicinity; and yet they also frequent mountainous districts, visiting alternately heaths and meadows. After breeding time they migrate in small flocks of ten and twelve. About October they commence their outward passage, returning in March. In the house it is best to allow them to run freely about the room, as, according to my own experience, they sing better than when confined in a cage. Being rather delicate birds, they have sand given them to promote digestion.

Food.—This consists in summer of all kinds of insects; in autumn of poppy and rape seed, dodder grass, millet and oats; and in spring, when there are neither insects nor worms, of green sprouts, water-cresses, and other plants, and even the catkins of the hazel. They may be fed upon the universal paste, but as they are more delicate than the two preceding species, this food must be frequently varied with poppy seed, oats, crushed hemp seed, unsalted curds, dry and fresh ants' eggs, cooked bullock's heart, and meal-worms.

Breeding.—This Lark builds among heath, under juniper bushes, among thick grass in hedges, also in fields bordering upon woods, or

in furrows beneath the turf. Its nest consists of dry blades of grass, interwoven with moss, wool, and hair. It lays from four to five eggs, which are spotted with whitish grey and violet brown. Young birds removed from the nest, may be reared upon ants' eggs, and roll steeped in milk. If the old birds can be caught near the nest, they easily rear the young with ants' eggs. They readily learn to imitate the songs of all the birds which they hear in the chamber; but this mixture is not so agreeable as their own natural note.

MALADIES.—They are exposed to most of the maladies mentioned in the introduction, but suffer chiefly from a disorder in their feet, which become much swollen. It is absolutely necessary that their feet be kept clean of threads and hairs, which cut into them, and even cause the toes to fall off. In old age they seldom live more than four years, and I have not been able to preserve them longer, notwithstanding every precaution—their legs become so brittle that they easily break. Most of the birds of this species which I have possessed, have died from broken legs. This fact is remarkable, and is a circumstance that I have not observed in any other bird.

CAPTURE.—They are caught on the nest with limed sticks, but if you do not wish to separate paired birds, they may be caught in autumn with the bat fowling-net. In spring, when snow falls, they resort to spots cleared from snow; they may be taken with limed sticks, or in nets concealed under ground. With a call-bird they may be decoyed beneath the fowling-net, laid in a field frequented by flocks of these birds. Or as they are easily decoyed by a call-bird, oats are thrown, whilst the snow is still lying around, into the thawed furrows, and these are set with limed twigs. They may also be caught by means of a tame female Wood Lark, which is allowed to run loose, with a forked twig smeared with bird-lime, close to the spot where a wild bird is observed: by this means the fancier is sure of capturing a male.

COMMENDATORY QUALITIES.—Of all the Larks this is the sweetest songster, and, according to my taste, the most delightful of all birds which retain their natural song, excepting only the Nightingale and Chaffinch. Their voice has all the mellowness of a flute, marked at times by a tender and even somewhat melancholy strain. At large it flies from the summit of a tree so high in the air that the eye can scarcely reach it, hovering there with distended wings for a long time above one spot, and will thus often sing for hours uninterruptedly. It will also sing when perched on a tree. In a retired corner of the chamber it will sit quite still, warbling its melodious song. At liberty it sings from March to July, and in confinement from February to August. The female also sings as in all the species of Larks, but only a few strophes, and these much interrupted. Some of these birds

are so self-willed that they will not sing at all in the chamber, at least when any person is present. These must be hung in a cage at the window. Generally these obstinate birds are the best singers. Their hasty gait and abrupt movements, and their manner of raising the feathers of the neck and head, afford much amusement.

127.—THE SHORE LARK.

ALAUDA ALPESTRIS. *Linn*.—ALOUETTE À HAUSSE-COL NOIR. *Buff*.—DIE BERGLERCHE. *Bech*.

DESCRIPTION.—This bird is rather stouter than the Skylark, being seven inches long. It is of the same colour above, but the throat and the lower part of the neck are of a bright yellow; and above the latter, across the breast, runs a black band, margined in form like a horse shoe. They inhabit properly the north of Europe, but come in winter to Germany. Upon their return, when heavy snow falls in March, they are often caught in small nets and with limed sticks in the forest of Thuringia. But they are then so wasted that they are not easily fed upon the chamber food. In other respects they can be kept like other Larks.

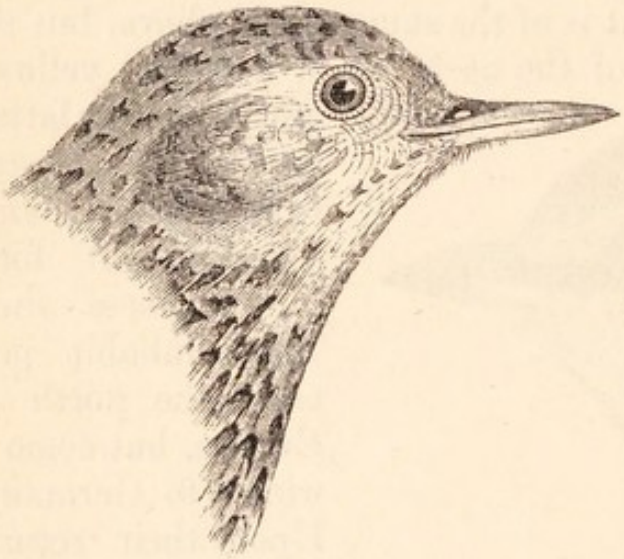
128.—THE TIT LARK.

ALAUDA TRIVIALIS. *Linn*.—ALOUETTE PIPI. *Buff*.—TIT LARK. TITLING. MOSS CHEEPER. *M'Gillivray*.—DER BAUMPIEPER ODER DIE SPITZLERCHE. *Bech*.

THIS, and the three following birds are usually classed with the Larks, but they only resemble them in colour, and two of them have a long posterior claw. They have an almost cylindrical beak, like the Wagtail; but their body is more slender, and they move their tail like that bird. At large they feed only upon insects, and do not eat seeds. They have two bright

bars upon the wings ; the throat is pale and not speckled; and they have a bright stripe above the eyes. They do not dust themselves in sand as the Lark, but bathe in water. They have all an anxious piping call-note, and form an appropriate link between the Larks and the Wagtails.

DESCRIPTION.—The Tit Lark is the smallest of all the Larks found in Germany, being only five inches and a half long, of which the tail occupies two inches and a half. The beak is very pointed; the upper mandible dark brown, the under one whitish; the irides dark brown ; and the feet, which are ten lines high, with the toes, are of a pale flesh colour ; the nail of the hind toe is crooked ; the head is rather long, and with the neck, back, rump, and sides olive brown, spotted with black, slightly so on the head, but most upon the back ; the under part of the body, as far as the abdomen, of a reddish yellow, or rather of a rusty yellow, with black longitudinal spots, which run down the sides of the throat from the angle of the beak, distending themselves over the breast ; the abdomen and vent white ; the small coverts of the wings olive brown, two rows of the larger ones black, the upper ones with a whitish margin, and the lower with a reddish white one, whence two whitish bars cross the wings ; the pinion feathers dark brown, edged with olive green ; the tail narrow and rather forked, and all the feathers pointed.



The female differs but little from the male. Throat, neck, and breast, are not of so bright a rusty yellow; the white spot in the second tail feather is smaller, and the two bars upon the wings are whiter. The one year males also are not of so rusty a yellow upon the abdomen.

HABITAT.—It inhabits Europe, excepting only the highest latitude, and very commonly makes its nest in mountainous and woody districts. Its favourite place of resort is woods that

abut upon arable land, or have gardens and meadows in the vicinity. In these they usually select cleared spots where the timber has been felled and rooted up. As early as August they visit the fields in small flocks, especially those planted with cabbage and vegetables, and then also are they seen upon the roofs of cottages in villages. In September they resort to the oat fields, where they are caught at the beginning of October, in bat fowling-nets, which are set for Skylarks. They again return at the beginning of March, and in case of cold weather, they may be seen amongst the oat crops, and near warm springs. The Tit Lark possesses the peculiar quality of uttering its different notes at other periods than the breeding time. Its call-note, however, which it utters at the time of pairing, and when the young are discovered, is a tender and anxious *tsip*, *tsip*, and is only heard in the vicinity of the nest. It is certain, therefore, when this note is heard coming from a tree, that the nest is at hand ; and if it has young it may be observed with its beak full of insects, repeating its note with increasing rapidity and energy as you approach the vicinity of the nest. At that time the piping call *geek* is rarely or never heard. I usually allow my Tit Larks to run about the room in company with the other birds. But when thought worth the trouble to appropriate a cage to them, they live longer and sing better. It is placed in an ordinary Lark cage, but which must have a couple of sticks across, as it is fond of perching.

Food.—It feeds upon gnats, grasshoppers, flies, caterpillars, and small butterflies. Being delicate birds they require a frequent change of food. Thus, besides the general paste, they must have occasionally the ordinary Nightingale's food, crushed hemp seed, unflavoured curds, meal-worms, &c.

The most difficult part of their treatment is to accustom them at first to the chamber food ; therefore when they are first brought into the room they must have meal-worms, grasshoppers, and some ants' eggs. As soon as the bird will eat, these must be mingled with the ordinary food, that they may taste it, and become gradually accustomed to the flavour.

They do not dust themselves, like the other Larks, in sand, but usually merely dip the beak in water, and sprinkle themselves.

Breeding.—They make their nest twice a-year upon the ground in cleared places in woods, behind a bush or clod, or in gardens and

meadows among the grass. The nest is indifferently built, and consists of dry grass, lined with delicate green and dry grass, horse hair, and the hair of other animals. It lays from three to five eggs, which are grey, marbled with brown. The young fly out as soon as they can possibly use their wings, being justly apprehensive of many enemies upon the ground.

They can be reared from the nest upon ants' eggs and roll steeped in milk, with which some poppy seed may be mixed. They are capable of instruction, and will learn some of the notes of other birds, especially of the Canary, but they never acquire the entire melody.

MALADIES.—They are subject to the ordinary maladies of birds, and their feathers occasionally drop out at other times than during the moulting season. If they are not at once supplied with a more nutritious diet, such as meal-worms and ants' eggs, they will waste away and die. They live about six years.

CAPTURE.— They are most easily caught near the nest with limed sticks. But to attain this by destroying a whole family, will be repugnant to every person. The male also may be caught in spring by letting another male Tit Lark loose, near the spot he frequents, with clipped wings and a forked twig smeared with bird-lime, for these birds, like the Chaffinch, will not endure a rival: and this mode is the less objectionable from the readiness with which the female consorts with another male. The male may also be caught in the autumn, in the bat fowling-net, if the place be observed amongst oat stubble where they frequent; but it is then rather difficult to distinguish the female from the male. It is also an ordinary drinking bird, and may be caught in September at the drinking place.

COMMENDATORY QUALITIES.—Its song, which, although it consists of merely three long-drawn trilling and lulling strophes, is yet very agreeable. They sing either perched upon the summit of a tree, or they sweep downwards from it for an instant or two and then flutter upwards again, flying very gently. They almost always return to the same spot, and call when perching *zeeah, zeeah, zeeah.* They are to be heard from the end of March until July, but in confinement they commence singing as early as February, closing in July. It is not only their song but their comportment likewise which makes them agreeable, for they have a slow and stately walk, always bear themselves firmly, and give their tail an incessant but slow motion.

129.—THE FIELD LARK.

ALAUDA CAMPESTRIS. *Linn.*—LA SPIPOLETTE. *Buff.*—DER BRACHPIEPER ODER BRACHLERCHE. *Bech.*

DESCRIPTION.—This bird is smaller and more slender than the Skylark, being six inches and a half long, resembling the

Crested Lark in colour, and the Tit Lark in figure. The beak is robust and long; the upper part of the body dark grey, with scattered blackish spots; above the eyes extends a white streak; upon the yellowish white breast there are scattered blackish grey stripes; the tail is dark brown, the two external feathers with whitish edges; the feet pale flesh colour; the nail of the hind toe stout and crooked.

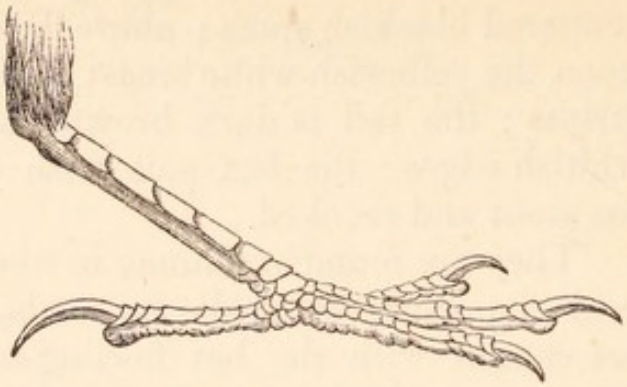
They are found in summer in woody marshes, and in autumn near the skirts of fields, on roads, and in meadows, and they are caught with the bat fowling-net. They do not sing, but scream incessantly *zeerruh* and *datseedah* whilst making their widely undulating flight. They migrate in September, and return in April. They feed like the Tit Lark, and must be treated in the same way, as they are even more delicate.

130.—THE MEADOW LARK.

ALAUDA PRATENSIS. *Linn.*—ALOUETTE DES PRES OU FARLOUSE. *Buff.*—DER WIESENPIEPER ODER DIE WIESENLERCHE. *Bech.*

DESCRIPTION.—This bird greatly resembles the Tit Lark, but it may be easily distinguished from it, from the long nail of the hind toe being straight instead of being curved as in the former. Its body is shorter, the beak thinner, the feet redder, the head stouter, and the tail shorter; the upper part of the body is olive green, spotted with brown black; the rump reddish grey watered with green; above the eyes there is a distinct yellow white stripe, a similar one around the cheeks; the under side of the body dirty white, reddish yellow on the breast, and the abdomen having a greenish tinge; the breast densely covered with oval, and the upper part of the abdomen with triangular blackish spots; there

are two white bars upon the wings ; the pinion feathers are dark brown ; the tail feathers blackish, the external feather half white, the following with a conical white spot ; the tail thick, and rather forked.



The female is rather paler ; and in the male there are besides, upon the breast, three or four four blackish spots, which in many cases merge all into one.

Habitat.—This bird is found upon extensive fallows near lakes and rivers, upon marshy meadows, in plains, and in broad valleys. They may be found in multitudes about September in meadows, in oat stubble, and among sheep. Before taking their flight in October they form themselves into large flocks. They are almost the last of the migratory birds, for in November and December their shrill harsh *bis, bis,* may be heard in marshy meadows and near springs. In March, as soon as fine weather returns, large numbers may be again met with in wet meadows. They are allowed to run about amongst other birds in the room, or they are placed in a Lark cage, which, as in that for the Tit Lark, must be furnished with perches, for, like that bird, they settle upon bushes and trees.

Food.—This consists of small insects, especially water insects, as gnats, flies, &c. It is difficult to accustom them to the universal food. They are the most delicate of all the Larks. If pieces of meal-worms and ants' eggs be mingled with steeped roll and crumbs, they will become accustomed to it ; but to keep them in perfect health, they require to be supplied with meal-worms and some eggs. It is best, therefore, to place them in a cage, and give them Nightingale's food.

Breeding and Maladies.—They make their nest upon the skirts of fields, and upon green sods in wet meadows. In confinement the majority die of atrophy and dysentery.

Capture.—In autumn they are often caught in the night net, when sweeping for Larks. In spring limed sticks are set about damp meadows, where they are incessantly running about. While snow is still falling, a place is cleared upon a meadow, and when they fly there they

are caught by means of limed twigs. To make the capture certain, it is only necessary to attach a meal-worm, by means of a hair, to one of the sticks.

COMMENDATORY QUALITIES.—They are very pretty chamber birds. Their song is melodious, and sounds like a bell, resembling that of the Tit Lark, only consisting of more strophes, and of a prettier trill, intermingled with notes which greatly resemble those of the Canary.

131.—THE WATER PIPIT.

ALAUDA SPINOLETTA. *Linn.*—DER WASSERPIEPER. *Bech.*

DESCRIPTION.—This is the largest of the Larks, being seven inches long, of which the beak comprises seven lines, and the tail three inches; the expansion of the wings is eleven inches and a half; the forehead is wide, the beak having a sharp ridge above—in summer horny blue, in winter brown, with yellow margins; the feet chestnut brown, large even to awkwardness, and the nail of the hind toe long and strong; the upper surface of the body olive green, watered with olive brown; an indistinct white stripe passes through the eyes; the under part of the body is greyish white, beset on the gullet and breast with triangular dark brown spots; the wings are blackish grey, with two white bars; the tail thick, rather forked, and blackish; the external feathers have a conical white spot, the second with an impure white tip.

The female is, above, of a more dark mouse grey, and, beneath, especially at the sides, more strongly spotted.

HABITAT.—I have only seen this bird on its passage at the end of October and beginning of November in Thuringia and Franconia. In those parts it runs near shallow waters, especially where there are springs. In mild winters it will often remain until March. I always allow it to run about among the other birds. It may likewise be placed in a Lark cage, which, however, should have perches. It is easily familiarized and rendered tame.

COMMENDATORY QUALITIES.—It feeds like the Water Wagtail upon water insects; and of all the Larks it most speedily accustoms itself to the chamber food. I placed a couple of meal-worms amongst the universal food, and it began feeding instantly. It will also soon eat poppy seed and crushed hemp. It bathes itself frequently in water.

I have caught it in the following manner with limed sticks:—Having cleared a space near the water from snow, I place limed sticks upon it, lay some meal-worms down, and drive the birds gently to the place. They are caught immediately.

I am very fond of this bird. It is always still and tranquil, and wags its tail almost as much as the Wagtail. Its song resembles that of the Siskin and the Swallow, sounding like the whetting of a scythe. It calls *hish, hish,* harshly and shrill. Its cleanliness also recommends it.

132.—THE STARLING.

STURNUS VULGARIS. *Linn.*—ETOURNEAU. *Buff.*—SPOTTED STARLING. *M'Gillivray.*—DER GEMEINE STAAR. *Bech.*

DESCRIPTION.—In size and figure this bird resembles the Redwing Thrush, and is eight inches and a half long, of which the tail occupies two inches and a half. The beak is one inch long, of the form of an awl, angularly depressed, and rather obtuse, pale yellow brown at the tip and blue at the ends; in winter it becomes black blue; the irides nut brown; the feet dark flesh colour, and one inch high; the whole body is blackish above half way along the back, and beneath half of the breast merging into shining purple red, and the rest of the upper and under side of the body into shining green; pinion feathers and tail feathers black, covered, as it were, with an ashy grey dust, and, as well as all the coverts, enclosed with a bright rusty colour; the feathers of the head and neck with reddish white tips, which are rusty coloured in those of the back, and white in those of the under part of the body: the Starling has thus a spotted appearance.

In the female the beak is more dark brown than yellow; the bright spots, especially on the head, neck, and breast, are larger, and the margins of the wing feathers stronger, and, therefore, it has a much brighter and more variegated appearance. Old males have, besides, scarcely any white spots on the forehead, cheeks, throat, and abdomen.

There are several varieties of this bird, as indeed is the case which those birds which are caught in large numbers.

a. The White Starling ; *b*. The Checkered Starling ; *c*. The White-headed Starling ; *d*. Such as are white on the body and black only on the head ; and, *e*. Ashy Grey Starlings.

HABITAT.—Starlings are found throughout the whole of the old world. Woods are their common resorting place, especially woods of those mountains and plains which are surrounded by meadows and arable land. But they prefer, above all, small plantations of deciduous trees and copses. In October they migrate to the south in large flocks, and return towards the beginning of March. During their journey they rest at night amongst reeds and rushes, and if a person happen by accident to pass such a spot at the time, they make an indiscribable noise. Much amusement might be derived in its tame state from allowing the bird some freedom ; but to ensure cleanliness in the room where it is kept, it must be confined to a cage. The cage best suited for it should be either oblong, at least two feet long and one foot and a half wide, or a tower shape may be obtained by reversing the proportions. This allows it room to indulge its natural restlessness, and preserves its plumage smooth and unsoiled.

FOOD.—It feeds upon caterpillars, snails, grasshoppers, male crickets, the flies which annoy horses and other cattle in the fields, on grapes, cherries, all kinds of berries, and also of grain, as buck wheat, millet,

hemp, &c. Its chief nourishment is the small meadow-grass hoppers, which it seeks both in their imperfect and matured state; and for this purpose it constantly frequents meadows. In the house it may be fed upon meat, insects, bread, cheese, and the universal paste; indeed, any kind of food, provided it is not sour. He may in general be readily familiarized, if meal-worms and ants' eggs be thrown to him as soon as he is placed in the room, and becomes immediately as much at home as if he had been reared on the spot; although some will be found, notwithstanding every care and precaution to induce them to eat, who will rather die of hunger than feed. It is fond of frequent bathing, and therefore requires a constant supply of fresh water.

BREEDING.—Starlings construct their nests in the hollow stems and branches of trees, and even in wooden boxes and earthen vessels which are hung from trees; also, beneath the eaves of houses, and in dove-cotes. The nest consists of dry leaves, blades of grass, and feathers, which are put together very inartificially. Like Swallows, they return yearly to the same nest, and cleanse it out on again taking possession. They hatch usually twice a-year, and each time lay seven eggs of an ashy grey green. The young, before the first moult, are more of a smoky colour than black, have no spots, and the beak is dark brown. When the young are removed from the nest they must be reared with roll steeped in milk. If an air be whistled to them they will soon learn to pipe much more purely and forcibly than the Bullfinch and Linnet, and can retain several strophes in succession without transposition. In Voigtland Starlings are treated like domestic pigeons; they eat the young removing them before they can fly. In this way they will hatch three times a-year. The last brood, however, is usually allowed to fly, partly to maintain the stock, and partly to prevent the old birds from deserting the place. I am acquainted with instances, also, where they have hatched in the chamber, when a hole or pot has been placed for them in which to make their nest.

MALADIES.—The usual ones which I have cited above. They often live to the age of ten or twelve years in a room.

CAPTURE.—They are chiefly caught in autumn in the rushes, in nets made for the purpose, which bird-catchers, who live in spots where Starling-catching is practised, generally have in their possession. Amongst the sedge where they resort at evening, single birds may be caught singly from July in bow-nets with a bait of cherries.

With us, in Thuringia, they are caught for the chamber in March; and if snow fall after their arrival, they then frequent marshes and

moats. If then, in their vicinity, a spot be cleared from snow, and some limed sticks and worms are scattered about, they are easily caught. They can be hunted to such a spot like domestic poultry.

COMMENDATORY QUALITIES.—The Starling becomes exceedingly tame in the chamber, is very tractable and cunning, and in this quality may be compared with the dog. He is always cheerful and lively, speedily catches all the gestures and actions of the persons with whom he dwells, and will accommodate himself to them, knows when they are angry with him, walks about with a waddling gait, but very cautiously, and, notwithstanding his silly aspect, takes everything at a glance. He will also learn to repeat words, without its being necessary to loosen his tongue, can pipe songs (the female also), and imitates the human voice, the noises of all the animals, and the song of all the birds he hears. What he has learnt, however, he soon forgets or blends it with new sounds. If it be therefore wished that a Starling should pipe but one melody, or repeat only certain words, he must be placed in a room where he can hear no other sound. Old Starlings are not always able to learn songs and other notes. At the present time I have one which, in the midst of the multitude of birds which I possess, sings only its natural song. They sing almost throughout the year, moulting time only excepted.

133.—THE DIPPER.

STURNUS CINCLUS. *Linn.*—MERLE D'EAU. *Buff.*—DER WASSERSCHWÄTZER. *Bech.*

DESCRIPTION.—In size it resembles the Starling, but its head is more pointed, the breast and body more robust, and the wings and tail shorter. It is seven inches long, of which the tail comprises one inch and three-quarters; the folded wings scarcely extend half an inch upon the tail; the beak is eight lines long, slender, compressed at the sides, highly ridged, pointed, black, and has small nostrils, which lie in the skin; the irides light brown; the feet one inch high, black brown, and, as well as the toes, paler in front; head and neck are dirty rusty brown; the rest of the upper part of the body black, with an ashy grey tinge; the pinion and tail feathers blackish; the throat, and half way down the breast, of a pure white, the rest of the breast of a dark chestnut brown, which merges into the black colour of the abdomen.

The female is paler on the head and neck, and the breast is not so pure a white.

HABITAT.—Its favourite abode is the vicinity of streams and

brooks, in mountainous districts. As these usually consist of springs which are not entirely frozen in winter, it resides there throughout the year. When tame it may be allowed to run freely about the room, or placed in a large Thrush cage.

FOOD.—Water insects constitute its chief nutriment, but it is said to eat also small fishes and worms. For this purpose it dives to the bottom of the water, and in brooks floats beneath the surface of the stream. It can be fed upon meal-worms, flies, and ants' eggs, mixed with some kinds of universal food.

BREEDING.—The large nest, which consists of blades of grass, the fibres of roots, and moss, is found in the fissures of stony banks of rivers and mill dams, beneath weirs, and in the cogs of disused mill-wheels. The female lays from four to six eggs. If the young birds be reared upon meal-worms, ants' eggs, and roll steeped in milk, its successful taming is assured. They may remain until nearly fledged before they are removed from the nest.

CAPTURE.—Every pair has its definite place, and usually sits upon one favourite spot of a weir, stone, or bush. If, therefore, limed sticks are placed there, with live meal-worms tied to them, they are very easily caught. Adult birds must have at first earth-worms and meal-worms thrown to them, to induce them to take other food.

COMMENDATORY QUALITIES.—The song of this bird is not unpleasing; sometimes very loud, and always striking when heard from the wild bird in its winter haunts.

134.—THE BOHEMIAN WAXWING.

AMPELIS GARRULUS. *Linn.*—JASEUR DE BOHEME. *Buff*—DER GEMEINE SEIDENSCHWANZ. *Bech.*

DESCRIPTION.—It is about the size of the Redwing Thrush, eight inches long; the beak black, short, straight, convex above, and broad at the base, so that the mouth opens widely; the irides red brown; the feet black, and almost one inch high; the plumage is entirely of a delicate and silky nature; the feathers on the vertex are elongated and form a crest; the head and upper part of the body are of a reddish ash colour, passing into grey at the rump; a black stripe extends from the nostrils over each eye to the occiput; the chin black; the forehead chestnut brown, as well as the vent; breast and abdomen of a bright purple chestnut brown; the small coverts of the wings brown, the larger ones, most distant from the body,

are black, with white tips, and these form a bar; the pinion feathers are black, the third and fourth have externally a white tip, which is yellow on the five following; the shorter are ash coloured, with white tips to the external margin; besides this, from five to nine of these feathers terminate the shaft with a flat horny oval appendage of a bright scarlet colour; the female, at most, has but five, but the male has from five to nine on each side; the tail is black, with brimstone yellow tips; and in very old males there are also observed some narrow, horny, scarlet appendages.

The female has the black spot on the throat smaller, and a narrower and fouler bright yellow tip to the tail; and the tips of the wings are only yellowish white, and at most five small narrow appendages to the pinion feathers, and sometimes none at all.

HABITAT.—They do not breed in Germany, but retire within the Arctic Circle for that purpose. With us they only winter, arriving here in November, and retiring again at the beginning of April. If the weather be mild but few flocks are seen in Thuringia, for then they remain much further north; but in very severe winters they quit us and go south; and in a winter of average temperature they remain with us throughout the year near the skirts of the Thuringian forests; and they are also then found in several parts of Germany, in Saxony, the Hartz Mountains, and in Bohemia. Even a small degree of heat becomes insupportable to them; and if an apartment becomes in the least warm they immediately droop. This is a proof that a very cold climate must be their summer place of resort. I should advise those to put them in a cage who dislike a room being soiled by birds. The cage must be one similar to that used for the Thrush, but the floor should be covered with sand, as these birds are very uncleanly.

FOOD.—In spring (for in summer we do not see him), he feeds like the Thrush, upon various sorts of flies and insects. In autumn and winter it eats all kinds of berries, service, misletoe, buckthorn, viburnam, and juniper berries, and, in case of need, the buds of beech, maple, and fruit trees. The universal food proves a delicacy; and it will even content itself with mere wheat bran steeped in water. It swallows everything in large pieces, and eats roll with avidity. He is besides no epicure, and swallows all eatables thrown to him, such as greens,

potatoes, even raw salad, and all kinds of ripe fruit. It is fond of bathing, but only sprinkles itself, and does not wet itself so much as other birds.

CAPTURE.—These birds are caught during winter in the noose, particularly if service berries be preserved until February. It will also visit the fowling-floor for the bait; appears scarcely to know what danger is, and will therefore fly into the net or noose when his companion has already been caught, and now cries piteously beside him.

COMMENDATORY QUALITIES.—Its beauty only, or where it is rare, its singularity, can recommend it as a chamber bird. It is a dull stupid bird. In the chamber, where it will live for twelve years upon the most miserable fare, it does nothing but eat and sit still upon its perch. When urged by hunger, he walks across the room in so lame and helpless a manner, that it is disagreeable to look at him. Besides, he has no song, but some lightly hissing and trilling notes, like those of the Redwing, but still more gentle; and whilst uttering them he crouches so closely that the throat is scarcely observed to move, and at the same time elevates and depresses his crest. But he sings both summer and winter. His comportment, whilst uttering this very unmelodious music, shows that it is no pleasant task to him. When angry, which happens only at the food trough, he snaps loudly with his beak. He can be tamed without any trouble, but affords pleasure to his possessor, as I have before stated, only by his colours. On account of the very gluttonous and filthy habits of this bird, its cage will require daily cleansing.

135.—THE MISSEL THRUSH.

TURDUS VISCIVORUS. *Linn.*—LE DRAINE. *Buff.*—DIE MISTELDROSSEL. *Bech.*

DESCRIPTION.—It is the largest of all the Thrushes; it is eleven inches long, of which the tail occupies three inches and a-half; the beak is sharp, and one inch long; the upper mandible curved down at the tip, as in all the Thrushes, dark brown; the base of the under mandible and the aperture yellow; the irides brown; the feet dirty pale yellow, and above one inch high; the upper part of the neck, head and body, greyish brown, tinged with red at the lower part of the back and at the rump; the sides of the body and the throat whitish yellow; all the other parts of the same, as far as the vent, and as far as the breast, marked with triangular and oval blackish spots; the upper coverts of the wings with reddish white tips; the pinion

MALADIES.—The most usual are a stoppage of the feather glands, constipation, and atrophy.

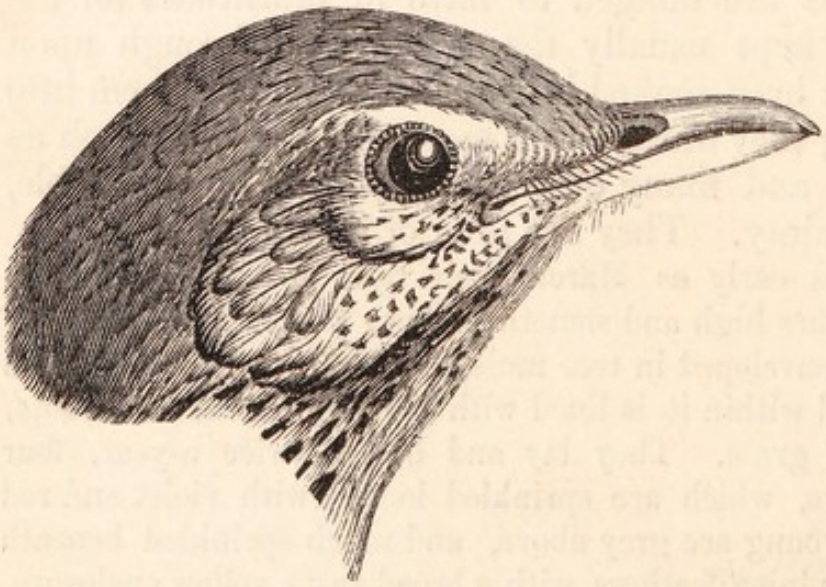
CAPTURE.—In winter or autumn, if nooses, springes, or the flowling-floor, be baited with service berries, in spots where they frequent, they may be caught in great numbers. From December to February they may be decoyed by runners beneath trees on which the mistletoe grows. After sunset they may be caught in the water traps. Those which are yellowest beneath the body, being males, are selected for the chamber. When first caught they are very wild, and are induced with difficulty to eat, but afterwards they become tame. Many, however, die of hunger.

COMMENDATORY QUALITIES.—As early as February it will sit perched upon the summit of a tree in a wood, and sing both evening and morning; its loud melancholy song consisting generally of five or six broken strains. In the house this song becomes so shrill that it can scarcely be endured in the sitting room. A bird of this description is therefore during singing time placed in some bye-room, or hung in a large cage in a hall, or at the window.

136.—THE SONG THRUSH.

TURDUS MUSICUS. *Linn.*—LE GRIVE. *Buff.*—DIE SINGDROSSEL. *Bech.*

DESCRIPTION.—It might be called the lesser Missel Thrush, so much does it resemble that bird in figure, colour, habits, song, and mode of life. It is eight inches and a half long, of



which the tail occupies three inches and a half; the beak is nine lines long, horny brown beneath, from the middle to the base yellow; the irides nut brown; the feet pale lead colour, one inch high; the whole of the upper part of the body olive brown; the throat whitish yellow, with a black stripe extending down its sides; the sides of the neck and breast pale reddish yellow, with numerous dark brown heart-shaped spots; the abdomen white, with oval dark

brown spots ; the inside coverts bright orange yellow ; the pinion feathers grey brown ; the tail feathers the same.

In the female the two black lines of the throat consist of small stripes, and the breast is pale yellowish white.

HABITAT.—It is known throughout Europe, and selects large woods, especially those in mountainous districts, as its place of resort, generally in the vicinity of large meadows and brooks. In September they collect in large flocks and migrate to warmer parts. In the middle of March, and indeed later, the Song Thrush returns to its former place of resort, and every adult male perches again upon the very tree from which the preceding year he sung his vernal song. In confinement it must be treated similarly to the Missel Thrush, but this bird merits a large cage more than the other, for its song is more melodious.

FOOD.—Its food is the same as that of the Missel Thrush. Barley meal steeped in milk forms an excellent article of diet ; but it should be frequently supplied with fresh water for bathing and drinking.

BREEDING.—The Song Thrush builds by choice in low pines and firs ; but where it cannot meet with these, it will also build upon the lower thick branches of other trees. The nest is large, and constructed internally of ground moss, and externally of March moss, mixed with earth, clay, or dry dung. The female lays twice a-year from three to six eggs, of a greenish colour, sprinkled with black brown spots. The first brood is often fully fledged before the end of April. The young appear mottled above, and learn to pipe songs if removed when half-fledged from the nest, and reared upon roll steeped in milk. Whoever wishes to obtain these young birds, let him search in the early spring, along brooks in woods, and he will most likely find them near those spots where a Thrush may have been heard singing. The Song Thrush likes to build in the neighbourhood of water.

CAPTURE and MALADIES are the same as in the preceding and three following species. This, of all the noose birds, is the most desired and the most easily captured. In September and October they are frequently caught at the watering places, before sunrise, and after sunset, and often so late that they cannot be seen, and are only heard. They have a very peculiar call-note for bathing ; the first which finds the water (or if it already knows it, and purposes flying thither) pipes exceedingly loudly *sik, sik, sik, sik, siki, tsak, tsak !* and immediately all in the neighbourhood reply, and come on. They are however very cautious, and rarely go into the water until they have observed that a

Redbreast, &c., can bathe without danger. When one ventures, all the rest follow, if there be room, otherwise there is a contest. It is well to let a Chaffinch run near the water.

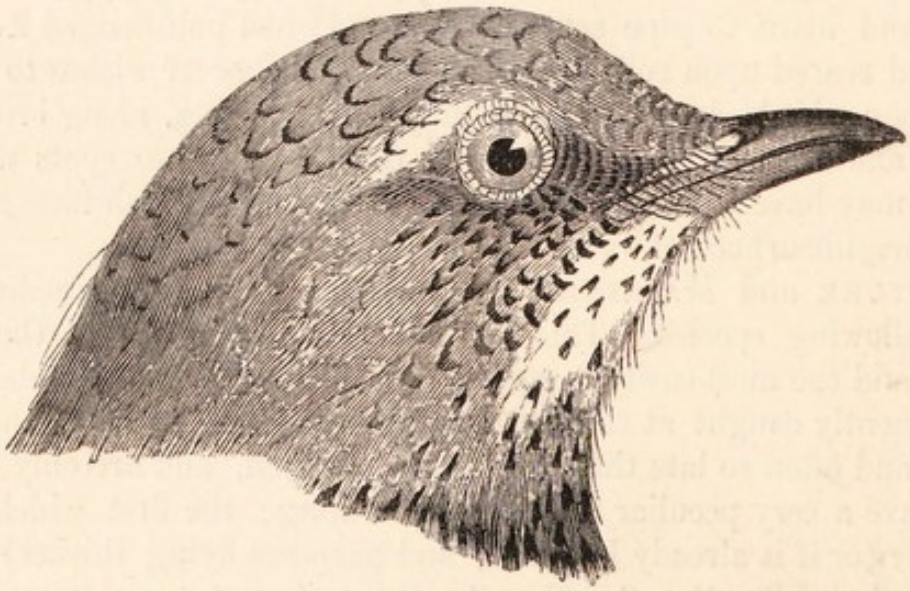
COMMENDATORY QUALITIES.—It is one of the few birds whose clear and beautiful song animates the woods and makes them pleasing. From

the summits of the highest trees it announces, by its varying song resembling that of the Nightingale, the approach of spring, and sings throughout the whole summer, especially in the morning dawn and evening twilight. For the sake of this song it is kept by fanciers in a cage, whence evening and morning, even as early as February, it will delight a whole street by its loud and pleasing song, when hung outside of the window, or inside, so that the window be a little open. In Thuringia it is reputed to articulate words. Its strophe was heard formerly more frequently than it is now. Only old and excellent birds still sing it. This Thrush will live from six to eight years if its food be varied.

137.—THE FIELDFARE.

TURDUS PILARIS. *Linn.*—LITORNE OU TOURDELLE. *Buff.*—DIE WACHHOLDER DROSSEL. *Bech.*

DESCRIPTION.—In size this bird is intermediate between the Missel Thrush and Song Thrush. It is ten inches long, of



which the tail comprises four inches; the beak is one inch long, yellow blackish at the tip, rather prominent above; the

throat and the tongue yellow; the irides dark brown; the feet dark brown, and one inch and a quarter high. The upper part of the head, upper part of the neck, lower part of the back and rump, are ashy grey, sprinkled on the vertex with some black spots; a white stripe extends over the eyes; the cheeks are ashy grey; the back rusty brown; the throat, and half way down the breast, rusty yellow, with heart-shaped black spots, and towards the vent with longish blackish spots; the coverts of the wings rusty brown; the largest tinged with ashy grey; the tail feathers blackish.

In the female the upper mandible is more of a grey brown than yellow; the head and rump more fallow grey; the throat whitish; the back dirty rust colour.

HABITAT.—This bird is found throughout Europe, and also in Siberia. Its summer residence is in the northern latitudes, building its nest upon the summit of the tallest pines. In the middle of November it visits Germany in flocks, and winters where there is abundance of service berries and juniper berries. In March or April, according as the weather becomes mild, it seeks its northern home. In confinement it must be kept like the Missel Thrush. There are but few fanciers who would keep it for any other purpose than as a decoy bird for the fowling-floor. It must not be kept in a warm room, for being a northern bird it cannot endure heat.

FOOD.—In summer they feed in their native home upon worms and insects; and in autumn and winter with us upon all kinds of berries, especially service berries and juniper berries. It may be fed like the preceding species, but it is best to give it barley meal, roll, and grated turnip.

MALADIES and CAPTURE as in the two preceding species.

COMMENDATORY QUALITIES.—Its song, if song it can be called, is merely a hoarse and disagreeable twittering. On this account it has no place accorded to it as a chamber bird, but from its call-note it is esteemed by bird-catchers, being used by them as a decoy bird in winter.

138.—THE REDWING THRUSH.

TURDUS ILLACUS. *Linn.*—MAUVIS. *Buff.*—THE REDWING. *Mont. Selb.*—DIE ROTHDROSSEL. *Bech.*

DESCRIPTION.—It is smaller than the Song Thrush, and greatly resembles the Fieldfare. It is eight inches long, of which

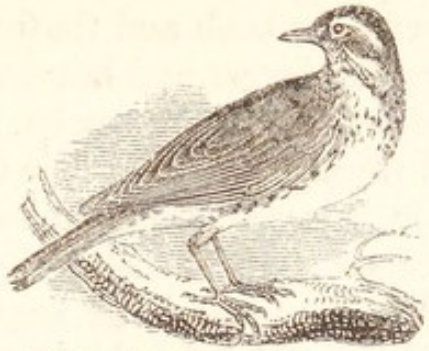
the tail occupies three and a quarter; the beak is blackish, only the base of the under mandible and its angles pale yellow; the irides nut brown; the feet one inch high, pale grey; the toes pale yellow; head and back olive brown; a whitish yellow stripe extends from the nostrils beyond the eyes; the cheeks, which are grey brown, and covered with delicate yellowish stripes, are surrounded by a similar one; the throat, the neck, and the breast are yellowish white, with black brown spots; the rest of the under part of the body white, spotted at the vent with olive brown; the sides, the under wing coverts, and the pinion feathers, dark brown, edged with reddish brown; the tail grey brown.

The female is paler; the stripe over the eye is nearly white; the spots at the sides of the neck pale yellow; the ground colour of the under part of the body white, playing into a yellowish tinge.

HABITAT.—Their native home is the north of Europe. In Germany they occur only as migratory birds towards the latter end of October. At the end of March or beginning of April they return to their native haunts. They must be treated like the preceding, and they feed in every respect like the Song Thrush.

COMMENDATORY QUALITIES.—The male sings in spring and

summer some soft and lisping strains, which are not at all melodious. When sometimes in March and April large flocks of them settle in our alders, they make indeed a twittering noise, but this cannot be called a song. It is scarcely for the sake of its song that it would be kept, but in other respects they are very tame and pleasing birds, which suit themselves instantly to every circumstance, and are very graceful in all their motions.

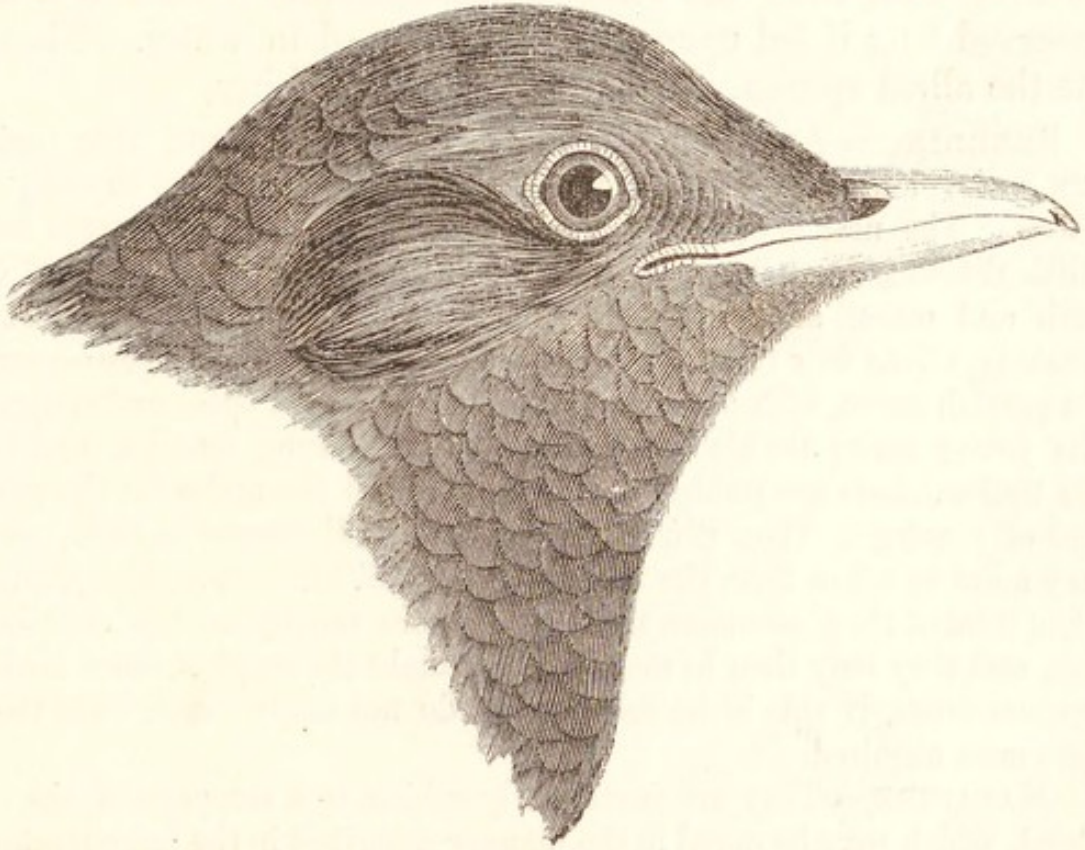


They cannot endure much heat, and constantly require fresh water for bathing.

139.—THE BLACKBIRD.

TURDUS MERULA. *Linn.*—MERLE. *Buff.*—OUZEL. GARDEN OUZEL. MERLE. *M'Gillivray.*—DIE SCHWARZDROSSEL. *Bech.*

DESCRIPTION.—Of all the Thrushes this is the most capable of instruction. It is about the size of the Song Thrush, nine inches



and a half long, of which the tail comprises four inches. The beak is one inch long, and of a golden yellow; the irides dark brown; the feet black, and fourteen lines high. The male is entirely of

a deep black ; the female black brown, rusty coloured on the breast, and with an ash coloured tinge upon the abdomen ; the throat spotted with light and dark brown ; the beak and the feet black brown, appearing also to be rather larger and heavier, and hence it has sometimes been considered a distinct species.

HABITAT.—The Blackbird is found throughout the whole of the old world, even as high as Sweden in Europe. In Germany it is tolerably common, and the only species of Thrush which does not appear to migrate. It should be kept in a large cage, for it is not prudent to allow it to run about with other birds, as either through caprice or covetousness it will attack the smaller birds, and even peck them to death.

FOOD.—They feed like the other species of Thrush, but in the places where they resort, when this food is not abundant, they satisfy themselves with the tip of the white thorn. At this time they often seek for insects near the vicinity of warm springs. They are satisfied with the first kind of universal food, but will also eat bread, meat, and all kinds of food that comes to table. More delicate than the other Thrushes, they would not be preserved long if fed upon mere bran soaked in water. They, like the allied species, are fond of frequent bathing.

BREEDING.—As Blackbirds are permanent residents, they pair very early, and young ones are therefore found as early as the end of March. The nest is built in a thick bush, or in a heap of boughs but a little distance from the ground, consists externally of twigs, next of earth and moss, and lined with fine blades of grass and hair. The female lays from four to six eggs twice and sometimes three times a-year, of a greyish green, with light brown and liver coloured spots and stripes. The young males are always darker than the young females, and by this bird-catchers are guided when they remove the males for the purpose of rearing. They can be reared upon roll steeped in milk, and they must be taken from the nest when the quills have but just sprung. Thus treated they accustom themselves more readily to the chamber diet, and they may then be more readily taught the songs of other birds, or short tunes, if this is desired. They do not easily forget what they have once acquired.

MALADIES.—They are particularly subject to a stoppage of the oil gland, which may be cured in the manner described in the introduction. They will live in confinement from twelve to sixteen years, especially if their food be varied.

CAPTURE.—Being very shy birds, they visit the fowling-floor singly;

they are most frequently caught in the noose and springe when these are baited in winter with service berries. At this season they will also visit the Titmouse trap, which is also baited with service berries, and may also be caught with limed sticks in spots cleared from snow. They are also fond of frequenting the watering place, and have a water-call like the Song Thrush, only rather differently modulated. They visit the water generally at night. Their call-note is *tsissirr! tack, tack!*

COMMENDATORY QUALITIES.—The song of the male is rich in melody, and contains some deep notes like the Nightingale's, varied, indeed, with some which are disagreeably harsh. At large, it sings from March to July, especially at night; but in the cage, the whole year through, except at moulting time. A single bird will enliven a whole street, so pure, distinct, and clear is its note. Its memory is so good that it will learn several airs and melodies without mixing them; and it is even able to imitate words. Whoever, therefore, likes a loud, clear, cheerful song, will derive more pleasure from an instructed Blackbird than from a Bullfinch, whose voice, though softer and more flute-like, is also more melancholy.

140.—THE RING OUZEL.

TURDUS TORQUATUS. *Linn.*—MERLE À PLASTRON BLANC. *Buff.*—THE RINGED THRUSH. *M'Gillivray.*—DIE RINGDROSSEL. *Bech.*

DESCRIPTION.—It is considerably larger than the Blackbird; ten inches and a half long, of which the tail comprises four inches; the beak is almost an inch long, horny black beneath,

whitish yellow at the base; the irides chestnut brown; the feet dark brown, and fourteen lines high; the upper part of the body is black; the under side also black, but the feathers on the abdomen, and the coverts of the wings, are edged with white; the pinion feathers and external tail feathers edged with light grey; across the breast, high up, there is a transverse band which is reddish white, about a finger's breadth; and from this the bird derives its name.

In the female the colour is paler or brown black; the transverse band across the breast is narrower, more indistinct, reddish ashy grey, and clouded with brown.

PECULIARITIES.—The Ring Ouzel inhabits Europe, breeding in the north, reaching Germany in the autumn, during the foggy weather at the end of October and beginning of November, when they are captured in the noose. They come only in small flocks, and resort to places among the mountains where juniper bushes abound. Their food, both at large and in confinement, is similar to that of the Blackbird; also in its comportment it greatly resembles it. Its voice is hoarse, hollow, and weak; its song is, nevertheless, rather melodious. It sings throughout the whole year, except moulting time, and will live upwards of six years.

141.—THE REED THRUSH.

TURDUS ARUNDINACEUS. *Linn.*—ROUSSEROLE. *Buff.*—DIE ROHRDROSSEL. *Bech.*

DESCRIPTION.—This bird has so great a resemblance to the Whitethroats, that it is uncertain whether it should be associated with them, or retained among the Thrushes; yet by its beak, feet, and general bearing, we are led to place it with the Thrushes. It exceeds the Skylark in size, and is eight inches long, of which the conical and rounded tail measures four inches and a quarter; the beak is ten lines long, robust, flatly depressed at the base, horny brown at the tip, both above and beneath, yellowish at the base, and orange yellow at the ends; the irides dark chestnut brown; the robust feet are one inch high, grey brown playing into flesh colour; and the posterior toe and nail are peculiarly strong, to enable it the better to climb; in colour it so closely resembles the Nightingale that it only wants the red tail to pass for it; the upper part of the head and neck are

dark grey tinged slightly with olive; from the nostrils as far as above the middle of the eyes there is a dirty yellowish white stripe; the cheeks are grey brown; the upper part of the middle of the back and wing coverts are rusty grey, becoming paler towards the rump; the sides, thighs, and vent are white, tinged with a dark rusty colour, whence the whole of the under part of the body obtains a rusty yellowish appearance; the pinion feathers dark brown, delicately margined with rusty yellow; the tail feathers red grey with a paler margin.

The female differs from the male only in being smaller, darker upon the back, but paler beneath the upper part of the head, with a rusty yellow tinge, and the throat white.

HABITAT.—It is found almost throughout the whole of Europe, with the exception of the higher latitudes. In those parts of Germany where there are no lakes, and the large ponds and rivers do not abound in reeds and rushes, it is rare; its principal resort being the neighbourhood of extensive marshes and morasses. It prefers keeping near the ground, and is rarely observed upon trees. It climbs up reeds like a Woodpecker. From the agreeable quality of its song it well merits a Nightingale's cage.

FOOD.—When wild it feeds upon insects, thus helping to diminish their enormous number. In confinement it requires to be fed with the food of the Nightingale, for if not thus treated it becomes subject to the malady to which many species of warblers are exposed, which is, that by degrees all its feathers fall out, without being renewed, the bird dying at the end of half a year of consumption.

BREEDING.—Its nest is fastened to the shafts of reeds, or to shrubs, by means of wool; externally it has a layer of ground moss and strong blades of grass, and is lined internally with finer blades and hair. The female lays from three to five eggs, which are greyish white, sprinkled with olive and black. The young, before the first moult, look exactly like the Pettychaps, and have a few dark spots upon the breast. When removed from the nest, it should be reared like the Nightingale, with ants' eggs; when, if they be hung near a Nightingale, they will perfectly learn its song, and become incomparable singers, as their tones are more mellow, and not so piercing as those of the Nightingale.

CAPTURE.—They are difficult to obtain, or they would become universal favourites. When their place of resort is known, loosen the

earth in its vicinity, place meal-worms about, and distribute limed sticks near the spot.

COMMENDATORY QUALITIES.—The males have an exceedingly loud and beautiful voice. Their call-note is high and loud. Their song is more variable, and more mellow and pleasing than that of the Song Thrush, but certainly not nearly so beautiful as that of the Nightingale, with which indeed it has been compared. It has many strophes of the Blackcap's song, although, as in the Thrushes, it is usually more interrupted. It becomes more pleasing when the young bird has been disciplined by the Nightingale. Particularly in the morning and evening does the Reed Thrush utter its beautiful warblings; at the same time they not only give great motion to the throat, but also to the whole body, yet not from exertion, but entirely from pleasurable emotions.

142.—THE ROCK THRUSH.

TURDUS SAXATILIS. *Linn.*—MERLE DE ROCHE. *Temm.*—DIE STEINDROSSEL. *Bech.*

DESCRIPTION.—These birds are found in central and northern Germany, but are rarely seen in the chamber. In several parts of Germany it is entirely unknown; and when the bird-catcher obtains it he usually mistakes it for a large Redstart, especially the female. It is about the size of a Redwing Thrush, and is seven inches six lines long, of which the tail measures two inches and three-quarters. In appearance and comportment it more resembles a Starling than a Thrush, especially in its grimaces and positions, which are exceedingly variable and comical, although it has all the characteristics of a Thrush. The beak is one inch long and black, like the powerful feet, which are only yellow in the corners, and one inch and a quarter high; head and neck are greyish blue, palest in old birds; the upper part of the back black brown, frequently paler clouded; the middle of the back of a beautiful white; the rump dark brown with whitish margins to the feathers; breast and abdomen dark orange yellow; the vent pale red yellow; the wing coverts dark brown with whitish tips; the pinion feathers very dark brown or blackish; the hinder ones rather paler, whitish at the tips, and with an arrow white margin at the anterior side; the tail dark yellow red, the two central feathers grey brown.

The female is dark brown above, with greyish white margins to the feathers; the rump is rusty coloured with similar margins; the chin white; the throat like the upper parts, but paler; the front of the neck and all the lower parts of a dirty orange colour, with brown and white undulating lines; the tail as in the male, only paler; the feet dark brown.

HABITAT.—This bird inhabits Southern Europe and Germany, for instance, Austria, Tyrol, &c., and rarely comes higher up; but in the Alps and Pyrenees it is common. It selects rocky and stony districts, also old castles, for its abode. During their migrations they visit bare rocky mountains, and, like the Black Redtail, they seek for beetles and insects under stones. They return to their home in March, and withdraw again in September. As a rare bird it is placed in a cage, but which must be rather larger than that of the Nightingale.

FOOD.—At liberty this bird feeds upon insects, but in confinement it requires the same food as Nightingales; but with every care it does not live long.

BREEDING.—The nest is built in the fissure of a rock in some high and almost inaccessible place, and the female lays five eggs. The young are often reared, being very capable of instruction.

CAPTURE.—They are not often caught amongst us. This has been done with limed sticks, with meal-worms attached, in places where it is most frequently seen. I am not acquainted with the manner in which it is captured in its native abode.

COMMENDATORY QUALITIES.—The male is esteemed as an exceedingly beautiful songster, which sings especially at night when the candles are lighted. They also learn to whistle songs, and to speak like the Starling. They become exceedingly tame.

143.—THE NIGHTINGALE.

MOTACILLA LUSCINIA. *Linn.*—ROSSIGNOL. *Buff.*—THE BRAKE NIGHTINGALE. *M'Gillivray.*—DIE NACHTIGALL. *Bech.*

DESCRIPTION.—Had this bird no other qualification to recommend it than its plumage, it would not take a very distinguished position as a chamber bird. It is about the size of a Sparrow, being five inches long, of which two inches and a quarter comprise the tail; but in confinement, when well fed, it becomes larger, being frequently as large as a Lark, especially if

reared from the nest. The beak, as throughout the genus Motacilla, is straight, cylindrical, thin pointed, and seven lines long, and has nearly equal mandibles; the upper one being slightly emarginate, dark brown above, bright grey beneath, flesh coloured at the base, and yellow within; the irides greyish brown; the feet brown flesh coloured, nine lines high; the upper part of the body is also greyish brown with a rusty tinge, and in very old birds it is a red ashy grey; the rump brown, inclining to red; the gullet and the abdomen, white; the breast and sides white ashy grey; the knees grey; the large coverts of the wings with pale dirty white tips; pinion feathers grey brown, with a rusty yellow margin; the broad straight tail feathers dirty rust red; and, as in all the genus Sylvia, from their delicacy and fragility they are easily broken.

When kept in a chamber they are occasionally either darker or lighter; those which are kept near the window in large light apartments, and where the smoke of oil never occurs, become above dark grey or light grey brown, with a margin of rusty yellow to all the feathers; the under part of the body being white, and whitish grey at the sides of the breast and of the abdomen. Those which are hung in small dark apartments where the smoke of oil and other offensive vapours occur, become of a dirty rusty yellow above, grey white beneath, and greyish brown at the sides of the breast and of the belly.

The connoisseur alone can distinguish the female from the male by her gait and posture. She has not similar long legs, does not stand so upright, nor has she the same long pointed head—in her it is more rounded; the neck short and contracted; the eyes less bright, and smaller; and the throat not so white. But a person not familiarly acquainted with the bird would require to have both sexes before him to enable him to distinguish them.

The Nightingale greatly resembles the female Redstart,

which is often sold for it; the Nightingale, in return, being frequently killed for cooking instead of that bird. To avoid error, it is therefore necessary to point out their distinguishing characteristics. The Redstart is always smaller; its colour darker; its slender feet and beak blackish; the colour of the tail brighter; and its two middle feathers black or dark brown; it jerks incessantly its tail, which is longer and thinner, whereas the Nightingale gives it only an occasional jerk, and bears its tail always raised above the tips of the wings. The latter also has a prouder deportment, exhibits more staidness in its actions, and has a hopping gait of a very peculiar character. For, having made a succession of hops, it stands still, looks around, moves its wings, raises its tail upwards with a certain degree of dignity, and slightly expanded, bowing its head several times, jerking its tail it again hops forward. Objects which attract its attention it looks at, as its were, with but one eye, holding its head on one side. It hops quickly indeed after the insects which constitute its food, yet it does not seize them with the same avidity as other birds, but stands looking at them for an instant, as if reflecting whether it be judicious to devour them. Its whole conduct is considerate and serious; occasionally, however, it is rather incautious, for it rarely avoids a noose set for it. If it has once been caught, however, it becomes more wary. The facility with which it is captured has led it to be considered as of an inquisitive disposition; but my observation has not confirmed this. It is true that if the earth be bared or dug up it will hasten to the spot; but the prompting motive seems to be that it can there find those insects which are its greatest delicacies.

Habitat.—Nightingales are found throughout Europe, as far north as Sweden, and in the whole of Asia, as high as the temperate portions of Siberia, ranging southward to Africa, where they are found on the banks of the Nile. They select as their favourite place of resort shady places, cool, but not too cold, and where the foliage is dense, whether forests, copses, gardens, or merely the enclosure hedges of fields. They prefer deciduous wood to the fir tribes, as in the latter they are better able to find their food. In woody mountain chains they frequent only the skirts, and avoid the lofty and bleak summits. But they prefer, above all other places, copses in fields and other

bushy spots, upon plains which are intermingled with meadows and arable land. They delight in gardens where there are hedges of hornbeam, which, when not too closely clipped, grow broad with foliage close to the ground. They prefer marshy and moist situations, not on account of the water, but because these places are usually overgrown with thick bushes. They also find in such spots an abundance of food when the cold has chased insects from other localities. Another reason for their preferring these haunts is, that birds endeavour to fix their permanent residence on the spot where they were bred. Thus, if hatched near the water, it would resort to that vicinity; if bred in a garden, it seeks a garden; and if its birth-place was a mountain, it would endeavour to fix its residence there: and a Nightingale having once selected a place of residence, like the Chaffinch, and indeed I might say like every other bird, it seeks it again yearly until captured, or till the spot has lost its attractions. The latter circumstance often occurs in woods where either the underwood has been removed, or it has grown so high as to lose its dense foliage, which has a peculiar charm for this bird. It then seeks the nearest agreeable spot. It is by no means so certain, however, that the bird heard this year at a particular spot is the same which sung there last spring; for it is well authenticated that when an old Nightingale has been captured shortly after its arrival, the very next day, if the place be convenient and well selected, another occupies the spot. But if a bird be captured after the period of migration, this spot will remain untenanted at least during the summer, unless a neighbouring bird, having lost his mate, pair with the mate of a captured one, or, as the weaker bird, drive him away that he may pair with her. He who is most familiar with the language of birds is in the best condition to decide whether such a change has taken place.

I have before remarked that not only do the young of all birds of passage return to the locality where they were bred, and always take up their own residence in the vicinity of their birth-place, but also that they follow the same identical route in their migrations, and that consequently where they have been once exterminated, the chances are that that situation will never be inhabited by Nightingales again. The permanency of a once-adopted route is rendered the more necessary to these birds from their requiring to be familiar with spots where they may find

sufficient food during their slow and interrupted journeys, and this accounts in a great degree for the absence of the Nightingale in many places seemingly well suited for them.

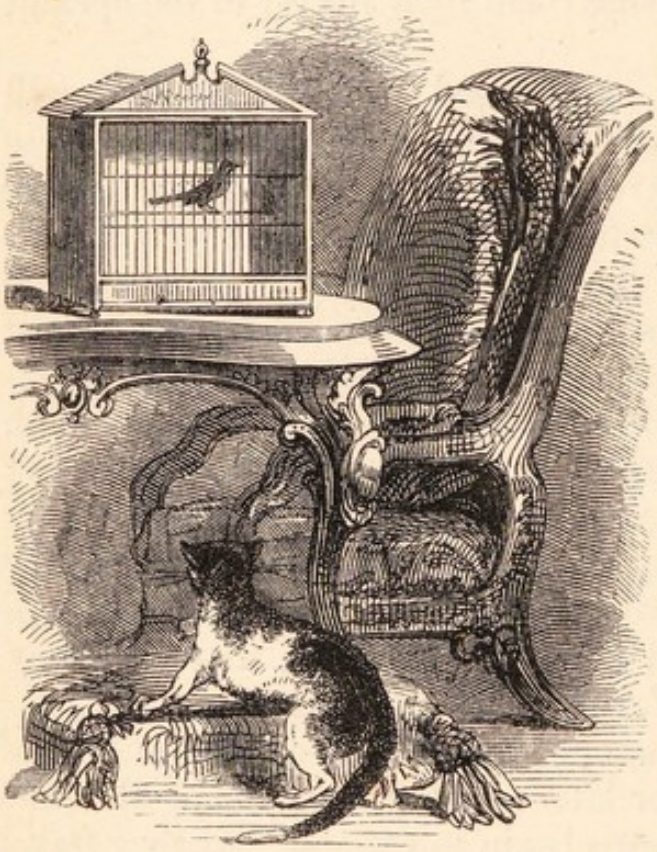
If the latter be an authentic cause, and it is not wished to hazard the mere chance of their return, the locality may be peopled with these agreeable songsters, by rearing several nests of young birds, and then giving them their liberty in the spring, after the winter migration.

The migratory impulse, suppressed by their taming, will conduce, more than the feeling of the time having passed, to retain them in the place where they have been freed, and where they will breed; and if secure from being pursued, they and their families will again resort to the spot the ensuing year. Those birds, however, which it is intended to set at liberty, must not be kept in cages, but as soon as they can feed themselves, they must be allowed to fly freely about in a room which has bushes and dwarf fir trees planted about, so that they may not be rendered too delicate, or their wings disabled by want of exercise, otherwise during the very first days of their liberty they would inevitably be destroyed. They must also be supplied with their natural food of insects and eggs, that they may retain the habit of seeking for them when at liberty.

Nightingales occur throughout Germany about the middle of April, rarely either earlier or later; but always about the time when the buds of the hawthorn begin to expand. As they travel from spot to spot, and not in one continued flight, they belong to that class of birds of passage which do not suffer from the vicissitudes of temperature. In the middle of August they again retire in families, going very quietly from bush to bush. They can then be caught in nooses, baited with currants or elder berries. At the very latest they are still to be found in central Germany about the middle of September; but they then migrate singly, almost imperceptibly; and it is scarcely possible to say how long the migration lasts. Other birds which travel in large flocks, like the Swallows, do not so easily escape the eyes of the observant naturalist. There is no doubt that sometimes sickness, late breeding, the mistake of a young bird, or the intervention of other circumstances, may be the cause of our occasionally finding a Nightingale late in September, or even in October, but this is certainly an exception to the rule.

Nightingales may also be allowed, like other birds, to run or fly freely about a room, a practice I have sometimes adopted; but they sing neither so well nor so frequently as when placed in a cage, where they are exposed to fewer interruptions, and have nothing but their song to study.

It is therefore best to place them in a cage, especially as they must be better fed than other birds, which run freely about, if it be wished to keep them long. This cage may be constructed in a variety of ways, but it must always be a foot or eighteen inches long, from six to twelve inches broad, and twelve inches high; it must also have a soft covering or roof, that the bird in fluttering and springing, especially when recently caught, may not hurt its head. I think I possess the kind of cage best suited to this bird, and which I will briefly describe. It is exactly eighteen inches long, eight inches broad, thirteen inches high at the sides, and fifteen in the middle, where the roof is vaulted, the sides enclosed with wooden bars, which are about three lines thick, as is also the floor; above the latter there is a sliding tray, which I line with blotting paper, that it may be occasionally thoroughly cleansed, which is done by merely inserting a clean sheet of paper. On one side a deep food vessel is inserted with a bar across its orifice, so that the bird may not scatter its food too much. In the centre of the front a singing house is inserted, which reaches from top to bottom, and in this is hung a large drinking vessel. Beneath are placed two perches, and another in the middle opposite the singing house, which has a semi-cylindrical form, and is enclosed with wooden bars; the last perch must terminate in a half rounded form, that the singing house may completely revolve. I cover the perches with



green cloth firmly sewed on, that the birds may have a soft perch, and not so soon injure their feet, which is very common in birds that are confined. The arched roof is covered with green cloth, and the cage is painted green throughout. But it is requisite that the paint should be thoroughly dry, and the smell completely evaporated, before the bird is placed in it, or it will become sickly, and possibly die.

This kind of cage I prefer for the following reasons:—1st, it takes up less room, as it is narrow; 2nd, because it is darker, the wooden bars occupying more space, and therefore admitting less light; and, 3dly, because the birds can bathe without wetting or soiling the cage or perches, and their feet are thus kept clean and sound.

These birds should be hung in spots which are the most agreeable to them. Some do not like the window, but prefer an obscure situation; others prefer the sunlight. This is to be discovered only by experimenting upon the birds. If it be wished that they should sing wherever they may be hung, it is necessary to accustom them to a change of place before they commence their song; consequently, immediately after moulting, the position of the cage must be constantly changed. Some prefer singing alone, and others delight most in interchanging their song with a neighbour; but three or more together in a chamber will never all sing equally loud and well. The reason of this appears to be a certain passion for pre-eminence, which calls forth the energies of the more vigorous bird, who asserts and retains the superiority; and the others then either sing but rarely, and very softly when that one is silent, or are so annoyed that they will not sing at all. I have known instances of Nightingales having been silent for years, but on being placed alone in a room, have commenced singing with the greatest energy.

Food.—Their food in the woods consists of insects, especially of small green caterpillars found in oaks, hawthorns, and other plants, small moths, flies, beetles, and the larvæ of insects which are concealed beneath moss and the upper surface of the ground, which, when removed, lie exposed. During their autumnal journey they feed also upon currants and red and black elder berries.

When the newly-caught bird is first introduced to the chamber, it must be fed for several days upon fresh ants' eggs and meal-

worms; but if fresh ants' eggs are not to be procured, dry ones at least must be at hand. Some persons, however, make a composition of hard boiled eggs, bullock's heart, and roll, and cram them with it if they will not feed freely, placing meal-worms upon this food that they may learn to eat it with them; but this diet is of so artificial a nature, that the majority either die or suffer severely from an eruption on the beak. Whoever, therefore, cannot obtain ants' eggs should not keep nightingales, as many die before they become accustomed to artificial food. The best summer diet is merely fresh ants' eggs, and daily from two to three meal-worms.* The ants themselves may also be used, being first killed with hot water, but by this means the ant-hills are destroyed. When fresh ants' eggs are no longer to be obtained, dry, or which is better, boiled bullock's heart is given to them, together with Swedish turnips, both being grated together and mixed up with dried ants' eggs. The yellow turnips, which may be preserved fresh in sand in the cellar, keep the stomach and intestines in order. Sometimes, indeed, they may have lean beef and mutton, chopped fine, given to them. With this, after experimenting upon various kinds of food, I feed my Nightingales, and they thrive very well upon it. The cheapest food, however, is very ripe elder berries, dried like fruit, and mixed with ants' eggs, just as it is customary to mix Swedish turnips and roll together.

Other persons make for winter use a baked cake of pea meal mixed with eggs, and when it is used they grate it, moisten it with water, and mix it with dried ants' eggs. Others, again, who wish to feed their Nightingales as cheaply as possible, take poppy seed, and bruise it in a mortar to free it from the oil, and mix it up with some roll crumbs. They will freely eat this mixture when they have been gradually accustomed to it; but it eventually generates consumption. This has been recently

* In order to have a constant supply of fresh meal-worms, some pots are filled with wheat bran, barley or oat meal, and sugar paper, and old bits of leather mixed with it. Each of these pots should contain a gallon; and a pint of meal-worms is thrown into it, and are left there undisturbed for a quarter of a year, and only occasionally a woollen wrapper steeped in beer is drawn over it, when many of them undergo their usual metamorphosis, thus becoming beetles, which again lay eggs; and a constant supply of meal-worms is always at hand. They propagate very rapidly.

adopted in Thuringia as the ordinary food of Nightingales, but I know from experience that it is prejudicial to those birds which have not a stomach adapted for the digestion of seeds; and I caution the reader against it.

There are other artificial kinds of food used, but which I shall pass over, as the majority of them are injurious. Whoever adopts the plan above recommended for feeding his birds, will find that they continue not only healthy, but from their cheerfulness they will delight him with the frequency and animation of their song.

When kept at large in a room, I have fed them upon the ordinary universal food, but this is too coarse to suit them; for in the course of six months they begin to suffer from atrophy, and die unless the ordinary Nightingale food be resumed.

They require fresh water daily, not only for drink, but also to bathe in.

BREEDING.—Every Nightingale maintains its *locale*, and if at pairing time there are several together, the males engage in the most furious contests, in which the weaker must always give way. These conflicts arise usually between the parent bird and the young, for the latter, being bred in the district, likewise wish to take up their abode there. But their relationship is then forgotten, and they no longer recognise each other; they also forget the paternal and fraternal ties which previously so closely linked them. They build their nests in woods or gardens, in a pile of faggots, in a thorn bush, or upon a low stem thickly enveloped with foliage, or even upon the earth, if the place be surrounded with high grass or thick bushes. It is constructed without much art, consisting externally of dry leaves, and internally of the fibres of roots and blades of grass: it is sometimes still further lined with the hair of animals. The female lays from four to six eggs, with a greenish brown tinge, and hatches them in a fortnight. The young are fed upon small caterpillars and moths, and before they can even fly they hop out of the nest, which, from its low position, exposes them to the pursuit of beasts of prey. With the exception of the red tail, they do not resemble their parents in the least until after the first moult: they are rusty grey above; spotted on the head and coverts of the wings with yellowish white, beneath rusty yellow, sprinkled on the breast with dark brown. After moulting they can scarcely be distinguished from their parents. Therefore if a bird be caught about the autumn, and you wish to ascertain if it is a young or an old bird, it must be carefully examined behind the head, around the eyes, beneath the beak, and about the neck; if but one yellow feather or spot be found, it is assuredly a young bird. There is no other charac-

teristic to distinguish it, and if this be not found, it will be requisite to wait some days, when the young bird will commence warbling. But even this distinctive mark will sometimes fail, for young females also sing, even far into April, but their song is partly softer, and partly more interrupted; and besides, they do not so strongly inflate the throat, a characteristic whereby they are speedily distinguished by the fanciers.

The following observations will not be useless to those who wish to rear young Nightingales. If a Nightingale's nest be known, the brightest or lightest are taken out, as these are the males; the white throat must be carefully examined. The females are always darker, or, more properly, redder or browner. They must be fed upon ants' eggs mixed with crumbled and moistened roll. The males begin to sing even before the tail is thoroughly fledged. If the old ones are caught upon the nest, they will rear the young in the cage.

When you wish to breed Nightingales in confinement, an entire room must be appropriated to a healthy pair, and planted with green dwarf firs, and they should be supplied with good food.

MALADIES.—At moulting time Nightingales are usually sickly; they require then not only good food, but also occasionally a spider, as a purgative. When suffering from a disordered stomach, they puff up their feathers to their eyes, and for hours keep their head under their wings. They are cured by giving them some ants' eggs, or spiders, and by putting a little saffron in their water, sufficient to tinge it with a yellowish red colour.

The maladies which they have in common with other birds, may be cured in the manner stated in the introduction. It is especially necessary to attend to removing, with great care, the large scales from the toes: this requires to be done at least every three months. In confinement they often attain the age of fifteen years, but at large they are not usually observed to frequent the same spot so long. This, however, is not conclusive that they do not attain a greater age, so many being captured by birds of prey and by bird-catchers. I know an instance, indeed, of a Nightingale being kept in a room for five-and-twenty years. Until the sixth year they sing perfectly well, but they then become enfeebled, and do not sing so frequently, so pleasingly, or so powerfully. It is then best to set them at liberty in May. Cases are known where, with renewed liberty, birds have become so invigorated that their song has regained all its former strength and beauty.

CAPTURE.—During the early months of spring, and especially at pairing time, it is very easy to capture the Nightingale. If a little trench be dug in a dark soil, and baited with some meal-worms and ants' eggs, they will immediately fly to fetch these delicacies away. If limed twigs be placed over this spot, or a clap-net be planted with a wood

spring, they are easily caught. It is sufficient merely to place a bit of wood over such a trench, supported by a little splinter, which falls as soon as they hop upon it. If they do not settle upon the spot where the trap is planted, they may be easily driven to it by using a little precaution. Thus a skilful bird-catcher will in the course of a few hours succeed in taking the whole of the birds in an entire district. In many parts of Germany the capture of Nightingales is prohibited under a heavy penalty; or where this is not the case, the gamekeeper alone has the privilege to capture them under certain restrictions, like other kinds of wild birds, and to sell them to amateurs.

In spring they may be caught in nooses, before which live meal-worms are hung instead of berries. But this mode of capture is not to be recommended; for though the noose be ever so lightly hung, they very easily injure their feet.

COMMENDATORY QUALITIES.—Its fine voice is undoubtedly the quality by which it surpasses every other bird. It indicates its emotions by the variety and peculiarity of its tones. The most insignificant note appears to be the piping note, *witt*, which he utters when alone. But if the harsh syllable *krr* be added, it forms the call of the male to the female. To express anger or fear the note *witt* is repeated, with great loudness and rapidity, before the termination *krr* is added. When happy and contented, after the enjoyment of a good meal, or in the confiding tenderness of their mate, they utter a deep *tack*.

When roused by anger, or jealousy, or alarm, they utter an unpleasant shrieking tone, which resembles the cry of the Jay or cat. In pairing time, when they sport and chase each other, which they frequently do from the top of a tree to its base, they utter a very soft chirping sound.

These are the notes with which nature has endowed both sexes. But the male is particularly distinguished by the power and brilliancy of his song, and may, therefore, very justly claim the title of King of Songsters. The power of his vocal organ is indeed striking; it has been found that the muscles of his throat are more robust than those of any other singing bird. But it is not merely the strength of voice but the various and agreeable transitions, and the beautiful harmony of its song, which renders the Nightingale so estimable and so much prized. For a moment he warbles a succession of low melancholy notes, commencing softly, but gradually increasing in strength, and at last dying away upon the ear. Then follows a variety of sharp notes, or he gives a variety of hurried and sharp notes intermingled with some detached ascending notes, with which he generally closes his strain. There are at least four-and-twenty different strains in the song of a fine Nightingale, without reference to slighter variations.

These strains, no doubt, express the varying emotions of this most

agreeable of songsters. Nightingales, indeed, sing in similar style throughout the world; but still a difference may be observed in the perfection of their voice and song. But in this, as in other things, where the senses are judges, there will always be a difference of opinion. One warbles its notes slowly and agreeably, another has usually some peculiarity which entirely alters the character of the song, and perhaps a third surpasses all by the silvery sound of its voice. Each sings admirably in its peculiar style, each finds its admirers, and it is difficult to decide which is the best. Indeed there are some birds which seem to monopolize all the perfections of melody and voice. These are generally from the first brood, and, with their natural qualification of voice and memory, happen to be bred in a district where there are many Nightingales, and from these they acquire or borrow their best notes, and thus obtain that perfection of song which we so much admire. When the males return from their migration, which always happens six or eight days before the arrival of the females, they are heard to sing before and after midnight, that they may, on clear nights, attract their companions. When this is accomplished, they are no longer heard during night, but greet only the approaching morning with their songs. But there are also Nightingales which always sing before and after midnight throughout the year.

It is to be regretted that the singing time of this admirable songster is so short, not continuing more than three months; nor is it continued throughout this short period with the same zeal. When it first arrives, and till the young have appeared, it is both impassioned and beautiful. The greater part of its time is now occupied in the nurture of its progeny; and it is therefore more rarely heard. If it subsequently elevates its voice, it wants the energy which animated its song upon its arrival. About Midsummer-day it certainly ceases entirely, and nothing is heard but the warbling of the young, which now commence learning and imitating their father's song.

In confinement they sing longer, sometimes beginning about November and ceasing after Easter. This is the case with those which are captured adult; but those which are reared from the nest sing for seven entire months; they must be kept by themselves, otherwise they are apt to intermix with their song the notes of other birds.

When caught in spring, to induce them to sing they must not only be well fed, but they must be hung in a quiet solitary place; and as long as their singing time lasts the cage must be covered with a thin green cloth.

It has been said that the female Redbreast will pair with the male Nightingale in a room where they fly at liberty, but this I have never witnessed.

OBSERVATIONS OF BRITISH NATURALISTS.—The following passages, from the original and graphic pen of the celebrated Audubon, will no doubt be interesting to the reader :—

"When I was quite a lad, my father spoke to me of the songs of birds, both of Europe and of other countries, and frequently would endeavour to give me some idea of the affinities of different species. 'The Skylark, if not so abundant,' he said, 'would be thought a most charming songster ; the Goldfinch, the Linnet, the Blackbird, the Song Thrush, and many others, are all pleasantly musical ; but the Nightingale is amongst our birds as much superior as the Mocking Bird of your country is to every other songster there ; and, although I am fully aware that America possesses many song birds of considerable powers, nay perhaps, on the whole, more so than Europe, I have never been able to convince either my countrymen or Englishmen of this truth. Of all this however you must judge for yourself. Go early and late to the woods, listen with attention to the songs of the birds ; and be assured that while you will find them daily becoming more and more pleasing, you will be enabled to establish the truth of these matters, to which, I am sorry to say, few persons pay much attention.'

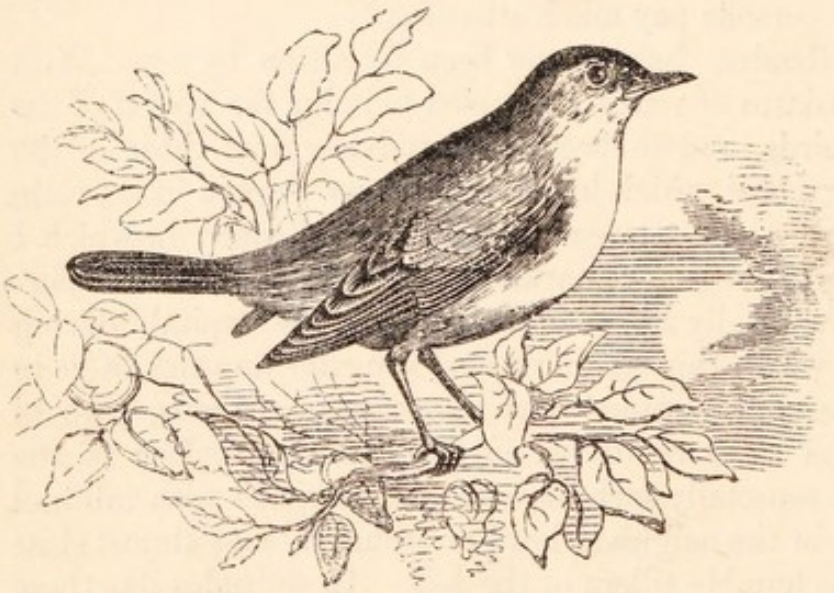
"Such lessons, Reader, have never been forgotten by me. With all the anxious enthusiasm of youth I resolved to judge for myself of the powers of song in birds, and to begin by studying first those of the Nightingale, the very bird which had attracted my regard in its plain brown garb, and most modest mien. The part of France in which I then was, proved, as I thought, remarkably well adapted for this purpose. Rambling occasionally between Rheims and the capital, during the genial season at which this distinguished songster appears there in considerable numbers, and keeping away from the main roads, I would seek all such byeways as were deeply cut beneath the surface of the country around, and especially such as were well supplied with tall and well-set hedge-rows, in the neighbourhood of orchards, and almost close to the cottages of the humble tillers of the soil. In solitudes like these I was sure to meet with Philomel. Now perched scarcely ten or fifteen feet from the ground, on some branch of a thicket, I have watched it on its first appearance, in the beginning of April, as for several days the males which I observed exhibited an appearance of lassitude and melancholy almost painful to me. Silent, still, and in a position almost erect, the Nightingale would stand, as if in a state of stupefaction, for more than an hour at a time, or until, pricked by hunger, it would fly to the ground, hop over it in a direct line, and meeting with an insect, would seize it precisely in the manner of a Thrush. By this, Reader, I would have you understand that after having spied its prey, the bird stopped for an instant, quickly bent its legs, lowered its head without

changing as it were the general position of its body, then took up the insect, and swallowed it at once, looked around, and flew to the very twig which it had a few moments previously left. On all such occasions, during those few days of lassitude, and indeed at almost all other periods of the stay of this species in France, the least attentive observer will see that on its alighting on a branch to rest, a certain tremulous action of the wings takes place, whether those members droop or are in their ordinary position."

144.—THE GREATER NIGHTINGALE.

MOTACILLA LUSCINIA MAJOR. *Linn.*—LE GRAND ROSSIGNOL. *Buff.*—DER SPROSSER. *Bech.*

DESCRIPTION.—Although this bird is but a variety of the common Nightingale, it has so many striking differences that it may very justly be considered a distinct species. From the size of its body, which is six inches and a half long, it is commonly called the Large Nightingale. Not only is its body more robust, but its head and beak are thicker, and moreover its plumage and song are strikingly different. It is, indeed, true that it possesses many characteristics in common, namely, its gait, vivacity, &c.; but these we also find in other birds, for instance, in the Black Cap and Pettychap, but which have never been considered varieties.



The upper part of the body is of a dirty greyish brown; the throat white, bordered with black grey; the breast light grey, sprinkled with dark grey; the belly a dull white; the wings dark brown; the pinion feathers margined with rusty brown; the tail and rump feathers broad, and of a dirty red brown, darker than in the preceding bird.

PECULIARITIES.—Its most striking peculiarity is its song. Its voice is much stronger, more thrilling, and hollow. It sings in a much slower and more abrupt manner. It has not the variety of modulations of the common Nightingale. It mutilates and divides all its notes; and from this it has been compared with the Missel Thrush, but it is certainly superior in point of softness and purity. Therefore, with respect to delicacy and change, it must leave the precedence to the Nightingale, but in compensation it sings more loudly; and almost the whole of these birds sing at night, whereas, amongst the common Nightingales, the true night bird is a rarity. From the surprising power of its voice, it is scarcely possible to keep it in a room. It is, therefore, hung either at a window, or a passage is made through the window for the cage, so that the cage has externally a small covered anti-chamber. I have often compared its song with that of the common Nightingale, and the great difference that exists has confirmed me in the belief that it is a distinct species.

It does not occur in Thuringia; but is found solitary in Silesia, Bohemia, Pommerania, near Wittenberg. In Austria, Poland, and Hungary, it is more common, in many districts, than the common Nightingale.

Its place of resort is usually scrubby woods, on hills, plains, and especially near rivers. In cages it is fed upon the food of the common Nightingale, and thrives well upon it. It has more power of endurance, and is, indeed, stronger than that bird, and lives much longer.

The majority are brought to us, and especially to Leipzig, from Vienna; and they have been, therefore, called Vienna Nightingales. Those from Hungary are considered better than the Polish ones. A character is also cited, whereby they may be distinguished. The former always call once only at a time, thus uttering *David* and *Jacob* singly, whereas the latter utter *David* several times successively.

It builds its nest as low as the ordinary Nightingale, but the eggs are larger, clouded with olive brown and dark brown.

They are caught the same as the other species, with meal-worms, &c. Their maladies are also similar; but during moulting time and in October and November they are both melancholy and sick, and frequently die. They are then often cured with spiders

and wood maggots; but the gold tincture of Halle is then recommended, a couple of drops of which is poured into the drinking vessel of the sick bird.

145—THE BLACK CAP.

MOTACILLA ATRICAPILLA. *Linn.*—FAUVETTE À TÊTE NOIR. *Buff.*—DER MÖNCH ODER DIE SCHWARZ KÖPFIGE GRASMÜCKE. *Bech.*

DESCRIPTION.—This bird, which is one of our best songsters, has a hood or cap, black in the male and brown in the female, which covers the top of the head. Many writers, and also bird-catchers, have considered them as two distinct species; but that this opinion is erroneous the observations I have been enabled to make for many years upon this bird, both wild and in confinement, enable me to assert incontestibly that they are but the different sexes of the same species. Its length is five inches ten lines long, of which the tail comprises two and a half inches. The beak is five lines long, and shaped like that of the Nightingale, of a brownish blue colour; the margin and base of the under mandible, and within the gullet, yellowish white; the irides chestnut brown; the feet dark ashy grey, and ten lines high; the vertex is black; cheeks and neck bright ashy grey; the upper part of the body, and the coverts of the wings, ashy grey, strongly tinged with olive green; the under part of the body light ashy grey, merging into white towards the throat and the abdomen; the sides and thighs like the back; the vent and the under side of the wings spotted with white and grey; the pinion and tail feathers dark brown, margined with the colouring of the back.

The female is rather larger. Her cap is rusty brown; the upper part of the body reddish grey, with an olive green tinge; cheeks and throat bright ashy grey; breast, sides, and thighs pale grey, with an olive green reflection; the abdomen reddish white; the pinion and tail feathers dark brown margined with the colouring of the back.

The plumage of this bird is so very delicate, that it is rare to find it, in confinement, whether caged or hopping about, in a perfect condition.

HABITAT.—This bird is found throughout the whole of Europe, inhabiting groves in mountainous districts, and in the

plains. Like the Nightingale, a favourite place of resort is the copses in fields covered with bushy underwood. It commences its migration about the end of September, returning towards the middle of April, a few days before the Nightingale, to animate our groves with its delightful song.

If allowed to range about the room, it should be provided with a branch to roost upon, and a cage with a number of perches, as it walks with difficulty. It certainly is happier in a cage, which may be of the same form as the Nightingale's. About the migratory season it becomes very much agitated, and in some the desire is so strong that they die.

Food.—It seeks small caterpillars, flies, gnats, moths, and other insects; and it will also eat cherries, elder berries, and currants.

It can be kept upon the ordinary universal food, with some meal-worms and ant's eggs added, and thrives very well upon this diet. When allowed to fly about, it will pick up everything that comes to table—vegetables, meat, &c. It swallows all whole, and is a great eater. If fed upon the universal food of roll crumbs, intermixed occasionally with a little crushed hemp, it will thrive well, even as long as fifteen or sixteen years, especially if a few red and black elder berries are given occasionally. In winter it tends to preserve his health, if he has given to him, dried elder berries, soaked in water. He is fond of bathing, and therefore requires fresh water daily. As he is usually caught in the autumn for the cage, he may be speedily accustomed to the ordinary food of the room, by putting into his crib some elder berries and meal-worms.

Breeding.—It builds usually but once a-year, generally in hedges or bushes, seeming to prefer the hawthorn. The nest is firm, hemispherical, and well built. Externally, it consists of dry stems of grasses and stalks, intertwined with small twigs, the inside lined with delicate grasses and the hair of animals. The female lays from four to six eggs, the ground colour of which is yellowish white, and sprinkled with brown spots. The young are fed with small insects, caterpillars, and moths; and those reared by the hand succeed very well with roll and milk. When well trained, not only will the male sing his own song, but will learn to sing most admirably that of the Nightingale and of the Canary. Before the young moult, both males and females so closely resemble each other, that it requires considerable skill to distinguish

the sexes. As soon, however, as they have moulted, the colour of the head of the male immediately commences getting very black, beginning directly behind the beak, the female retaining the same colour as the head before moulting. To be quite sure, it is best to pull out a few of the brown feathers from the head of the young, when very shortly black ones will take their place.

MALADIES.—They are not only subject to the same maladies as Nightingales, but are peculiarly liable to consumption. As soon as the signs of this disorder are observed, give them frequently meal-worms and ants' eggs, and lay a rusty nail for a month in their drinking vessel. Those that are allowed to fly about the room sometimes loose their feathers. When this is noticed, let them be placed in a cage, and exposed to the warmth of the sun. The feathers then generally recommence sprouting; but if they do not reappear, they should have a lukewarm bath every day. When attacked with epilepsy or paralysis of the joints, I have generally cured them by giving them now and then a drop of olive oil.

CAPTURE.—They are caught for the room, in July and August, by nooses baited with currants; but in September the bait must be elder berries. Being very suspicious, it will often sit for half an hour, looking and longing for the bait before touching it.

Their drinking places they visit with great precaution, although always eager for drink and fond of bathing. If they observe anything strange, they perch for hours looking, even although red elder berries, their favourite food, hang before them; they fly back and forwards a dozen times before drinking or bathing. Young birds not yet moulted, visit the drinking place with less caution, and therefore many of these are caught. In the spring they may be caught, like the Nightingale, by means of a net and limed rods, by placing meal-worms upon a spot cleared from grass.

COMMENDATORY QUALITIES.—This bird is very much esteemed in our forest villages, even before the Nightingale. If its song has not the same force and melody, it is much purer, more flute-like, and more various. It also sings for a longer period, both when wild and in the cage. Many birds in the room will sing the whole year through, and almost the entire day. At large, we naturally hear him only during the summer. It will then sing late in the evening like the Nightingale, and resume its song again in the morning before day-break. Even the females sing a little, like the Redbreast; whence it has probably happened that the red-headed individuals have been considered as a distinct species. If it suddenly observes anything unusual, or when threatened with danger, it utters a loud and unpleasant sound, something like that uttered by a cat when hurt.

146.—THE PETTYCHAP, OR FAUVETTE.

MOTACILLA HORTENSIS. *Linn.*—FAUVETTE. *Buff.*—DIE GRAUE GRASMÜCKE. *Bech.*

DESCRIPTION.—This bird is five inches long, of which the tail measures two inches and a half. The beak is five lines long, shaped liked that of the preceding, horny brown, beneath of a bright lead colour, and whitish within; the irides grey brown; the feet lead coloured, robust, and three-quarters of an inch high. The upper part of the body is reddish grey, almost imperceptibly tinged with olive brown; the cheeks darker; the margins of the eyes whitish; the under part of the body, as far as the breast and at the sides, of a reddish bright grey; the

abdomen white, with a reddish grey tinge at the rump; the knees grey; the wings and tail grey brown, edged with the colour of the back and with small whitish tips; the under coverts reddish yellow.

HABITAT.—In Germany this bird is found most commonly in copses and bushes that skirt the large mountain forests, as well as in gardens in their vicinity. It arrives a few days earlier than the Nightingale, and migrates about the end of September.

In confinement it must be treated like the Black Cap, and being rather more delicate, it should be furnished with a cage.

FOOD.—It feeds upon caterpillars and other little insects which are found upon trees and shrubs. When cherries are ripe it resorts to cherry trees, where it eats the pulp from the stone, and has often his beak stained with them. It also feeds upon currants and elder berries.

It is very voracious, for ever sitting at the food trough. It readily feeds upon Nightingale food. Although more easily tamed than the Black Cap, it does not live so long, scarcely surviving more than three years. It appears fond of the first kind of universal food, but it must not be given to him often, as it causes his feathers to fall out.

BREEDING.—It builds its nest in hedges and bushes of whitethorn, about three feet from the ground. I have also found it in the thick heads of pollard lime trees. It is well constructed, consisting externally of coarse blades of grass and fibres of roots, and internally lined with delicate white blades of grass and sometimes with moss. The margin of the orifice is edged with spiders' webs. They commence, like the Swallow, several nests before they determine upon the final spot. The female lays four or five eggs, of a yellowish white, spotted with bright ashy grey and olive brown. The young are hatched in a fortnight, and hop out of the nest as soon as they are fledged and when the nest is approached.

MALADIES.—They are subject to the same diseases as the Black Cap, but they more readily lose their feathers. They also feed so

voraciously upon the first kind of universal food, that they often die from suffocation.

Mode of Capture.—They may be caught during the summer months, in nooses baited with cherries, currants, and red and black elder berries.

They freely visit the water trap, early in the morning, and in the evening just before sunset.

147.—THE WHITE THROAT.

Motacilla Cinerea. *Linn.*—La Fauvette Grise ou Grisette. *Buff.*—Die Gemeine Grasmücke. *Bech.*

Description.—This bird, like the allied species, frequents the grass and low shrubs. It has a slender and handsome form, and is five inches and a half long, of which the tail measures two inches and three-quarters; the beak five lines, blackish above, greyish beneath, with the corners and throat yellow; the irides grey brown; the feet dark flesh colour; the shin ten lines high; the head ashy grey; the cheeks, neck, back, rump, tail coverts, and the small wing coverts, ashy grey, with a brownish tinge, deeper on the back; the throat and belly of a beautiful white; the tail dark brown.

The female is rather smaller, of a pale rusty colour upon the wings, and wants the beautiful white throat.

Habitat.—This bird is found throughout Europe. In the middle of April it may be seen in thick thorny bushes and copses which adjoin roads and skirt the woods of large mountain forests. About the beginning of October they leave on their annual migration, creeping from bush to bush on their way.

In the house they require the same treatment as the Pettychap, but it is much more delicate. Those who take a fancy to these birds should rear them from the nest, placing them in a Nightingale cage, and treating them like that bird. In this way he may have the pleasure of preserving them for many years.

Food.—They feed upon all kinds of insects, continually searching the bushes for grubs and small caterpillars. When cold weather deprives them of this food, they feed upon cherries, currants, and elder berries. As I have already said, they must be fed on Nightingale's food, occasionally varied with barley meal mixed with roll and milk. In summer they thrive best on

red elder berries; and in winter occasionally black elder berries, steeped in water, may be given them.

BREEDING.—Their nest is built in thick bushes close to the ground among roots, near brooks and rivers, and even amongst high grass. It consists of blades of grass and moss lightly plated together, and lined with horse-hair. It lays from four to six eggs, of a greenish white colour, delicately spotted and sprinkled with olive green. The young in their plumage very much resemble the full-grown birds. The margins of the wings are not so dark, and from this the female also may be known. It is, therefore, easy to detect the different sexes in the nest. I have easily reared them upon ants' eggs. They soon feed alone, and become fond of roll steeped in milk; but to preserve them several years, it is necessary to vary their diet occasionally with Nightingale's food. They are very pretty chamber birds, and when reared from the nest, become so tame that they will even perch and sing upon the haud.

Their MALADIES are similar to those of the Black Cap.

CAPTURE.—They are caught in those places where they congregate in the latter part of the summer and in autumn, by means of nooses, which are baited with elder berries or currants. It is true they are more easily caught near the nest by means of limed rods.

COMMENDATORY QUALITIES.—It is an extremely animated and cheerful bird, which, when at liberty, will sing until very late in the evening. Its song consists of numerous agreeable strains, given in rapid succession. It is necessary to be near the bird to hear distinctly all the beauties of its song. The bird rises a little way in the air when its sings, turning round at the conclusion in a small circle, and then perches again upon the bush. If kept in a cage alone, where other birds do not sing louder, its song will be noticed as very melodious.

148.—THE BABILLARD.

Motacilla Curruca. *Linn.*—La fauvette Babillarde. *Buff.*—Die Geschwätzige Grasmücke oder das Müllerchen. *Bech.*

Description.—It resembles the preceding bird in figure and colour, but is smaller, and not so rusty coloured upon the wings. It is five inches long, of which the tail measures more than two inches; the beak is five lines long, very pointed, black, bluish beneath; the irides double ringed, externally whitish

yellow, and internally of a golden glittering brown; the feet are dark blue; the legs seven lines high; the head and rump of a reddish dark ashy grey; the rest of the upper part of the body grey, with a reddish tinge; the under part of the body and the throat white; the small wing coverts pale brown; the large ones and the pinion feathers dark brown, all margined with reddish grey; the tail dark brown.

HABITAT.—It is found throughout Europe, excepting extreme northern regions, and is a common hedge bird in Germany. It arrives about the middle of April, and leaves again about the middle of September. It frequents the hedges of gardens in the the vicinity of towns and villages, for the red currants, of which it is fond. It is not so commonly found in young plantations, but it may often be seen creeping through low bushes.

In confinement it must be treated in the same way as the Pettychap, and being a very delicate bird, it is very difficult to preserve when taken adult.

FOOD.—It feeds upon insects, especially small caterpillars, and as it arrives a week earlier than the other warblers, it will also feed upon insect eggs. During cold weather in summer and autumn it feeds upon currants and elder berries.

To preserve them in confinement the Nightingale's food should be mixed with ants' eggs and meal-worms.

BREEDING.—Its nest is usually found in thick gooseberry bushes, and sometimes in young firs. Externally it consists of blades of grass, and internally of the delicate fibres of roots. The hen lays from four to six white eggs, which at the upper end have a circle of ashy grey and yellowish brown spots. The tenderness of these birds towards their young is so great, that when their nest is approached the female will fall almost fainting from it, uttering anxious cries, and slowly fluttering away along the ground. Scarcely have the feathers made their appearance when the young birds, if looked at, will shoot like an arrow from the nest, and endeavour to conceal themselves in the bush.

COMMENDATORY QUALITIES.—It is a pretty bird, although its plumage is not very gay. It is called the *Little Miller* in Germany, a name which it receives from its song, which has some notes that sound like the clacking of a mill. It is usually thought that this constitutes its whole song, because these notes are uttered loudly, whereas its other notes consist of soft strains, although weak, yet so variable and melodious, that it surpasses all the warblers. It is therefore a very desirable bird for the chamber.

149.—THE BLACK REDSTART.

MOTACILLA TITHYS. *Linn.*—ROUGE QUEUE. *Buff.*—BLACK REDTAIL. *M'Gillivray.*—DER WISTLING, ODER DAS HAUSROTHSCHWÄNZCHEN. *Bech.*

DESCRIPTION.—It is five inches and a quarter long, of which the tail occupies two inches and a quarter; the beak is five lines long, very pointed and black, with yellow angles and gullet; the irides dark brown; the feet black; the legs ten lines high; the upper part of the body is of a deep bluish grey; the rump red; cheeks, throat, and breast, black; the belly and sides like the back, but with a whitish tinge; the vent reddish yellow; the wing coverts and pinion feathers blackish, margined with white; the tail feathers are yellowish red, the two central ones excepted, which are dark brown.

The female on the upper part of the body is dusky ashy grey, with a reddish tinge on the under part.

The colours of this bird vary until at least its eighth year.

Very old birds are black, excepting the wings and tail, and are generally deeper on the under part than the upper. In extreme old age they become of a deep grey on the breast.

HABITAT.—It is found throughout Europe, and in the temperate parts of Asia. It prefers mountainous districts to wide plains, and may be seen abundantly upon naked chalk hills, and in woods on the sides of mountains. They frequent towns and villages, occupying the loftiest buildings, such as towers, churches, castles, and walls. In the spring and autumn it seems to like the hedge-rows. As a migratory bird it returns early, coming back about the middle of March, when it may be heard piping its song; taking its departure about the middle of October, in small flocks. It possesses the quality, rare amongst the songsters, of singing the whole time he is with us, even during the coldest and severest weather, often perching upon the highest summit of a tower, filling the air with its song.

FOOD.—At liberty it feeds upon the flies that it finds upon houses and stones, drawn forth by the first warm days of spring. It will also feed upon the cabbage caterpillar and other insects, and in autumn upon elder berries. To preserve them for some years, they require to be fed upon Nightingale's food, with occasionally ants' eggs and meal-worms.

They have been known to live six years in a cage.

BREEDING.—They make their nests in the fissures and crevices of rocks and walls, especially in the high part of old buildings. The nest consists of hair and blades of grass plaited together. The female lays twice a-year from five to six eggs, of a pure white colour. The young are reddish grey, and must be removed from the nest as soon as the tail is half fledged. They are reared upon ants' eggs, and roll steeped in milk.

Their MALADIES are the same as those of the Pettychaps.

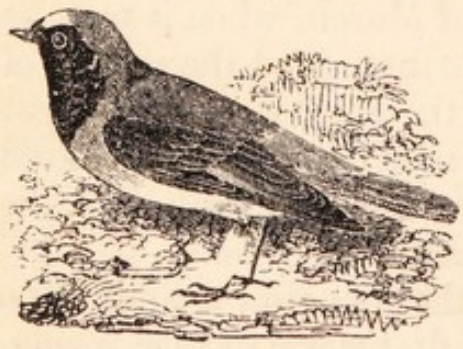
CAPTURE.—The place which they are observed to frequent is covered with limed twigs, to which meal-worms are attached. In autumn they may also be caught in nooses baited with elder berries.

COMMENDATORY QUALITIES.—The name of Wall Nightingale, which they have received in Germany, may have been given them from their red tail and the call-note *fitza*, both of which they have in common with that bird. Their song can by no means be the cause of its application, for although remarkable, it has not the least similarity to the melodious and transitional strains of that of the Nightingale; one of its notes has a remarkable crashing sound, and others consist of several high and clearly piping notes. They sing nearly from morning until night. Their motions are light and quick; when perched they shake their tail upwards and sideways.

150.—THE REDSTART.

SYLVIA PHŒNICURUS. *Linn.*—ROSSIGNOL DE MURAILLE. *Buff.*—DAS GEMEINER ODER GARTEN ROTHSCHWANZCHEN. *Bech.*

DESCRIPTION.—Length five inches and a quarter, of which the tail occupies two inches and a quarter. The beak is five lines long, pointed and black, yellow at the corners; the irides black; the feet also black; the shin bone ten lines high; cheeks and throat are black, the latter sprinkled with white; the upper part of the back and small wing coverts are dark ashy grey, with a reddish tinge; the rump rusty red, and clouded with white; the lower part of the belly like the back; the large wing coverts and pinion feathers are dark brown; the tail rusty red.



The female is dusty ashy grey; the throat whitish; the breast of a rusty colour, speckled with white; the rump reddish yellow.

HABITAT.—They are very common in Germany and England. During the early part of October they migrate to warmer regions, and return about the beginning of April. In autumn and spring they resort to the hedges and low bushes; in the summer they are found in gardens and in the willows skirting rivers, and even dense forests. Those which dwell in gardens also visit towns, where they perch upon roofs, and delight the inhabitants with their morning and evening song. In confinement a bell-shaped cage, with light wire work, is best, as it shows their elegant plumage. They form very agreeable chamber companions.

FOOD.—When wild they feed upon earth-worms, currants, and in autumn upon elder berries. When taken they are usually satisfied with elder berries, but rarely become accustomed to the universal paste. When meal-worms are mixed with it they may be enticed to take it. Ants' eggs should be added in spring. Being delicate birds they must have occasionally ants' eggs and meal-worms given them, but earth-worms rarely, for these do not agree with birds in confinement. In a cage they must be given Nightingale's food. They can rarely be preserved longer than three or four years, generally dying of consumption.

BREEDING.—They build their nest in the holes of trees, or beneath the eaves of houses. It is composed of blades of grass, feathers, and hair, very loosely plaited. The hen lays twice a-year from five to seven eggs, of an apple green colour. Scarcely have the tail feathers sprouted, when the young jump out of their nest, and perch upon a neighbouring branch, and are fed by the old bird till full grown. Their plumage, before they moult, is ashy grey, checkered with white. The young females in the autumn are so like the Nightingale as often to be mistaken for it. The best method of keeping these birds is to feed them upon ants' eggs, and mixed by degrees with roll steeped in milk, and by this means they get accustomed to the chamber food.

MALADIES.—Dysentery and consumption destroy great numbers of them.

CAPTURE.—In spring when they visit hedges they may be gently driven to those parts where limed twigs have been placed. Like Nightingales, they are attracted under nets and towards limed twigs by a bait of meal-worms. In autumn numbers may be caught in gardens and copses by means of a noose baited with elder berries.

COMMENDATORY QUALITIES.—Its beauty itself would commend this bird to the fancier, but this is enhanced by its vivacity and its song.

Its body is in continual motion, bowing and moving its tail from side to side. All its actions are lively and graceful. It sings some very pleasing notes, frequently embellishing its song by parts borrowed from that of other birds. This power of imitation, which it also possesses when at liberty, seems peculiar to this species. It even becomes so tame as to take meal-worms from the hand.

151.—THE HEDGE WARBLER, OR DUNNOCK.

Motacilla Modularis. *Linn.*—Fauvette d'Hiver. *Buff.*—Hedge Sparrow. *M'Gillivray.*—Die Braunelle. *Bech.*

Description.—This bird, which in gait greatly resembles the Wren, is five inches and a quarter long, of which the tail occupies two inches and a quarter. The beak is five lines long, very pointed, black, whitish at the tip, and a rosy red gullet; the irides are purple red; the feet of a flesh coloured yellow, and ten lines high; the narrow head as well as the neck is of a dark ashy grey, with some solitary deep brown spots; the back is of a bright rust colour, with black brown spots, like the back of the cock Sparrow; the rump fallow; cheeks, throat, and breast, of a dark slate colour, or of a bluish ashy grey; the sides and thighs yellow brown; the wings dark brown edged with rusty colour, and the large coverts have small white tips; the tail dark brown, with paler edges.

The female is lighter on the breast, with more brown spots on the head.

Habitat.—It is found throughout Europe, frequenting gardens, but preferring woods where thickets abound. With us it is a migratory bird, although some which come from higher latitudes remain with us during the winter, in the vicinity of houses. They return about the end of March, and remain among the hedges for some time before they resort to the woods.

Being a very lively bird it is allowed to fly about the room, and a fir branch is placed to perch and roost upon, or it may have a large breeding cage with numerous perches.

Food.—The great variety of its food is the cause of its being able to remain the greater portion, or indeed the whole of the year, with us. They not only feed upon all kinds of insects and

This is the Hedge Accentor.

worms, but also upon various kinds of small seeds. In spring they seek under hedges for flies, caterpillars, and worms ; in summer they feed chiefly upon caterpillars ; in autumn upon the seeds of grapes, poppy, rape seed, and elder berries ; and in winter they pick up, when the ground is free from snow, the seeds of plants, and if these are not to be found, they seek for spiders and caterpillars' nests, and insects which lie concealed in cracks or fissures of walls.

They may be fed upon all that comes to table. It seems to relish poppy, hemp, and rape seed, and particularly the universal food. They will begin eating the instant they are placed in the room, and seem at once as familiar as if they had been long accustomed to confinement.

BREEDING.—They build twice a-year in thick bushes, especially in young fir plantations. The nest is placed about six feet from the ground, and is composed of delicate mosses, delicate twigs, and the fibres of roots, and lined inside with deer hair, and hare fur. The eggs, five or six in number, are greenish blue. The young are speedily hatched, and differ greatly from their parents.

MALADIES.—If birds at large are never ill, as is generally believed and asserted, this bird would constitute an exception, for the young are frequently attacked with the small-pox within the nest and after they can fly.

Old ones are also frequently shot and caught with swollen and enflamed legs and eyes. During the first three months they have swollen eyes, and bald margins to the eyes; the beak then becomes scaly, thence it proceeds to the feet, and at last all over the body. Notwithstanding all this, they will sometimes survive for eight or ten years.

CAPTURE.—This bird is easily caught at its return in the spring. If it be observed in a hedge, which is very easy from its call-note *izzri*, a spot near the bird must be sought and freed from grass and moss, so that the mould is laid bare. Plant this with limed twigs, some earth-worms, or meal-worms, as a bait, and cautiously chase the birds to the spot. As soon as they see the naked ground they fly at once to it, and blindly entangle themselves in endeavouring to get the bait.

In autumn it will visit the fowling-floor and the springe, and in winter it will creep into the tit-mice traps.

COMMENDATORY QUALITIES.—However agreeable this bird is in the chamber from its vivacity, cheerfulness, boldness, and agreeable song, yet it scarcely deserves the name of Tree Nightingale which has applied to it, its song having not the most remote resemblance to that

of the Nightingale. The bird when singing moves continually both wings and tail, and sings throughout the whole year, moulting time excepted. When reared young it will embellish its song with that of the birds that hang around, but never learns to imitate the song of the Nightingale, as has been asserted.

When contending with other birds for a place at the food trough, it sings the whole time like the Crested Lark and White Wagtail.

152.—THE REDBREAST.

MOTACILLA RUBECULA. *Linn.*—ROUGE GORGE. *Buff.*—ROBIN REDBREAST. *M'Gillivray.*—DAS ROTHKEHLCHEN. *Bech.*

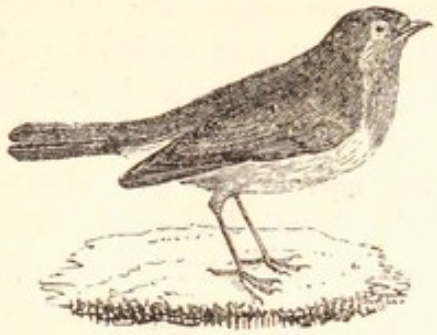
DESCRIPTION.—This bird is well known throughout Europe. Its length is five inches and three quarters, of which the tail measures two inches and a quarter; the beak is five lines long, horny brown; the base of the under mandible and the irides black brown, as also the shanks, which are eleven lines high; forehead, cheeks, under part of the body, of a deep orange red; the upper part of the wing coverts of a dirty olive green; rump, sides, and vent, paler; the sides of the neck and of the breast of a beautiful bright grey; the pinion feathers and tail feathers dark brown, margined with olive green.

The female is rather smaller; not so orange red upon the forehead; paler on the breast; the feet of a fleshy brown, and usually wanting the yellow spots upon the wing coverts; but very old females have also yellow markings there.

There are also white and variegated varieties. When in confinement, if the wing and tail feathers are successively plucked out at any other time but moulting, these feathers will be replaced by white ones. With these the birds look very pretty; but these feathers being very tender are easily broken.

HABITAT.—During their migration they are found in multi-

tudes in every hedge and bush, but in summer chiefly in large woods. They return from their migration about the middle of March, and then wander about in the hedges for a fortnight or three weeks before they resort to the woods. In October they hunt through all the bushes, and then slowly migrate again; but some remain as late as November, and a few even throughout the winter, but their life is usually sacrificed by these delays. They draw near barns and houses, and are soon caught either by men or cats. If at this season they are brought into a warm room, they die almost immediately; but if introduced first into a cold room, and by degrees into a warmer one, they live as well as those which were caught in the spring or autumn.



It is very contented if allowed to have the range of a room, and will live from eight to twelve years. He is a very unsociable bird, and will not permit a companion to live with him.

Food.—In confinement they feed upon all kinds of insects, earth-worms, and berries, when once familiarised, which is easily effected by an earth-worm or two, or a few meal-worms. They even become satisfied with anything that may be thrown to them, and are particularly fond of fresh cheese.

They daily require fresh water, both for drinking and bathing. In the latter operation they make themselves so wet, that not a particle of colour is to be traced upon them.

Breeding.—They build twice a-year, the nest being placed near the ground, in moss, in the fissures of rocks, under the roots of trees. The nest is badly built, consisting externally of moss, and lined within with blades of grass, the hair of animals, and birds' feathers. Its favourite place is in those spots where its nest can be covered by roots or moss, and prefers to have its entrance in front. The female lays from four to seven eggs, the ground colour of which is yellowish white, with scattered reddish yellow spots and stripes at one end, appearing like a ring. The young are completely covered with yellowish down, like young chickens, and then change to grey, with each of the small feathers having a dirty yellow margin. It is after the first moult that they obtain the orange red. They are reared upon roll steeped with milk, and are hung close to the Nightingale, of whose song they acquire several notes, which, introduced into their own, forms a very agreeable melody.

MALADIES.—They are subject to dysentery, but a few spiders, ants' eggs, and meal-worms, will usually cure them of consumption.

CAPTURE.—In the spring, when they resort to hedges and bushes, sticks are passed transversely through the hedge, and covered with limed twigs, and then by gently beating the bushes, they are driven to the limed twigs. The Redbreast is accustomed to perch upon every low twig that sticks out of the hedge, hence they can better look around upon the earth for worms. This in Thuringia is called the Redbreast hunt, and in this way are they caught in great numbers. They can also be caught in the same way as the Hedge Warbler, by means of baring a spot of ground, planting it with limed twigs, and using baits of earth-worms and meal-worms. They may also be caught in Nightingale nets and the Titmouse trap; but they are more frequently caught by the springe in autumn, when it is baited with elder berries, their favourite food at this season.

COMMENDATORY QUALITIES.—Their pretty colours and great tameness recommend them as chamber birds. They become so familiar that they will perch upon the table and eat from a plate and the hand. They are besides exceedingly lively, in constant motion, hopping hither and thither, bowing continually. To the amateur they are rendered attractive by their peculiarly melancholy song. In the cage they sing louder and better than when freely flying about the room, but they also pipe very beautifully even when they are not confined in a cage. In the spring their song is loudest.

If living in the country, they may be accustomed to fly in and out of the room, not only when reared young, but also when caught adult, and this more easily than any other bird.

153.—THE BLUE THROAT.

MOTACILLA SUECICA. *Linn.*—LE GORGE BLEU. *Buff.*—DAS BLAUKEHLCHEN. *Bech.*

DESCRIPTION.—This beautiful bird partly resembles the White Wagtail and partly the Redstart, and therefore constitutes a link between the two. Its length is five inches and a half; the tail is two inches and a quarter long; the beak pointed, blackish, yellowish at the angles; the irides brown; the feet of a fleshy brown; the toes blackish; the shin one inch two lines high; the head, back, and wing coverts ashy brown, with a darker watering; above each eye runs a reddish white line; the cheeks are dark brown, sprinkled with rusty colour; the throat,

half way down the breast, is of a beautiful dark sky blue, with a shining white round spot, about the size of a pea, at the gullet, which, particularly as the bird sings, enlarges and diminishes successively, producing the most beautiful effect; the belly is dirty white; the vent yellowish; and the thighs and sides reddish grey; the pinion feathers dark brown; and the tail feathers rusty red at the base. Some males have two small silver white spots on the throat.

The female is readily distinguished. In young birds merely a blue tinge is seen at the sides of the throat, but in older ones it forms two long stripes at the sides of the neck; the throat blue; the yellow red band of the breast is wanting; round the gullet there is a yellowish white tinge; at the sides there is a longitudinal black stripe; and the feet are flesh coloured.

HABITAT.—In its wild state this bird exists all over Europe. It is migratory, and found at the commencement of April, when on its journey towards the north. It builds but occasionally with us. When snow and cold weather occurs, it may be found in great flocks near brooks and about the hedges surrounding moist meadows, also on dung heaps near farm-yards. In mountainous districts they search during summer for those spots where water is to be found.

They may be allowed to run freely about the chamber, and afford amusement by their curious actions. Their tameness is so great that they will approach closely and eat anything from the hand. If placed in a cage, they sing very assiduously. A Nightingale cage is the best to select for them, that they may not so easily soil or destroy their beautiful plumage. Nevertheless their delicate tail feathers are soon lost.

FOOD.—They feed chiefly upon water insects, earth-worms, and the cabbage caterpillar, &c. They also eat elder berries.

When first introduced to the room they feed upon ants' eggs and meal-worms. If allowed to run freely about, these are mixed with the general food, and they soon get accustomed to the diet. Occasionally ants' eggs and meal-worms must be given to them. In the cage they are fed upon the Nightingale food, and on that food will live six or eight years. They are very voracious, eating daily their own weight of the first universal paste, hence they frequently void their excrement. A daily supply of fresh water for drinking and bathing must be given them. Like the Redbreast, they nearly conceal their plumage by their profuse

use of water. It is singular that they always bathe in the afternoon, which I have observed in many for several successive years.

MALADIES.—They are subject to dysentery and atrophy, which are cured in the manner described in the introduction.

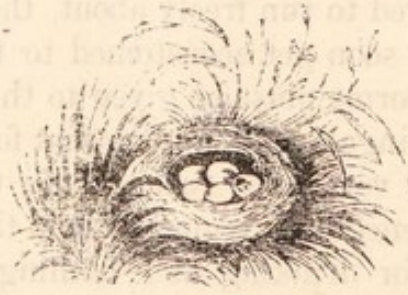
CAPTURE.—It is said that the Blue Throat is rare, and that in Germany they occur only every five or ten years; but this is certainly erroneous. Even in Thuringia this opinion was entertained, until I informed persons in my vicinity of the time of their return, since which numbers have been caught yearly. In those spots, near brooks and ponds, where the earth is a little loosened, a bait of earth-worms and meal-worms may be placed, and limed twigs planted around. The birds are slowly driven thither, and are easily caught. They also visit the Tit trap and the Nightingale net, when placed near a hedge or a brook where they are observed.

In the autumn, when they are seen in cabbage gardens, it is only necessary to place sticks with limed twigs upon them, with a bait of meal-worms, and they are readily caught. They will also at this period visit, although rarely, the trap at th watering place.

COMMENDATORY QUALITIES.—Its tameness, its cheerfulness, its beauty, and its song, alike render this bird attractive to the amateur. Hence it has obtained in Thuringia a new name, and is most commonly known as the Italian or even the East Indian Nightingale. It runs very rapidly, jerking its tail upwards, and spreading it like a fan. It is to be regretted that upon first moulting it loses the brightness of its plumage, the blue on the breast becoming lighter, and ultimately of a whitish grey.

It becomes in a few days so tame that it will eat from the hand, and it may be accustomed to come at a certain call or whistle. Its song is very fine, and sounds as if it uttered two voices at once, a harp-like trilling, as the ground tone between which it pipes its multifarious flute-like strains.

When at liberty in the room, it prefers those spots where the sun shines, and seems to rest upon its belly when it sings. Its song greatly resembles that of the White Wagtail, but is much embellished by its harp-like tones.



154.—THE ARBOUR BIRD, OR SMALLER PETTYCHAP.

Motacilla Hippolais. *Linn.*—Le Bec-fin à poitrine jaune. *Temm.*—Die Bastard nachtigall. *Bech.*

Description.—This admirable singing bird is met with wherever bushes, groves, and woods abound. It is five inches and a half long, of which the tail occupies two inches and a quarter. The beak is seven lines long, straight, obtuse, broad at the base, grey, inclining to blue above, and beneath yellow, passing into flesh colour, with yellowish angles to the beak; the irides are dark brown; the feet lead coloured; the legs ten lines high; the pointed head, the back, rump, and smaller wing coverts, are

olive ashy grey; a bright yellow stripe runs from the nostrils to the eyes; the under part of the body is of a beautiful bright yellow; the wings are dark brown.

HABITAT.—It resides in gardens, copses, and the skirts of woods, and more especially prefers those woods which have occasional fir trees. It arrives towards the end of April, and retires again at the end of August, before moulting time. It is kept in a Nightingale cage; but it must not be moved or disturbed, as it would not survive these changes.

FOOD.—It feeds upon all kinds of insects, smooth caterpillars, flies, gnats, spiders, and beetles, and even berries. In confinement it will scarcely eat anything but insects, flies, and meal-worms; and affords much amusement. It is difficult to accustom it to the Nightingale food.

BREEDING.—These birds form a very artificial nest, generally built about eight feet from the ground in the fork of a tree. It is built of the white bark of the beech, dried plants, and wool, and the upper edge is formed of separate white feathers, whence, from the whiteness of the materials used, it has the appearance of being made of paper. It is lined with delicate grasses. The female lays five eggs, of a bright red, but after several days hatching they become of a dark flesh colour, sprinkled with dark red spots. These birds breed but once a-year, and if they observe a person more than once in the vicinity of their nest, they will desert either eggs or young.

If a person wishes to introduce this agreeable bird into the chamber, as is often done in Hesse, it is best to rear it from the nest, and feed it upon ants' eggs and minced ox heart; but it must be kept in one spot in a warm situation. It will then be observed that this bird moults in December and January; and, therefore, migrates very far to the south in the winter.

MALADIES.—In these it resembles the Nightingale.

CAPTURE.—These birds are difficult to capture, and this is only to be attained by means of limed twigs placed near the nest. It rarely visits the water trap. They are sometimes caught in springes baited with currants, in August.

The safest way, however, is to rear them from the nest, for the taming of adults rarely succeeds.

COMMENDATORY QUALITIES. — These birds are called Bastard Nightingales, for their song is flute-like, variable, continuous, and melodious, mingled with occasional shrill and shrieking tones. While singing they greatly distend the throat. Their call note is *dack, dack, fidhay, fidhay!* their plumage is attractive.

155.—THE REED-WREN.

MOTACILLA ARUNDINACEA. *Linn.*—FAUVETTE DES ROSEAUX. *Buff.*—DER TEICHSÄNGER *Bech.*

DESCRIPTION.—This bird is often mistaken for others of a similar plumage, and also confounded in description with the Reed Thrush, and, in its mode of life, with the Reed Bunting. It is five inches long, of which the tail occupies two. The beak is seven lines long, brown above, yellowish beneath; the irides chesnut brown; the feet lead coloured, and the legs eight lines high; the hinder toe and nail very stout; the upper part of the body and cheeks are olive brown; the anterior pinion feathers blackish; the posterior ones dark brown, all margined with olive brown; the coverts resemble the back; the tail feathers are like the pinion feathers, but with a broader olive brown margin; the tail is very much rounded and almost conical.

The female is not greatly different. The head is bright brown; a white line extends across the middle of the eyes; the whole of the upper part of the body is reddish grey; the throat white; breast and belly whitish grey, with a yellow tinge; the pinion feathers of a darker brown than the tail feathers, and with olive grey edges.

HABITAT.—It is found throughout Europe, in spots where reeds and rushes abound. It migrates towards the commencement of September, and returns again about the middle of April. It may be noticed actively climbing up the stems of reeds. It is a very delicate bird, and requires to be kept in a Nightingale's cage.

FOOD.—It feeds upon all kinds of water insects, and will in cases of necessity eat berries. In confinement it must be fed upon the Nightingale food, and requires, in the cage, to have all kinds of insects given to it, such as flies, gnats, &c.

BREEDING.—Its nest, which is long and built among the reeds, to the stems of which it is very artistically plaited, is generally placed near the water side; externally it consists of blades of dried grass, and internally of hair and wool. The eggs, five or six in number, are greenish

white, spotted and sprinkled with olive green. The young must be reared upon ants' eggs.

CAPTURE.—They are most commonly caught by removing the turf from a spot, baiting it with meal-worms, and placing limed twigs over it.

COMMENDATORY QUALITIES.—It is rather an agreeable songster, with a melody like the Arbour Bird, but not with the same fulness. What renders it so agreeable is its habit of commencing its varied song in the evening twilight or the morning dawn.

156.—THE WILLOW WREN.

MOTACILLA ACCREDULA. *Linn.*—LE BEC-FIN PORILLOT. *Temm.*
DER FITIS SANGER. *Bech.*

DESCRIPTION.—This bird is four inches two lines long, of which the beak occupies five lines and the tail nearly two inches; the beak is very pointed, the upper mandible brown; the under mandible and the throat yellow; the feet flesh coloured; the legs eight lines high; the upper part of the body is of a deep olive colour; above the eyes there is a whitish yellow stripe, and at the ears there is a reddish grey spot; the cheeks are yellowish; throat and breast whitish yellow, sprinkled with a deeper yellow; the pinion and tail feathers dark brown.

PECULIARITIES.—This little bird is found where there is much underwood, especially in those parts where willows abound. It is a migratory bird, and arrives in the middle of April, and leaves us at the beginning of October. In August it is observed in multitudes among willows; at that time the whole of the under part of the body of young birds is of a pale brimstone yellow, and is therefore more beautiful than after moulting.

It feeds upon small insects and their eggs, and also eats red and black elder berries. If flies are to be procured it can be familiarised to the chamber even adult; its wings are not then clipped, and it is allowed to fly about the room. It will eat fresh and dried ants' eggs, and will not reject the universal food, or crushed hemp seed. It at once selects a place to perch in the room, either the corner of a cupboard, or a cage, or even prefers a string to which cages which are drawn upwards

by means of a roller are attached. From this spot it flies off at least twice every minute, making the circuit of the whole room, catching flies in its course. It conveys these to its perch and eats them. They are lively birds which scarcely soil the furniture, and often utter their long shrill notes. They very speedily clear a room of flies. When flies begin to be scarce, it is merely necessary to throw a few into the food trough, and they will then speedily accustom themselves to the chamber food. Their nest is built beneath a bush, of the form of an oven, and is constructed of moss and leaves, and lined with feathers. They lay from six to seven white eggs, which are sprinkled with violet. The young are very active: the yellow ones are removed and reared upon ants' eggs and roll steeped in milk.

In the autumn these birds are caught in nooses baited with elder berries. In the spring they may be caught in hedges into which sticks are thrust and covered with limed twigs and baited with small meal-worms. Throughout the summer they frequently visit the watering place, for they are very fond of bathing.

157.—THE RUFOUS WARBLER.

MOTACILLA RUFA. *Linn.*—FAUVETTE ROUSSE. *Buff.*—DER WEIDEN-ZEISIG.—*Bech.*

DESCRIPTION.—Next to the Golden Wren this is the smallest of European birds. It is only four inches long, of which the beak comprises four lines, and the tail one inch and three-quarters ; the feet are eight lines high, and black brown ; the beak is very pointed, and dark brown ; the eyes are dark brown.

In colour it approaches nearest to the Willow Wren. The upper part of the body is reddish grey, slightly glittering with olive green ; the cheeks are brownish ; the under part of the body as far as the breast is of a reddish grey, dirty white on the belly, sprinkled all over, and even beneath the wings, with small rusty yellow spots; the pinion and tail feathers are blackish grey.

The female is rather smaller, and less sprinkled with yellow beneath.

PECULIARITIES.—Although this bird can endure cold better than the other warblers, and is to be met with even as early as March in hedges, gardens, and willow trees, to rear it for the chamber it must be brought up from the nest. In April it repairs to the woods, particu-

larly to copses, where its note may frequently be heard. In October it returns in multitudes to gardens and willows, and at the commencement of November it retires to warmer situations. It is found throughout Europe. It feeds upon small insects and their eggs, and in autumn upon elder berries. In the chamber it will live if flies can be procured, and readily accustoms itself to Nightingale's food.

Its nest is built upon the ground, and consists of a large round lump of grass, wool, and feathers. The female lays from five to seven white eggs, speckled with red. The young are reared upon ants' eggs.

This bird may be allowed to fly freely about the room, or placed in a narrow cage with several perches.

158.—THE WREN.

SYLVIA TROGLODYTES. *Linn.*—ROITELET. *Buff.*—DER ZAUNKÖNIG. *Bech.*

DESCRIPTION.—This is one of the smallest of our chamber birds. It is three inches and a half long, of which the tail occupies one inch and a quarter; the beak is five lines long, slightly curved in front, dark brown above, yellowish white beneath; the irides nut brown; the feet are grey brown, seven lines high; the upper part of the body is a rust brown, indistinctly striped with dark brown; above the eyes there is a reddish white stripe; the wings dark brown, and the tail rust coloured, and both are beautifully striped with black; the under part of the body is reddish grey.

The female is smaller, more reddish brown, marked above and beneath with indistinct transverse stripes, and the feet are yellow.

HABITAT.—It is found throughout Europe, especially in mountainous and woody districts. It does not migrate, generally continuing in the vicinity of dwellings.

It requires a large wooden or wire cage, but the bars must be close together. When let fly freely about, it is impossible to keep it long, as its small size favours its escape.

FOOD.—When wild it feeds throughout the year upon small insects. In winter it seeks them in barns, stables, cellars, the clefts of walls, &c. In autumn it will also eat elder berries.

As soon as it is captured it is necessary to give it meal-worms, flies, and elder berries, and these must be gradually mixed with Nightingale's food, which will then become its usual fare. I am acquainted with persons who have by this means kept adult birds a long time.

BREEDING.—Any hole or crevice seems to suit the Wren in which to build its nest. It is, therefore, found in fissures of the ground, in hollow trees, between the roots of trees, under the eaves of houses, in short, wherever it can be concealed. It is of an oval form, the outside consisting of moss, and lined within with feathers and hairs; at the side or above is the little aperture where they creep in or out. The female lays from six to eight pretty little white eggs, which are dotted with red. I know instances in which it has built its large nest in an arm-chair, and in this situation even laid eggs. The young are of a rusty colour, sprinkled with white and black, and they can be reared with ants' eggs, the ordinary chamber food being by degrees mixed with it.

CAPTURE.—If in winter a White Throat trap is planted in a spot where they observed to frequent, and baited with meal-worms, they are easily caught.

In the autumn also they can be caught in a noose baited with elder berries, but with every care they frequently break their legs.

COMMENDATORY QUALITIES.—It is an extremely animated bird, incessantly making all kinds of agreeable motions, bowing almost continually.

Although so small, it sings with great power, and throughout the whole year. Its song is pleasing and varied, introducing occasionally some notes borrowed from the Canary, which are even rendered more agreeable, and consist of distinct loud notes, gradually falling. I have never been able to keep it longer than a year, although some fanciers say they may be kept for two or three years.

159.—THE GOLDEN-CRESTED WREN.

MOTACILLA REGULUS. *Linn.*—ROITELET SOUCI OU POULE. *Buff.*—DAS GOLDHÄHNCHEN. *Bech.*

DESCRIPTION.—This, the smallest of European birds, is three inches and a half long, of which the tail occupies one inch and a quarter; the beak is four lines long, thin, very pointed, and black; the nostrils are covered by a feather split like a comb; the irides dark brown; the feet pale brown; the legs eight lines high; the forehead is brown yellow; from the angles of the beak to the eye a black stripe extends; the cheeks are ashy grey; the sides of the neck greenish yellow; the back shoulders and rump Siskin green; the throat yellowish white; the rest of the under part of the body dirty white; the wing coverts dark grey; the tail blackish grey, edged with green.

HABITAT.—These beautiful little birds inhabit the whole of the old world. Their favourite abode is fir woods; they appear to be migratory in the northern regions, leaving in October, and returning in March, at least they are then observed on their passage in Germany, and in May the hedges are full of them. Our natives are resident birds, for they are seen throughout the year, and in winter they generally associate in small flocks, and range about with the Tits seeking those parts where food is abundant. The bell-shaped cage is best suited to them: some persons place them in a large breeding cage, which should have a branch of fir or pine. Reared from the nest they may be accustomed to the room if a few branches are strewed about. They are very fond of these, and if many birds are kept they will perch in a row upon the same twig, ranged closely together, and sleep in this manner.

FOOD.—When wild it feeds on all kinds of insects and their grubs; as their beak opens widely they will also swallow large flies. By throwing flies into the trough they may be easily accustomed to the general food

of the Nightingale, and will also subsequently freely eat crushed hemp seed. But they must not be deprived of insects too suddenly, and even later they will occasionally require a few flies, chopped meal-worms, and dry or fresh ants' eggs; and to keep them in good health for some years their general food must not be too stiff or too moist, and rape seed must be carefully kept from them.

BREEDING.—Their round ball-shaped nest is fixed to the end of a branch, generally of the pine or fir, and is very soft to the touch, from the small particles of moss and tufts of thistle down of which it consists. In this about nine flesh coloured eggs are laid, of about the size of a pea. It is usually found in plantations or meadows, upon the eastern side of fir trees. The young are easily reared upon chopped meal-worms, flies, ants' eggs, and roll steeped in milk; but they must be nearly full fledged before they are removed from the nest. Those, however, are most easily reared which are caught after they have flown from the nest.

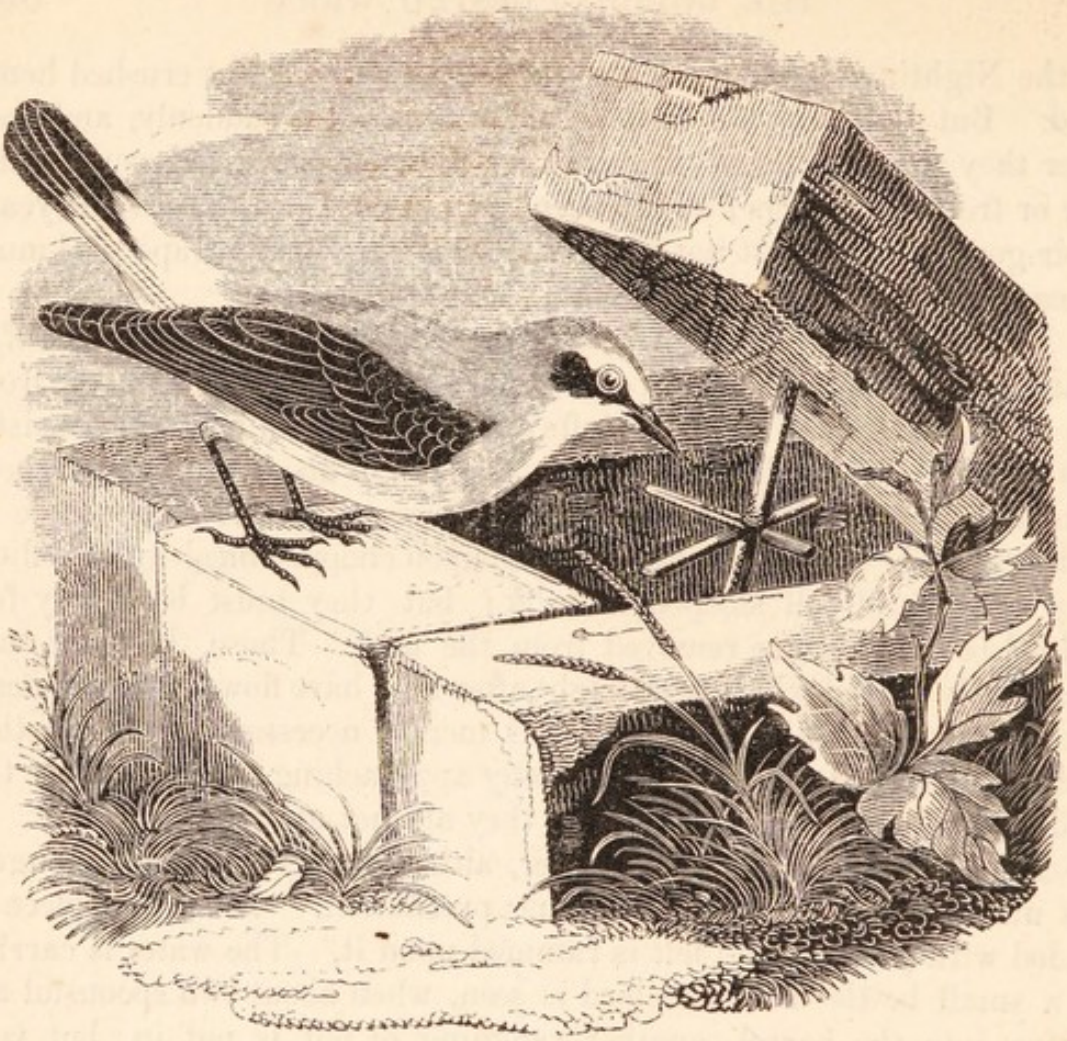
CAPTURE.—To catch them it is merely necessary to take a stick with a limed twig attached, and gently approaching the tree where the bird is perched, touch him with it: they are not at all shy.

They can also be shot with water, although this is rather a dangerous undertaking, and requires some precaution. A fowling-piece is loaded with powder, and felt is rammed upon it. The water is carried in a small bottle until the bird is seen, when about two spoonsful are thrown into the barrel, another ramming of felt is put in, but very carefully, lest the water should reach the powder. At a distance of twenty feet, this load, discharged at the bird, will wet it so completely, that it may be readily taken by the hand, but if there are hedges in the vicinity, and a rather strong bird is shot, a Chaffinch for instance, it will often escape.

They frequently visit the watering place, and then make their presence known by their frequent call-note *zitt, zitt!* indicating also that the sun has set, and that the larger birds may be expected.

In the course of a few days they become so tame as even to eat out of the hand. It is, however, very difficult to rear these tender little birds, but if once familiarised they are very hardy.

COMMENDATORY QUALITIES.—From their smallness and beauty they are very agreeable chamber birds. Their song, it is true, is very soft, but it is very melodious. It resembles that of the Canary.



160.—THE WHEATEAR.

MOTACILLA ÆNANTHE. *Linn.*—CUL BLANC. *Buff.*—DER WEISSCHWÄNZIGE STEINSCHMATZER. *Bech.*

DESCRIPTION.—A bird well known throughout Europe, as well as in the northern parts of Asia. It has the appearance and the size of the Wagtail, but a shorter tail and a broader breast. It is five inches and a half long, of which the tail occupies one inch and ten lines; its beak is seven lines long, and black; the irides black, as well as the feet, the latter are one inch high; the forehead is white, and this colour extends on each side in a stripe; over the eyes a black stripe extends from the nostrils across the eyes, and enlarges upon the cheeks; the whole of the upper part of the

body, and the scapulars, are of a bright grey, watered with an indistinct reddish tinge around the base of the lower mandibles; the feathers are reddish white; the neck, throat, and upper part of the breast are of a bright rusty colour; the rest of the under part of the body white, with a rusty yellow tinge at the sides and the vent; the wings are black, the large coverts and the posterior pinion feathers with reddish tips; the tail white, its tip black, those of the two central feathers black to the middle.

The young before they moult are brown above, with rusty spots and reddish yellow beneath, with black dots after the first moult: both male and female retain for a whole year the reddish grey back of the adult female.

HABITAT.—It is found chiefly in mountainous and stony districts. During its migrations it will perch in fields upon isolated stumps, boundary stones, and other elevated spots. It is rarely seen in bushes or upon trees. It leaves during the first half of September, and returns during the first half or about the middle of April, when the night frosts have ceased.

It must be placed in a Nightingale cage, or in a large breeding cage. It may also be allowed to run freely about, but not before it has been accustomed to confinement, for if not well fed at first it usually dies. But it can rarely be tamed.

FOOD.—When wild it feeds upon all kinds of beetles and flies, which it catches as they run along. In captivity it must immediately have a quantity of ants' eggs and meal-worms. It usually dies of dysentery, and, what is most singular, even when it has not tasted the house food. It may subsequently be fed upon Nightingale food, and also occasionally upon roll steeped in milk. It can be preserved thus for a couple of years.

BREEDING.—Its nest, which consists of blades of grass and birds' feathers plaited together, is usually placed in the fissures of stone quarries or in holes on banks of streams, in empty mole hills, and among heaps of stones. The female lays from five to six greenish white eggs. The young are removed nearly fledged, and are fed upon ants' eggs and roll steeped in milk.

Their CAPTURE may be effected by placing limed twigs in those spots where they frequent.

COMMENDATORY QUALITIES.—Very few would take the trouble to tame this bird when full grown. I have one now in my room which was familiarised by my accidentally having given it fresh ants' eggs. Its

appearance is handsome, continually bowing and spreading out its tail; and its song is not disagreeable, but it has a harsh note in the middle.

161.—THE WHINCHAT.

MOTACILLA RUBETRA. *Linn.*—LE GRAND TRAQUET OU TARIER. *Buff.*—DER BRAUNKEHLIGE STEINSCHMÄTZER. *Bech.*

DESCRIPTION.—This is a delicate chamber bird, and is found among isolated bushes in fields and highways. It is four inches ten lines long; its beak and feet are black, the latter nine lines high; the whole of the upper part of the body is black brown, in very old birds black, all the feathers strongly margined with a bright rusty colour, which causes it to have a black and rusty coloured striped appearance; in the spring a white stripe extends from the nostrils, passing over the eyes, beyond the ears; the cheeks and temples are black; throat and breast yellowish red, the former enclosed at the chin and sides with white, or rather there is a white stripe around the lower mandible and around the temples and cheeks; the belly, sides, and vent, are reddish white; the pinion feathers are black edged with red; the posterior ones with a white base; the basal half of the tail is white; and the apical half dark brown.

The female is throughout paler; the stripes of the eyes yellowish white; the upper side of the body dark brown, with rusty spots; the cheeks dark brown; the throat reddish white.

This bird varies until its third year. The young, which may be observed in summer sitting in crowds upon the stalks of cabbages and vegetables, are rust coloured before the first moult. The sexes may be distinguished by the lighter or the darker colours of the back and cheeks.

HABITAT.—These birds are most frequently met with on the edges of forests. It arrives at the commencement of May, and leaves us again about the end of September. In August it may be seen in cabbage fields, perched upon the stump.

It requires to be placed in a Nightingale cage.

FOOD.—When wild these birds feed upon small ground beetles and other flying insects. When caught it is scarcely possible to induce them to eat. At first it must have nothing but small beetles and flies; after

which it will eat meal-worms, and speedily feed upon ants' eggs, and the usual Nightingale food.

BREEDING.—The nest is usually built in the long grass of meadows or gardens. It is constructed of dry grass and moss, and lined with feathers and hair. From five to seven eggs are laid, of a beautiful bright green colour. Young birds reared upon ants' eggs are more easy to keep than old ones, and this is the best way of introducing the bird to the aviary.

CAPTURE.—In the spring, when these birds are observed in fields or meadows, some limed twigs are placed on a spot to which the birds are gently hunted; and as they perch upon almost everything that projects, they are easily caught.

COMMENDATORY QUALITIES.—It is a handsome bird, which, however lively and cheerfully it may comport itself in the fields, is very still and melancholy in confinement. When allowed to run freely about, it only moves to its food, and then resumes its former place, and keeps its head buried in its breast. Its song is pleasing, and very much resembles that of the Goldfinch. It is the more esteemed from singing not merely during the day, but also in the twilight, often until late at night.

162.—THE STONE CHAT.

MOTACILLA RUBICOLA. *Linn.*—LE TRAQUET. *Buff.*—DER SCHWARZKELIGE STEINSCHMATZER. *Bech.*

DESCRIPTION.—This bird is rather more rare than the preceding species, being chiefly found in mountains in Germany. It is four inches and a half long, of which the tail measures one inch and a half; the beak is black and four lines long; the feet are nine lines high, and also black; the irides are nut brown; the upper side of the body brownish black, with reddish white margins; the rump white; cheeks and throat black, the latter margined with white; the breast rusty red, merging into white towards the belly; the wings are dark brown, all the feathers margined with rusty red; the tail is blackish, and all the feathers are margined with pale rusty red.

The female is paler; the rump brownish; the throat white, spotted with black; the breast and abdomen paler.

PECULIARITIES.—This bird leaves us in September, and returns at the end of May. In habits it resembles the preceding bird. It feeds

upon beetles and flies, and, being a very delicate bird, requires to be fed in confinement upon the Nightingale food. Its nest is built beneath a bush, or in the fissures of stones, and contains five greenish white eggs. The young are reared upon ants' eggs. The bird is commonly kept in a cage. They sit very still, and sing like the White Throat. They are rarely to be familiarized when adult.

163.—THE ALPINE SONGSTER.

MOTACILLA ALPINA *Linn.*—FAUVETTE DES ALPES. *Buff.*—DIE FLÜELLERCHE. *Bech.*

DESCRIPTION.—This bird, from its equivocal markings, has been classed with the Larks, with the Starlings, and with the Warblers. It is about the size of the Skylark. It is six inches and a half long, of which the tail measures nearly three inches; the beak is six lines long, dark brown above, orange yellow beneath, and the mandibles are compressed at the sides; the irides yellow; the feet are light brown, and one inch high; the head, the upper and lower neck, and the back also, are of a bright ashy grey, or rather whitish grey, the former spotted with pale brown, and the latter with dark brown, and the sides of the back, in addition, with rusty spots; the rump is reddish grey; the throat is white, with dark brown muscle-shaped spots, and towards the breast it is enclosed with a dark brown line; the gullet and the breast whitish grey; the sides of the breast, the belly, and beneath the wings, are of a beautiful brown red; the abdomen greenish white, with obsolete dark grey undulating lines; the vent dark brown; the small wing coverts grey, with a greenish reflection; the pinion feathers are brownish grey, with a brighter edge; the tail feathers dark brown, marked with a rusty yellow spot upon the under web.

The female and young birds are variegated with dark brown upon the abdomen and breast; they are also darker upon the back; and the beautiful throat appears as if it were faded.

PECULIARITIES.—This bird is found upon the mountains which skirt the Alps in Switzerland and Southern Germany. In these pasture lands it is as abundant as the Skylark with us. In winter it visits the valleys, and frequents barns near villages, where it is commonly caught in great numbers. They generally perch upon the ground, where they

run as swifty as the Wagtails, jump upon stones, and but rarely perch upon trees.

They feed upon all kinds of seeds and insects. In confinement they can be fed upon crushed hemp, poppy seed, bread, roll, and ants' eggs. They live several years; and in Switzerland bird-fanciers keep them frequently in cages. Their song is pleasing, but anxious and melancholy. They comport themselves elegantly; and in hopping frequently move the tail and wings.

Their nest is found upon the ground, and occasionally in the fissures of rocks, from which it has received the name of Rock Lark.

164.—THE PIED WAGTAIL.

MOTACILLA ALBA. *Linn.*—LAVANDIER. *Buff.*—DIE WEISSE BACHSTELGE. *Bech.*

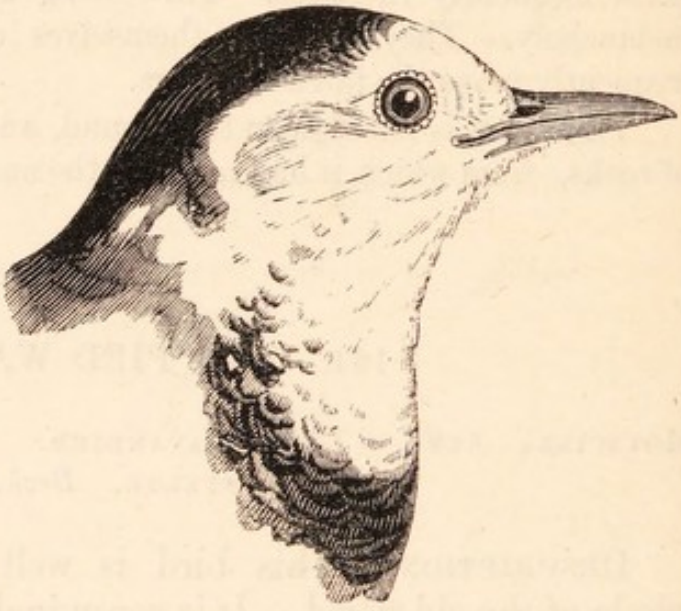
DESCRIPTION.—This bird is well known throughout the whole of the old world. It is seven inches long, of which the tail comprises three inches and a half; the beak is five lines long, sharply pointed and black; the irides dark drown; the feet are slender, black, and one inch high; the vertex, as far as the neck, is black; the rest of the upper part of the body, the sides of the breast, and the small wing coverts, are bluish ashy grey; the forehead, the cheeks, and sides of the neck, are snowy white; the throat and gullet, and half way down the breast, black; the rest of the lower part of the body is white; the wings dark brown; the coverts and posterior pinion feathers widely margined with white, whence upon the wings there is an oblique white line; the tail feathers are black, the external ones almost entirely white, and the second marked more than half way with a conical white spot.

The female wants the white forehead and cheeks; the black vertex is smaller.

The young, until their first moult, have a very different appearance. These, with the young of the Yellow Wagtail, both of which frequent pastures in large flocks, have been con-

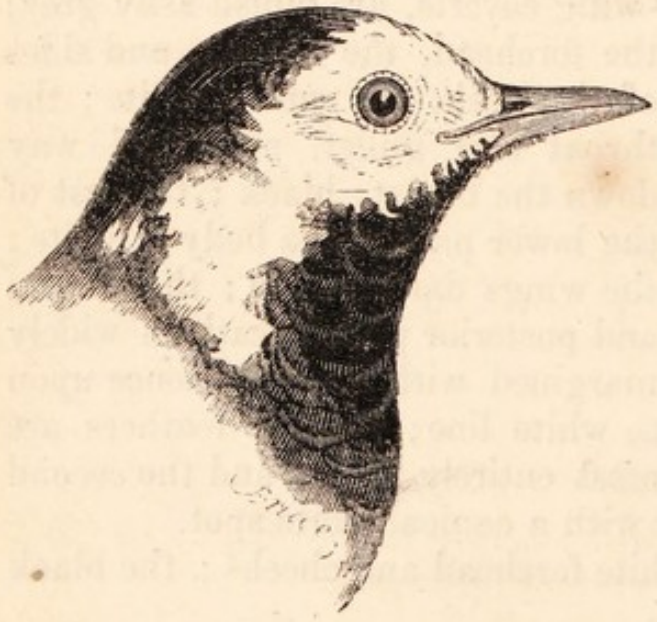
sidered a distinct species. The whole of the upper part of the body is grey or ashy grey; the throat and abdomen dirty white; above the breast there is usually a band, either entire or interrupted, of a grey or greyish brown colour; and the wings are margined with white.

These birds being so abundant, exhibit numerous varieties: some are found entirely white, and others again variegated or spotted with white.



MALE.

HABITAT.—They are not only found in the vicinity of houses, but also in fields and in woods, and, indeed, wherever heaps of stones are seen. In Germany they are migratory, and, like the Swallows, collect in autumn upon roofs, before taking their departure. They leave us in the beginning of October; a few warm days at the end of February or the beginning of March soon entices them back; nor is it endangered by its early appearance, as they readily meet with flies in the vicinity of houses, which are drawn from their winter retreats by the warmth of the sun; and the brooks also supply them with water insects in abundance.



FEMALE.

In confinement they may be kept in a cage. If allowed to run freely about, sand must be be strewed plentifully in the room, for they are very dirty birds.

FOOD.—Their food consists of gnats, spiders, and water

insects, together with their larvæ, also flies and other insects which fatten upon cattle, for which purpose they are continually flying about them. They also follow the ploughman, and feed on the insects turned up by his plough.

If you wish to tame them, they require to be fed at first upon ants' eggs, meal-worms, flies, and other insects, and they soon familiarize themselves with the ordinary chamber food, and will also eat bread, meat, and roll crumbs. When kept in a cage they must be fed upon Nightingale food.

BREEDING.—They breed two or three times a-year. Their nest is very inartificial, formed of the roots of grass, moss, and hay, lined with hair, wool, and bristles, and is found in every kind of hole or fissure, between stones, in hollow trees, beneath tiles, &c. The female lays five or six eggs, of a bluish white colour sprinkled with black.

If the young are removed and reared they become exceedingly tame; so tame indeed, that they will go and return like a pigeon, and will even breed in the room where they live, and fetch their food from the fields.

MALADIES.—They are subject, like the two following species, to dysentery and atrophy, but will live four years or longer in confinement.

CAPTURE.—When snow falls in March they may be caught opposite the window, upon a spot bared from snow, baited with meal-worms, and snared with limed twigs. These may be planted upon stone heaps, piles of wood, &c., where they are observed to resort.

COMMENDATORY QUALITIES.—Its plumage and its vivacity alike recommend this bird to the fancier. It has the habit of constantly and rapidly jerking its long tail. Its song though not loud has many admirable variations; and, what is a still greater advantage, it sings the whole year through, excepting the short moulting time. I have always a Wagtail among my chamber birds, and when the Black Cap, the Blue Throat, the Lark, and the Linnet sing, it seems to form a counter-tenor. They are also useful by catching all the flies which settle in the chamber.

165.—THE GREY WAGTAIL.

MOTACILLA BOARULA. *Linn.*—BERGERONETTE JAUNE. *Buff.*—DIE GRAUE BACHSTELZE. *Bech.*

DESCRIPTION.—This beautiful Wagtail is as large as the preceding. It is seven inches long, of which the tail occupies nearly four inches. The beak is black; the irides brown; the

feet are of a dark flesh colour, and nine lines high; the whole of the upper part of the body, and the small wing coverts, are dark ashy grey, with an olive green tinge on the head ; and the rump of a beautiful green yellow; above the eyes there is a white stripe, and another runs from the end of the lower mandible, down the neck; and from that of the upper a black stripe extends to the eye; the throat and gullet are black ; the breast, and the rest of the under part of the body are of an extremely beautiful bright yellow; the wings are black; the large coverts white, and the rest edged with ashy grey; the posterior pinion feathers have a white base and edge, whence three white lines are formed upon the wings; the long tail is black, the external feather quite white, and the following only edged with black.

The female, instead of being black upon the throat and gullet, is reddish yellow white, and its general colouring is also paler.

The male, until its second year, is clouded with white upon its black throat.

Habitat.—When wild this bird is found throughout the whole of Europe. In mountainous and woody districts where there are pebbly brooks, they are found in the greatest numbers. They are birds of passage, which return at the end of February or the beginning of March, but I know instances of some having remained throughout mild winters, and frequenting the neighbourhood of dung hills and warm springs. When caught they must be confined for a time in a Nightingale cage, and treated in the same manner; for they are delicate birds, which even with this expensive food will not survive longer than two years.

Food.—Water insects constitute their chief nutriment ; they catch them upon stones and water plants. If caught adult they must in the first place be fed upon ants' eggs and meal-worms, and thus gradually familiarised ; but if this succeeds in preserving them, they will feed upon the universal food, if some hard boiled eggs be mixed with it.

BREEDING.—They breed twice a-year along the banks of mill-dams, among stone heaps, &c., and the nest is more artificially constructed than that of the Red Wagtail. It consists of blades of grass and moss, and is lined within with hair. As early as March the female lays five or six white eggs, mottled with flesh colour. The young are reared upon ants' eggs and roll steeped in milk.

CAPTURE.—They are easily caught if sticks to which limed rods are attached be baited with meal-worms, and placed by the side, or over, the watering place which they frequent.

COMMENDATORY QUALITIES.—Their gait resembles that of the Pied Wagtail, but they are more beautiful, and also sing more powerfully. Although their song consists merely of two strains, yet their clear pure voice renders it agreeable.

166—THE YELLOW WAGTAIL.

MOTACILLA FLAVA. *Linn.*—BERGERONETTE DE PRINTEMPS. *Buff.*—DIE GELBE BACHSTELZE. *Bech.*

DESCRIPTION.—This closely resembles the female of the preceding, but its short tail makes it appear smaller. It is six inches and a half long, of which the tail measures two inches and a half; the beak is black brown; the irides nut brown; the feet are black, and ten lines high; the upper part of the body is reddish grey, with a deep olive green tinge, which, upon the rump, merges into Siskin green; the head is more grey than green; and above the eyes there is a reddish white streak; the under side of the body is of a beautiful yellow, in adults of a brimstone yellow, paler on the throat and breast, but deeper on the abdomen and at the vent; the wings are dark brown, with reddish white margins, the larger coverts most strongly margined, whence two whitish bands appear to run across the wings; the tail is black, the two external feathers white, with the exception of a black stripe.

In the female the back is more grey than green; the belly and vent not so beautiful a yellow; the throat whitish; the gullet and abdomen reddish yellow, with rusty sprinklings.

HABITAT.—This Wagtail is better known than the preceding, as it is found throughout Europe, living chiefly about plains and pastures. It is always coursing about amongst sheep and cattle. In September it repairs to warmer climates in large flocks,

and then utters a loud and shrill cry, which sounds like *sipp, sipp*. It returns again at the end of March. It must be treated like the preceding, but it is not so delicate a bird.

FOOD.—It feeds chiefly upon those insects that torment cattle in the fields. In confinement it requires the same treatment as the Grey Wagtail. With the universal food of barley meal, roll, and milk, it should have some hard boiled eggs intermixed, and it may be preserved for several years like the Redbreast.

BREEDING.—It breeds twice a-year on the margins of banks, in deserted mole-hills, also in the midst of grass and corn, like the Skylark. The nest is constructed externally of the blades of grass, and lined within with wool. The eggs are greyish white, spotted all over with reddish grey, as if marbled; and usually there are five or six. The young bird is brighter on the under side of the body than the old one, and is very similar to the female. They can be reared like the former.

CAPTURE.—This has its difficulties; and I have always had much trouble to obtain this bird. They must be usually caught upon the nest with limed rods. When snow still falls in the spring, a spot may be cleared and baited with meal-worms, and set with limed rods, and the birds chased thither. This is the most usual mode of obtaining them.

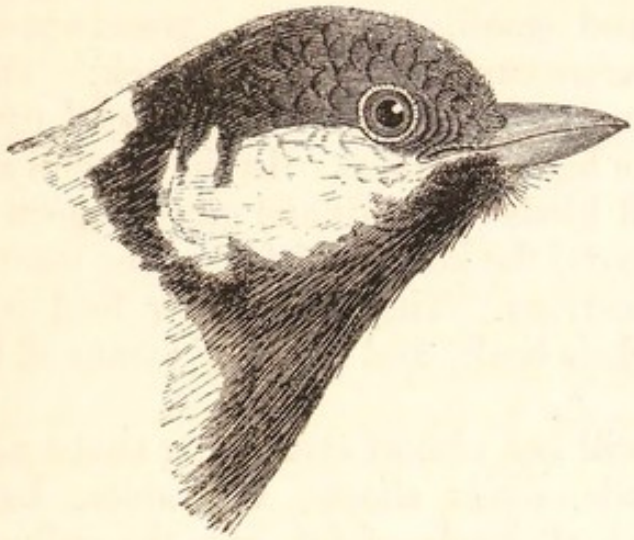
COMMENDATORY QUALITIES.—Their beautiful appearance as well as their song recommend them as chamber birds. I have always some of them in my room, and I consider them my handsomest birds. They are very skilful in snapping up all the flies, and they do it in a peculiar manner.

167.—THE OX-EYE TIT.

PARUS MAJOR. *Linn.*—GROSSE MESANGE OU CHARBONNIÈRE. *Buff.*—DIE KOHLMEISE. *Bech.*

DESCRIPTION.—This well known bird is about the size of the Black Cap, and is five inches ten lines long, of which the tail occupies two inches and a half. The beak, as in all the Tits, is blackish, conical, hard, pointed, and without slope; the irides are dark brown; the feet lead coloured; the shin nine lines high; the claws, as in other Tits, are strong, sharp, and adapted for climbing; the head above is shining black, which is joined to the back of the throat by a black band, which surrounds the white of the cheeks and temples; the occiput is greenish yellow, intermixed with some white; the back of a beautiful olive green; the rump bright ashy grey; the breast and the belly yellowish green,

divided longitudinally by a broad black stripe, which is broadest at the lower part; the vent black in the middle, white at the sides; the thighs white, spotted with black; the sides of a pale olive green; the wing coverts bright brown, the larger ones with white tips; the pinion feathers blackish; the posterior ones above olive green beneath, with white edges; the tail feathers rather forked and blackish; the two middle ones with a bright blue tinge, the external one white on the outer edge, which extends slightly to the inner, the remainder margined externally with bright blue, the second having besides a white tip.



The female is smaller, the black of the head and the yellow colouring less brilliant, and the black stripe of the belly narrower and shorter, losing itself about the middle of the abdomen, where it is broadest. By means of the latter the young males can be distinguished from the females, which in other respects they very much resemble.

Habitat.—When wild they inhabit the whole of the old world, and are found very numerously in mountainous districts, where gardens, copses, beech woods, and pine forests alternate, They remain with us, but collect into flocks in October, and then during the autumn and the winter they range from one garden and wood to another. When in autumn a succession of these flocks are seen shortly after each other, bird-catchers call it their migration, and apply every means to capture them. In March they again separate into pairs, and prepare for breeding. They must either be placed in a wire cage—a bell-shaped cage being preferable—or, if kept with other birds, they must daily have ample food, and that of the best quality, for if this is scanty they will attack other birds and make a repast of the brains. I know an instance of a Tit attacking a Quail and killing it in this way. It is merely an idle fancy for bird-catchers to say that only those with forked tails are addicted to this habit, but

experience teaches us that one bird is more mischievous than another.

Food.—They feed upon insects, seeds, and berries. Smooth caterpillars, both large and small, bees, flies, grasshoppers, gnats, and moths are therefore exposed to their attack. They climb up trees like the Woodpecker to search for insects' eggs, wood lice, &c., beneath the bark and moss. In the autumn and the winter they devour all kinds of seeds and grain, especially hemp, fir and pine seed, oats, the kernels of fruits, the mast of the beech nuts, and even carrion. They seize their food with their claws, tear it with their beak, and eat it by means of the tongue.

In confinement they will eat almost everything that comes to table—meat, bread rolls, sweet cheese, vegetables, hazel nuts, walnuts, bacon, and all kinds of fat, also the ordinary chamber food. They are by no means delicate birds, and it entirely depends upon the attention bestowed, to preserve them for many years. The better they are fed the better will they sing, and the less danger is there that they will attack other birds. They drink a great deal, and are fond of bathing.

Breeding.—They build in hollow trees, both high and low, just as they happen to find a convenient hole, or even in deserted magpies' nests, and in the fissures of walls. Their nest is very artificial, and consists of layers of moss, wool, and feathers. The female lays from eight to ten whitish eggs, covered with large and small irregularly arranged dark red dots and stripes, especially at the upper end. The young do not fly until they are full grown; they are pale yellow beneath until moulting time, and the black colouring is dull.

Maladies.—They are very subject to giddiness in the cage, which arises from their being too much fed upon hemp, which is too exciting a diet. To cure them they must be placed in a small square cage, or be allowed to run about freely for a time. They suffer also from atrophy and gout if fed too much upon hemp.

They may be preserved for eight or ten years.

Capture.—These birds, like most of the species of the Tits, are captured by a variety of arts, and Tit catching is considered by bird-catchers as the most amusing of all. I shall here merely mention two of the most certain ways of catching them for the chamber.

In autumn or spring you go with a call-bird, which is kept in a square bird-cage, to such places, especially orchards, where these Tits resort, and place the cage upon the ground, and plant obliquely some

sticks to which limed rods are attached. When they hear the decoy-bird, curiosity, or the desire to join a fresh companion, soon brings them down. This is rendered more certain if a pipe be made of the hollow wing bone of a goose, the sound of which, being heard to a greater distance, will bring all the Tits together throughout the neighbourhood.

In winter they may be attracted to the trap in gardens if baited with the kernels of nuts, bacon, and oats. This trap is a small box, a foot long, and eight inches high and broad, the sides of which, if you happen not to have boards painted green, may be made of elder sticks, which are propped by four round corner pillars, and then it only requires a wooden floor and covering, tied to the corner sticks. In the centre of the floor there is a little peg, across this a transverse stick is placed, upon which on one side the half of a walnut is fixed, and on the other a piece of bacon; upon this rests another stick, which keeps the cover open about three or four inches. When the Tit jumps upon the transverse wood, or pecks at the nut or the bacon, the roof falls, and the bird is caught. The cage is placed upon a tree, with some thrashed oat straw spread beneath it, to which the Tits fly, and which they can observe from a distance.

Like all the Tits they frequently approach the water-trap. They are usually found there from seven till nine in the morning, and from four till five in the afternoon.

In autumn they can also be caught in the noose, which they visit for the sake of the bait of service or elder berries; but the slip-knot must be made of horse-hair: thread they bite asunder as soon as they feel themselves caught.

COMMENDATORY QUALITIES.—Their beauty, activity, and cheerfulness recommend them as chamber birds, and they have always been in much esteem; but beyond all this, their beautiful varying and extremely melodious song greatly attracts, in which they introduce their two call-notes, the clear *fink, fink,* and the harsh *zizerr.* The articulate notes *si zi dah, si zi dah,* and *stiti stiti,* which they repeat sixteen or twenty times, are extremely agreeable. That they are not wanting in capacity to learn the songs of other birds when reared young, is proved by the old ones adopting many of the notes of other birds, and especially their call-notes.

They are also taught all kinds of tricks—to draw up their food by a bucket, to turn a wheel which two mountaineers appear to move, and to jump at a nut which is hung by a thread.

168.—THE COLE TIT.

PARUS ATER. *Linn.*—PETITE CHARBONNIÈRE. *Buff.*—DIE TANNEN-MEISK. *Beech.*

DESCRIPTION.—It is four inches two lines long; the tail one inch and three-quarters, and the beak three lines; the latter is black, brighter at the tip; the irides black brown; the feet lead coloured, and eight lines high; the upper part of the head and neck are black; from the occiput a broad whitish stripe passes down the neck; the cheeks and the sides of the neck are white, and form, when the bird sits still, a triangular white spot; the back is dark ashy blue; the rump ashy grey green; the throat, as far as the upper part of the breast, is black, the last black feathers having white tips; the breast white; the rest of the under part of the body also white, with an intermixture of reddish; the smaller coverts of the wings like the back; the large ones blackish, with white dots at the end, whereby a double white band is produced; the pinion feathers are brownish ashy grey, margined with white grey; and the tail feathers are of the same colour.

If the two sexes are not seen together, it is scarcely possible to know the female from the male; the former has less black on the breast, and a little less white on the sides of the neck.

HABITAT.—This Tit is found in great multitudes in pine and fir forests; and, except during the autumn, winter, and spring, they are seen in woods, copses, and gardens. In the winter they go in large flocks from one pine wood to another. They are fond of the society of the Golden-Crested Wren, which is always found in their company; one or two Crested Tits are also found with them, and these are apparently their leaders.

In confinement they are usually placed in a cage, but they are more agreeable if allowed to run freely about among other birds.

FOOD.—They feed upon insects, their eggs, grubs, and the seeds of all kinds of cones. As in winter the trees are often covered with hoar frost, and the earth with snow, nature has taught them to store and to preserve their food. They will thus conceal a large quantity of the seed of the fir and pine under the scales of the bark, and fetch it out again when there is a deficiency of food. This instinct they also exhibit in confinement, where they endeavour to hide from the other birds their superfluous and favourite food of the seeds of firs and the kernels of nuts, and are constantly examining if it still remain untouched. The Great Tit and Blue Tit also act in the same way, but they do not hide with so much accuracy, and do not appear to have such a definite object as the Cole Tit. They are generally fed upon the ordinary food.

BREEDING.—They mostly build their nest in deserted mole-hills, beneath the hollow edges of old roads, more rarely in hollow trees, and the fissures of walls. The nest is merely a layer of small particles of moss, and its lining consists of roe and deer hair, and the fur of hares. They lay from six to eight beautiful white eggs, sprinkled with bright red dots. The young birds at once resemble their parents, their black colouring being paler. They breed twice in the year.

MALADIES.—They suffer chiefly from atrophy: sometimes this may be prevented by giving them fresh ants' eggs, especially at moulting time. I had a Cole Tit for six years, running about my room. They become blind at last and die of old age.

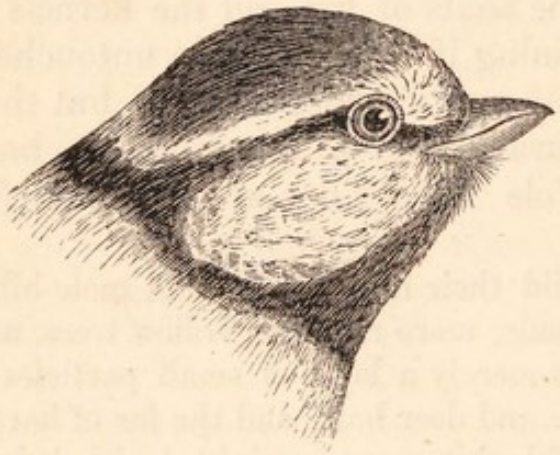
CAPTURE.—They are caught like the preceding, but rather more easily, as they are less timid. A limed rod tied to a pole, with which you get beneath a tree where they are, and by touching a bird it is easily caught. Their call-note is *ziptone*. Like most of the Tits, these are delicate birds when introduced to the chamber, and even die before they will touch the chamber food.

COMMENDATORY QUALITIES.—It is a very entertaining and cheerful chamber bird, which does not rest an instant, is incessantly in motion, and, like all the Tits, hops obliquely. Its song consists of a multitude of harsh and varying notes, which is embellished by a loud and clearly ringing *zifi, zifi,* like the sound of a bell, which is repeated from twenty to four-and-twenty times in succession. It then usually sits so quietly as if it were going to give something very beautiful.

169.—THE BLUE TIT, OR TOM TIT.

PARUS CÆRULEUS. *Linn.*—MESANGE BLEUE. *Buff.*—DIE BLAU MEISE. *Bech.*

DESCRIPTION.—An extremely beautiful bird. It is four inches and a half long, and the tail measures two inches; the beak is three lines long, and blackish white at the edge and tip; the irides dark brown; the feet lead coloured, and eight lines high; forehead and cheeks are white; a white stripe extends from the forehead over the eyes, and surrounds the beautiful sky blue vertex, and through the eyes passes a black stripe; the black throat merges at the sides into a dark blue band, which surrounds the head; at the back of the neck there is a white spot; the back is of a bright Siskin green; the feathers are more silky than in the other Tits; the under part of the body is bright yellow; a longitudinal bright blue stripe extends from the middle of the breast along the belly and between the legs; the wing coverts are bright blue, the largest row has white tips; the tail is sky blue.



The female is smaller; the stripes upon the head are not so distinct; the blue is, as it were, mixed with ashy grey; and the stripe down the under part of the body is scarcely perceptible.

HABITAT.—They are frequently found in oak and beech woods. In autumn and winter they wander from place to place, and are then to be found in multitudes in gardens. They must be treated like the Ox-eye Tit; but it is better they should run freely about, for thus their beauty is better seen and admired. At night they may be chased into a cage which has a hole wherein they can sleep. They are just as

quarrelsome and malicious as the Ox-eye, hang at the tails of other birds, but they are not strong enough to kill them.

Food.—They enjoy all kinds of insects and their grubs, and in autumn feed upon berries. They must be treated like the Ox-eye. To familiarize them to confinement speedily, they must have crushed hemp thrown to them for the first few days. They are fond of bathing.

Breeding.—They build upon trees, near the top, in old hollow branches, and make a layer of moss, hair, and feathers. They lay from eight to ten reddish white eggs, finely spotted and mottled with brown. The colours of the young bird are paler, and the blue is not so brilliant.

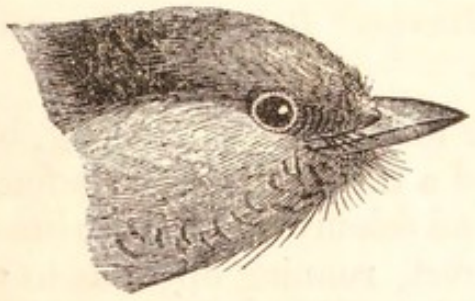
Maladies and Capture.—The majority which are caught in winter die of giddiness, after being a few days in the room. They are taken like the Ox-eye Tit.

Commendatory Qualities.—This Tit is easily tamed, and will live two or three years. They are peculiarly recommended by their beauty and vivacity, and less by their song, which consists of some indistinct and but little melodious strophes, between which some higher notes are uttered.

170.—THE MARSH TIT.

Parus Palustris. *Linn.*—Mesange de Marais. *Buff.*—Die Sumpfmeise. *Bech.*

Description.—It is four inches and a quarter long, of which the tail constitutes two inches; the beak is four lines long, and black; the feet are lead coloured; the shin bone five lines high; the upper part of the head, as far as the neck, is black; cheeks and temples are white; the body above brownish ashy grey, and beneath, excepting the black throat, which at the gullet is sprinkled with black, is of a dirty white; the sides and vent have a reddish tinge; the wings and tail are black grey, margined with reddish white.



The female has less black on the throat.

Habitat.—They are found in summer and winter in gardens and woods; in winter they collect in small flocks, and fly from

place to place, following one after the other in a line. They are allowed to run freely about the room. They are delicate, and require to be treated with care, especially when first introduced.

FOOD.—They feed upon all kinds of seeds, insects, and elder berries. In confinement they are fed like other Tits; but they require, until familiarized, ants' eggs or elder berries. I have almost immediately domesticated them by means of the seeds of the sun-flower. The latter preserves them longest. They are fond of hemp roots.

BREEDING.—They breed in the hollows of trees, in a nest made of moss and grass, and lined with deer and cow hair and feathers. They lay from ten to twelve eggs, which are of a rusty white, with yellowish red spots.

CAPTURE.—The kernels of nuts and oats will attact them to the Tit-trap in winter. To be certain of your capture, you must place limed sticks upon ripe sun-flowers. In places where these birds do not frequent the garden, the sun-flowers are sunk in a spot where they resort. If they have been caught with nuts, it is easy to familiarize them in the room: in the very same hour afterwards they will pick about.

COMMENDATORY QUALITIES.—Their appearance, and their weak but agreeable sounding voice, recommends them as chamber birds. They occasionally utter a call-note, especially at pairing time, which makes this song extremely harmonious.

I have never been able to preserve them longer than two or three years.

171.—THE CRESTED TIT.

PARUS CRISTATUS. *Linn.*—MESANGE HUPPÉE. *Buff.*—DIE HAUBENMEISE. *Bech.*

DESCRIPTION.—This bird is four inches and a half long, of which the tail occupies one inch and a third; the beak is four lines long, and black; the feet are lead coloured, and seven lines high; the head is decorated with a crest, running upwards to a point, and about an inch high, consisting of black feathers with white edges; the forehead is checkered with white and black; the cheeks bright ashy grey, bordered beneath and behind with black; a broad reddish white stripe extends from the angle of the mandibles to the neck; and on the neck there is a black spot,

which surrounds it like a cravat, and unites in front on the breast to the black front of the neck and throat; the back is reddish grey; the breast and the abdomen whitish; the sides reddish; the wings and the tail grey brown.

The female is distinguishable from the male only by its crest being less elevated, and the throat not so black.

HABITAT.—This Tit is found in pine forests, but it is not so numerous as the other species. They always creep deep into the bushes, and therefore prefer those spots where juniper berry bushes abound. In confinement they must be treated like the Blue Tit; but it is more delicate, and requires more care and attention to familiarize it. Old birds seldom survive.

FOOD.—They feed like the Cole Tit; and in confinement they require at first ants' eggs and meal-worms, before they will eat the food of the other Tits.

BREEDING.—They build in hollow trees, between stones, and in deserted large nests. Their nest is like that of the Cole Tit, and the female lays from six to ten snow white eggs, which are thickly marked above, and more sparingly beneath, with blood red spots, which usually run into each other. The young are removed and reared upon pieces of meal-worm and ants' eggs. It is best to remove both old and young from the nest, for then the parent bird will easily rear the young upon ants' eggs. They are caught like the Cole Tit.

COMMENDATORY QUALITIES.—Their pleasing form recommends them more than their simple note, which has nothing to distinguish it.

172.—THE BEARDED TIT.

PARUS BIARMICUS. *Linn.*—MESANGE BARBUE OU MOUSTACHE. *Buff.*—DIE BARTMEISE. *Bech.*

DESCRIPTION.—This beautiful bird is in shape like the Ox-eye Tit. It is six inches and a half long, and across the extended wings ten inches and a half; the beak is four lines long, slightly curved at the tip, orange yellow, and surrounded with black bristles; the forehead yellow; the feet black; the legs an inch high; the head is of a bright ashy colour; beneath the eyes there is a bunch of black feathers, which terminate in a point, very like a moustache; the back of the neck and the upper part of the back are yellow red; the throat white; the breast flesh coloured; belly, sides, and thighs, like the back, but brighter; the vent

black ; the tail is three inches and three-quarters long, and conical, it is nearly of the same colour as the beak; the external feather is very short, dark at the base, and almost white towards the end; the third is white at the tip only.

The female differs from the male in wanting the black moustache between the eyes ; the vertex is rusty red, with black spots ; and the feathers at the vent are not black, but of the same colour as the rest of the under side.

HABITAT.—It is certainly met with in Germany where there are lakes, ponds, morasses, or other marshy places, which contain bushes and reeds. In summer it is rarely seen, as they live in pairs deep among the reeds ; but they may be observed easier in winter, when they range hither and thither in small flocks, and then perch upon trees and bushes, their food failing them amongst the reeds. They are either allowed their liberty in a room or are confined in a large wire cage.

FOOD.—They eat many kinds of insects, especially small water insects, and the seed of the common reed (*Arundo phragmitis*). They must be fed at first upon poppy seed, ants' eggs, and meal-worms ; they will then eat hemp and other ordinary chamber food. They are very difficult to preserve, and it is therefore better to rear them from the nest.

BREEDING.—Of this bird little is known. Their nest is built between reeds that are interwoven, is shaped like a bag, and consists of blades of grass and the wool of plants interwoven. The female lays from four to five pale red variegated eggs. The young are removed from the nest nearly fledged, and are reared upon ants' eggs and bits of meal-worms.

CAPTURE.—It is very difficult to catch them. Fishermen and game-keepers, who know the spots where they usually creep about, endeavour to plant it about with limed twigs, and to drive them thither.

COMMENDATORY QUALITIES.—Not only the beauty of their plumage, but also their form and vivacity, make them agreeable chamber birds. The males also utter several pleasing strains, which are somewhat similar to the song of the Blue Tit. Certainly it is to be regretted that this bird is so difficult to obtain.

SECTION VIII.—COLUMBÆ. DOVES.

THE beak is thin, straight, rather curved at the tip, with a fleshy membrane on the under part; the short feet have the toes separated to their origin. Their food consists of corn and seeds, but the wild kinds also eat whortle berries. They live in pairs, and only hatch two at a time, which they feed with seeds softened in their large crops. They were formerly united with the Sparrow tribes, or with gallinaceous birds, but it is more convenient to treat them as a distinct order, possessing as they do so many distinguishing peculiarities. They are all indigenous birds, and may be tamed both adult and young.

173.—THE STOCK DOVE.

COLUMBA ŒNAS. *Linn.*—LE BISET. *Buff.*—THE WOOD DOVE. *M'Gillivray.*—DIE HOLZTAUBE. *Bech.*

DESCRIPTION.—It is about the size of a domestic Pigeon, and is thirteen inches long. The bill, which is curved at the tip, is whitish, pale red in summer, and of an orange colour round the nostrils; the irides brown; the feet blood red; the head as far as the middle of the neck is ashy blue; the breast red grey, intermixed with purple red and glittering; the rest of the lower part of the body is bright ashy grey; the upper part of the back, the wing coverts, and the scapulars are ashy grey, the latter with a reddish tinge; the tail is a beautiful ashy grey, half way along, and becomes gradually darker, terminating in a blackish tip.

HABITAT.—These wild pigeons build, in mountain districts which have many hollow trees, in copses and woods, but in mountain chains they inhabit the skirts more than the depths of the forests, as the latter would be too distant from the fields. They like a wood mixed with

fir or deciduous trees, but there must always be hollow trees, wherein they not only sleep at night, but make their nests. They will also rear their young in the ruins of castles and the fissures of rocks. They are gregarious, migrate in October in flocks, and return at the commencement of March, or in mild weather, as early as the end of February.

In forest villages they are often kept in confinement, and if obtained young, or if their eggs be hatched by the domestic Pigeon, they will accustom themselves to the dove-cot; but they require warmth in winter.

FOOD.—Their food consists of all kinds of grain, pulse, linseed, &c., and of the seeds and the cones of the fir tribes. In this also they resemble the domestic Pigeon, for in woody districts these likewise repair to the forests to feed upon the seeds of trees. Hemp is their favourite food. In confinement they seldom live longer than five or six years.

BREEDING.—They breed twice a-year. The eggs are white. They are frequently removed to be hatched by tame Pigeons, which rear the young; and if these are checked in the autumn from migrating with their species, and are paired in the spring with the domestic Pigeon, they will remain in the dove-cote, and produce a very pretty cross. This I know from my own experience.

CAPTURE.—These Pigeons as well as the two following species are caught easiest at the salt-licks which are made for the red deer. Like the Ringdove their favourite time for visiting the watering place is between eleven and one, but they are extremely cautious.

COMMENDATORY QUALITIES.—Not only their handsome appearance, but also their agreeable cooing at pairing time, in which they stand upon one spot, bowing the head very low, recommend them to the amateur, and they are therefore frequently kept in the forest villages. In confinement they will also pair with other tame Pigeons, if a suitable place be appropriated to them.

174.—THE RING DOVE, OR CUSHAT.

COLUMBA PALUMBUS. *Linn.*—LE RAMIER. *Buff.*—DIE RINGELTAUBE. *Bech.*

DESCRIPTION.—This is the largest of the wild European Pigeons, being seventeen inches long, and some naturalists consider that our large domestic Pigeons are its descendants; but it is not so easily tamed as the preceding, nor will it mix with domestic Pigeons in the fields. It does not like holes, but lives in open exposed places. Its beak is reddish white; the

irides whitish yellow; the feet reddish; the head and throat are dark ashy grey; the front of the neck and the breast purplish grey; the sides and back of the neck are of a beautiful purple; at the sides of the lower part of the neck there is a large crescent-shaped white spot, which does not completely surround the neck; the abdomen, vent, and thighs are of a bright whitish grey; the side feathers are of a bright ashy grey; the upper part of the back, the shoulders, and small wing coverts ashy grey brown; the sides of the back and rump bright ashy grey; the tail feathers black ashy grey, merging into black towards the end.

HABITAT.—These Doves inhabit the temperate latitudes of Europe and Asia, and are therefore seen in the woods of Germany. They migrate at the beginning of October in small flocks, and return about the middle of March or later, always some weeks after the Stock Dove. In harvest time they are found in copses, in order to be near the corn.

FOOD.—This consists of the seeds of all the fir tribe, in all kinds of corn, pulse, and juniper berries. In confinement they must be familiarised by means of wheat, after which they will eat all kinds of grain, excepting oats. They will live in confinement several years.

BREEDING.—They build upon trees. Its nest is very artificial, consisting of dry twigs, and is often thrown down by high winds. The female hatches twice a-year, and lays two longish white eggs. If the eggs be placed under the domestic Pigeon she will hatch them, and if at the migrating time in autumn, and during severe winters, they be kept in the room, they may be accustomed to the dove-cote. I have never observed that they have paired with the domestic Pigeon.

Their CAPTURE must be effected like that of the preceding. Adult birds are scarcely to be induced to eat, and the majority will die of hunger if not crammed like young Pigeons.

COMMENDATORY QUALITIES.—These Doves are very handsome. Their loud cooing is particularly pleasing, during which they make very grotesque motions, jumping backwards and forwards, then from side to side, moving their heads in every direction. They become very tame.

175.—THE TURTLE DOVE.

COLUMBA TURTUR. *Linn.*—LA TOURTERELLE. *Buff.*—DIE TURTLE-TAUBE. *Bech.*

DESCRIPTION.—This beautiful Dove is of the size of the Missel Thrush, and is about ten or eleven inches long. Its thin beak is light blue; the irides reddish yellow, and a small bald ring around the eye, of a flesh coloured red; the feet purple red; the forehead whitish; the vertex, and a portion of the upper part of the neck, light blue, thence to the tail this colour becomes darker; on each side of the neck there is a black spot, with three or four white transverse crescent-like streaks, which add to the beauty of the bird; the throat, belly, and vent, are white; neck and breast of a bright fleshy red, with a violet reflection; the tail blackish, the middle feathers of one colour, and the rest with white tips.

HABITAT.—The temperate parts of Europe and Asia, and several islands of the southern ocean, are the native places of this bird. They love woods, and dwell in the skirts of mountain chains, but they are also found in copses and in gardens in woody districts. Being the most delicate of all the wild Doves, they do not arrive in the spring until towards the end of April or the beginning of May, and they retire again in September. In the forest of Thuringia they are often found in multitudes, when there is an abundance of fir seed. They are so little shy that they may be very closely approached.

They are allowed to run freely about the chamber, or have a large cage appropriated to them. They can also be accustomed to the dove-cote, when their young are hatched by the domestic Pigeon. But this must be near a room or some place artificially warmed, that they may not suffer in the winter from cold. They are kept also in gardens in aviaries, where they not only breed together, but will cross with the Collared Turtle Dove.

FOOD.—Their most favourite food is the seed of the fir tribes, but they also eat peas, millet, linseed, hemp, rape, rye, wheat, barley, and juniper berries. In confinement they will also eat bread and roll, and are very easily preserved.

BREEDING.—They build their nests upon fir trees. It consists of only a few dried twigs, laid together securely enough, but in beech woods

it is frequently thrown down by the wind. The female lays two white eggs.

In confinement they are placed either in a wicker cage or in a large breeding cage. Not only those reared young, but also those caught young will pair and breed. It is easier to produce a cross with the Collared Turtle. It is amusing to see the male bird coo. He utters a deep, harsh, single note, bows his head, and stands still. Young Turtle Doves are grey upon the upper side of the body, and spotted with blackish blue upon the wings. Those bred between a Turtle Dove and Collared Turtle are more distinctly marked, but usually are like the latter. They are reddish grey upon the head, neck, and breast; upon the back and the coverts of the wings reddish ashy grey, with half-hidden spots shining through on the abdomen; the tertiaries and tips of the tail feathers are white, and the primaries grey brown. It is remarkable that they are always larger and have a peculiar cry, and bow deeply whilst doing so, like the Collared Turtle; but their cooing is not so melodious.

Their CAPTURE is effected as in the preceding wild species. It is only necessary to place snares in those places where salt is strewed for deer.

COMMENDATORY QUALITIES.—In mountain villages the Turtle Dove is a very common bird, and is kept on account of its tameness, tenderness, and beauty, and it is also believed that it attracts to itself bad humours. Thus much is certain, that during the illness of men it readily becomes sickly. It may be preserved for eight years.

176.—THE COLLARED TURTLE.

COLUMBA RISORIA. *Linn.*—TOURTERELLE À COLLIER. *Buff.*—DIE LACHTAUBE. *Bech.*

DESCRIPTION.—It is rather larger than the Turtle Dove, twelve inches long; the beak is slender, blackish, reddish white at the base; the irides golden yellow; the feet blood red; the upper part of the body reddish white; the under side white; the back of the neck marked with a semilunar black spot, the tips of which are turned forward, and which is bordered with white; behind the shafts of the primaries and of the tail feathers are black; beneath the tail appears half black and half white.

The female is rather smaller and paler than the male.

HABITAT.—India and China is the native land of this bird, whence they have been brought, and dispersed all over Europe. They have generally a large cage appropriated to them. They may also be

allowed to run about, but their wings must then be clipped or bound near the shoulders, that in trying their powers of flight they do not fly at the windows and break them. Attempts have been made to keep them in the dove-cote, which have succeeded; but they must be guarded from birds of prey, and in winter be removed to a warm place, or to a heated room, until the spring returns.

FOOD.—They are fond of wheat, millet, linseed, poppy seed, rape seed, bread, and roll, but they prefer wheat.

BREEDING.—In the room they are supplied either with a soft piece of felt or cloth, or a straw basket, shaped like a bread basket. To this they convey a few blades of grass, upon which they lay two beautiful white eggs. They hatch sixteen days, but rarely produce more than one bird. It is therefore a very rare circumstance to obtain six young ones in the course of a year from the same pair.

MALADIES.—Exclusive of atrophy, which must be treated as described in the introduction, they are subject to all kinds of contagious disorders that attack persons who occupy the same room with them. They thus participate in the maladies of their master, but do not take them from him, as is vulgarly supposed. The young, whilst still fed, are subject to a disease of the crop, which is a tumour that discharges a disagreeable matter, from which they frequently die. Fresh water, and a variation of food given to the old ones, will sometimes prevent the attack.

COMMENDATORY QUALITIES.—They are very agreeable and cleanly chamber birds. They make themselves particularly attractive by their laughing notes. The male is very much attached to his partner, sits at night beside her, and amuses her with his notes. When he wishes her to return to the nest, he utters other tones, but does not turn round in a circle like the domestic Pigeon, but hops forward, stops, lowers his head to the ground, and then distends his crop.

INDEX.

	PAGE
Alpine Songster	368
Alauda, Alpestris	295
,, *Arborea*	292
,, *Arvensis*	286
,, *Campestris*	298
,, *Cristata*	291
,, *Pratensis*	299
,, *Spinoletta*	301
,, *Trivialis*	295
Ampelis Garrulus	306
Alcedo Ispida	166
Arbour Bird, or Pettychap	354
Babillard	343
Blackbird	315
Black Cap	336
Blue-throat	352
Bunting, Cirl	217
,, Common, or Corn	212
,, Dominican	225
,, Foolish	219
,, Indigo	226
,, Mountain, or Tawny	208
,, Ortolan	214
,, Painted	227
,, Passerine	223
,, Reed	220
,, Shaft Tailed	226
,, Snow	206
,, Widah	224
,, Yellow	209
Bullfinch	182
Canary	269
Ceram Lory	145
Chaffinch	228
Cockatoo, Banksian	142
,, Great Red-crested	141
,, Great White	139
,, Lesser White	140
,, Red-vented	141
Collared Turtle Dove	389
Columba Œnas	385
,, *Palumbus*	386
,, *Risoria*	389
,, *Turtur*	388
Coracias Garrula	104
Corvus Caryocatactes	98
,, *Corax*	71
,, *Cornix*	84
,, *Corone*	82
,, *Frugilegus*	86
,, *Glandarius*	95
,, *Monedula*	92
,, *Pica*	100
Crossbill	171
,, Parrot	177
Crow, Carrion	82
,, Hooded	84
Cuculus Canorus	114
,, *Persa*	165
Cuckoo	114
Dipper	305
Dunnock	348
Emberiza, Cia	219
,, *Ciris*	227
,, *Cirlus*	217
,, *Citrinella*	209
,, *Cyanea*	226
,, *Hortulana*	214
,, *Miliaria*	212
,, *Montana*	208
,, *Nivalis*	206
,, *Paradisea*	224
,, *Passerina*	223
,, *Regia*	226
,, *Schœnilus*	220
,, *Serena*	225
Falcon, Kestrel	51

	PAGE
Falco Tinnunculus	51
Fauvette	339
Finch, Angola	285
„ Amandavade	197
„ Blue-bellied	283
„ Brazilian	283
„ Citril	266
„ Glossy	281
„ Lapland	267
„ Liver-coloured	285
„ Mountain	241
„ Purple	282
„ Serin	192
„ Snow	268
Fieldfare	312
Fringilla Angolensis	285
„ *Bengalus*	283
„ *Canaria*	269
„ *Cannabina*	247
„ *Citrinella*	266
„ *Cælebs*	228
„ *Carduelis*	255
„ *Domestica*	243
„ *Granatina*	283
„ *Hepatica*	285
„ *Laponica*	267
„ *Linaria*	253
„ *Melba*	284
„ *Montifringilla*	241
„ *Montana*	245
„ *Nitens*	281
„ *Nivalis*	268
„ *Petronia*	265
„ *Purpurea*	282
„ *Serinus*	192
„ *Spinus*	262
„ *Tristis*	282
Garrulous Roller	104
Golden Oriole	107
Goldfinch	255
„ American	282
„ Green	284
Graccula Religiosa	118
Grakle, Lesser	118
Greenfinch	188
Grosbeak	190
„ Banded	203
„ Blue	201
„ Brown-cheeked	204
„ Cape	200
„ Cardinal	195
„ Clouded	205
Grosbeak, Dominican	198
„ Gowry	203
„ Grenadier	199
„ Java	195
„ Kaffre	201
„ Malacca	204
„ Paradise	198
„ Pine	179
„ Red-billed	206
„ Ultramarine	202
„ Yellow-bellied	202
Hedge Warbler	348
Hoopoe	110
Jackdaw	92
Jay	95
Kestrel Falcon	51
Kingfisher	166
Lanius Collurio	66
„ *Erythrocephalus Collurio Rufus*	64
„ *Excubitor*	58
„ *Minor*	62
Lark, Crested	291
„ Field	298
„ Meadow	299
„ Shore	295
„ Sky	286
„ Tit	295
„ Wood	292
Linnet	247
Lory, Black-capped	147
„ Ceram	145
„ Purple-capped	146
Loxia Amandavade	197
„ *Astrid*	196
„ *Cærulea*	201
„ *Caffra*	201
„ *Canora*	204
„ *Capensis*	200
„ *Cardinalis*	195
„ *Chloris*	188
„ *Coccothraustes*	190
„ *Curvirostra*	171
„ *Cyanea*	202
„ *Dominicana*	198
„ *Enucleator*	179
„ *Erythrocephala*	198
„ *Fasciata*	203
„ *Flaviventris*	202

	PAGE
Loxia Malacca	204
„ *Nubilosa*	205
„ *Orix*	199
„ *Orycivora*	195
„ *Punctularia*	203
„ *Pyrrhula*	182
„ *Pytiopsittacus*	177
„ *Sanguinirostris*	206
Macaw, Blue and Yellow	125
„ Military	125
„ Red and Blue	122
Magpie	100
Motacilla Accredula	358
„ *Ænanthe*	364
„ *Alba*	369
„ *Alpina*	368
„ *Arundinacea*	357
„ *Atricapilla*	336
„ *Boarula*	371
„ *Cinerea*	341
„ *Curruca*	343
„ *Flava*	373
„ *Hippolais*	354
„ *Hortensis*	339
„ *Luscinia*	321
„ *Luscinia Major*	334
„ *Modularis*	348
„ *Regulus*	362
„ *Rubicula*	367
„ *Rubetra*	366
„ *Rufa*	359
„ *Suecica*	352
„ *Tithys*	345
Nightingale	321
„ Greater	334
Nutcracker	98
Nuthatch	169
Oriolus Galbula	107
Oriole, Golden	107
Owl, Little	56
„ White	54
Parakeet, Blossom-headed	130
„ Bornean	131
„ Cardinal	130
„ Little Blue and Green	152
„ Lunated	135
„ Long-tailed Green	128
„ Pavouane	129
„ Pennant's	131
Parakeet, Red and Blue-headed	129
„ Red-headed Guinea	151
„ Rose-headed Ring	130
„ Rose-ringed	133
„ Two-spotted	133
Parrot, Amboyna	138
„ Angola Yellow	128
„ Ash-coloured	143
„ Blue-faced	150
„ Blue-headed	127
„ Blue-throated	151
„ Carolina	136
„ Common Amazon	148
„ Grey-breasted	135
„ Illinois	126
„ White-fronted	148
„ Yellow-headed Amazon	149
Parus, Ater	378
„ *Biarmicus*	383
„ *Cæruleus*	380
„ *Cristatus*	382
„ *Major*	374
„ *Palustris*	381
Pettychap	339
Picus Major	158
„ *Minor*	159
„ *Viridis*	155
Pipit, Water	301
Psittacus, Æstivus	148
„ *Alexandri*	133
„ *Amboinensis*	138
„ *Ararauna*	125
„ *Autumnalis*	150
„ *Banksii*	142
„ *Bimaculatus*	133
„ *Canicularis*	129
„ *Corolinensis*	136
„ *Cristatus*	130
„ *Cyanocephalus*	127
„ *Domicella*	146
„ *Erythrocephalus*	130
„ *Erythrocephalus Banjalensis*	130
„ *Erythrocephalus Borneus*	131
„ *Erithacus*	143
„ *Garrulus*	145
„ *Guianensis*	129
„ *Leucocephalus*	148
„ *Lory*	147
„ *Lunatus*	135
„ *Macao*	122
„ *Menstruus*	151

	PAGE
Psittacus Militaris	125
„ *Moluccensis*	141
„ *Murinus*	135
„ *Ocrocephalus*	149
„ *Pennanti*	131
„ *Pertinax*	126
„ *Philippinarum*	141
„ *Pullarius*	151
„ *Passerinus*	152
„ *Ruterostres*	128
„ *Solstitiales*	128
„ *Sulphureus*	140
Raven	71
Redbreast	350
Redpole, Lesser	253
Reed Wren	357
Redstart	346
„ Black	345
Rhamphastos Picatus	154
„ *Piscivorus*	153
„ *Tucanus*	152
Ring Ouzel	317
Rook	86
Ring Dove	386
Rufous Warbler	359
Serin Finch	192
Shrike, Great Cinereous	58
„ Lesser Gray	62
„ Red-backed	66
„ Woodchat	64
Siskin	262
Sitta Europæa	169
Skylark	286
Sparrow	243
„ Ring	265
„ Tree	245
Starling	302
Strix Flammea	54
„ *Passerina*	56
Sturnus Cinclus	305
„ *Vulgaris*	302
Sylvia Phœnicurus	346
„ *Troglodytes*	360
Stock Dove	385
Thrush, Missel	308
„ Redwing	314
„ Reed	318
„ Rock	320
„ Song	310
Tit, Bearded	383
„ Blue	380
„ Cole	378
„ Crested	382
„ Marsh	381
„ Ox-eye	375
Toucan, Brazilian	150
„ Preacher	154
„ Yellow-breasted	152
Tourakon	165
Turdus Arundinaceus	318
„ *Illacus*	314
„ *Merula*	315
„ *Musicus*	310
„ *Pilaris*	312
„ *Saxatilis*	320
„ *Torquatus*	317
„ *Viscuorus*	308
Turtle Dove	388
Upupa Epops	110
Wagtail, Grey	371
„ Pied	369
„ Yellow	373
Warbler, Hedge	348
„ Rufous	359
Waxbill	196
Waxwing, Bohemian	306
Wheat-ear	364
Whinchat	366
White-throat	341
Woodpecker, Green	155
„ Great Spotted	158
„ Lesser Spotted	159
Wren	360
„ Golden Crested	362
„ Reed	357
„ Willow	358
Wryneck	161
Yunx Torquilla	161

VIZETELLY BROTHERS AND CO. PRINTERS AND ENGRAVERS, FLEET STREET.

Almors parrot —
Red headed Jamica Parakeet - 151.
Little blue Green Parakeet - 152.
Grosbeak. — 190.
Java Grosbeak. — 195.
Waxbill — 196.
Amandavade Finch - 197.
Senadien Grosbeak - 199
green finch - 180
Bullfinch 182
Chaffinch 228