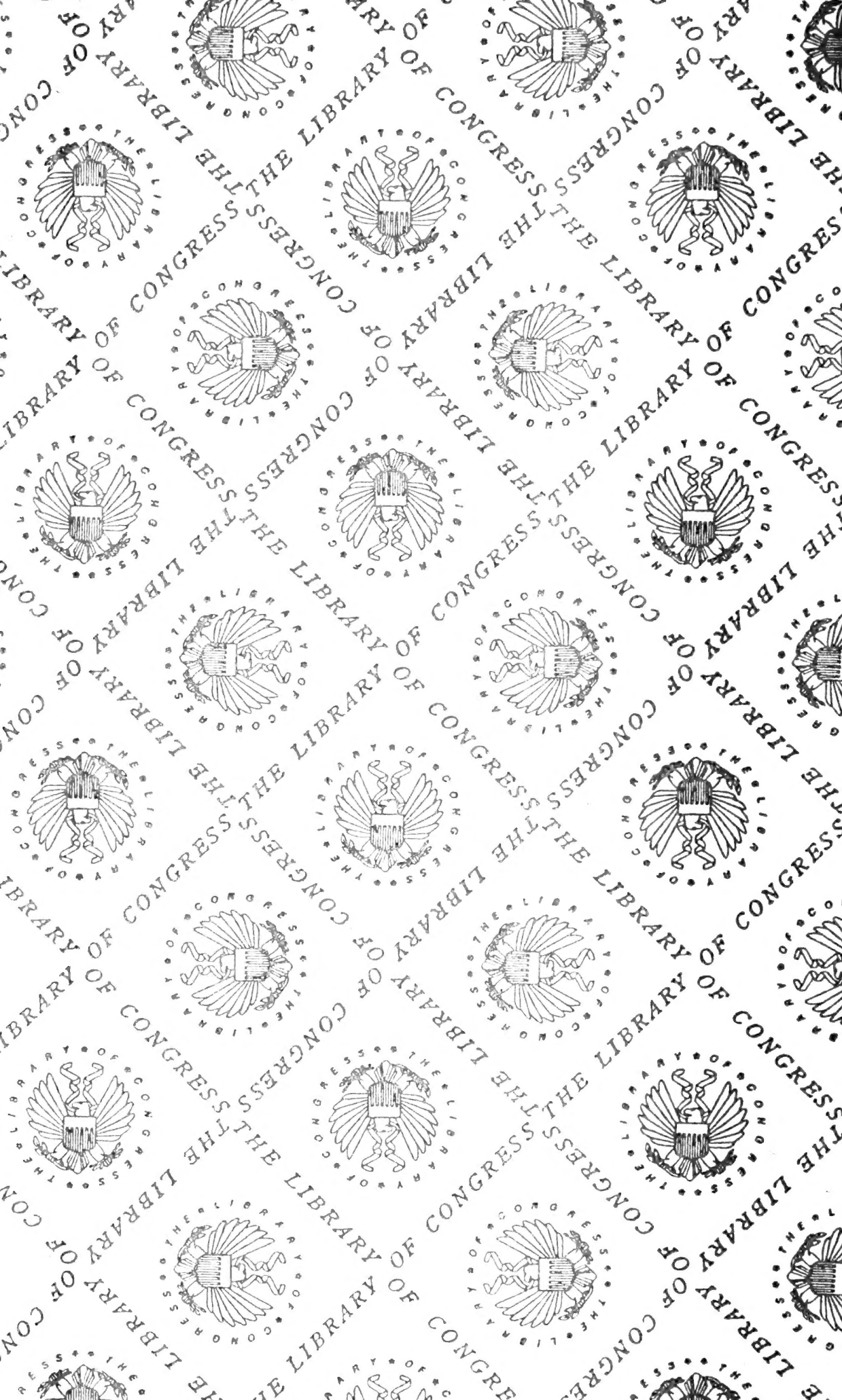
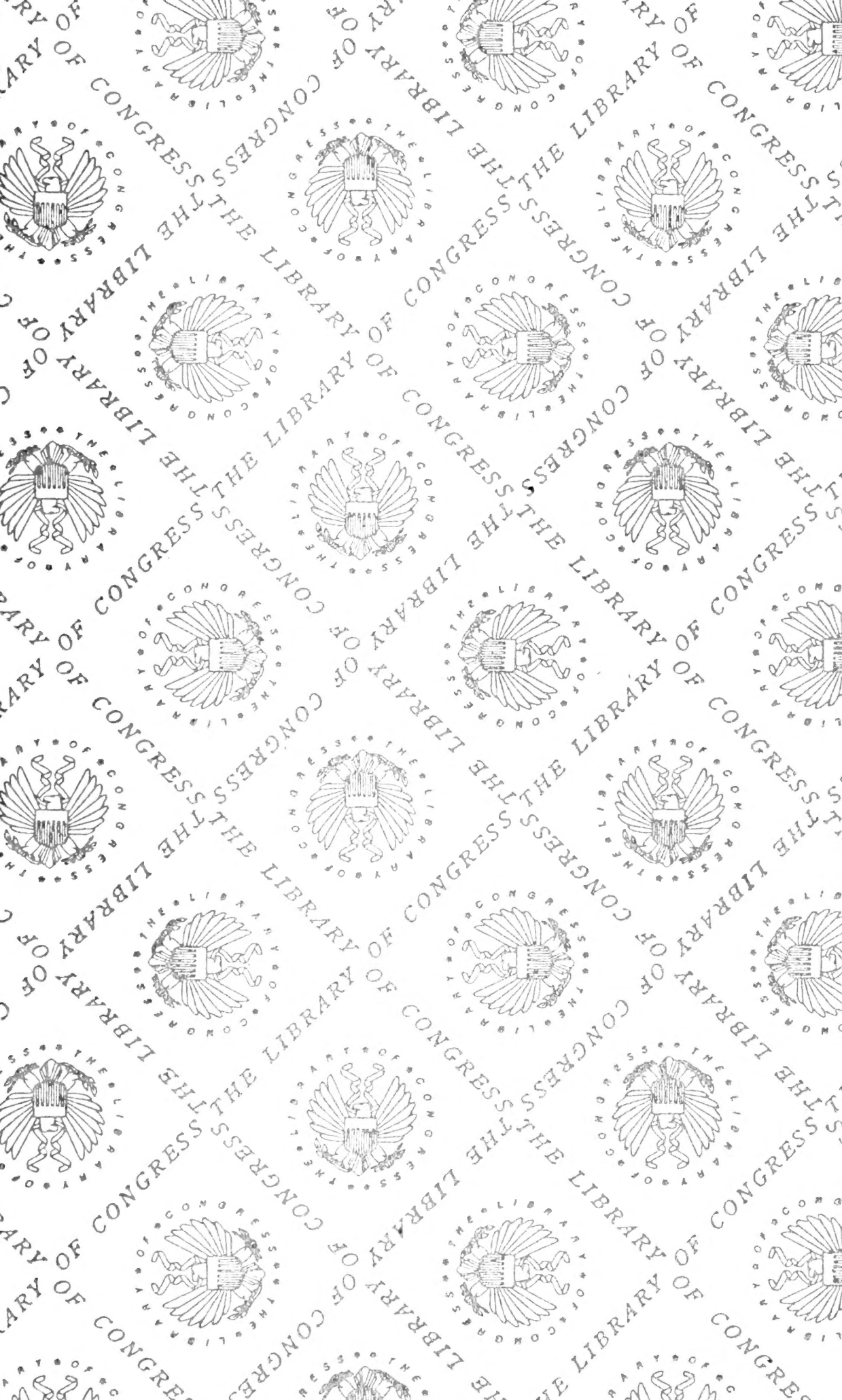


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# BOOK OF HOUSEHOLD PETS.



## CAGE-BIRDS.

Few things in creation are more beautiful than birds. Elegance of form, brilliancy or softness of color, gracefulness of motion—all combine to render them agreeable objects to the eye; and when to these gifts is added melodiousness of voice, no wonder that they should be, as they undoubtedly are, favorites with every one who has the slightest appreciation of loveliness in any shape.

Birds are remarkable for the ingenuity with which they construct their nests, and the care and tenderness they show to their young. They have memory, knowledge, gratitude, affection, and even imagination, for they dream; and it will be our business to show with what facility they may be tamed, taught, and trained.

In a state of nature, birds are free denizens of the air and earth. In captivity, they are secured from the vicissitudes of the seasons, and the various accidents to which they are subjected by their own species, for the rapacious birds feed upon the non-rapacious. If caught when they are old

and forced into a cage, they often pine and die; but nestlings—those taken from the nest at a very early age, or which, as Cowper defines them, are

“Strangers to liberty, 'tis true;  
But that delight they never knew,  
And therefore never missed—”

may be made very happy by kind treatment and assiduous care, which the young bird-fancier is bound to afford them; and which not to afford is very wicked, for it is our bounden duty to be

“Kind to all that God has made.”

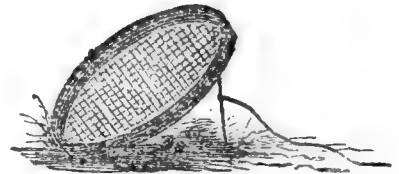
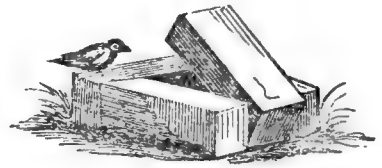
Cage-birds are either kept for their song, their powers of mimicry, or their beauty of plumage. The song-birds, with the exception of the mocking-bird, brown thrush, bobolink, and oriole, are mostly natives of other lands, whose ancestors, or themselves, have been imported into this country. As, however, there are many of our native birds who thrive well in captivity, we will give some of the modes of capturing wild birds, which is done either by traps, limed twigs, springles, nets, or dead birds.

### TRAPS.

The common brick trap is well known to most youngsters. It consists of four bricks placed as in the drawing, two lengthways, upon their edges or narrow sides, one in front, and the fourth between the two side bricks; this is so placed that it will fall and lie easily upon the front brick. Within the trap a stout peg is driven into the ground, upon which a forked twig is placed horizontally; above this a stick is placed, one end being on the twig



CATCHING BIRDS.



TRAPS.

and the other end supporting the brick in a slanting position. The end of the twig that rests on the peg is cut flat, to give it a better hold. The bait is strewn upon the ground on the inside of the trap. When the bird flies to the trap he generally perches for a moment on the forked twig; this his weight causes to give way, and the sustained brick, falling upon the outer or front brick, encloses and secures the bird. Caution should be used in placing the upper brick, so that it does not fall between the two side bricks unsupported



by the front brick, as in such a case the bird would be crushed to death.

The sieve trap, another simple trap, is made by the use of a large sieve, which is propped up in the manner shown in the drawing. To the centre of the stick a fine long line should be tied, and having strewn some bait under the sieve, hide yourself in some place a short distance off, with the end of the string in your hand, and watch. When you observe a bird well under the sieve, give a sharp jerk, and the stick being withdrawn from the sieve, it will fall down over the bird.

### THE LIMED TWIG.

The mode of catching birds by the adhesive quality of birdlime,\* is one of the most simple methods. The substance is easily made by chewing or macerating wheaten grain till it becomes "sticky," which every boy well knows how to do. When large numbers of birds are to be secured, a large branch or bough of a tree, after being trimmed of the leaves and small shoots, is coated all over with birdlime, which has been prepared on a larger scale than by chewing. The bough is then fixed on a low dead hedge, near a pond, or other place favorable to the resort of small birds. The bird-catcher, concealing himself as near the bough as he can, imitates the notes of the birds he wishes to attract. The birds approach, alight on the bough, and stick fast, when they are easily secured. Sometimes the birds are attracted by a decoy, which may be a bat or an owl, of which the latter is the best. Whenever an owl shows himself by daylight it is sure to be followed by all the small birds that see it; and when it is fastened near the limed bough, the birds will collect around it in great numbers, and will sooner or later settle on the bough, from which they may be easily taken.

### THE SPRINGLE.

The springle is a somewhat complicated engine, but very effective as a bird-catcher. It consists of five parts, as follows:

1. The *Stump*.—A small stout stake of wood, about five inches in length, which is fixed firmly in the ground, with its head about an inch above the surface.

\* This substance is not much known in this country, and is made abroad, from the inner bark of the holly. We believe that the bark of the American holly has been made to answer the purpose. In order that our readers, in those parts where the holly grows, may try it, we give the mode of making the substance in England. In warm weather common shoemaker's wax is as good a birdlime, we fancy, as any.

The bark of the holly, peeled in the month of June, should be boiled with water in a pipkin till the green bark is separated from the gray; the green bark should then be laid upon the stone of some outhouse and covered with rushes; in about a fortnight's time it will turn into a kind of slime: this should be beaten up in a mortar with a few grains of wheat, after which it may be put into an earthen vessel and kept; when required to be used, it should be melted over the fire, with a little goose-grease, in a dry pipkin—the twigs should then be smeared with it.

2. The *Spreader*.—This is a small bent switch, having a notch at its thicker end. It is kept in its bent position by a piece of small cord whipped over its smaller and larger end, which are thus united just above the notch.

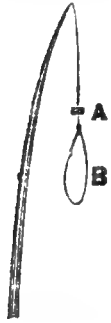


3. The *Bender* is also a piece of pliant withe or hazel. It is about eighteen inches long; both ends of it are fixed into the ground so as to form a kind of arch.

4. The *Springer*.—This is a hazel rod of about four feet in length, thick at one end and tapering at the other; to the tapering end is fixed a piece of string.

5. The *Catch*, A, is a small piece of wood fixed at the end of the string of the springer. It is about half an inch long, a quarter broad, and an eighth of an inch thick. It is slightly bevelled off at one end, so as to adapt it to the notch of the spreader.

6. The *Noose* is a slip knot, formed of horsehair, fastened below the catch.



#### HOW TO SET THE SPRINGLE.

In setting the springle, the following directions are to be attended to.

1. The stump is driven firmly into the ground.

2. The spreader is placed around the stump, so that its bight is in contact with it.

3. The bender is fixed into the ground at about the length of the spreader from the stump.

4. The thick end of the springer is now fixed in the ground, at a little distance from the bender, and the small end of it bent down till one end of the catch is placed upward and on the outside of the bender.

5. The spreader is now raised about an inch from the ground, and the small end of the catch is put into the notch.

6. The horsehair slip knot is now arranged loosely round the bender, and the trap is set.

A little seed is now scattered within and for some distance around the spreader.

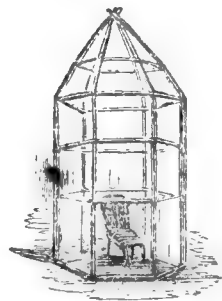
The operation of the trap is as follows :

The bird, attracted by the bait, soon perches upon the spreader, which falls, owing to its weight; the catch being thus set at liberty, the springer flies up, and the poor bird is caught either by the legs, wings, or body, by the horsehair noose or slip knot.

The bird-catcher usually watches at a short distance to seize the bird as soon as it is ensnared, or it would in a short time flutter itself to death or be strangled.



There is a curious mode of taking birds which is practised in some parts of France. A frame is constructed of wood, generally of the stripped branches of some of the slender straight-growing poplars, in the centre of which a seat is placed for the bird-catcher to sit upon. The frame so constructed is afterwards covered with boughs and evergreen shrubs, among which are openings for the entrance of the birds, and also for the hands of the bird-catcher to come out, who is seated like a jack-in-the-green within. When the birds alight on or about the sides of the holes, the bird-catcher nimbly seizes them by the hand, or by means of a small flap trap which he thrusts out at one of the holes, and upon which the birds alight. Modifications of this plan might be successfully adopted by the juvenile bird-catcher.



### DISEASES AND MANAGEMENT OF CAGE-BIRDS.

Birds are subject to few diseases, and what some birds are afflicted with, others escape, so also a different treatment is required with different birds; thus it is impossible to give any general remarks or remedies which will be applicable to all occasions, yet the following account of their particular ailments, and the causes and remedies for them, will be very useful for the young bird-fancier.

Almost all the diseases to which birds are subject, arise from improper management. If duly fed, their cages regularly cleaned, and kept in good air, it is seldom that the birds are found in bad health. In a state of nature they are liable to numerous misfortunes, but when confined they are exempt from many of these, and when they are really ill, their complaints can be better attended to; colds are the most general complaints, and they are almost all owing to carelessness. How frequently are birds hung up close to the top corner of a window, with the sash down about one foot, and a draught of air running through or by the cage, fit to turn a windmill. Thus they are frequently exposed for several hours late in the evening, when going to roost, without any consideration, whether the air be damp, cold, or dry. In this manner many a fine bird is endangered, if not killed, by taking cold.

When birds are in good health and lively, their feathers will appear and feel sleek and smooth, adhering close to their bodies; whenever you perceive the contrary to this, and the birds are sitting dull and bunchy, rely on it something is out of order. Therefore, first consider the season or time of year; if moulting is approaching, or if any thing has worried or frightened the bird, if he has been hung up in a draught of air and taken cold; if he is suffering from neither of these causes, see if he can get at his water and seed, and that both are sweet; good seed always appears clear and glossy, and feels dry and hard; if there is no fault here, examine his body, blow up the feathers of his belly, see if his bowels look swelled or inflamed,

and if so, it implies that he has a surfeit. If he appears lean and out of condition, look narrowly for vermin about his body, and examine his cage well for little red mites, which attack him at night when he goes to roost, and frequently are the cause of his plucking himself so much by day.

Cleanliness, good seed, and fresh water, frequently renewed, are all that are required for a bird in good health. Green food is to be considered a luxury and not a necessary, except in the breeding season, but this applies chiefly to the seed-birds, such as the canary, etc. Many persons give birds loaf-sugar, but this is a very great error, and we recommend in its place, a small piece of bay-salt, or cuttle-bone, and now and then a drop or two of spirits of nitre in their water. The best green food is chickweed and lettuce. Surfeit is occasioned by improper diet or by cold, and particularly by bad water. There are two symptoms of this disorder, exhibited as arising either from cold or over-feeding. In the first case, if, when blowing up the feathers of the belly, it appears swelled, transparent, and full of little red veins, together with the bowels sinking down to its extreme parts, it may be said that the bird is in a bad state. In this state the bowels should be attended to; generally speaking, when they are not loose, as much magnesia as will lie upon a dime may be put into the bird's water every morning, until the bird is better, or, if it should be very bad indeed, a single drop of castor-oil for small birds, and two or three drops for large birds, may be poured down their throat by a quill. The food at the same time may be bread and milk. If the surfeit arises from cold, put a little saffron and a few drops of port-wine in his water, and let him have to eat a little hempseed (bruised for small birds), and a little dried and powdered sponge-cake, and be always careful that there is gravel at the bottom of the cage, for this is necessary for all birds, as they swallow particles of it which assist their digestion.

The *hush* is another malady of cage-birds, produced by cold; it is similar to a cough among ourselves, and when once caught is seldom cured, constantly troubling them. The only cure is keeping them warm, and giving them the food recommended when they have any other cold, as that of the surfeit cold just mentioned.

*Excessive perspiration* is another disease which attacks birds, particularly hen birds, which are sitting upon their eggs. Weakness is the principal cause, and to cure it, it must have nourishing food, such as egg and bread, and induced to take exercise; and the bird may be washed every morning in salt and water, applied at a heat about equal to that of milk; the birds must not have it applied cold, lest it should chill them.

The next disease is called the *pip*. This is known by a little bladder of whitish matter which forms near the vent of the bird, and may be seen easily if the feathers are blown up. To cure it, prick the bladder with a fine needle, and put a drop of salad oil to the place.

*Dysentery* and *diarrhæa* are very common among cage-birds, and should

be treated, the former with a drop or two of castor-oil, and the latter with a lump of chalk to peck at, and a rusty nail in the water.

Sometimes the bird loses the feathers of the head and neck, and presents a most ungainly appearance. In such cases, rub the head with almond oil, and feed the bird for a few days on a mixture of lettuce, scalded bread, olive oil, and a sprinkling of maw-seed. Health will soon return, and at the next moult the bird will recover its lost plumage.

*Fits.*—Many birds are apt to fall down in a fit; if this should occur and there should be no apparent cause for it, you may pull a feather or two out of the tail, which will draw blood, and most likely recover him; or he may be plunged for a moment in cold water. He is then restored to the cage, and induced by every means to drink, and if he can be brought to take a single drop he immediately recovers; after this, a drop of spirits of nitre should be put into his water-glass for two or three mornings. If birds have repeated fits, nothing better can be done than giving frequently a little nitre in the water they drink.

#### MOULTING OF CAGE-BIRDS.

Moulting, or changing their feathers, is a natural operation with birds, which cannot be prevented, but which must be assisted by care and attention. Cold is the greatest danger to which they are exposed; in passing through this state, therefore, all draughts of air should be carefully guarded against. When the cages are open ones, or have much wire-work, they ought to be partly covered up with a cloth, or with paper, to keep the birds warm, and the cleaning of the cage need not take place more than once a week, though they must be carefully supplied with fresh food and water daily. A little saffron in their water, a little nourishing food, and the extra warmth occasioned by the covering to the cage, will soon restore the birds to a plumage more beautiful than that they cast off. The covering of the cage should not be cast off all at once, but gradually; it should then be cleaned thoroughly, and the birds have their ordinary food. They should, while moulting, be put in the sun for an hour or two, if the weather is fine and warm.

The first moult, which takes place in many birds when they are about three months old, is partial. The birds then throw off all their down and loose feathers, and produce their full plumage. The month of September is the general time for the moulting of old birds.

#### TO MAKE GERMAN PASTE.

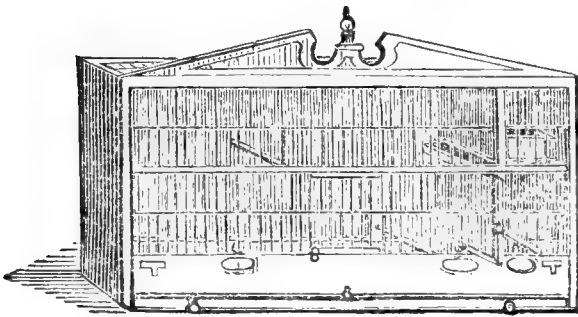
This composition may be made in the following manner, of much better quality than that which is sold in the shops: Take four fresh eggs, boiled very hard, a quarter of a pound of white pease-meal, and about a table-spoonful of good salad oil—if the least rancid it will not do. The eggs must be grated very fine, and mixed with the meal and olive-oil, and the whole then be pressed through a tin cullender, to form it into grains, like

small shot; it should next be put into a frying-pan, set over a gentle fire, and gradually stirred with a broad knife, till it be partially roasted and dried, the test of which will be its yellowish-brown color. All insect-eating birds may be kept upon this food throughout the year, except when they appear drooping and unwell, or at moulting-time, when a few meal-worms may be given to them twice or thrice a day.

### THE BREEDING-CAGE.

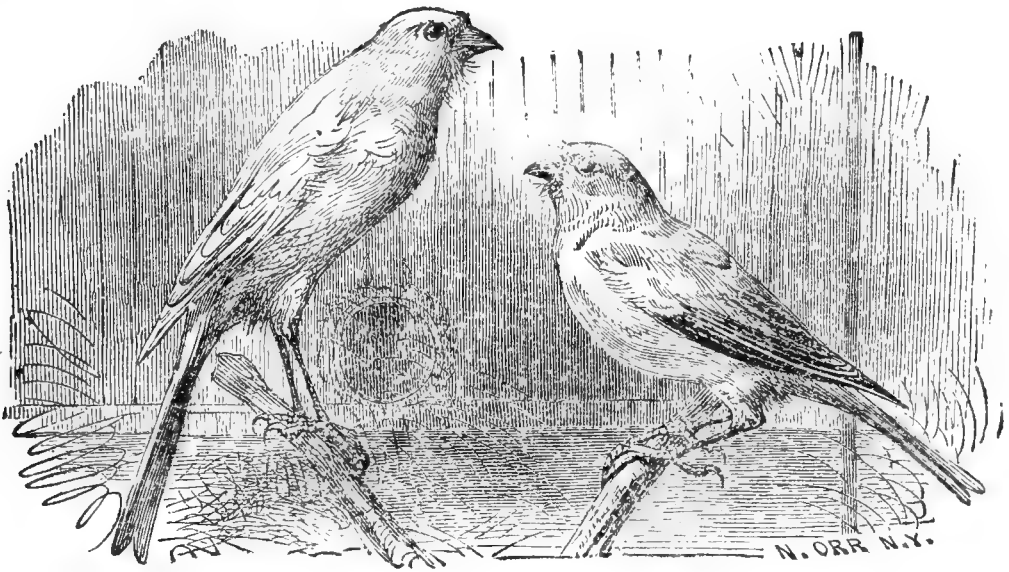
The breeding-cage should be constructed of teak or mahogany, and be about four feet long, eighteen inches wide, and two feet high; and should be made to stand flat on the stand, or it may be hung up against the side-wall of a room. The back of this cage is of wood, and the sides, top, and front, of wire. It should have perches of various heights, for the birds to hop on, and boxes in the further right-hand corner for them to build in. The bottom should be provided with a slide to draw in and out, for the purpose

of cleaning; and it should have drawers for food, and glasses for drinking from. At the proper time a net, filled with moss, hair, and other building materials, should be suspended from one of the top bars; and the whole should present a cheerful and comfortable appearance.



## THE CANARY.

The canary-bird is a well-known captive songster. It is a native of the Canary Islands, and in the wild state its prevailing color is brown, mingled, however, with other colors, but never equalling the beautiful yellow exhibited by the captive bird. Dr. Heineken, who describes its character and habits in Madeira, where these birds abound, says it builds its nest in thick bushy, high shrubs and trees, with roots, moss, feathers, hair, &c. It pairs in February, lays from four to six pale blue eggs, and hatches five, and often six times in the season.



LONG AND SHORT BREED.

In pairing the birds, two birds should be matched which are strong and vigorous; this should be done about the middle of April. The cock and hen may at first be put together in a small cage, to pair them; after which they may be turned out into the proper breeding-cage. After the hen has laid, and while she is sitting, both birds may be fed with groundsel, having seed on it, and afterward chickweed with seed on it. When the young are hatched, let the old birds have plenty of soft as well as other food.

The time of sitting is thirteen days, during which the hen is waited on by her mate with the greatest care and attention. After the eggs have been sat upon for seven or eight days, it may be as well to examine them. Take them gently between your finger and thumb, and hold them before the flame of a candle. If they appear quite clear you may as well throw them away, as they will never come to any thing. If the egg be filled with a sort of network of fine red threads, you may rest satisfied that a bird will be hatched from it. Hen canaries will frequently eat their eggs. The only way to prevent this is to replenish the food-box over night, as the first thing the hen does after laying an egg is to see about her breakfast. If she does not find it she may get into a rage, and destroy all the eggs she has

laid. If, however, your canary be an incorrigible egg-smasher, you had better purchase half a dozen ivory eggs, and each time she lays, the genuine egg must be removed and a fictitious one substituted. When she has done laying, you must restore to her her eggs and chance all the rest. If you store eggs in this way, it is best to keep them in a warm corner in dry silver sand. If possible, however, it is much the better plan to leave the birds to their own devices; indeed, if you should have a hen that cannot be trusted with her eggs, you had better get rid of her.

At the expiration of the thirteen days, the birth of as many little canaries as there were eggs in the nest will reward your care. Then boil a chicken's egg till it is hard, cut it up fine, and add to it part of a roll that has been soaked for a few minutes in water and then squeezed dry. With this mess, the birds (or rather the cock-bird, for on him the duty of feeding the children devolves) will feed the little ones. Never mix more than a tablespoonful of this food at a time, for if it is allowed to go the least sour, you will certainly have to mourn your young canaries.

If through some accident the little birds should be left orphans, it is possible to bring them up by hand. Keep the nest as warm as possible; grate up a plain biscuit, and pound some hempseed; mix the two together, and, moistened with a little raw yolk of egg and water, drop morsels into their gaping mouths with the end of a quill. This must be done once *every hour*, from six in the morning till six in the evening. The quantity administered to each at a meal should not exceed the third of a teaspoonful.

In a fortnight the young birds will be able to shift without their parents, and to feed themselves. When they are a month old you may take them out of the breeding-cage. Do not, however, entirely discontinue the soft food. It should, for at least five weeks longer, be mixed with the usual food of old birds. A sudden substitution of solid food for the softer sort may occasion constipation and death.

The canary is a justly favored pet among boys, for it is a hardy bird, that requires very little trouble; it is a pleasant, fascinating little being, full of quaint ways and sprightly attitudes, and, better than all, the cage is its native element.

Though an ardent admirer of all birds, and indeed of every thing which draws the breath of life, we can never pass the cage wherein is confined a mocking-bird, a thrush, an oriole, or any other of our indigenous birds, without a feeling of sadness and regret.

They are not cage-birds, and never ought to be confined within the narrow limits of wood and wire. Their attitudes show their uneasiness. The mellow, exultant tone of the mocking-bird sounds as joyously when the bird is imprisoned within a cage as when it soars high in air, its wings quivering in the breeze, its frame rejoicing in the glory of the sunbeams, and its ken surveying the wide panorama which lies spread beneath its gaze. But the gestures of the bird are full of eloquent misery, and speak volumes to him who will stop and listen with his eyes.



So with the generality of our cage-birds. The boy who would imprison the mocking-bird, who would limit to one spot the bird which loves to wander, and who would condemn to solitary confinement the creature which is peculiarly destined for conjugal affection, which finds expression in liquid melody, ought to be imprisoned for a month or two, just to see how he likes it. "I can't get out," is the lament uttered in silent gesture by all birds which ought to roam in wild freedom, and have been imprisoned in a cage.

But with the canary the case is different. The pretty little bird never has known wider freedom than that of the cage, and a humane bird-keeper will endow it with increased freedom by enlarging the size of its cage. The free use of wings has never been known to the bird, nor even to its parents; and the perch is to the canary more familiar than the bough. Release an imprisoned oriole, and after the first few moments of surprise it will speed away, exulting in its freedom. Release a bobolink or a thrush, and it will dart swiftly to the well-known shelter of the woods.

But release a canary, and you have committed an act of positive cruelty. The poor bird knows not where to go, or how to procure its food. Throughout all its little life, it has been accustomed to reside within the narrow limits of its cage, and to find its food and water prepared without any expenditure of labor. Consequently, it has no idea of searching for food, but sits bewildered on the branch of some tree, and would perish with hunger simply because it does not know how to procure food.

Ignorance is ever the parent of fear, and a canary-bird has been known to perish of hunger when removed from a small to a large cage, simply because it dared not fly down from the comparatively lofty perch on which it had settled when first introduced, and to which it clung with the tenacity of fear.

In canary keeping much depends upon the kind of bird. We presume that a good singer will be required, as well as a strong and healthy bird. If you are not learned in canary lore, try to induce an experienced friend to choose a bird for you; but if you are not fortunate enough to possess such assistance, the following concise directions may aid you. Look at the birds for sale, and note those that stand straightest on their perches, and that hop quickly and smartly about the little apologies for cages in which they are mostly confined. Next hear them sing before deciding on your purchase, and select the one that possesses the sweetest and fullest tone. The dealer can always make the bird sing when he likes, and if any bird refuses to sing, do not buy it, however handsome it may look.

When you are satisfied with the song, look the bird well over to see that it has no defects; and if you prefer the variegated breed, take care of three principal points—namely, the top of the head, technically called the "cap;" the markings on the back, called "spangles;" and the number of quill feathers in the wings and tail. The cap must be uniform and rich in color, the spangles bold and well defined, and the quill feathers not less than

eighteen in each wing and twelve in the tail. Imperfect or damaged feathers can easily be replaced by pulling them out, for their places will soon be filled with new and perfect feathers.

Some persons prefer the yellow varieties, and many are fond of the crested canaries; others prefer the *long breed*.

The two secrets—if secrets they can be called—in bird-keeping are, a good supply of fresh food and water, and perfect cleanliness.

As to the general management of the canary, it may be summed up by saying that it chiefly consists in judiciously letting alone. Do not meddle with the birds more than is absolutely needed, and do not worry them with medicines whenever they seem to be unwell.

Be careful and protect your birds from insects.

One pest is vigorous throughout the year, and always ready to seize on the birds. We allude to the "red-mite," a parasite known to all bird-keepers.

If you find your birds restless, especially at night, and see them continually pecking among the roots of the feathers, and especially if they lose appetite, and become fretful and ill-tempered to their companions, look out for the red-mite. You can always detect the tiny but formidable foe by placing the bird in a dark room, and, after a few hours, holding a bright lamp close to the cage. If there are any mites about, you will soon see them crawling upon the perches, the wires, and even showing themselves among the feathers. They are not larger than the dot over the letter i, but their numbers are often very considerable, and the injury they inflict is great.

Let not one escape, for it may be the parent of hundreds more. When the red-mites have once obtained possession of a cage, their extirpation is a task of very great difficulty to those who do not understand the constitution of the creatures. So difficult, indeed, is the business, that many fanciers will not even attempt it, but burn the cage and buy another. The metal cages which are now so common, are preferable to those made of wood and wire, inasmuch as they present very few spots wherein the red-mite can find a hiding-place, and for that reason we prefer metal to wood. Even if they have gained admission to an ordinary cage, they can be extirpated without very much trouble. We have succeeded in doing so in several instances, and think that in a fortnight any cage can be freed of its troublesome parasites.

First, place the cage in the sun for a short time, so as to induce the light-hating mites to leave the bird and hide themselves in the crevices of the cage. Remove the bird and transfer it to another cage, or even a box, and let it wait. Take the cage and examine it well, introducing a heated needle or a thin blade of iron into every crevice. Next, take some insect-destroying powder, force it into a hollow paper cylinder, light the paper, put it into the cage, and envelop the whole in a newspaper. Leave it there for an hour, and when you remove it you will see dozens of the red-mites, of all sizes, lying dead on the floor, or clinging half-stupefied by the fumes of the powder. Scrape

them all into boiling water, and dust the whole of the cage with the powder. By this time every mite will be dead, but there is a goodly store of eggs which will be hatched in due time, and infest the cage anew. These are destroyed by means of oil. Take a camel's-hair brush and some salad-oil, and with the brush apply the oil to every crevice. If there should be the tiniest scratch on the wood, touch it with the oil. Let oil be applied to every spot where the wires enter the wood, where they cross each other, and where the hinges of the door are fixed. Every egg will thus be destroyed, and the cage freed.

About half an hour before you restore the bird to the cage, hold it in the left hand, and dust it well with the powder, blowing up the feathers so as to get it well to the roots. Scatter some of the powder upon a piece of soft rag, and roll the bird in it, carefully binding down its legs and wings, under each of which a pinch of powder must be sprinkled. You can now attend to the head, which requires rather neat handling, as the powder is very apt to settle upon the eyes and to worry the bird. Let your feathered pet lie for half an hour in this beneficial bondage, and then replace it in the cage, scattering some powder upon the floor. The bird will shake its plumage sharply, and send a cloud of dust flying, and in a minute or two will begin to peck among the feathers and settle the plumage. The different aspect of the bird is then quite remarkable, for it exchanges the fussy, anxious, fretful moments for quiet ease, and even when it does peck among the feathers, it does so gently and deliberately, and seems quite another bird.

Canaries thrive best on a mixture of what is called canary-seed with rape. Take care, however, not to give too much of the latter. A little hemp should also be occasionally given, but not mixed continually with the other seed, as is the practice with some canary fanciers; for hempseed is a hot, stimulating food, and should therefore be cautiously administered when the bird seems to want a nourishing diet. Groundsel or chickweed should always be supplied to the canaries during the warm season of the year. Green meat altogether is not good for them; an occasional sprig of watercress, however, or a young lettuce-leaf, or a little dry sponge-cake, will not hurt them; but do not let them have these—which should be occasional delicacies—as regular articles of diet. A little hard-boiled egg will often set up a moping bird; but, as a general rule, plain food, renewed daily, and not administered in too great quantities, will be found best. Change the drinking water regularly every day, and when the bird is moulting put a sprig of saffron, or a rusty nail into the drinking vessel. Let the birds have a frequent opportunity of bathing, either from a bath fixed at the side of the cage for the purpose, or in a small shallow vessel placed on its floor. The practice of letting canaries out of their cage for an occasional flight must be indulged in with caution. Many a bird has escaped through some unnoticed aperture, and many another has met an untimely death on the bars of the grate; indeed, no bird should be allowed to fly about in a room in which there is a fire.

## THE MOCKING-BIRD.



The mocking-bird is peculiar to this continent, and is an ornament of the forests of the Southern, and some of the Northern States, where it makes its appearance about the first of June, and begins nesting soon after. This pet is without doubt one of the most wonderful of feathered wonders. Its imitations are not mere burlesques, and it will render the melodious notes of the nightingale not less clearly than the bray of the jackass. The Mexican name for this little creature is "the bird of four hundred tongues." "In extent and variety of vocal powers," says Wilson, "the mocking-bird stands unrivalled by the whole feathered songsters of this or perhaps any other country. Its plumage, though none of the homeliest, has nothing gaudy or brilliant in it, and, had he nothing else to recommend him, would scarcely entitle him to notice. But his figure is well proportioned, and even handsome. The ease, elegance, and rapidity of his movements, the animation of his eye, and the intelligence he displays in listening to and

laying up lessons from almost every species of the feathered creation within his hearing, are really surprising, and mark the peculiarity of his genius. To these qualities we may add that of a voice full, strong, and musical, and capable of almost every modulation, from the clear and mellow tone of the wood-thrush to the savage scream of the bald eagle. In measure and accent he faithfully follows his originals; in force and sweetness of expression he greatly improves upon them. In his native groves, mounted on the top of a tall bush or half-grown tree, in the dawn of the dewy morning, while the woods are already vocal with a multitude of warblers, his admirable song rises pre-eminent over every competitor."

Nothing comes amiss to the mocking-bird—the bark of a dog, the tremulous quavering of the canary, the creak of a wheel-barrow, or the soft cooing of the wood-pigeon. In a domesticated condition, however, the mocking-bird's chief characteristic renders it impossible that he should be regarded as a sober chamber musician. For a while he will be content with his own natural melody, which consists of from two to six short full notes, but the least noise is sufficient to disturb the flow of his natural melody, and one suggestion giving rise to another, you presently hear a Babel of bird music almost impossible to bear. "His imitations of the brown thrush," says a well-known naturalist, "are frequently interrupted by the crowing of cocks; the exquisite warblings of the bluebird are by no means improved by the screaming of swallows or the cackling of hens; the shrill reiterations of the whip-poor-will are introduced into the simple melody of the robin. The uninitiated look around for the original, and then find that what appeared to be the product of a number of performers is really that of the single bird before us."

So jealous is the mocking-bird of its nest, that should it be too closely approached, it will destroy the entire structure, and at once forsake the neighborhood. It is even asserted that if the eggs should be hatched, the hen will, under such circumstances, kill her naked little brood and then decamp. However this may be, it must not be regarded as arising from want of affection, as no bird is more courageous than the mocking-bird in defence of its young. Should a boy attempt the nest, it will attack his face and hands with the ferocity of the hawk; and even its enemy, the black snake, is not always victorious in its burglarious onslaught in a mocking-bird colony; fearless of the reptile's nimble fang, the birds will press about it, and, with the swiftness of an arrow, dart at it with their spear-like beaks.

The eggs of the mocking-bird are four and sometimes five in number, and of a deep blue, blurred with irregular brown patches. Two broods are usually produced each year, though, should the bird be robbed or disturbed during incubation, she will build and lay a third time. It should be stated, however, that Bechstein is of opinion that the parent birds rear only one brood in a season, which would tend to account for the scarcity of this curious bird. In its first plumage the young mocking-bird is of a dull yellowish-gray on the upper portions of the body, while the under portions are yellow-

ish-white, the centre of each feather being streaked with brown. After the first moult, however, the bird's plumage assumes a blending of brown and brilliant yellow, which it wears ever after.

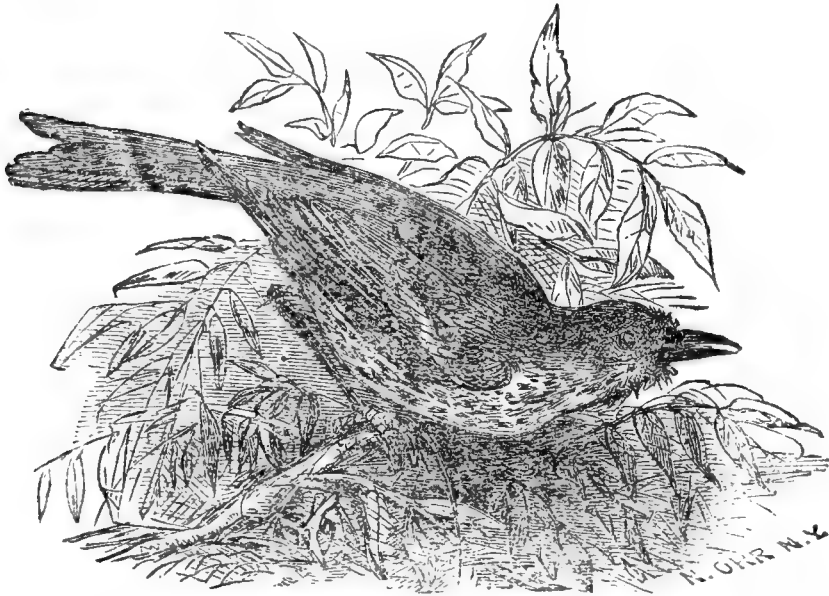
Audubon gives a most interesting account of the loves of these elegant birds, which, though we have not space to quote, we shall embody in our narrative. They often select the vicinity of the planter's house, where, surrounded by the richest scenery, and embowered amidst thousands of beautiful flowers, they build their nest. The female selects the spot, the male the while attending and aiding her in her choice. The golden orange, the beautiful magnolias and bignonias, the fig and the pear trees are inspected, and these quite close to the house; for the birds know that, while man is not a dangerous enemy, his dwelling is usually protected from strong winds, and therefore they fix their abode in its vicinity, perhaps in the nearest tree to his window; and so little suspicious are they of interference, that they often build them so low that you can see into them as you stand.

In a state of freedom, the principal food of the mocking-bird consists of insects, grasshoppers, and worms. Dewberries from the fields, and many kinds of our cultivated fruits, together with insects, supply the young as well as the parents with food. In winter, they chiefly subsist on berries, particularly those of the Virginia juniper (red cedar), wax myrtle, holly, smilax, sumach, sour gum, and a variety of others.

Successful attempts have been made to breed these birds in confinement, by allowing them retirement and a sufficiency of room. Those which have been taken in trap cages are accounted the best singers, as they come from the school of nature, and are taught their own wild-wood notes. The young are easily reared by hand from the nest, from which they ought to be removed at eight or ten days' old. Their food is thickened meal and water, or meal and milk, mixed occasionally with tender fresh meat, minced fine. Animal food, almost alone, finely divided and soaked in milk, is at first the only nutriment suited for raising these tender nurslings. Young and old require berries of various kinds, from time to time, such as cherries, strawberries, whortleberries, etc., and, in short, any kind of wild fruits of which they are fond, if not given too freely, are useful. A few grasshoppers, beetles, or any insects conveniently to be had, as well as gravel, are also necessary; and spiders will often revive them when drooping or sick. But, notwithstanding all the care and management bestowed upon the improvement of this bird, it is painful to reflect that his extraordinary powers of nature, exercised with so much generous freedom in a state of confinement, are not calculated for long endurance; for, after this most wonderful and interesting prisoner has survived six or seven years, blindness often terminates his gay career. Thus shut out from the cheering light of heaven, the solace of his lonely, though active existence, he now, after a time, droops in silent sadness and dies. At times, this bird is so infested with a minute species of louse as to be destroyed by it.

## THE BROWN THRUSH, OR THRASHER

The brown thrush, as a songster, ranks next to the mocking-bird, and, like the latter, is a genuine American, being found in almost every part of the United States, from Canada to the shores of the Mexican Gulf, breeding, according to Mr. Nuttall, in all the intermediate space. The brown thrush is more brilliant in plumage than his rival, the mocking-bird: above, he is bright reddish brown; beneath, yellowish white; the legs are black, and the breast and sides are covered with arrow-headed dark-brownish spots.



The habits of this bird are much the same as those of the mocking-bird; but he is more of a Northerner, and occurs as frequently in Northern States as the mocking-bird does in the South. His voice somewhat resembles that of the European thrush, but is far more varied and powerful, rising pre-eminent amidst the forest choir.

On the first appearance of this bird in the spring, he falters in his song, like the nightingale; but when his mate commences the cares and labors incident to breeding and rearing her young, his varied and melodious notes are steadily poured out in all their vigor and strength. In the month of May, while the blooming orchards perfume the air and decorate the landscape, his enchanting voice, in his affectionate lay, seems to give grateful utterance for the bounty and teeming profusion of nature, and falls in pleasing unison with the harmony and beauty of the season; and even the young birds, in a state of solitary domesticity, without the aid of their parent's voice, already whisper forth, in harmonious reverie, the pathetic and sweet warble instinctive to the species.

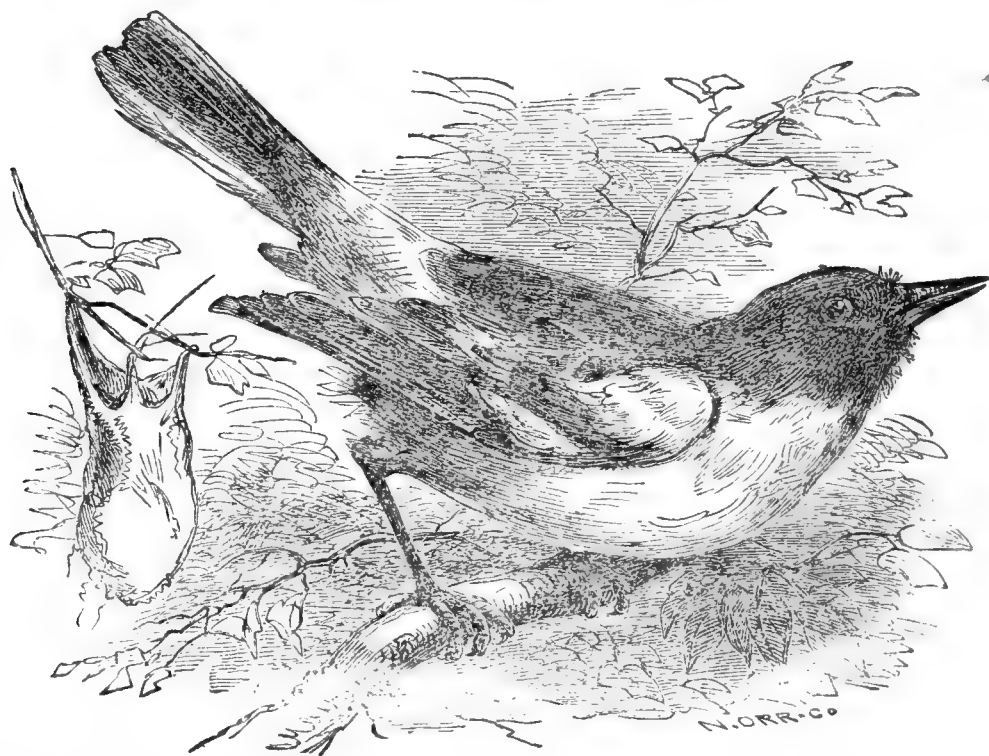
Deprived of other society, in a state of captivity, the brown thrush is exceedingly familiar, cheerful, and capriciously playful. He courts the attention of his keeper, follows his steps, complains when neglected, flies to him when permitted to be at large, and gratefully sings and reposes when

perched on his hand. In short, in all his actions, he appears capable of real and affectionate attachment; but, like many other animals, he is jealous of every rival, particularly any other bird, which he drives from his presence with unceasing hatred.

According to Audubon, the natural food of this species consists of insects, worms, berries, and fruits of all sorts, being particularly fond of ripe pears and figs. In winter, they resort to the berries of the sumach, holly, dogwood, and shrivelled wild grapes.

In a state of confinement, these birds may be reared in the same manner, and on the same kind of food as their congener, the mocking-bird. In the autumn of the first season the young begin their musical studies, "repeating passages with as much zeal as ever did Paganini." By the following spring their lessons are complete, and the full powers of their song developed.

#### THE BALTIMORE ORIOLE.

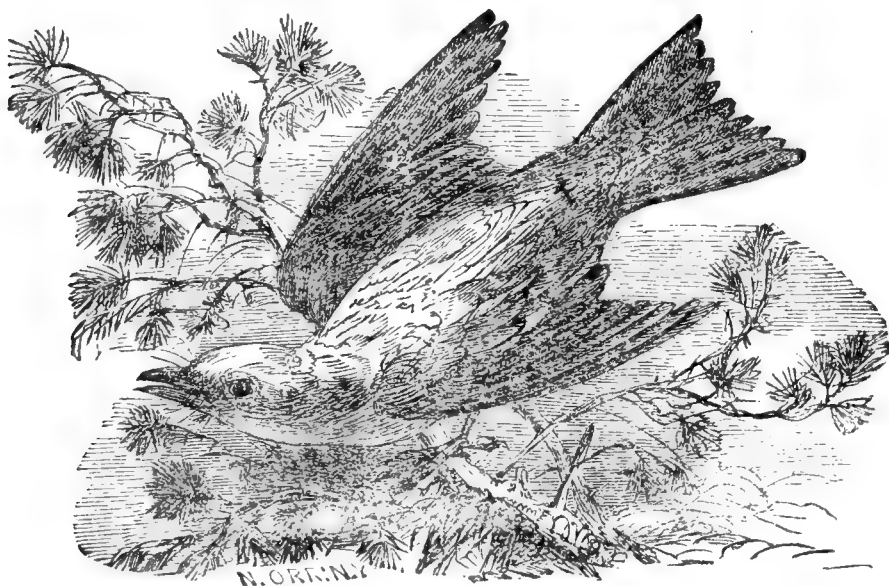


This beautiful pet is familiar in all the orchards of the United States. The plumage of the male is exceedingly brilliant, the under parts being a bright orange yellow. Head, throat, back, and tail, black; legs and feet lead-colored. Its eggs are bluish white, with pale brown spots and lines, and it raises two broods in a season. Goodrich says: "These birds appear among us from their far Southern home in May; their arrival is hailed by young and old as the harbinger of spring and summer. Full of life and activity, these fairy sylphs are now seen glancing through the boughs of the loftiest trees, appearing and vanishing like living gems. The same curious fact exists in respect to them as in respect to many other birds; in the long migration from the South—often several thousand miles—the sexes



have been separate; the males arrive several days before the females, not in flocks, but singly. At this time they fill the air with their notes, which, however, are shrill and plaintive, as if their joy was incomplete. Soon their partners arrive, and after many battles between the lovers, the pairing is completed, and amid frolic and song the nest is begun. This is usually the period when the apple-orchards are in bloom, and nothing can afford a picture of more enchanting and vivid beauty than these brilliant birds, in the midst of perfume and showering blossoms, sporting, singing, and rollicking—nay, sipping the honey and feasting on the insects, as if these bowers were all their own. At this time the notes of the male are often a low whistle, or now and then a full trumpet tone, one following the other in slow or rapid succession; even the female sings, though with less melody. Many of the notes of both are colloquial, and it is not difficult for a listener to fancy he hears questions and answers between the lively couple, with occasional side observations in various keys, indicative of approbation or reproach, admiration or contempt. If a dog or cat chances to approach the neighborhood of the nest, a volley of abuse, in a sharp rapid tone, is sure to be poured out upon the intruder." The nest of the oriole is a pendulous cylindric pouch, of five to seven inches in depth, usually suspended from near the extremities of the high drooping branches of trees, such as the elm, the pear, or apple-tree, wild cherry, weeping-willow, tulip-tree or buttonwood. The food of this little pet consists chiefly of flies, beetles, worms, and caterpillars. When domesticated it can be kept on meal and water with occasionally a piece of sweet fruit. The oriole is easily tamed, and is docile and playful in confinement. It has a turn for mimicry, and can be taught to imitate the notes of other birds.

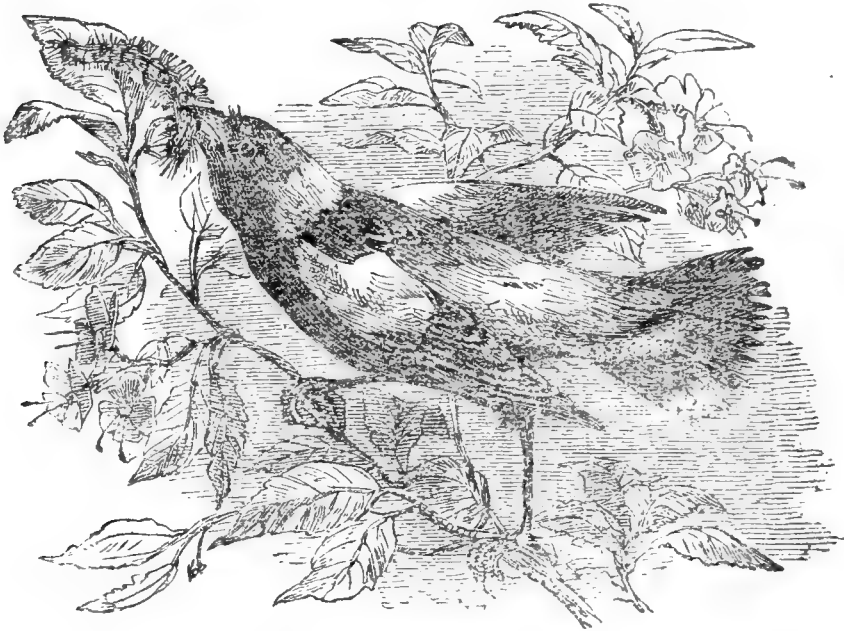
#### THE SCARLET TANAGER.



The scarlet tanager is one of our most brilliant birds, and is better known to the woodsman than the frequenter of fields or parks. It arrives among

us from the South in April, and extends its migrations to Canada and even farther North. The plumage of the male is a bright scarlet, and the wings and extreme of the tail black. This gaudy sylph, as if conscious of its attractions, seeks to hide them in the thickest woods, where it rears its brood, and during this period the male delivers a highly musical song. The food of the tanager consists of worms, beetles, wasps, and other insects. It departs for the South early in September. This beautiful bird is a gaudy pet, but is difficult to domesticate.

### THE BOBOLINK.



“The bobolink” has been called the harlequin of the meadows, and is one of the most garrulous of all the warblers that gladden our Northern spring-time, and from the middle of May to the last week in June the meadows are ringing with his merry song. Perched upon the topmost bending branch of some little tree standing alone in the field, he takes his station or music-stand, and pours out his delicious melody, seemingly for the exclusive delectation of himself, and surrounding nature secondarily, as represented in assembled clover-blossoms, buttercups, and wild daisies. Anon, with a sudden start, he flutters skyward with increased volume of song, as if struggling for further inspiration, until his notes are almost lost in the distance. Quickly he sweeps down again upon the tree-top, as if overcome with ecstasy at his own music.

“Of all the birds of our groves and meadows,” says Irving, “the Bobolink was the envy of my boyhood. He crossed my path in the sweetest weather and the sweetest season of the year, when all nature called to the fields, and the rural feeling throbbed in every bosom, but when I, luckless urchin! was doomed to be mured up during the live-long day in that purgatory of boyhood, a school-room. It seemed as if the little varlet mocked at me as he

flew by in full song, and sought to taunt me with his happier lot. Oh, how I envied him! No lessons, no task, no hateful school; nothing but holiday, frolic, green fields, and fine weather. Further observation and experience have given me a different idea of this little feathered voluptuary, which I will venture to impart for the benefit of my school-boy readers, who may regard him with the same unqualified envy and admiration which I once indulged. I have shown him only as I saw him at first, in what I may call the poetic part of his career, when he in a manner devoted himself to elegant pursuits and enjoyments, and was a bird of music, and song, and taste, and sensibility, and refinement. While this lasted he was sacred from injury; the very school-boy would not fling a stone at him, and the merest rustic would pause to listen to his strain. But mark the difference. As the year advances, as the clover blossoms disappear, and the spring fades into summer, he gradually gives up his elegant tastes and habits, doffs his poetical suit of black, assumes a russet, dusky garb, and sinks to the gross enjoyments of common, vulgar birds. His notes no longer vibrate on the ear; he is stuffing himself with the seeds of the tall weeds, on which he lately swung and chanted so melodiously. He has become a 'bon vivant,' a 'gourmand;' with him now there is nothing like the 'joys of the table.' In a little while he grows tired of plain, homely fare, and is off on a gastronomical tour in quest of foreign luxuries. We next hear of him, with myriads of his kind, banqueting among the reeds of the Delaware, and grown corpulent with good feeding. He has changed his name in travelling: Boblincon no more, he is the *Reed-bird* now, the much sought for tidbit of Pennsylvania epicures; the rival in unlucky fame of the ortolan! Wherever he goes, pop! pop! pop! every rusty firelock in the country is blazing away. He sees his companions falling by thousands around him.

"Does he take warning, and reform? Alas, not he! Incurable epicure! again he wings his flight. The rice-swamps of the South invite him. He gorges himself among them almost to bursting; he can scarcely fly for corpulency. He has once more changed his name, and is now the famous *Rice-bird* of the Carolinas.

"Last stage of his career; behold him spitted with dozens of his corpulent companions, and served up a vaunted dish on the table of some Southern gastronome.

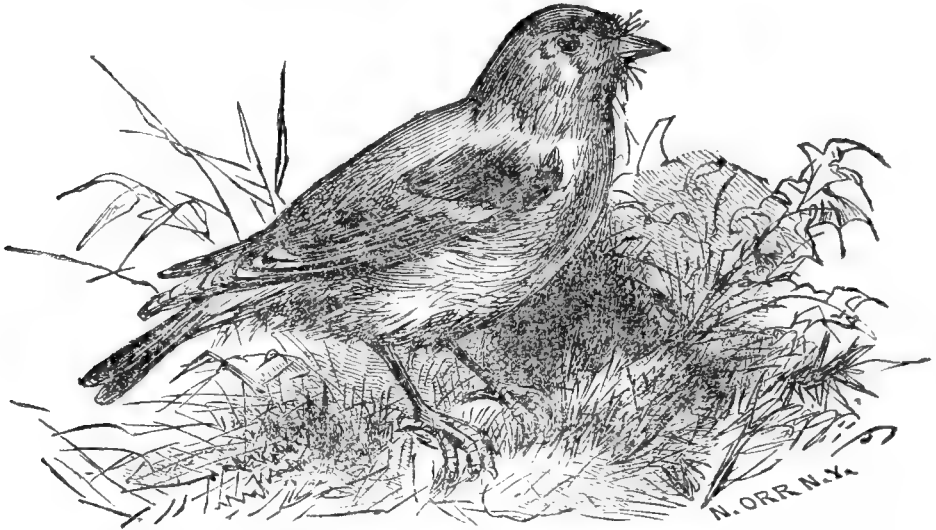
"Such is the story of the bobolink; once spiritual, musical, admired, the joy of the meadows, and the favorite bird of spring; finally, a gross little sensualist, who expiates his sensuality in the larder. His story contains a moral worthy the attention of all little birds and little boys, warning them to keep to those refined and intellectual pursuits which raised him to so high a pitch of popularity during the early part of his career; but to eschew all tendency to that gross and dissipated indulgence which brought this mistaken little bird to an untimely end."

The bobolink is black; head and rump white, tinged with yellow. They feed upon crickets, grasshoppers, spiders, and seeds of various kinds.

The young may be easily domesticated, and thrive well upon the seeds for canaries.

He will quickly learn the notes of the canary, and, by breeding together, produce a fine songster.

### THE YELLOWBIRD.



The "yellowbird," or "American goldfinch," is one of the few birds we have with us all the year round. It feeds on oily seeds, particularly of the sunflower, lettuce, thistle, &c. His nest is made on small trees or tall bushes. The plumage of the male is quite brilliant. He can be easily domesticated, and takes readily to the food of the canary, and being capable of learning many tricks, is an agreeable pet.

In confinement, the yellowbird soon becomes familiar and reconciled, its song being nearly as animated and sonorous as its transatlantic congener. According to Mr. Audubon, it is extremely hardy, often remaining the whole winter in the Middle States, and, when deprived of liberty, will live to a great age in a room or cage. "I have known two instances," says he, "in which a bird of this species had been confined for upwards of ten years. They were procured in the market of New York, when in mature plumage, and had been caught in trap cages. One of them having undergone the severe training, more frequently inflicted in Europe than America, and known in France by the name of *galérien*, would draw water for its drink from a glass, it having a little chain attached to a narrow belt of soft leather fastened round its body, and another equally light chain fastened to a little bucket, kept by its weight in the water, until the little fellow raised it up with its bill, placed a foot upon it, and pulled again at the chain until it reached the desired fluid and drank, when, on letting go, the bucket immediately fell into the glass below. In the same manner, it was obliged to draw towards its bill a little chariot filled with seeds; and, in this distressing occupation, was doomed to toil through a life of solitary grief, separated from its companions wantoning on the wild flowers, and procuring their food in the manner in which Nature had taught them."

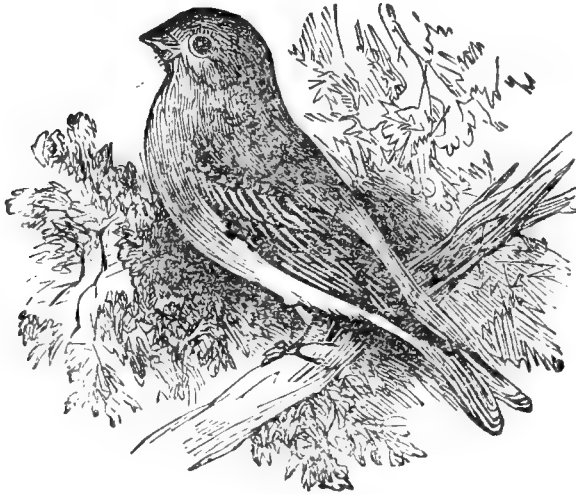
## THE BLUEBIRD.

The bluebird, or blue robin, as it is sometimes called, resembles very much in manner the "robin redbreast" of Europe, and is hailed with us as the first harbinger of spring.

They sometimes hibernate in the Northern States, by seeking out some sheltered sunny spot; but this is a very rare occurrence. They make their appearance early in March, and leave late in autumn, going as far as Mexico. The bluebird is very prolific, laying from four to six blue eggs, and raising several broods in the year. They usually select a nesting-place near the house, and in any sheltered crevice. We have often seen them nesting in old rail-holes in fence-posts.

They will also appropriate the little boxes which have been nailed up for the martins, and frequently contest with the wrens for lodgment in them. In summer they feed upon insects, changing in the autumn for cedar-berries, wild cherries, &c. They can be quite easily accustomed to the cage, and become agreeable pets.

## THE REDPOLE.



This beautiful little bird is found in both the Old and New Worlds. It is a hardy northern species, inhabiting even Lapland and Greenland, and is a permanent resident of the fur countries. In winter, numbers of them migrate southward, proceeding in the United States as far as Pennsylvania.

Its winter haunts are those spots which abound in alders, on the seeds of which, as well as on those of the fir and the berries of the ash, it delights to feed. Linseed and rape are also a favorite food with it.

It is subject to bad feet, sometimes losing its toes, which drop off one after the other. This is a beautiful bird when in full plumage, the rump, under side of the neck, and breast being a rosy red color, and the vertex a bright crimson; across the wings are two transverse bars of white, clouded with rusty yellow, which is the color of the beak. In the female the tints

are paler, and the red on the breast is wanting, as well as on the rump, except in very old birds, which have a slight tinge in these places. The males of the first year also want the red breast, but they may be distinguished from the adult hens by the rusty yellow markings and a darker brown on the back.

In consequence of their docility, they have been taught to perform a great many tricks, to come and go at command, to draw up water, go up a ladder, to fall down as if dead, &c. Their food is rape and canary-seed, and they are fond of groundsel, plantain, and seeded chickweed; they may also be occasionally treated with a few grains of hempseed.

### THE EUROPEAN BLACKBIRD.



Being a permanent resident throughout the whole of the Old World, even as far north as Sweden, the European blackbird is sufficiently hardy by nature to withstand the climate of nearly, if not all parts of the United States. Of all the thrushes, with perhaps the exception of the American robin, he is the most capable of instruction. His song is rich in melody, and contains some deep notes like those of the nightingale, varied indeed with some that are disagreeably harsh. At large, he sings only from March to July, especially at night; but in the cage, during the whole year, except at moulting time. A single bird will enliven a whole street, so pure, distinct, and clear is his note. His memory, also, is so good, that he will learn several airs and melodies without mixing them; and sometimes even to imitate words. Neither does he forget what he has once well acquired.

When wild, the blackbird, like other species of thrush, feeds on all kinds of edible berries, such as the elder, cherry, and mountain ash; and when this food is not abundant, it satisfies itself with the tips of the white thorn. At this time it often seeks for insects in the vicinity of warm springs.

In confinement, these birds will eat bread, meat, and most kinds of food that comes to table. The young, which must be taken from the nest when their quills have but just sprung, can be reared upon roll steeped in milk.

The blackbird should be kept in a large cage, for it is not prudent to allow it to associate with other birds, as, either through covetousness or caprice, it will attack the smaller kinds, and even peck them to death. Like all the allied species, this bird is fond of frequent bathing, and consequently should be amply supplied with the means. In captivity, he will live from twelve to fifteen years, especially if his food be varied.

### THE BLUE JAY.



The American blue jay is a very handsome bird; on his head he wears a crest of light blue, and the upper portions of his body are of a light bluish purple. The chin, cheeks, and throat are bluish white, while the abdomen is pure white. The wing-coverts are of rich azure, barred with black streaks, and tipped with white. The middle feathers of the tail are light blue, deepening into purple towards the tips, and the remaining feathers are light blue, barred with black and tipped with white.

The blue jay is a great scamp, and robs the nests of other birds, frequently feeding upon their young.

As an imitator of voices and sound, the blue jay is unequalled, and will, with equal fidelity, utter the softest and most musical notes, or the harsh

screaming of the hawk. Indeed, in the latter performance it seems to take an especial delight, and, true to the mischievous character of the family, will sometimes break out into the loud scream of the hawk, to be immediately followed by the tiny wailing of a bird in distress, at once putting all the little songsters in the neighborhood into terrible commotion.

The negro slaves in the Southern States regard this bird with singular superstition. They believe the jay is the special agent of the dark gentleman below, and that it carries all manner of slanderous tales to him, especially concerning "niggers," and also supplies the fuel to burn them with. Hence they are regarded with deadly animosity by the blacks.

Says Webber, "When I was a boy, I caught many of them in traps during the snows, and the negro-boys, who generally accompanied me on my rounds to the traps, always begged eagerly for the jay birds we captured to be surrendered to them, and the next instant their necks were wrung, amidst shouts of laughter."

As to diet, the blue jay is not a strict vegetarian, but devours more animal food than any thing else. Still it is very partial to fruit and nuts, as the agriculturist often finds to his cost. It will, if captured young, become very domesticated and attached to its owner, and will readily learn to talk, which acquisition it is very fond of displaying to strangers.

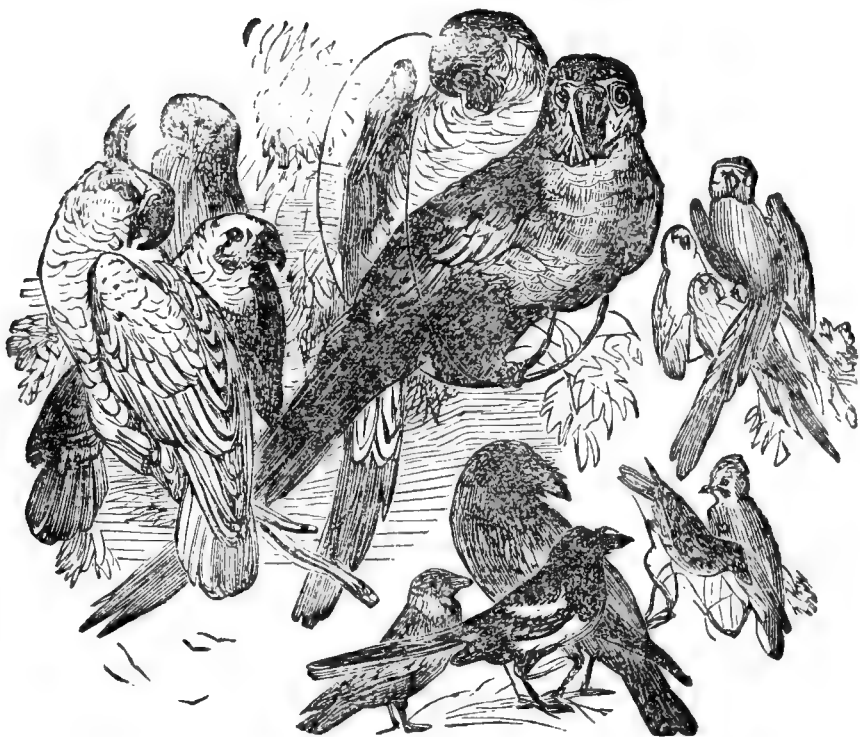
### THE CROW.

This is an amusing fellow, who is frequently caught when young, and tamed. He has a great many amusing tricks, and may be taught a few words, with patience. He is a great thief, however, and, like the English magpie, hides many trifles in out-of-the-way places. He is fed on corn and peas, with occasional scraps of raw meat. The crow, jay, mocking-bird, and oriole are all mimics, and to some degree talkers, but in the latter respect they will not compare with the parrot tribe, which we will hasten to describe.



MEDITATION.





## TALKING-BIRDS.

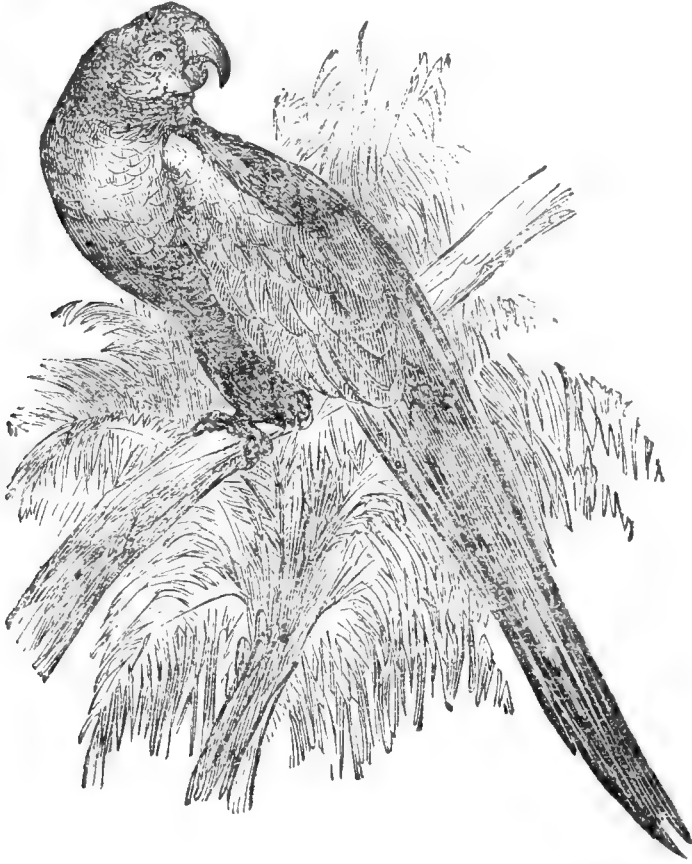
**FOREMOST** among Talking-birds are the Parrots—a most numerous, splendid, and highly characteristic family of birds, subdivided into several groups, chiefly according to the form of the bill and tail; as the macaws, cockatoos, lories, paroquets, &c. The greater part are tree-birds, belonging to the order of climbers. The foot of the true parrot is a grasping rather than a walking one, and partakes more of the nature of a hand than of a foot. They all unite great beauty with great docility, and their facility in imitating the human voice is greater than that of any other bird.

Parrots inhabit principally the luxuriant tracts of the torrid zone, but are not exclusively confined to it, and are found in latitudes as far as forty or fifty degrees north and south of the equator. They are almost exclusively vegetable feeders, and the kernels of fruit and the buds and flowers of trees are their principal food.

In the natural state, many of them are social birds, often issuing from the trees in large flocks, and laying the cultivated fields under severe contributions. Social birds are almost always capable of being tamed, nearly in the same ratio as they are sociable; and this is particularly true with regard to parrots, who may be trained to do almost any thing; and they show great attachment to those who feed them and are kind to them. They also suffer less from confinement than most other birds, because their habit of climbing enables them to take a great deal of exercise in a small space. They are long-lived birds, and some have been known to attain the age of eighty years. Both cock and hen birds are equally gifted with the power of speech. As regards beauty, however, the cocks claim the advantage.

## MACAWS.

The macaws are not among the best talkers. They have the bill rather short, but of great power. The upper mandible is very much hooked, with the lip descending far over the under one. In a wild state, they nestle in



the holes of trees. They are particularly distinguished by having their cheeks destitute of feathers, and their tail feathers long. They are all natives of the tropical regions of South America, where they perch upon the summit of high trees. The scarlet macaw is one of the most splendid with regard to color, as well as size; for, from the top of the bill to the extremity of the tail, some have been known to measure more than a yard. Its color is, for the most part, of a beautiful scarlet; the quill feathers, externally, of a bright blue, and on their under side of a faint red; the first feathers next the quills are of a bright yellow, some of the feathers being tipped with green. Other parts of the body are of a fine blue, and the longest feathers of the tail are entirely red.

## BLUE AND YELLOW MACAW.

The blue macaw, or the blue and yellow macaw, is less common than the red macaw, but little inferior in point of size. The feathers on the head of this bird are green, gradually becoming blue on the neck; the upper side of the neck, the back, and upper sides of the wings and tail, are of an

exceedingly fine olive color. All the blue feathers of the back, wings, and tail, are of a reddish yellow on their under sides. The forepart of the neck,



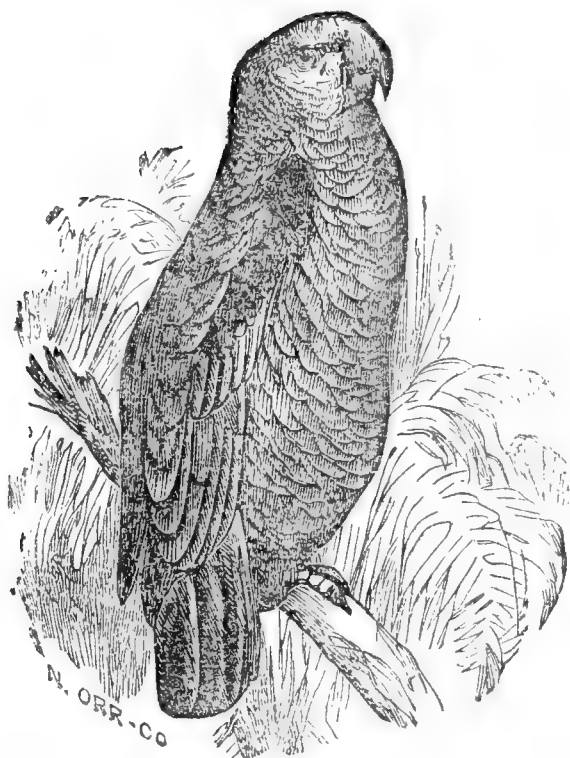
the breast, belly, thighs, and covert feathers under the tail, are of a fine yellow orange color, as are the covert feathers withinside. The legs and feet are nearly black.

### THE GRAY PARROT.

This species is remarkable for its loquacity, docility, and distinctness of articulation. It is about the size of a pigeon, and in length about twelve inches. Its color is an elegant ash gray, deeper on the upper parts, and more inclinable to white underneath; the whole of a sober color, having a very elegant appearance. The tail is of the brightest crimson, the temples, or orbits of the eyes, bare and white, the bill black, and the legs cinerous. It is said to live to nearly a hundred years; and the facility with which it can be taught, not only to speak, but to repeat sentences, is scarcely credible.



## THE GREEN PARROT.



This beautiful bird is rather larger than the common gray parrot. Its plumage is a fine green, the feathers edged with purplish brown, in the front; all round the base of the bill is bright red, the cheeks deep blue, and the top of the head yellow; the edge of the wings at some distance beyond the shoulders is red; all the quill feathers and wing coverts deep or dusky blue. The outside feather on each side the tail deep blue, tipped with yellow; the next feather red, with a similar yellow tip; and all the remaining ones green, with yellow tips; the bill pale, and the legs and feet dusky.

## PAROQUETS, OR PARRAKEETS.



These belong to the parrot tribe, but are much smaller in size, and have longer tails. There are numerous species, the most beautiful of which is the song parrot, which is not more remarkable for its beauty of form and gracefulness of movement than for its docility and imitative powers. It is about the size of a common pigeon, and its general color an elegant bright green above, paler or yellower beneath. It has a moderately broad black band or stripe round its neck, and a red collar, near half an inch in width, but narrowing as it passes forward, immediately beneath the black one, almost reaching the front of the neck. The bill is of a bright orange color, inclining towards red; the tail feathers often of a bluish tinge;

the legs ash-colored. The Ringed Parrakeet is frequently seen domesticated in this country, where its pleasing manners and gentle disposition render it a general favorite. It soon learns to repeat words and short sentences, and to speak with tolerable distinctness.

## THE CAROLINA PARRAKEET.

This parrot is peculiar to North America, and is indeed the only bird of the species found there. It is met in the United States as far north as Lake Michigan, but on the east coast does not extend beyond Maryland.

Not the least singular fact connected with the Carolina parrakeet is, that, being of a family otherwise so exclusively confined to the hottest regions of the tropics, it should be discovered at such an immense distance from what has been designated its natural home. That it is not a bird of passage is evident, as it has been seen in great flocks on the shores of the Ohio as late in the season as February. Various attempts have been made to account for the existence of such eminently hot-climate birds in a region where, at certain seasons of the year, ice and snow prevail, but among them all the following seems most feasible. "It is not to be ascribed to a milder climate prevailing in these parts, so much as to the existence of certain peculiar features of country, to which these birds are particularly and strongly attached. These are low, rich, alluvial bottoms, along the borders of creeks, covered with a gigantic growth of sycamore-trees or button-wood; deep and almost impenetrable swamps, where the vast and towering cypresses lift their still more majestic heads; and those singular *salines*, or, as they are called, *licks*, so regularly interspersed over that country, and which are regularly and eagerly visited by the parrakeets."

The Carolina parrakeet averages about fourteen inches in length from the base of its beak to its tail tip. The ground color of the bird is vivid emerald green dashed with purple and blue. The forehead and cheeks are orange red, and the rest of the head and neck gamboge. The body and under parts are a delicate yellowish green. The tail is green, tinged with orange red. The beak of this parrakeet is rounded and very hard and strong, and if it gets a fair chance to bite, you may depend it will not neglect it.

In a natural state the parrakeets of Carolina are exceedingly sociable and kind one to another. They fly in large flocks, and roost in companies thirty or forty strong in the inside of a hollow tree, or other convenient shelter.

## COCKATOOS.

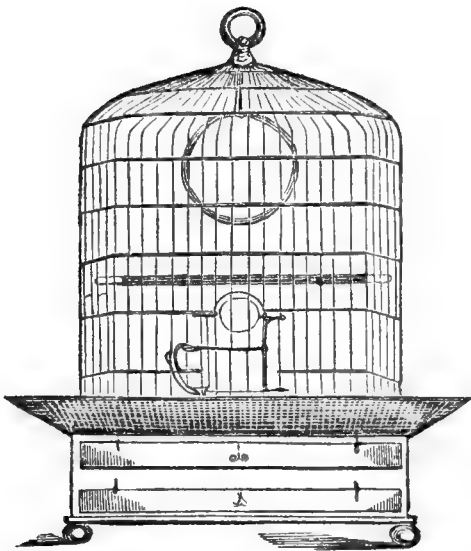
Cockatoos are distinguished from true parrots, although they belong to the parrot family, by a crest or tuft of elegant feathers on the head, which they can raise or depress at



pleasure. They are, in general, natives of Australia and the Indian Islands, inhabiting the woods, and feeding upon seeds and fruits. They make their nests in decayed trees; and, if taken at an early age, are easily tamed. There are several varieties of the cockatoo, of which the broad-crested or great white cockatoo is the most common. It is about the size of a common fowl; the color white, with a faint tinge of rose-color on the head and breast, and of yellow on the inner wing and tail feathers. The head has a very handsome crest of long feathers, which are of a fine scarlet underneath, and cover the whole head. The orbits of the eyes are bare and of a deep ash color; the bill is of a bluish black, and very strong. It is of a mild and docile disposition, but can rarely be taught any other words than its own name.

The Great Sulphur-crested Cockatoo is somewhat larger than the above; its color is white, slightly tinged with yellow on the sides of the tail and about the wing coverts; and it has a longish tail. The small sulphur-crested cockatoo is much smaller, but is much like the above; its crest is sulphur color, and it has in addition a large yellow spot beneath each eye; the bill black, and the legs deep lead color. It is a native of the Molucca Islands.

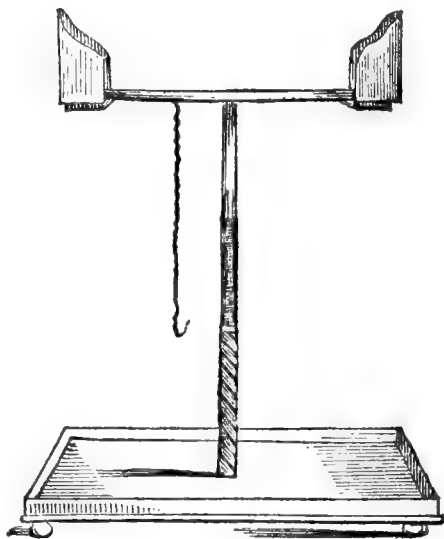
#### MANAGEMENT OF PARROTS, ETC.



All the varieties of parrots require great care and attention. Their cages should be commodious, strong, and comfortable. The perches should be thick in the middle, and conveniently placed for the bird to exercise himself upon without injuring his feathers. Besides the perches, there should be hung, quite clear of them, at the top of the cage, a ring or hook, freely movable, upon which the bird can take exercise, and roost at night; and the grasping part of this should be of the requisite thickness for the size of his hands or claws.

Unlacquered brass wire is frequently used in the construction of parrot cages, but this is an error which has caused many a fine bird's death. It is impossible to avoid the accumulation of verdigris on this metal, and this the bird will peel off. Although the effects of the poison may not be manifest for some time, even for a year, the bird's constitution will be gradually undermined, his body will waste, and he will die. Let the cage be constructed of tin wire. Attached to the perch, one at each extremity, should be the food and drinking vessels. They may be made of glass or porcelain. The floor of the parrot cage should be well covered with coarse red sand, and the cage itself should be cleaned out every day in the summer, and twice a week in the winter. Some prefer

to do without the cage altogether, and to attach the bird to an open perch fixed to an ornamental stand. When this is done, care should be taken that a slight metal chain should be used for the purpose, as any less durable material would speedily be bitten through by the parrot's powerful beak. One of the most tiresome maladies from which birds of the parrot family suffer is diseased feet. Not only is it unsightly, causing the poor creature to squat down in an ugly manner, but the pain is sufficient to spoil the temper of the most amiable parrot that ever lived. In nine cases out of ten, the sore feet are occasioned by some fault in the perch. It is not kept clean, or it is merely a straight round stick. This latter shape should be avoided. Let the perch be at least a third bigger in the middle than at the ends, tapering gradually. This will afford the bird considerable ease, and tempt him to change his footing.



The macaw cage should be cylindrical, and at least three feet and a half in diameter, and six feet high. Unless the blue macaw has at least this space for exercise, he will speedily get diseased feet, and be liable to fits. Its excrement is particularly offensive, and should be removed at least twice a day. He is fond of bathing, and if not indulged with plenty of water for this purpose, his close plumage will soon swarm with parasites. When this is the case, the bird should be well syringed with a solution of white precipitate, and furnished afterward with a tepid bath, as the precipitate is poison, and might be pecked off by the bird if allowed to remain.

## TRAINING, FOOD, AND DISEASES.

There can be no doubt that the best way to win the affections either of a reasoning or an unreasoning animal is to treat it with gentleness. This is true as regards all grades, from the Indian savage to the performing canary. Approach them with harsh or threatening gestures, and Nature will immediately prompt them to stand on the defensive; approach them with a soft word and kind look, and they are, if not at once subdued, ready to listen to any thing you are about to say or do.

This is particularly true of the parrot. You may depend on it, the impression you make during the first three or four interviews will be lasting, whichever way it tends. As a rule, parrots will learn quicker from women than men, and quicker still from children. Vieillot had in his possession a gray parrot which he never dared approach without having his hands covered with leather gloves, and yet the bird was in all respects obedient to Madame Vieillot. He further states that a female of the same

species was, on the contrary, peculiarly attached to himself and indifferent to the caresses of his wife.

We believe the very best way to teach all birds to speak is to keep quite out of sight while you are giving a lesson. We know of nearly a dozen birds of various sorts who have been educated on this principle, and who in a miraculously short time have turned out fluent talkers. As we have before observed, too much attention cannot be paid to the "linking together" of words forming any sentence you may wish them to learn. Let each word glide into the next as smoothly as possible. If you find that your bird experiences great difficulty in repeating a particular lesson, you had better not persist in teaching it at that time, as you may make him sullen or irritable.

The staple diet of the gray parrot, and indeed of every other sort, should be bread and milk. Parrot-fanciers cut a stale loaf into slices, lay it in a pan, and cover it with warm water. After it has soaked for a quarter of an hour, it is taken out, and squeezed as dry as possible. Then, enough of scalding milk is poured over it to moisten it without making it pappy. We were inclined to think that the first soaking in water was a mere economic trick to save milk, but it appears that a "mash" thus made will keep sweet much longer than that prepared entirely with milk. This food, however, may be varied very considerably. You may give them any sort of nuts or almonds (except of course the bitter kind), biscuit (without seed), cold boiled Indian corn, and almost any sort of fruit.

We have heard many persons complain that their parrots pluck out their feathers, giving themselves an unsightly appearance. The reason is simply this—they are allowed to eat animal food. Most parrots have a great relish for meat, and we are sorry to say most parrot-keepers are nothing loth to gratify the propensity. After a while the birds acquire so determined an appetite for this sort of food, that they pluck out their own feathers for the sole purpose of sucking the stems. Instances have been known of parrots stripping themselves of every feather within reach of their beaks. Desmarest, the French naturalist, states that he once saw a parrot who had plucked its body as clean as a chicken prepared for the spit. Yet during two very severe winters, this bird never ailed in the least, and always had a capital appetite and good spirits.

It should always be borne in mind that a bird's gizzard is to it what teeth are to us, and further, that the said machine can no more act unless attended to, than a mill can grind without mill-stones. Clean, coarsely sifted dry gravel should be supplied to the bird at least three times a week. Do not be tempted to neglect this replenishing because the parrot "has plenty of gravel" in its cage. It may have plenty, but you must allow him to be the better judge as to whether it is suitable. Do not argue the matter beyond this; brush out his house, and supply him with fresh mill-stones.

Some little care is requisite in the preparation of bread and milk for a parrot. It must not be sloppy. Not the least particle of what is left of the



previous day's supply must be allowed to remain in the food-pot. It will indeed be as well, especially during the summer months, to *scald* out the food-vessel each day, and wipe it thoroughly dry. Looseness of the bowels is the commonest and most dangerous ill that parrot flesh is heir to, and nothing causes it sooner than sour food. By the by, avoid zinc food-vessels,—they are poisonous.

Another of the diseases to which parrots are subject, is asthma. This either arises from an undue allowance of heating food, or through cold. This last is a matter that requires special mention. A choice exotic bird should be carefully placed in the sunniest nook, and scrupulously screened from cold draughts; but these unfortunate natives of the hottest countries in the world are too often left hanging before open windows on chill autumn nights.

The symptoms of asthma are shortness of breath and a frequent disposition of the bird to gape. If the attack is but slight, it may be cured by altering the diet, taking care that a good portion of his food is of a moist and warm character. If the bird is very ill, make a stiff paste of boiling milk and wheat flour, and add to every table-spoonful half a dozen grains of cayenne pepper. Give him nothing else for at least three days.

Insufficient attention as regards cleanliness will induce bad feet. The bird's perch should be movable, and scraped and scalded at least once a week. The feet should be frequently cleansed with a piece of flannel and Windsor soap. A covered perch may be substituted for the bare one until the bird's feet heal. They are subject to a disease which seems much the same sort of thing as gout with us. The legs and feet swell, and the bird is unable to grasp its perch properly. Like gout, it is very difficult to cure, and the best remedy we know of is to place the bird in a smaller cage, and stand him up to the thighs in water,—two parts boiling and one part cold. Let him remain in this warm bath fifteen minutes, then take him out, dry his feet before the fire; do this daily. If he has sores on his feet, apply to them a little loaf sugar.

Scouring is caused either by a sudden change of diet or through taking sour fruit, or some other improper food. The symptoms are a drooping tail, a tenacious white excrement adhering to the feathers beneath the tail, and a general uneasiness exhibited by the bird. The hinder parts, which will be found to be much inflamed, should be anointed with palm-oil; rice-biscuit, crumbled with the yolk of hard-boiled eggs, may be given with advantage; also boiled Indian corn, with which a chilly has been cut up.

Diseased eyes may proceed from cold or improper food. When you see the rims red and inflamed, bathe them with a warm decoction of white hellebore. It is deadly poison, so be careful that the bird does not drink it.

Consumption is a disease by no means uncommon with birds of the parrot tribe. The symptoms indicative of this disease are ruffled plumage, hollow eyes, loss of appetite for all sorts of food except green; gouty appearance of the lower extremities, and prominence of the breast-bone. Let him have

plenty of the best food proper for him. Two days in each week feed him on nothing but fresh bread and milk, in which there is mixed some hempseed; do not let the quantity of hempseed exceed a tea-spoonful for a day's consumption; along with the hempseed you may throw in a black peppercorn. Bechstein appears to think that water-cresses are a certain cure for consumption. He says, "The birds should be fed with the best description of their appropriate food. In birds which will eat vegetables we have always found this, and especially water-cresses, the surest remedy against consumption and waste." If treated according to the above directions as soon as the symptoms become manifest, the disease may be speedily eradicated.

Some parrots (especially the lories) are subject to fits. They will tumble off their perches, and after a few convulsive struggles lie as if dead. When this happens, squirt the coldest water you can get over its head. If this does not revive the bird, take him by the legs and dip him three or four times into a pan of cold water. If he should still remain insensible, pluck out a tail feather and lay him on the warm stones. If after this he does not recover, you may make up your mind if you will have him buried or stuffed. Parrots subject to fits should occasionally have administered to them a little spirits of nitre. Pour half a dozen drops on to their bread and milk. There is nothing more likely to produce fits than costiveness. You may know when a bird is so afflicted by his constant and useless efforts to relieve himself. A little saffron boiled in their milk will usually cure this, but if it does not, you should give the bird four drops of castor-oil. It is no easy matter to administer castor-oil to a full-grown and strong-beaked parrot unless you know how. The best way is to have a piece of hard wood or bone, about a quarter of an inch thick and three quarters wide: in the centre of this there must be a small hole; open the bird's beak, put in the piece of wood, so as to keep it open, put a quill through the hole in the wood, and pour the castor-oil through the quill.

Sudden changes in the weather, or want of proper care as regards warmth, will sometimes produce inflammation. The symptoms of this disease are melancholy and a disposition to go to roost while it is yet daylight. If you blow up the feathers of the belly, you will find the extreme parts much swollen and a multitude of tiny red veins showing through the skin. This is a dangerous malady, and should be seen to in time. If the bird's bowels are relaxed, give him, until he gets better, as much magnesia as can be piled on a dime. His diet should be bread and milk and maw seed. A little port wine in his water will do him no harm. As the magnesia will sink, you had better put it in a vessel so shallow that the bird will be sure to disturb and partake of it when he goes to drink. Some parrot-keepers cure their birds of relaxation by giving them Indian corn that has been boiled in rice-water.

Impure water, stale food, or want of sand, will produce surfeit. The head, and sometimes the back, becomes covered with angry sores, which discharge a humor of so acrid a character that wherever it runs it removes

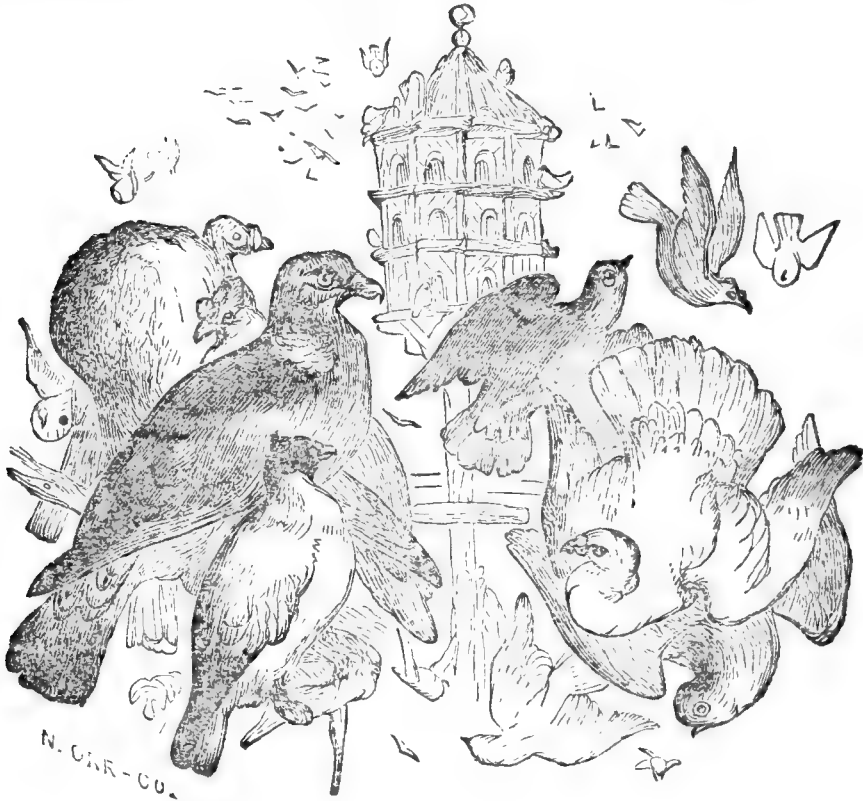
the feathers. Dissolve a quarter of a pound of salt or half a pound of loaf sugar in a quart of spring water, and bathe the parts affected twice a day. Dry the sores thoroughly, and anoint them with Florence oil. Their diet should be as simple as possible. Rice-bread, scalded with milk, is the best food while the surfeit continues, and nothing else should be given, but keep the bird warm.

As we have already observed, through a foolish indulgence in animal food, parrots pluck themselves quite bald in places, and make themselves look extremely ugly. The best thing to do is to bathe the bald parts with a strong pickle of salt and spring water, and to diet the bird strictly on bread and milk. We have heard that if the bird be well syringed with diluted ox-gall it will cure him of this disagreeable habit, but we have never had an opportunity of trying the remedy.

During the moulting period, parrots require great care and attention. Sometimes considerable pain and difficulty attend the operation, and two or even three months will be thus miserably passed by the poor bird. The only way in which you can aid him is by giving him extra nourishment and keeping him as warm as possible. It is a good plan to cover the cage entirely with brown paper. Add saffron to the bird's drinking-water, so that it is the color of pale sherry. A biscuit (without seeds) soaked in milk, in which a few chilly pods have been boiled, is a good thing to give occasionally.



## THE REARING AND MANAGEMENT OF PIGEONS.



THERE is nothing more delightful to the sensitive mind than the sight of a pair of turtle-doves. They are emblematical of enduring affection and constant attachment, and afford lessons of love to brothers and sisters; for this reason, the rearing and management of them is a delightful task to young persons, and the lessons they may learn in these labors are many and important.

Pigeons have been known from the earliest ages. The dove was consecrated to the goddess of beauty, and a pair of turtle-doves, or two young pigeons, were a mother's first offering among the chosen people of God. The use of the carrier-pigeon as a messenger, was celebrated by the poets of Arabia, Greece, and Rome. Ælian mentions that when Taurostheus was victor at the Olympic games, a carrier-pigeon bore the intelligence to his father with great rapidity; and Pliny relates that at the siege of Modena a correspondence was carried on by means of these birds between Decimus Brutus and Hirtius.

Pigeons live together in pairs, and when a cock and hen once form an attachment the union generally lasts, and the instances of faithful and enduring attachment between these birds are very many. The pigeon in a wild state breeds only once a year, but the domestic pigeons of the dove-cot will breed every month or six weeks, and when the weather is severe, and the fields are covered with snow, they must be fed. In fine weather, how-

ever, they will provide for themselves, and will amply repay the keeper for his trouble.

Whatever number of broods a pair of pigeons may bring up in a year, the hen never lays but two eggs before she sits. She then sits eighteen days, or twenty-one days from the laying of the first egg. Both the cock and the hen assist in the hatching: the hen usually sits from the afternoon till the following morning; the cock then takes her place, and sits while she goes out to feed and exercise herself, and generally keeps on the nest the greater part of the day. The young ones are usually hatched during the daytime.

When hatched, the young only require warmth for the first three days, a task which the female takes entirely upon herself; and she never leaves them except for a few minutes at a time, to take a little food. After this, they are fed for about ten days with a milky secretion prepared from the glandular coat of the crop, and regurgitated, and afterward with what the old ones have picked up in the fields and kept treasured in their crops.

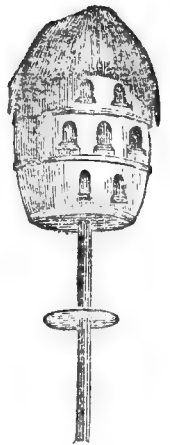
This way of supplying the young with food from the crop, in birds of the pigeon kind, differs from all others. They have the largest crops for their size of any birds, and they have the power of distending the crop by use in such a manner, that, in one species in particular (see *pouter*), the bird's breast appears larger than its body. The numerous glands, assisted by the air and the heat of the bird's body, are the necessary apparatus for secreting the milky fluid before mentioned, but as the food is macerated, that also swells and becomes considerably diluted.

The dove-cot pigeons, like the rest of their genus, retire to their roost at a very early hour, but they leave it unusually late in the morning; and though they will perch on trees in the daytime, nothing will induce them to rest there at night. They are greatly attached to the cot of their choice; so much so that they are scarcely to be driven from it but by fire-arms.

### THE DOVE-COT.

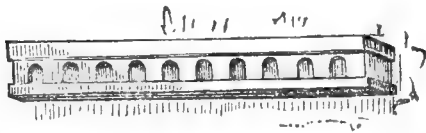
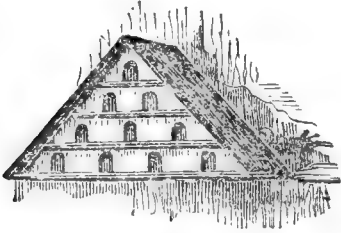
This may be made of any size and of various shapes.

In erecting a dove-cot, care should be taken to fix it in some quiet, secure spot; and a small one is very often formed from a wine-cask which has holes cut in its sides, and a small platform being made of woodwork before each in front, forms a resting-place for the birds to alight upon. The interior is apportioned into chambers by the carpenter, or any boy of common carpentering ingenuity may readily do this. The cask is then elevated on a stout thick scaffolding pole, or what is better, the trunk of a straight tree, and being made perfectly secure, is very eligible for the live-stock to be therein congregated. In arranging the internal chambers for the birds, these should be large enough for the birds to turn round in with ease; and if two holes can be allowed for each compartment for the egress and ingress of the birds, it will be of

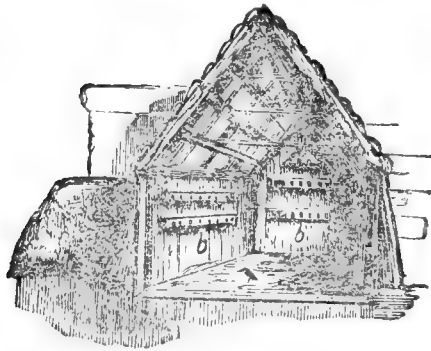


great advantage and comfort to them. The cot should be fixed in a warmish spot, out of the "blow" of cold east and northeast or northwest winds, and the pole upon which it is elevated should have a circular plate-ringing half-way up, to keep the cats and vermin from ascending. The top of the cask may be thatched or boarded, and should come well over the holes and sides of the cot.

Should the young fancier not be ingenious enough to construct such a dove-cot, which is one of the best we can recommend, he may content himself with one after the following fashion, which, with its compartments, may be fixed up against the south or southwest side of a stable, barn, or out-house. Here the birds generally do very well, but the outside should be well secured, and painted several times over with black paint, and the foot, or alighting places, slightly slanted, so that the water or rain may not lodge in them, but run off to the ground outside. This inclination of the footboards must, however, be very slight, or it will be disagreeable to the birds. The whole must be approached by a ladder, which ought not to be permanently attached to the cot, or it will be a means for the depredation of cats and vermin.



It sometimes happens that a spare loft or room presents itself to the young pigeon-fancier, which may be made use of for a pigeon-house. When this is the case, it can easily be filled up with long pigeon-boxes, which may be arranged round the sides. The means for exit and re-entrance must be first thought of, and if no window is in the loft, two holes must be made in the wall, at about five feet from the floor, each sufficiently large to admit a pigeon through easily. A shelf must also be fastened both inside and outside of these openings, and on the outside shelf a trap or aërie should be affixed, the intent and purpose of which we shall presently explain.



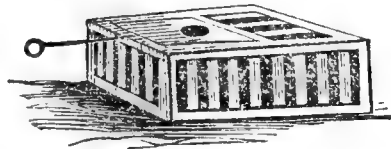
Perches may also be placed across the roof of the building, upon which the birds may rest to preen themselves, as at A. The boxes may be arranged at the gable end and at the sides of the building, at the height of about eight feet from the ground, *b, b*, and a short ladder should be kept in the building, for the purpose of getting at them. The cells should be at least a foot square. In this arrangement, water may be constantly kept in a large clean pan, which should have some large stones put in it, to prevent the birds from splashing it about.

As to the compartments, or nests, every one must be furnished with a pan, box, or straw basket, of a size adapted to the pigeons for which they

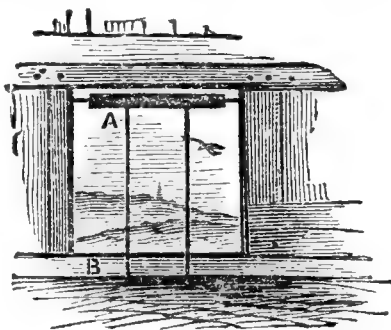
are intended; a small tile or flat piece of wood should be placed in front of the pan or basket, to assist the birds in getting out of their nests, and the pan should have a little clean straw or hay cut short within it. Sand or gravel should be sprinkled over the shelves and about the spot, as the small stones with which it abounds are useful to the birds in helping them to digest their food. Every thing about the birds should be kept very clean, and once a year the whole apparatus, of whatever kind it may be, should undergo a thorough purification, and the nest-pans or boxes should be well cleaned for every succeeding hatching. Care should also be taken to prevent other birds from visiting their nests, as they will suck or destroy their eggs.

### PIGEON-TRAPS.

Pigeon-traps are necessary when persons are particularly solicitous regarding the admixture, and consequently the sporting of particular breeds. Stray birds will very frequently visit pigeon-houses, and, by associating with the birds, do them much injury. To secure such intruders, traps are necessary. One of the simplest is merely a square box of lath, the top part of which hangs nicely suspended by a hinge at its side, from which is carried a projection called the lever, upon the end of which is fastened a piece of lead. The bird alights on the dark spot, which part of the trap falls, and conveys him into the interior of the cage in which the bait is placed. The balance weight of the lever immediately shuts the cage, and the bird is secured.



There is another contrivance of great use, which is employed for letting in those birds who may not happen to come home before the aeries are closed for the night. The object of this door, which ought to be called the "late door," is to let the *out* birds in without letting the *in* birds out. It is made by placing before a square aperture cut in the pigeon-house a couple of wires, about three inches apart from each other (as seen in the drawing), upon a piece of wood, having a swivel-hinge (A) above, and letting their lower ends come over the lower ledge or sill (B) on the inside of the dove-house. By this arrangement, when the late bird presses against the bars, and tries to get in, the whole opens inward, and he easily enters; but if a bird from within tries to get out, the wires press against the side of the sill at the bottom, and effectually prevent his egress. The call, by which pigeons are enticed into their trap or house after they have been indulged with a flight, is a very shrill, loud, and prolonged whistle. They should be trained to come at this call invariably before they are fed.



The aërie before mentioned, which is fastened on the shelf outside the loft, is a trap made of laths; it has two sides and a front only, the wall of the loft forming the back; the front and sides act upon hinges, so that they may be thrown open and laid flat on the platform, as in the annexed figure A B C (Fig. 1), and on the upper parts of these flap-strings are fastened,

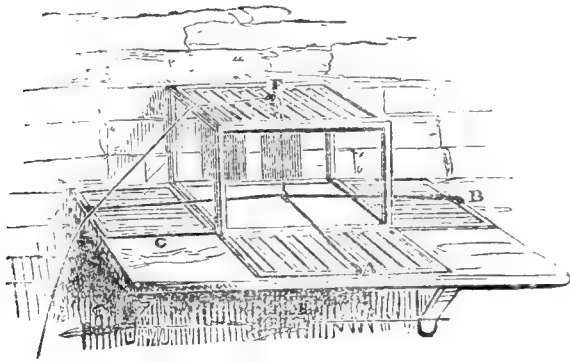


Fig. 1.

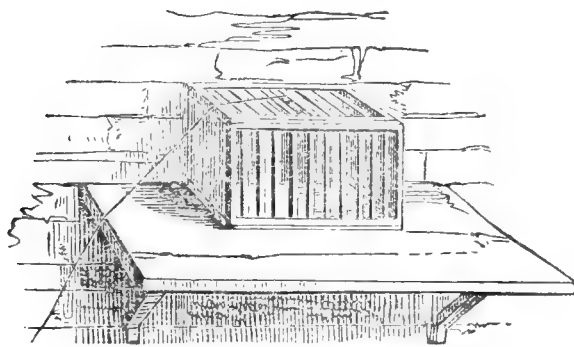
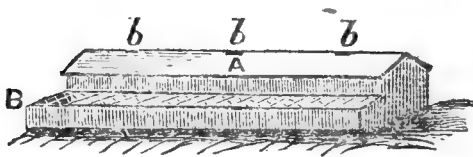


Fig. 2.

which are united to a single string in the middle of the trap; the string is carried over the swivel E, at the top of the machine, and thence to a hiding-place, from whence the owner can see all that passes; and when a bird alights within the aërie, he jerks the string, the flaps are elevated, and the bird is immediately a prisoner. (Fig. 2.) This kind of trap is used not only by fanciers, but by amateurs, and is an important appendage to the loft, both as a means of self-defence to secure strays, and to shut in their own birds; among amateur fanciers, the first-mentioned purpose is to secure valuable and favorite breeds from being deteriorated through stray birds of no value pairing with them.

Within the pigeon-house should be placed also two or three boxes for the grain, pulse, and beans to feed the birds upon. These should be made so

that the birds may be able to pick the seeds from them without scattering them about. This is easily prevented by placing over the tops of the boxes a covering of wire, the meshes of which are about half an inch square. The



upper part (A) is a hinge top (*b b b*), which opens for the food to be placed in. The partition (B) is the feeding part of the apparatus, having the wire top, which prevents the seed being spilled about.

### FEEDING.

Whenever pigeons are fed, they should be accustomed to come to their food at one particular call, and the best is that of a common pea whistle, which may be heard at a very great distance. By always using this when birds are brought to their food, they will come at your will, whenever you wish to bring them home, which is a very great advantage.



Pigeons are great devourers of food, and will eat any kind of grain, such as wheat, barley, oats, peas, beans, vetches, tares, buckwheat, hempseed. Small beans, called pigeon's beans, are the best general food for all pigeons, but this may be varied occasionally by mixing with it tares, gray peas, and buckwheat. The tares should, however, be very old and good, and the buckwheat should be sparingly given. Hempseed is very stimulating, and although pigeons are very fond of it, it should be sparingly given, except in very cold weather, when they may have an extra supply.

Pigeons are very fond of lime and salt, and sometimes do a great deal of mischief to houses, by pecking out the mortar from between the bricks. To prevent this, it is best to make them what is called a "cat," which will be exceedingly grateful to them, as it will tend to keep them in good health. This is made in the following manner:

Take sifted gravel, brickmaker's earth, and the rubbish of an old wall, half a peck of each; add to these a pound and a half of cummin-seed, a quarter of a pound of saltpetre; let these be mixed with as much natural animal brine as will make a stiff mass. Portions of this mixture may be put into strawberry pottles, or into old canvas bags, with holes in them, and hung about the grounds, where the birds can alight and peck at them; or some portions may be placed in flower-pots, and stationed in various situations where the birds can get at them easily.

### DISEASES OF PIGEONS.

The diseases of pigeons are many. The principal, however, are the megrims, the wet and dry roup, and the canker. The megrims is a kind of nervous madness, in which the bird seems to have lost all control over itself, and flutters about wildly, with its head turned towards its back. The wet roup is attended with a discharge from the beak and nostrils, and may be treated by giving the affected bird a few pepper-corns daily, and a handful of green rue. The dry roup is a dry, husky cough, which may generally be cured by a few cloves of garlic every day. The canker is mostly caused by wounds made by the cock birds when fighting with each other, and is generally cured by rubbing the part affected with burnt alum and honey.

### VERMIN.

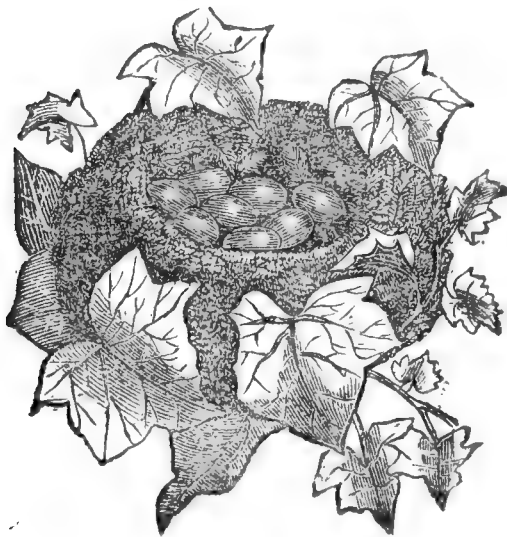
Pigeons are often sadly annoyed by vermin, such as tick, lice, etc.; when once they get ahead, the whole brood will soon perish. The birds must frequently be looked at, and every thing of the kind taken from them. If they should be increasing, the best way is to fumigate their feathers by puffing tobacco-smoke into them. To prevent vermin, the most scrupulous attention should be paid to cleanliness, both in the birds themselves, and in every part of their houses, nests, and places of resort.

## MATING.

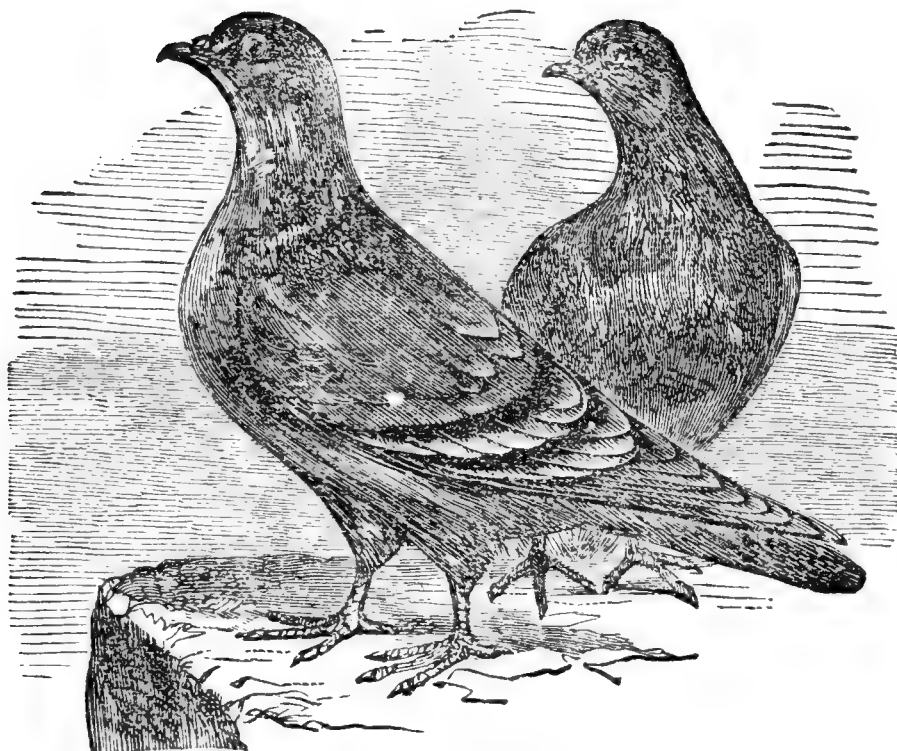
Sometimes there is a little trouble attending the mating of pigeons, and it is of as great importance that they should be comfortably matched, as it is that men and women should be properly married. To produce this desirable state of things, the coops should have only a thin lattice-work partition between them, so that the birds may make "acquaintance" with each other; they should also be allowed to feed out of the same vessel, and in a short time the young observer will find the birds selecting for themselves the bird of their choice, when they may be placed together in one pen. If they agree, of course they will be continued together, but if they should disagree and fight, a deed of separation must be drawn up. When the "loving couple" are properly mated, they may be left at liberty to arrange their own domestic affairs, and to build their nests, which they will do very readily.

## MOULTING.

Sometimes the birds will suffer a good deal in moulting, and when they do not throw off their feathers freely, at the proper time of moulting, it is a sign that the birds are not in vigorous health. Such birds should be removed to a warm place; hempseed should be mixed with their food for a few days, and a little saffron should be placed in their water. Their tail-feathers may be also gently removed, and any other little office performed for them which the necessity of their case seems to call for.



## COMMON PIGEONS.



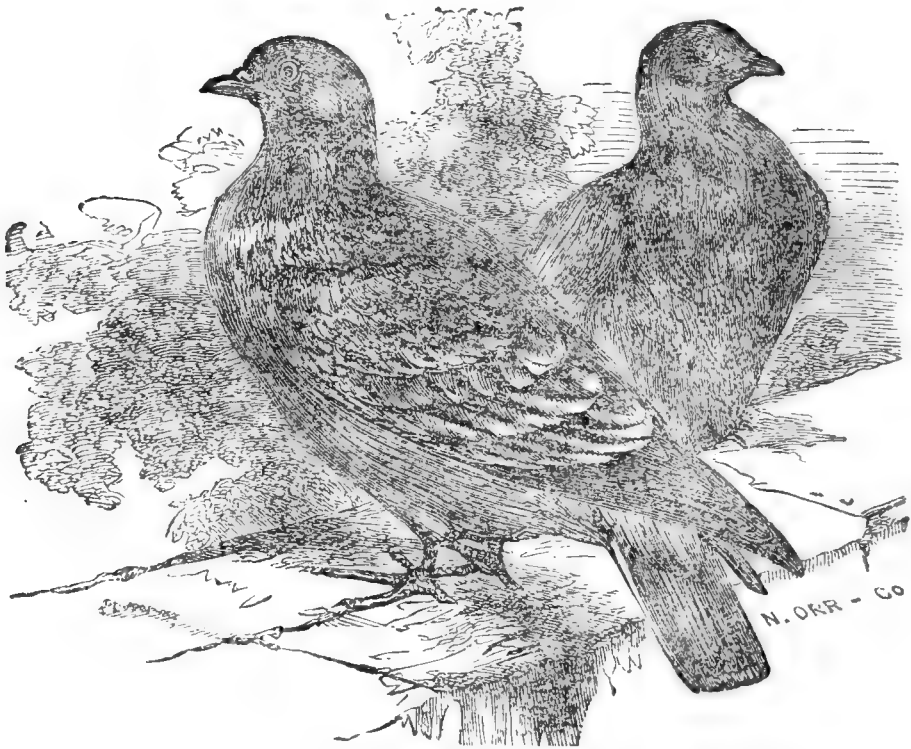
BLUE ROCK-DOVE.

## THE DOVEHOUSE PIGEON.

There are two very distinct varieties of the common pigeon, which are kept in large flocks for the supply of the table. Some naturalists regard them as separate species. The first is the blue rock-dove; the second is the dovehouse pigeon. Both are found wild, breeding independently in a state of nature; but the former affects caverns, cliffs, and rocks as its resting-place (whence its name); while the latter seems to prefer the inaccessible parts of public buildings, ruins, and ecclesiastical edifices—such a home, in short, as the jackdaw would choose. A very permanent difference between the two is, that the rock-dove has the rump, or lower part of the back, just above the tail, decidedly whitish, while the dovehouse pigeon has it of a light slate-color. This feature is particularly noticeable when the birds are flying, especially if they are in a flock of any considerable number, when it imparts quite a character to them as they are wheeling about. A reference to our engravings will help the reader to recognize the two varieties much better than any description could do. The general coloring of the dovehouse pigeon is considerably darker than that of the rock-dove. The distinction between them has long been known to dealers, less so to fanciers (who are apt to despise both these species, notwithstanding the exquisite beauty of the latter), and is scarcely acknowledged by ornithologists. The dovehouse pigeon is much the more common inhabitant of dove-cots, is less

capricious in its sojourn therein, and, when it betakes itself to a state of complete independence, exhibits much less dislike to the neighborhood of man than is shown by the rock-dove, under similar circumstances.

It is to be remarked that these two species are the only kinds of domestic pigeon which ever desert the homes provided for them, and betake themselves to the wilderness. The fancy pigeons, the truly tame pigeons, do not reassume, or rather adopt, wild habits, as has been asserted; when they lose their way, or escape from a new, and therefore a distasteful home, they do not betake themselves to the rocks, or to the ruins, but enter some trap or loft, or join some other flock of tame pigeons. The pigeons which do choose to return to a wild condition are always either blue rocks or dove-house pigeons, and not pouters, fantails, or runts; whereas the blue rocks do not voluntarily take up their home in an ordinary pigeon-loft, but, on the



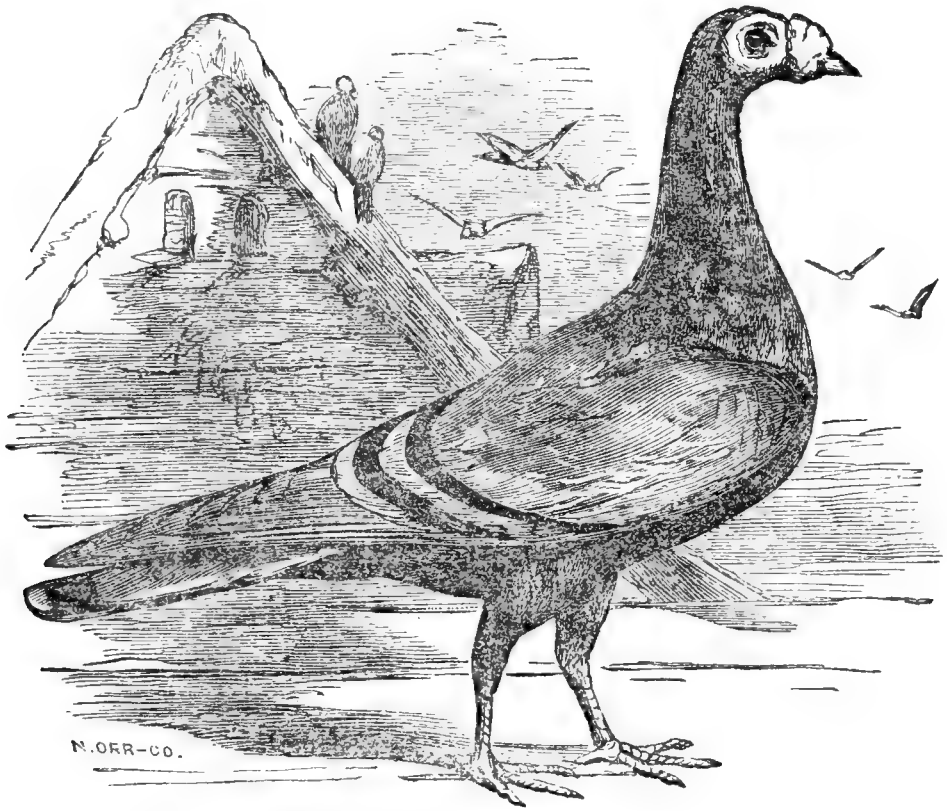
DOVEHOUSE PIGEON.

contrary, will escape from one that is not to their liking, or is too much interfered with, even if hatched and brought up there by parents of a tamer breed.

The common pigeon requires very little care, and is exceedingly prolific, breeding seven or eight times a year. The female pigeon lays two eggs, which produce generally a male and a female. It is pleasing to see how eager the male is to sit upon the eggs, in order that his mate may rest and feed herself. The young ones, when hatched, require no food for the first three days, warmth being their only nourishment; they are then fed from the crop of their mother, who has the power of forcing up the half-digested peas which she has swallowed, to give them to her young. The young

ones, open-mouthed, receive this tribute of affection, and are thus fed three times a day. The varieties of the domestic pigeon which follow have been produced by various crossings, etc., with different and parent stocks, some of which we shall now describe.

## FANCY PIGEONS.



### THE CARRIER.

The carrier-pigeon has been known from a very remote period, and has been employed as a messenger from the earliest ages. It is a larger bird than the common pigeon, measures about fifteen inches in length, and weighs about a pound and a quarter. The neck is long, and the pectoral muscles very large, denoting a power of vigorous and long-continued flight. An appendage of naked skin hangs across its bill, and continues down on each side of the lower mandible. According to its size and shape, the amateurs of carrier-pigeons estimate the value of the bird. They consider those pigeons the best that have the appendage rising high on the head, and of considerable width across the bill, and that are also distinguished by a wide circlet round the eyes, destitute of feathers. The sellers of these birds sometimes employ artificial means to produce these appearances, and torture the pigeons by introducing a small piece of cork, fastened by a bit of wire beneath the skin, to enlarge its apparent width.

The instinct which renders this bird so valuable is founded upon a very high degree of the *love of home* which it possesses. The mode of training

them in Turkey, and which is the best mode to be followed generally, is this: The person who has the charge of rearing and training them watches for the arrival of the young pigeons at the full strength of wing, and then takes them in a covered basket to a distance of about half a mile from their home. They are then set at liberty, and if any of them fail in returning home from this short distance, they are considered stupid, and are rejected as valueless. Those that return home are then taken to greater distances, progressively increased from two to a thousand miles, and they will then return with certainty from the farthest part of the kingdom. It is usual to keep these birds in a dark place for about six hours before they are used; they are then sparingly fed, but have as much water given them as they will drink. The paper upon which the message is written should be carefully tied round the upper part of the bird's leg, but so as in no way to impede its flight. When loosed, the bird usually soars high in the air, and after flying round in circles for a few times in succession, suddenly darts in the direction of "home."

The usual speed of the carrier is about thirty miles an hour, or one thousand a day.

### THE TUMBLER.

This pigeon derives its name from its habit of turning over, or "tumbling" in the air. They rise to an immense height in the air, and generally, when commencing their upward flight, make a series of somersaults in the air, like the clown in a pantomime. When in the blue empyrean, they will remain on the wing for several hours in succession; and, when soaring in the air on a fine summer's day, the flight, tumblings, and antics of a flock of these pigeons is very amusing.

The finest variety of this pigeon is the *bald-pated tumbler*, from its having a snow-white head and pearl-like eyes; another is called the *ermine*, or *almond tumbler*, and is a very elegant and beautiful bird, and is distinguished by the colors and marking of its feathers, in which it varies very considerably.

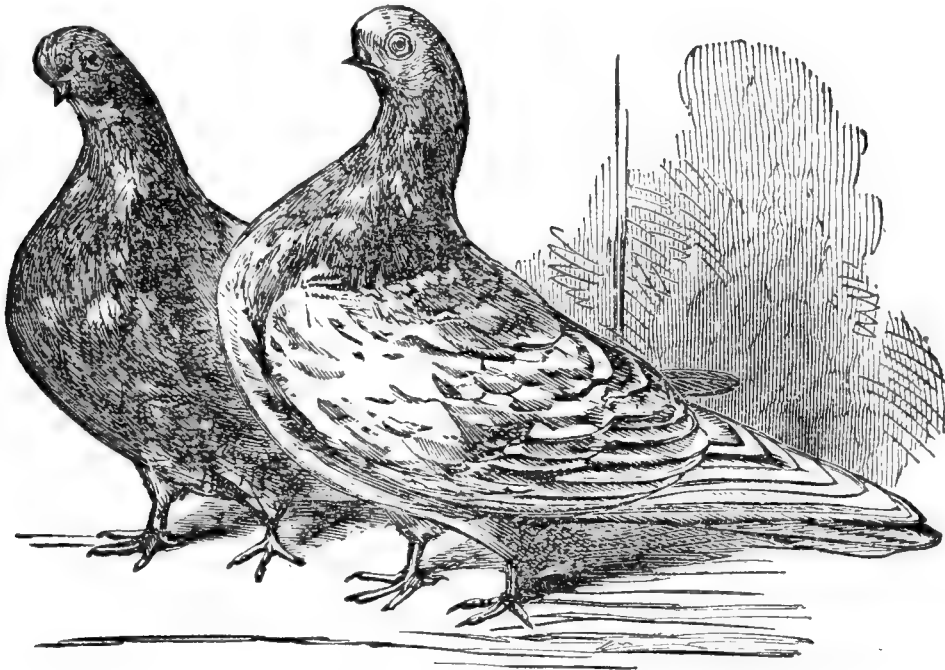
### THE ERMINE, OR ALMOND TUMBLER.

*The almond tumbler* is said to be the result of cross-breeding between the various kites, such as blacks, whites, and cinnamons, and the various splashes, as myrtle-splash and cinnamon-splash. Their form is the same as in other good tumblers, but their coloring must be a combination of at least three tints on each feather, if possible, so as to give the idea of the petal of a well-broken tulip, or a rich and polished fragment of breccia marble.

The most curious point about almond tumblers is the form which some of them have been brought to attain; the whole thing, however, is very simple. The common well-bred tumbler, in its ordinary state, has a compact little body, with a round head, short beak, and neat little feet. But this did not content some fanciers. By pairing together birds in which these qualities

were the most exaggerated, they got bodies still more compact, heads yet rounder, beaks shorter, and feet neater.

A third variety is the *black-mottled tumbler*, which is generally all black except about a dozen white feathers on the shoulders. A fourth is the *yellow-mottled tumbler*, which has a body mottled with white on a yellow ground, and with a yellow flight and tail; and many other individual varieties are constantly produced.



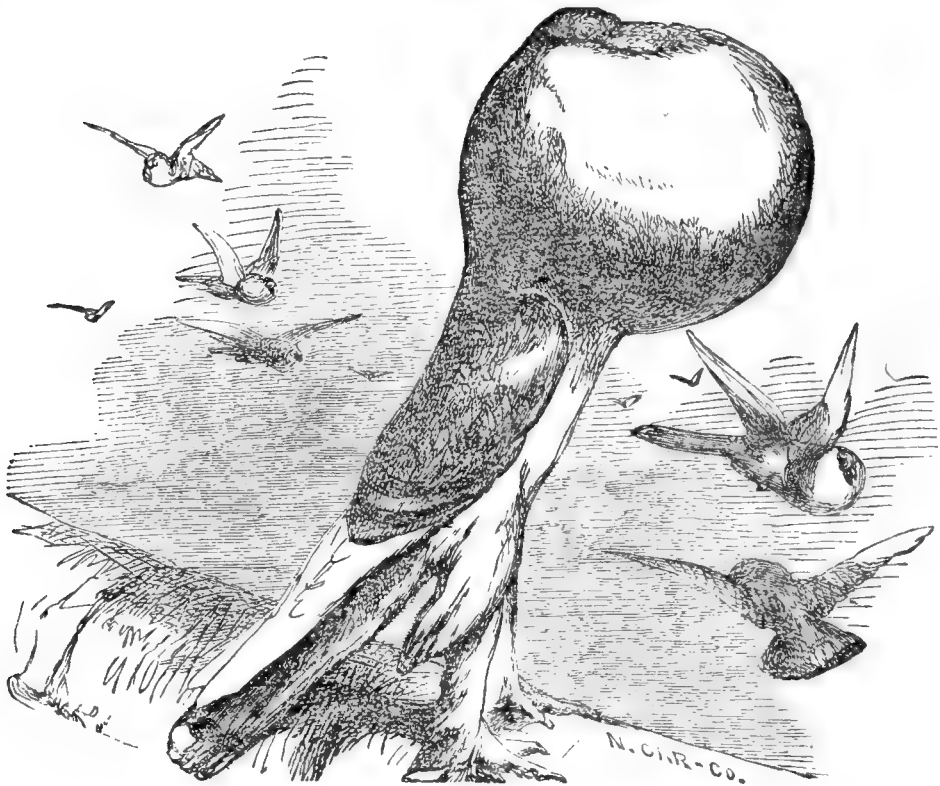
THE ERMINE, OR ALMOND TUMBLER.

Tumblers should be kept in a loft by themselves, and never suffered to mix with any other sort of pigeon, as they soon lose their peculiar habits of soaring and tumbling; they should be turned loose only once a day to take wing, and never on a very bright or clear day. A gray, clear morning is the best time for them to exercise. They should never be let out on a foggy or misty morning, for they may in such weather be irrecoverably lost; nor should they be out in windy weather. When their hours of liberty are expired, they may be enticed home by a little hempseed scattered round their usual places of feeding. A hen tumbler should never be let out to fly when with egg.

### THE POUTER.

The pouter is a fine, handsome bird, distinguished by the peculiar size and form of the crop, which the bird is able to distend by filling with air. He measures, generally, about eighteen inches in length, and ought to have a fine hollow back, sloping gradually to the shoulders, to be prized. When the back is straight, or bows out, the bird is then said to be hog-backed. It ought also to carry its wings close to its body; and its legs, from the toenail to the upper joint of the thigh, should be at least seven inches in length, and well covered with downy feathers.

Pouters are difficult birds to rear, and the bringing them up is attended with considerable expense. Being very voracious, like the whole of the pigeon tribe, it requires great care to prevent their over-feeding. Every single bird should be kept in a separate coop, lofty and capacious; and when the young ones are hatched, as the old birds are apt to pay but little attention to them, they should be carefully watched. Some fanciers never suffer pouters to rear their own young, but put their eggs under a hen dragoon, which variety are good nurses.



THE POUTER.

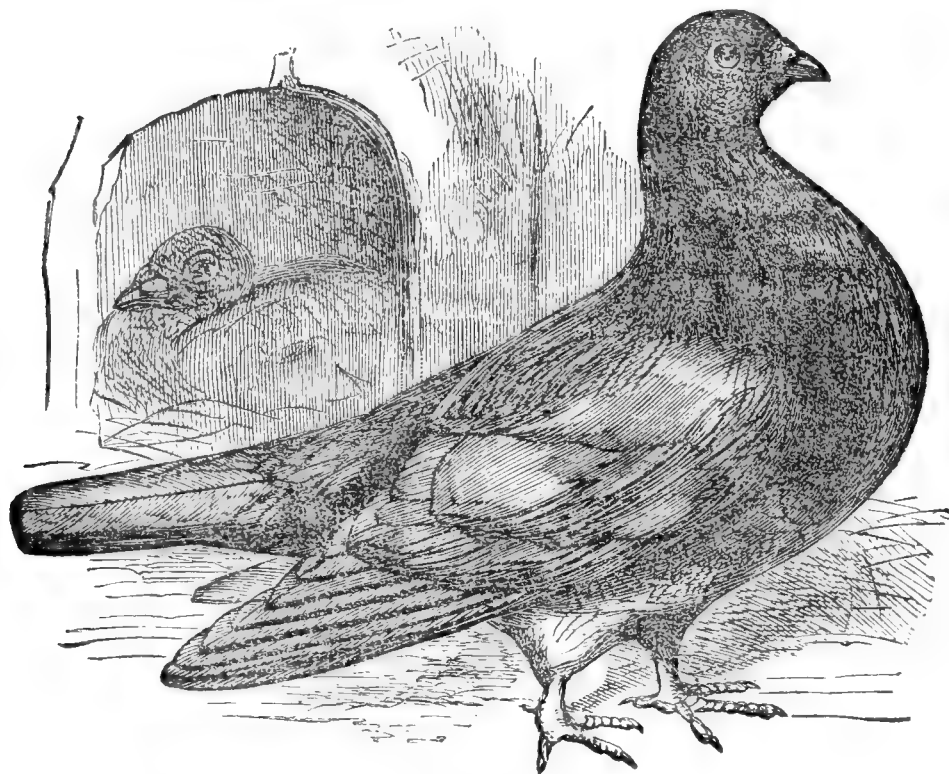
The pouters most esteemed are the black-pied, the blue-pied, the yellow-pied, and the red-pied; but the colors are not of so much importance as the general shape of the bird, the hollow of its back, the roundness of the crop, the length and feathers of its legs, the mode of carrying its wings, etc. The front of the crop, however, should be white, surrounded with a shining green; and the head, neck, back, and tail, should be uniform in tint. Sometimes a pouter is unable to distend his crop handsomely; it is then called loose-winded, and considered a defective bird.

### THE RUNT

This is a short, full-breasted bird, with tail turned up. It has rather a long, thick neck in proportion to its other parts. The beak is short, and it has a small wattle over the nostril. The plumage is generally grizzled, and ermine round the neck; but those most esteemed by fanciers are black, white, red, or mottled. The Leghorn variety is the most valued, and is a



hardy bird; it breeds tolerably well, but is a bad nurse; hence their eggs are often shifted from the nest, and put under the hen horseman to hatch and bring up.



THE RUNT.

The Friesland runt is larger than the common runt, and it has a very odd appearance, from its feathers sticking out the wrong way. The Spanish runt is a short, thick-legged, ugly-made bird, with a very long body. The feather-footed or Smyrna runt has feathers growing from the outside of its feet. The Roman runt is large, thick, and unwieldy; and, upon the whole, none of these birds are pleasing to the eye, either as regards shape or color.

### THE SPOT

Is a modern variety of pigeon. It derives its name from having, with a white head, a small pea-like spot on its forehead, just above the top of the beak, which is rather long and hooked.

### THE BARB,

Or Barbary pigeon, was originally introduced from that part of the African coast; hence its name. It has usually a tuft of feathers sprouting from the back of the head. The plumage is generally dun, dusky, or black—darker on the wings. It has a short, thick beak, to which a small wattle is attached. The insides of its eyes are pearl-colored, and there is a circle of

incrusted flesh round the eyes, of a red color, and the larger and more brilliant this is, the more the bird is prized by the fancier.

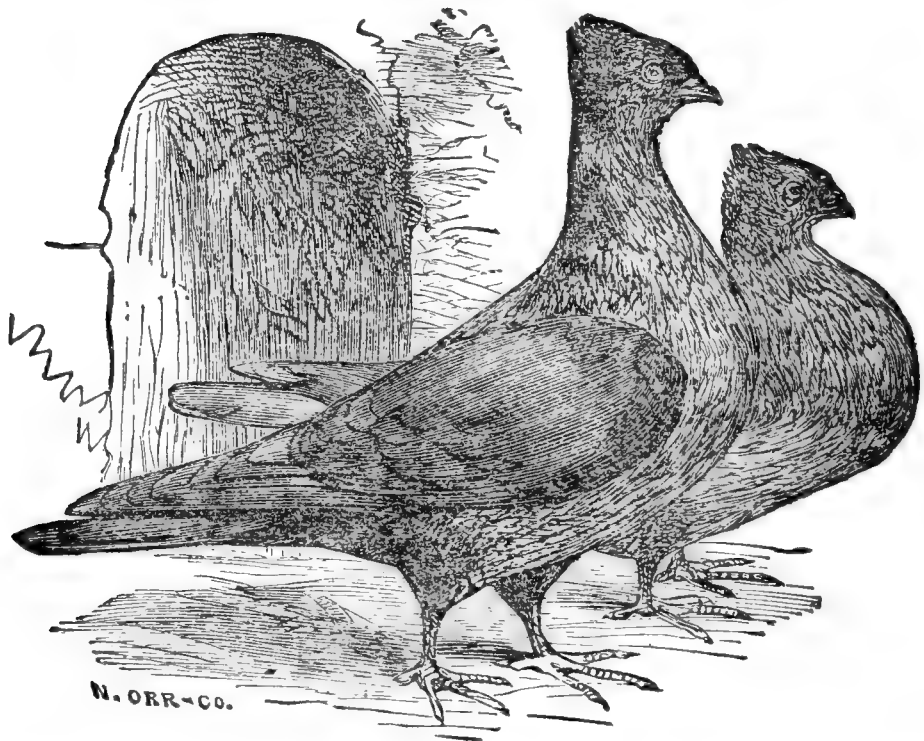
### THE MAWMET.

The mawmet, or Mahomet, is supposed to be the kind of bird that whispered in the ear of the false prophet. It is a beautiful bird, of a cream color, having bars of black across its wings. The most remarkable thing connected with this bird is, that while the outer face of its feathers is of a pure cream color, the part next the body, its flue feathers, and even the skin, are sooty and black—very much like the Mohammedan religion, fair to look at, but foul underneath. It has a black wattle on its beak, and its eyes are surrounded by a small circle of black flesh.

### THE DUTCH CROPPER.

This variety was originally brought from Holland. It has a pouch below its beak, stands wide on its legs, and is gravel-eyed. It seldom stands upright.

### THE ARCHANGEL.

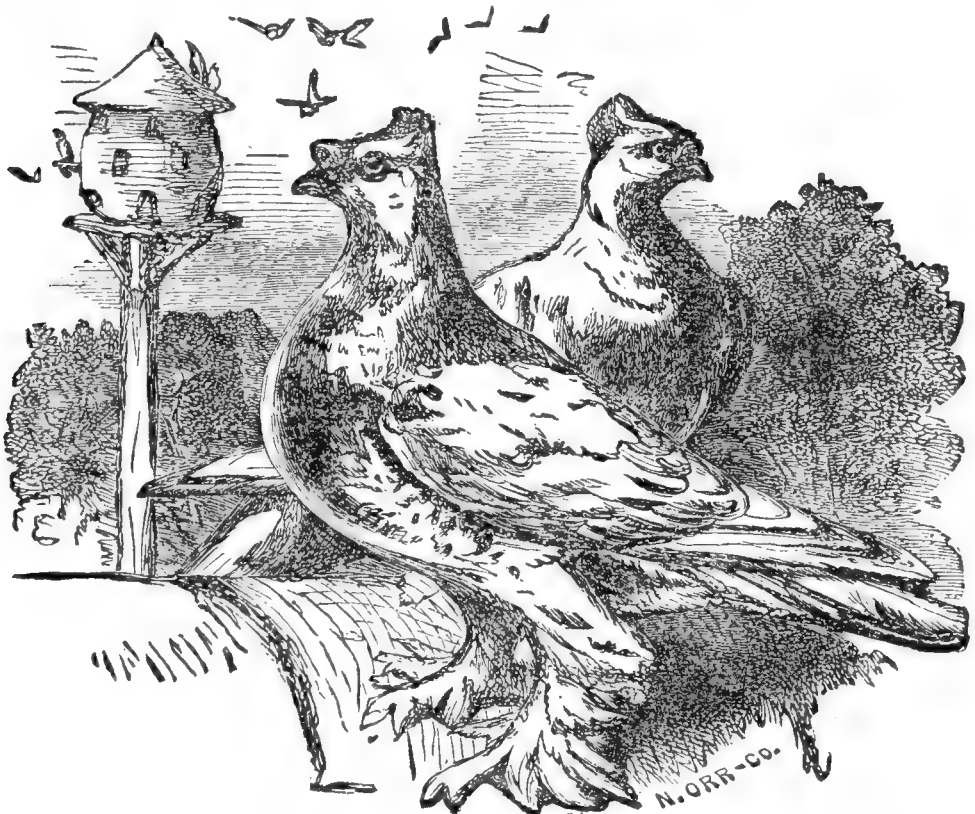


The archangel pigeon is both rich and unique in its coloring. The head, neck, and fore part of the back and body, are chestnut, or copper color, with changeable hues in different lights. The tail, wings, and hinder parts of the body are a sort of blue-black; but many of the feathers on the back and shoulders are metallic and iridescent—a peculiarity not usual in other

domestic pigeons. The chestnut and blue-black portions of the bird do not terminate abruptly, but are gently shaded into each other. There is a darker bar at the end of the tail. The iris is very bright orange-red; the feet clean and unfeathered, and bright red. Archangel pigeons have a turn of feathers at the back of the head, very similar to that of the trumpeter. It is the coloring, rather than the form, which so specially distinguishes them. Their size is very much that of the rock-dove. They are sufficiently prolific to be kept as stock birds, and a flight of them is a particularly beautiful object; but they are at present too valuable, either as presents or for exchange and sale, to be consigned to the hands of the cook. Still, it is with the higher rather than the lower class of pigeon-fanciers that they are in much request, in spite of the bright and glowing hues with which their plumage is adorned. Their name is probably derived from their having been originally brought to us from the Russian port, or *via* Archangel from some other quarter, as Tartary, India, or the Chinese empire.

### THE TRUMPETER

Is so called from the sound it utters after playing, which is thought to resemble the sound of a trumpet; which strange propensity in the birds is increased by feeding them with hempseed and other stimulating food. It is something like the Leghorn runt in size and appearance. It has a tuft

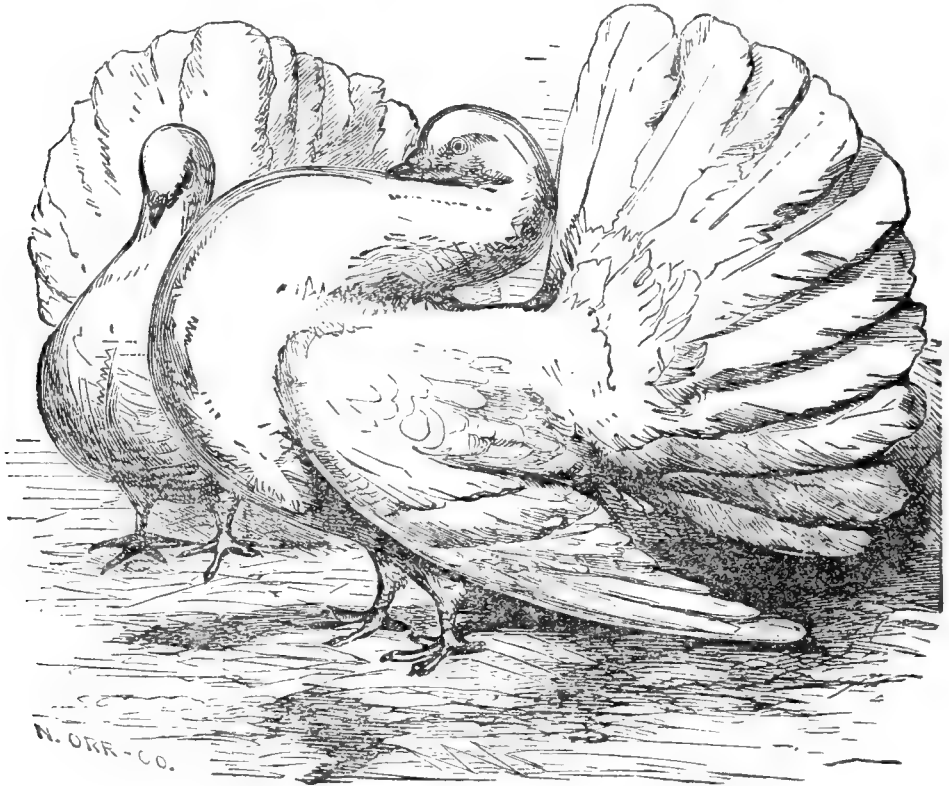


of feathers sprouting from the root of the beak, and the larger this is, the greater to the fancier is the value of the bird. The legs and feet are feath-

ered, and it is, in general, pearl-eyed; and, to be a valuable bird in the eyes of its rearers, it ought to have a hood at the back of its neck.

### THE FANTAIL, OR SHAKER.

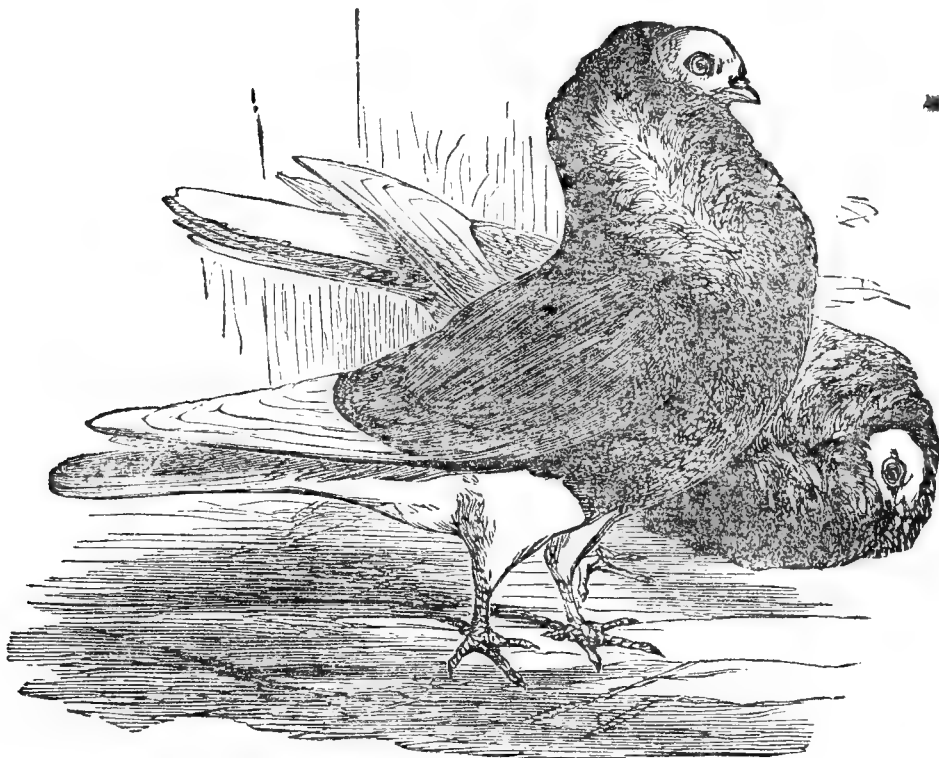
The fantail is a beautiful variety of the pigeon tribe. It has its name from its spreading its tail in the shape of a fan, and bending it over the back, so that the tips of the feathers brush the back part of its head. There are two sub-varieties of this bird—the broad-tailed and the narrow-tailed shaker. The former ought to have a tail of at least twenty-four



feathers, a swan-like neck, a full breast, and a quivering motion of its tail, which gives it the second name of shaker. The plumage of this bird is generally white, although some are red, blue, or cream-color. The narrow-tailed shaker is produced by pairing the broad-tailed shaker with the stock dove. The tail of this bird is not so wide or spreading as its name imports; while it is also a shorter, thicker, and less graceful bird. It is usually white, but sometimes it is spotted or ermined, and occasionally displays a rich variety of colors.

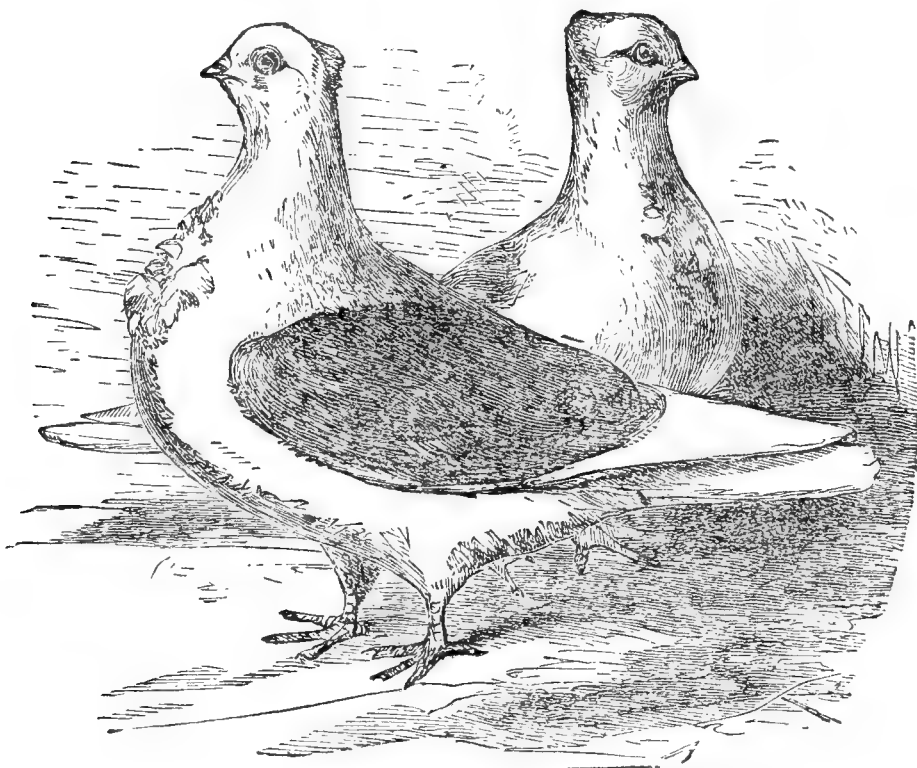
### THE CROPPER.

The body of this variety is thick, short, and clumsy; as are also the legs, which are feathered down to the feet. They have a large pouch, or bag, hanging under their beak, which they can inflate with wind or depress at pleasure. Their crop hangs low, but is very large; and they are loose breeched on their thighs.



### THE JACOBIN, OR JACK,

Has a range of inverted feathers on the back part of the head, which turns towards the neck, like the cap or cowl of a monk; thus having a fanciful resemblance to the religious of those orders who wear cowls.



### THE TURBIT.

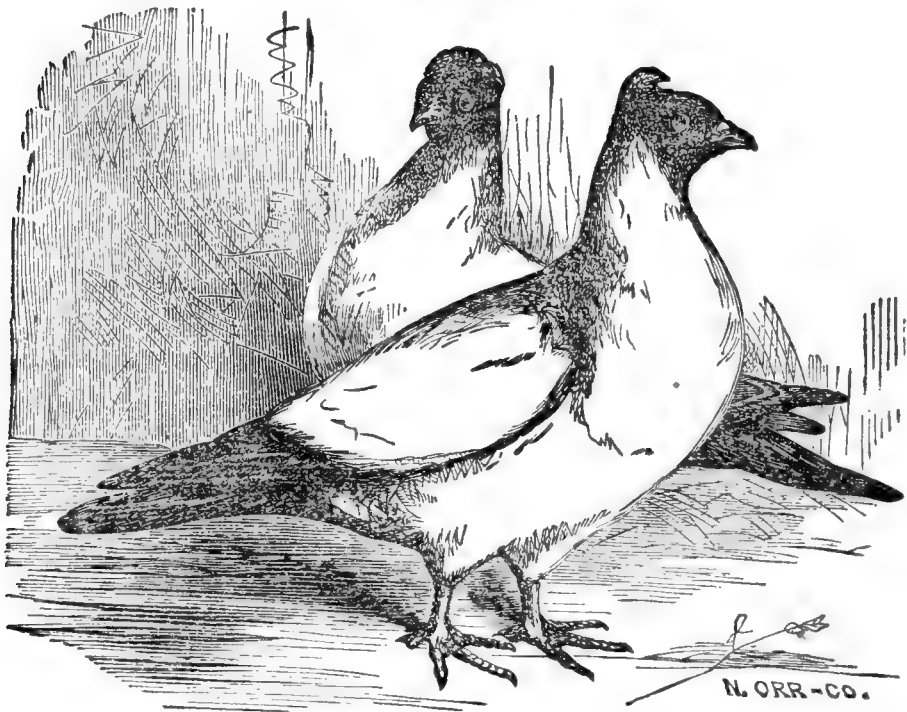
The turbit has a roundish head, and is chiefly remarkable for a tuft of feathers on the breast, called the purl, which opens and spreads like a shirt.

frill; and according to the fulness and beauty of this, the bird is prized by fanciers. It has a short beak, and a tuft behind its head. It varies greatly in color, some being reddish, some dun, while others are blue and black. The most valued have their body plumage white, or of one entire color. The blue turbits have black bars across their wings. They are called yellow-shouldered or blue-shouldered, according to the different tints of the shoulders or wings. The original blue turbit has always a blue tail, and the black turbit, a black tail; which are essential accompaniments.

### THE RUFF.

This bird is something like the jacobin, but it has many shades of difference, and is a distinct variety. The hood and span are larger, but the feathers do not grow so near to the shoulders, and the hood is not so distinct and compact. It is rather a larger bird than the jacobin.

### THE NUN.



The head of this bird is almost covered with a veil of feathers, whence its name. Its body is chiefly white; its head, tail, and the six flight feathers of its wings should be entirely red, yellow, or black; and when its head is red, the tail and flight feathers should be red; and when its head is yellow or black, the tail and flight feathers should invariably correspond with it.

The nun is perhaps the very prettiest and most striking of the toy pigeons. It is smaller in size, but resembles the trumpeter in having a tuft of feathers rising from the back of the head, and bending forward, like a hood thrown a little back. The small bill and pearl eye of this bird also add to the neatness of its appearance.

## THE OWL.

This is rather an odd but not an inelegant looking pigeon. Like the turbit, it has a purl on its breast. It has a short beak and a pearly eye. In color it varies considerably, being of various hues, red, blue, yellow, black, and silver; the yellow and red are however the most prized, and specimens of these colors, when the birds are otherwise handsomely formed, are rare and valuable.

## THE HELMET.

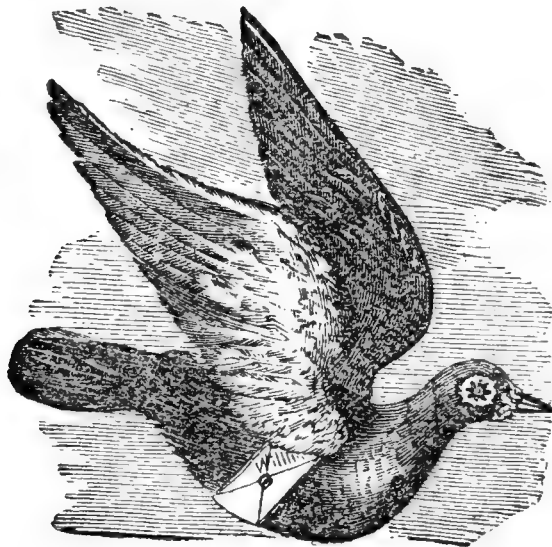
The helmet is a pretty bird much coveted by fanciers. It is rather smaller than the nun, which it resembles in appearance, but it has no hood on the back part of its neck. It derives its name from the tuft of feathers which overshadow its head, and which is of a white tint. Its head and tail are black.

## THE HORSEMAN,

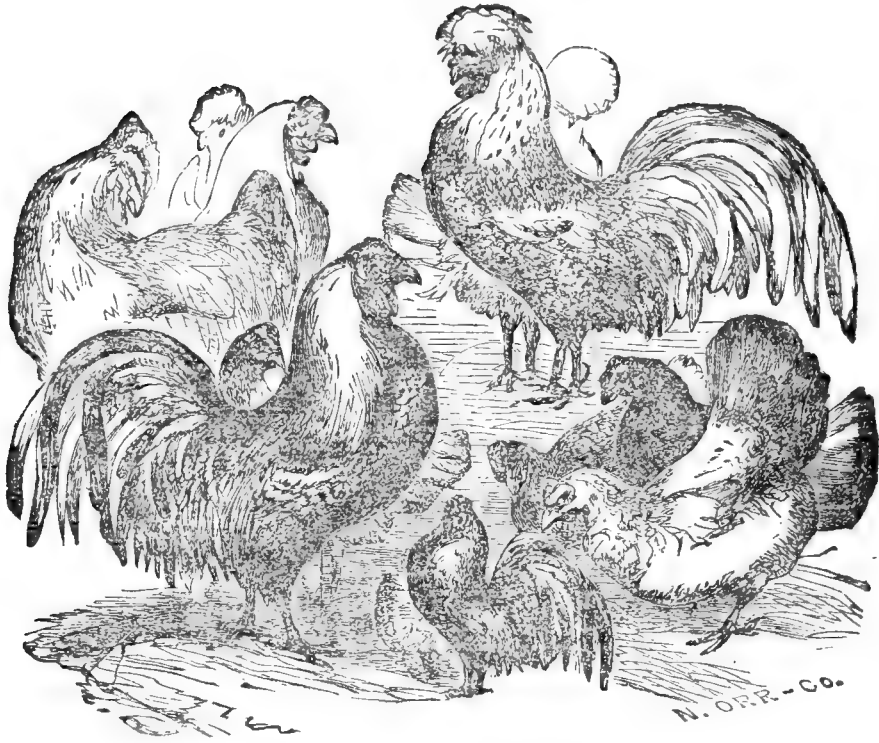
In appearance and qualities, greatly resembles the carrier-pigeon; but he is smaller in size, and can be distinguished by his shorter neck. He may be trained like a carrier-pigeon, to whom he is scarcely inferior.

## THE DRAGOON

Is bred between a tumbler and a horseman. It is a good serviceable pigeon and, as has been observed, is sometimes invaluable for its devotedness as a nurse. A good fier, it is yet not so strong as the horseman, and therefore less adapted than that pigeon for long flights, as its strength and courage give way more quickly.



## DOMESTIC FOWL.



## INTRODUCTORY REMARKS.

THERE is nothing more delightful than the care and charge of domestic poultry. It is the most interesting of sights to behold a hen with her chicks, and to mark her care and tenderness for them; while the little chicks themselves are so pretty to look at, and have so many engaging ways with them, as to claim our love and sympathy. To see them picking and scratching about, basking in the sun, or running hither and thither after their mother hen, or nestling under her wings when a cloud comes over the face of the sky, or on the approach of night, is a sight, to a person of right feeling, very grateful and pleasant; and to young persons, the care and management of poultry engender every hour happy occupation.

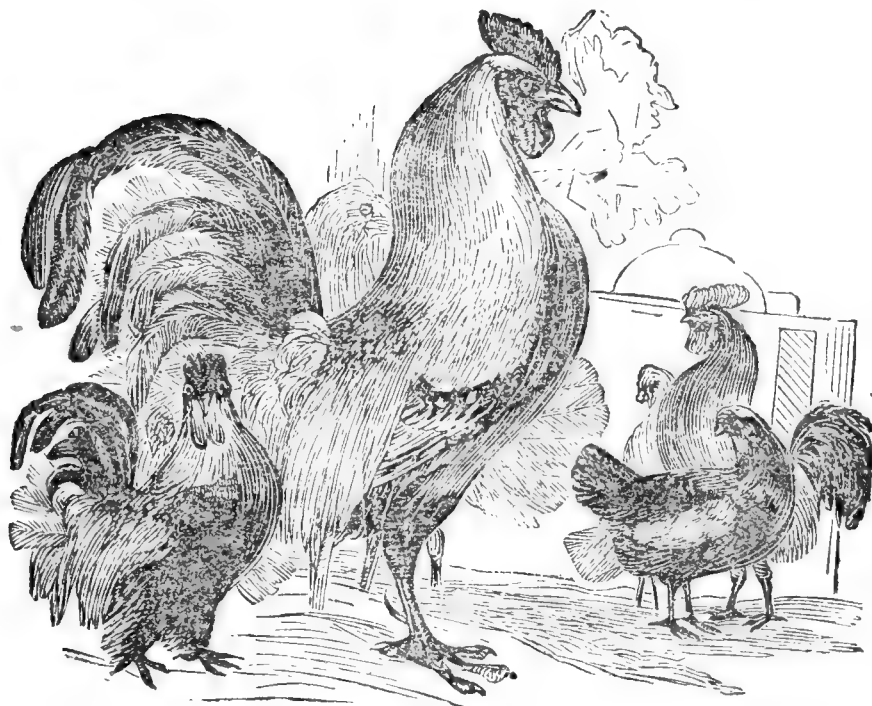
## VARIOUS KINDS OF POULTRY.

Domestic poultry may be divided into three kinds. First, the gallinaceous kind, as the common and foreign fowl, peacock, &c. Second, the columbine, or pigeon group, or family; and thirdly, the aquatic family, such as the duck, goose, swan, &c.

## GALLINACEOUS FOWLS.

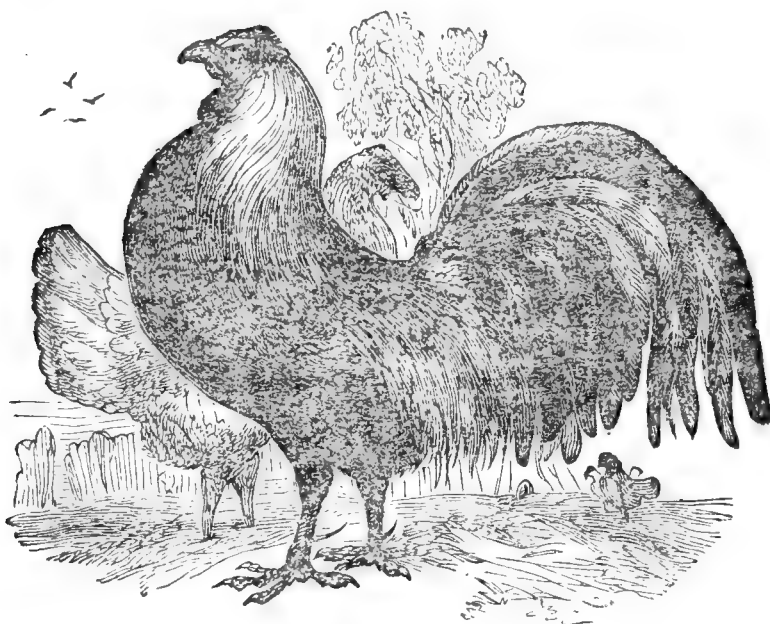
The principal varieties of these are, the dunghill, the Dorking, Poland, game, Chittagong, bantam, shakebag, Spanish, Seabright, Persian, Cochin China, &c.





### THE COMMON FOWL.

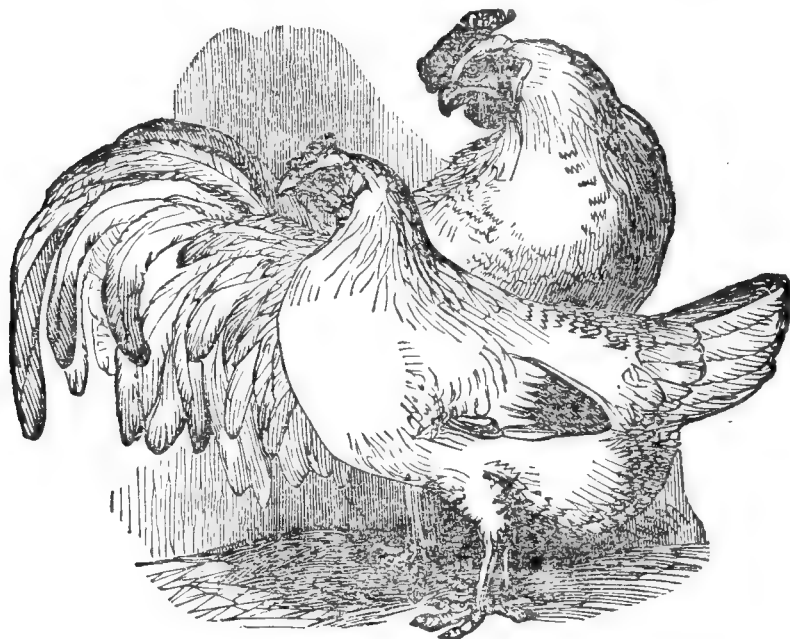
We have no history so ancient as the domestication of the cock and hen. The cock is supposed to be of Persian or Indian origin; but the species, in numerous varieties, has been introduced throughout the whole world. The common barndoor fowl, of which the cock is so brilliant a specimen, is probably derived from some of the wild or jungle fowls of India, and has been no doubt mixed with more than one species. It needs no description; it is of every variety of color, and is to be found in every part of the country.



### GAME, VARIETY.

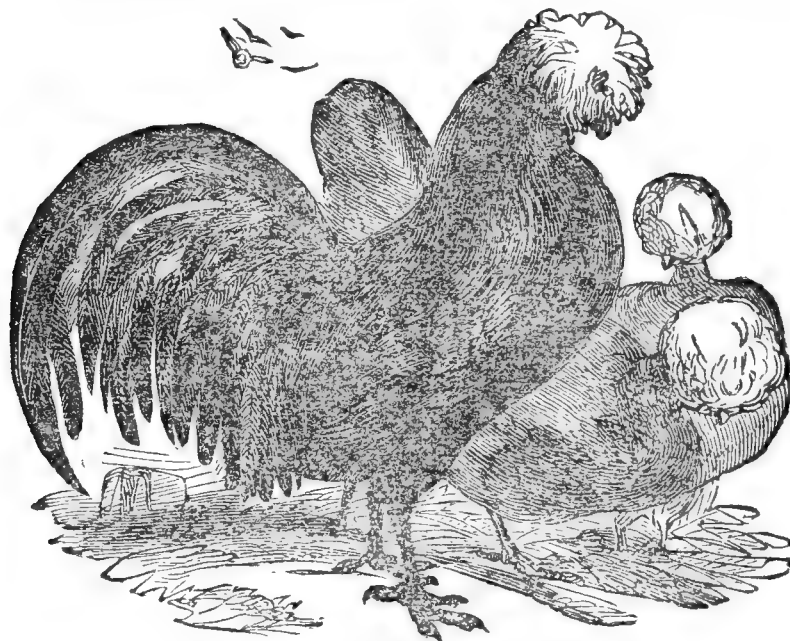
Game fowls are also too well known to need any description. Their plumage, particularly the red, is most beautiful and rich; their size somewhat

below the common, and their symmetry and delicacy of limbs to be compared with those of the race-horse and the deer. They are, however, a most pugnacious family, and will fight till they die; wicked men and boys, taking advantage of this, have matched cocks to fight under circumstances of great barbarity, but which can now be put a stop to by the strong arm of the law.



#### THE DORKING VARIETY.

This is so called from the town of Dorking in England. Their genuine color is pure white, and their chief distinctive mark is *five* claws on each foot, the fifth claw being little more than an apology for a claw. They are the largest of our fowls, well shaped and good layers; they also make the finest capons.



#### THE POLAND VARIETY.

The Poland fowls, as they are generally called, were originally imported from Poland. Their color is shining black, with white tops on the head

both of the cock and hen. The head is flat, surmounted by a fleshy protuberance, out of which spring the crown feathers or top, white or black, with the fleshy head in the centre of the crown. The Polanders are not only kept as ornamental, but are one of the most useful varieties, and are sometimes called everlasting layers.

The Poland fowls require more warmth, care, and attention than the common breed, and they are more subject to disease. Their topknots should likewise be occasionally clipped, or they grow into the eyes of the birds and nearly blind them.

#### THE BANTAM.

This well-known bird is small in size. It came originally from India, and is valued chiefly for its grotesque figure, feathered feet, and delicate flesh. Sir John Seabright was a great amateur of this bird, and obtained a beautiful variegated kind, with smooth legs, which go after his name. There is another variety imported from Brazil, which are very beautiful—partridge spotted and streaked, the eggs of which are colored like those of the pheasant.

#### THE CHITTAGONG, OR MALAY.

This is another Indian variety, and is probably the largest of the gallinaeous tribe. They are in color streaked yellow and dark brown, long-necked, serpent-headed, and high upon the leg. They are good layers, and, being well fed, produce the largest of hen's eggs.

#### SPANISH FOWLS.

These fowls are of large size; the hens lay enormous eggs, but do not sit well. The plumage is black, the comb loose, and often pendulous, and the naked skin behind the ears white. Two breeds, remarkable for beauty of plumage, are the gold-spangled and silver-spangled Polanders, which are sometimes mixed with the Spanish. Fine fowls of this breed are highly valued.

#### PERSIAN BREED.

From Persia we have the rumpless or tailless breed, in which not only are the tail feathers wanting, but the tail itself. Fowls of this breed lay well, but are not sightly in appearance. The Friesland breed is also another ugly sort, which has the feathers frizzled or curled up the wrong way.

#### COCHIN CHINA FOWLS.

The Cochin China fowl was imported from Cochin China, hence its name. From their stupendous size and shape they have attracted great attention; the height of the male bird is from twenty-two to twenty-five, and the female from eighteen to twenty-two inches. There are several varieties,

of which the most favorite are the buff and cinnamon colored; and there is a white variety, for which very large sums have been occasionally realized.

From their general introduction into the country they have lately much deteriorated in value.

### CHOICE OF STOCK.

It should be a general rule to breed from young stock, a two-year old cock or stag, and pullets in the second year. Hens are in their prime at three years of age, and decline after five. Hens with a large comb, or which crow like a cock, are of no use. Yellow-legged fowls are of tender and delicate constitutions. Healthy fowls are bright and fresh in the eye, and their combs are of a florid red. The most useful cock is a *Bold*, fierce, active bird. The indications of old age are, fulness of the comb and gills, dulness of color, large scales on the legs, and stiffness of the feathers. The spring is the proper time to commence laying your stock, and nine hens to one cock is sufficient.

### THE POULTRY-YARD.

We do not expect a boy, keeping a few fowls for his amusement, to establish a regular poultry-yard; but still, he should provide some sort of playground for his feathered favorites. If neglected in this particular, they will trespass on forbidden ground, and cause no end of trouble and damage. In a half-hour's visit to a flower-garden, a few energetic Dorkings will exhibit a modern style of gardening that will astonish, but not gratify the proprietor; and in proportion as the fowls are confined at home, will their propensity to stray be increased. In these days of cheap wire fencing, it is an inexpensive, and at the same time an efficient plan, to enclose a certain space—a corner of a field, if in the country—with this netting, to the height of nine or ten feet; it will effectually prevent the fowls from straying, without cooping them up and keeping the air from them. Part of this enclosure should be gravelled, and part should consist of turf. A good supply of fresh water must always be maintained. In many cases, however, a small paved court-yard is used, and here the fowls will thrive well enough, so long as the yard is sheltered from biting winds. Pure water is the first and the great requisite of health in fowls.

### FEEDING POULTRY.

In feeding your poultry, you may practise a wise economy, and prevent waste, by establishing an understanding with the cook, for the reversion of the cold potatoes, and the leavings of the vegetables from the dinner table. Any kind of root, such as carrots, turnips, parsnips, etc., *after being boiled*, is good food for poultry; and if of a watery nature, it may be mixed with bran, bread crumbs, or other farinaceous matter, and the poultry will eat it greedily and thrive upon it. Wheat, Indian corn, oats, rye, and peas are often

given to poultry; and the seeds of the sunflower furnish a capital food for them, and one upon which they fatten rapidly. Be very careful to feed them regularly; if they expect a meal at a certain hour, they will be sure to assemble; but disappointment will make them irregular. The best plan is, perhaps, to have a trough with narrow openings, through which the fowls can thrust their heads, and peck a few grains of corn when they choose. Accustomed to find a continual supply, they will not waste your store, but will use it with a moderation and judgment worthy of all praise. If, on the other hand, they are allowed to get ravenously hungry without receiving a supply, they will over-eat themselves, to the detriment of their health, and to your disadvantage in the long run. A cooped fowl can eat, it is said, about a quarter of a pint of corn in a day.

If fowls are pent up and have no run, worms, beetles, grubs, earwigs, ants' eggs, etc., should be searched for and given them in their houses. They should also always have a plentiful supply of pure and clean water.

### LAYING.

Hens begin to lay in the early spring, and go on doing so till the middle of summer, when they cease for a few weeks, and then at its end commence again, again cease toward mid-winter, and commence again. When the period of laying approaches, it is known by the brightening of the red in the combs and wattles of the hen, in the proud archness of her gait, the glistening of her eyes, and her frequent cackling. She then looks out for her nest, and after going in and out of it for some few days, pulling the straw about, and making a kind of hollow in it, she lays; and having performed this wonderful feat, generally proclaims the "fait accompli" to the whole world within hearing.

In domestic birds, artificial nests must be made for the hen, in boxes which we shall describe presently, in which a chalk egg or two should be put. The nests may be made of short straw. In some instances, a hen will make choice of a particular nest to lay in, and when, on desiring to lay, she finds this nest preoccupied by another hen, she will wait until it is vacated. With respect to fecundity, some hens will lay one egg every day, and others one every other day.

The eggs ought to be taken from the nest every afternoon, when no more may be expected to be laid, for if left in the nest, the heat of the hens when laying the next day will tend to corrupt them.

### HATCHING.

When the hen has laid her number of eggs, nature has provided for their being hatched by giving the bird an instinct to sit or incubate. This instinct is made known by a particular sort of cluck, which is continued till the chickens are full grown. At the same time, the natural heat of the hen's body is much increased, and she flutters about, bristles up her feathers, searches everywhere for eggs to sit upon, and then is the time to give her eggs.

In selecting the eggs to be sat upon by the hen, choose recently laid, handsome, moderate-sized, but rather large eggs. If you wish to raise hen-birds, examine the eggs by candle light, and if the vacancy at the extremity is a little to one side of the apex, the chicken will be a female; if exactly under the point of the shell, it will be a male.

The number of eggs to be hatched by the hen must in some degree depend upon her size. A moderate sized hen will very nicely cover nine eggs, but many hens bring up eleven or thirteen. An odd number of eggs is always chosen, as they have a centre egg which the others lie round in the nest. Those hens which sit best are generally short-legged, and are well furnished with feathers. The hen having received her eggs may then be left to herself; she may have water placed at a convenient distance, and her food may be given to her near the place of sitting.

The hen sits on her eggs twenty-one days, during which period she seems in a dozy state, and requires but little food or exercise; some hens will feed every day, but others will go for several days without leaving the nest, or taking the least kind of nourishment.

#### THE BIRTH OF THE CHICKENS.

Now comes a great and wonderful event—in place of a yolk and a white in which nothing can be discerned, we have a living animal and a broken shell. For twenty-one days it has been gradually forming, by the power of the Divine Being, into a lively little thing of beauty. It has been doubled up in its close prison; yet as the time comes for its emergence into a world of life, it has strength given it to set itself at liberty from its shelly confines. It pecks at the inside of the shell till it breaks, and then the impatient chick makes its entrance to the world in which it is to live. The length of time required for this process varies from one hour to six.

Some hens will sit for days together without leaving their eggs; and when this is the case, she should be lifted from the nest once a day, and fed separately in the yard, after the other fowls.

When chickens are thus hatching, it is best to leave them entirely to themselves; but sometimes it will happen that a chick has not sufficient strength to break the egg-shell; a small tap may in such a case be given to it, but never before you are certain that the little inmate of the shell requires it.

As soon as the hen becomes a mother, a great change is seen in her character—all her former feelings and habits give way to maternal solicitude. A good hen attends to her brood with the most persevering fondness; she will attack the fiercest animal who dares to molest her progeny. The cock too enters into her feelings, and commences his work of scratching for the young ones. We had last year a fine brood of chickens, but the parent hen was accidentally killed by the blowing to of the stable-door. The cock, however, took to the chicks, nestled them, fed them, and brought them up with all a mother's care.

## REARING OF CHICKENS.

When the chickens are hatched, they require no food till the following day, when they may be fed with crumbs of bread slightly moistened, and egg boiled hard, cut up into small pieces. For the first few days the quantity they require is very small. Their crop will only contain their food, which will not take up more space than a large pea. At the end of a few weeks, the crop is not bigger when distended with food than a cherry, but the food is soon absorbed, and therefore they should be fed often—at least four times a day. On the day after they are hatched, they should be placed with the hen in a nice coop, having a little short-cut straw at the bottom. In a couple of days, the coop and hen should be placed in some nice spot in the lawn or garden, within constant sight of the dwelling-house, and where no cats, rats, or other vermin are likely to prowl about. It should be placed on a dry and warm spot, and the roof of the coop, which should have hinges by which it can be slightly opened, should be partially raised. There should, of course, be cross-bars within the roof, to prevent the hen getting out. Likewise a little pan of water set within reach of the hen, near the bars of the coop, and stones must be placed in it, to prevent the young brood from drowning themselves, and this water should be frequently changed.

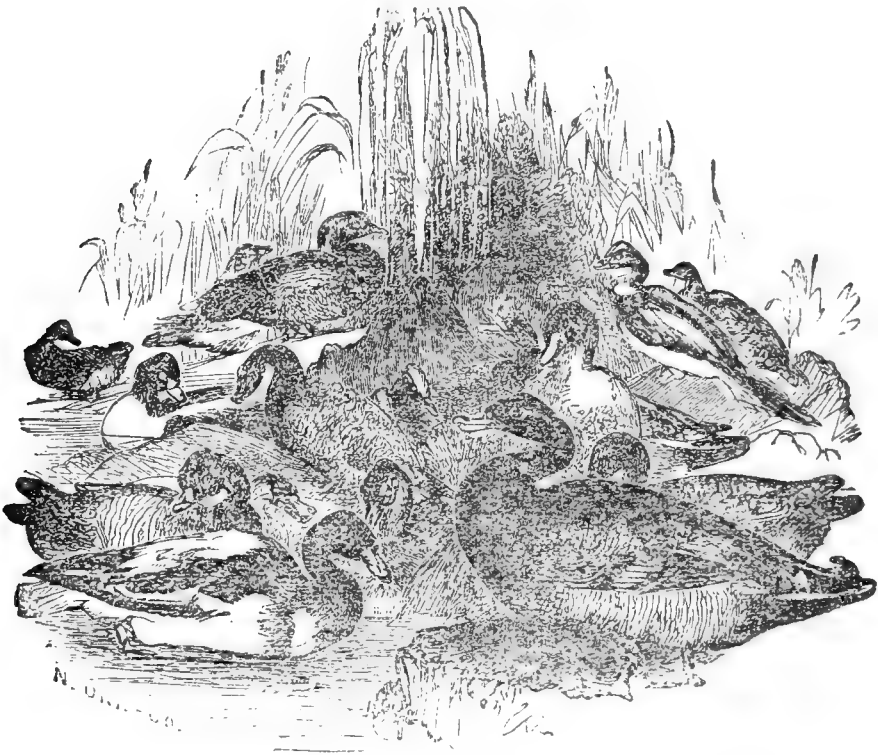
As young chickens are generally brought from the egg in March, of course a great deal of rough weather may be expected before they come to years of maturity. The changes of weather should therefore be watched, and when it sets in wet or cold, the young brood should be carefully protected against these dangers by the removal of the coop into some warm sheltered place, such as a stable, coach-house, or outhouse, and so with care continue to be nursed, guarded, watched, and attended to, till they are about seven weeks old, when they will of themselves separate from their parent hen, take to the roost, and act and do as independent creatures ought, get their own living, and set up for themselves as free and enlightened chickens!

## DUCKS.

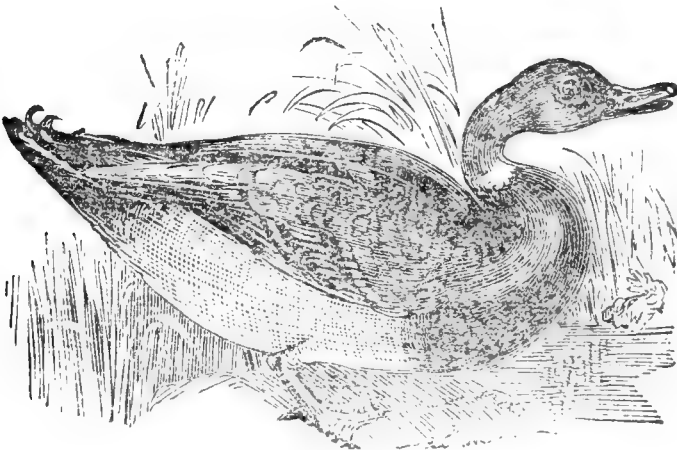
The duck (*amnon*) belongs to a very extensive natural genus of water-birds found in all parts of the world. They feed in great part upon animal matter, such as insects and mollusca, as well as upon vegetables and grain. They are generally seen upon the lakes and rivers of the interior of a country, although they are often found upon the sea-shore. Their principal characteristics are, a body adapted for swimming, feet having membranes or webs between the toes, which they use to propel their bodies along, and bills with rounded points, strong, flat, and depressed, and commonly furnished with a kind of nail at their extremity.

The common wild duck is the original stock of the domesticated duck, and appears to have been reclaimed at a very early period.

The tame duck, that is, the common one, appears in the same livery as the wild one, but is a larger bird, while some vary greatly from them and from each other. Tame ducks are reared more easily than any other domestic fowl, and the best way to get them is to place duck's eggs under a hen, for the tame duck is a careless mother. The hen, on the contrary—who is an



indefatigable nurse—generally hatches a duckling from every egg with which she is intrusted; she does not indeed conduct her young to the

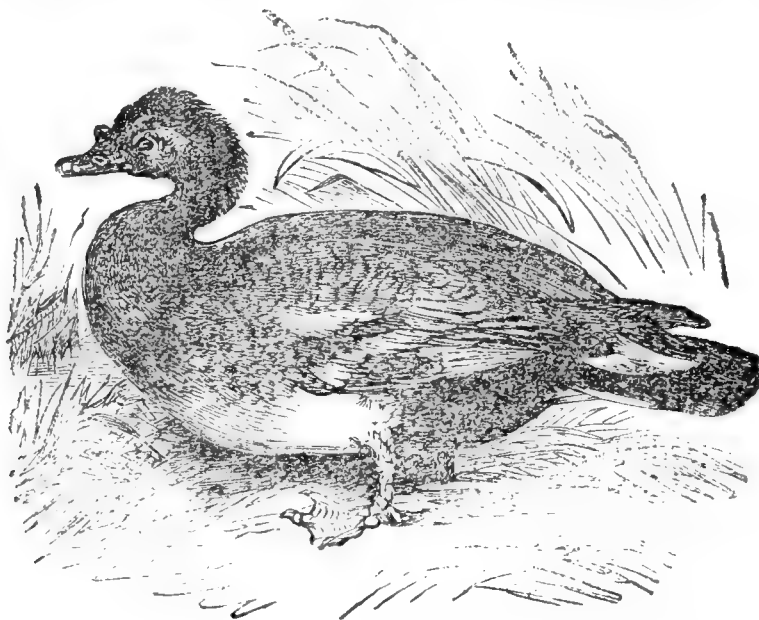


water, and generally exhibits much anxiety when the young brood take to it, but she watches over them, and is ever ready to defend them from danger.



There are many varieties of the tame duck, and many foreign varieties have been brought to this country. That most in request is the dark-colored Rouen, originally from France, which is very prolific in eggs. The English, or Aylesbury white variety is also considered valuable, as large and profitable. The Muscovy duck is a distinct species, and not a mere variety, much larger than the common duck, and distinguished by a sort of compounded membrane of a red color, covering the cheeks, and extending behind the eyes. This kind is easily fattened, and is a profitable breeder. There are also several other foreign species and varieties, which are sometimes kept rather for ornament than use.

The tame duck will lay from eleven to fifteen eggs, and she sits for thirty days. They begin to lay in February, and when not watched will lay abroad, and conceal their eggs. They generally lay at night or early in the morning. When she is about to lay, she looks very large behind, and should then be kept within the stable-yard or duck-house. While sitting,

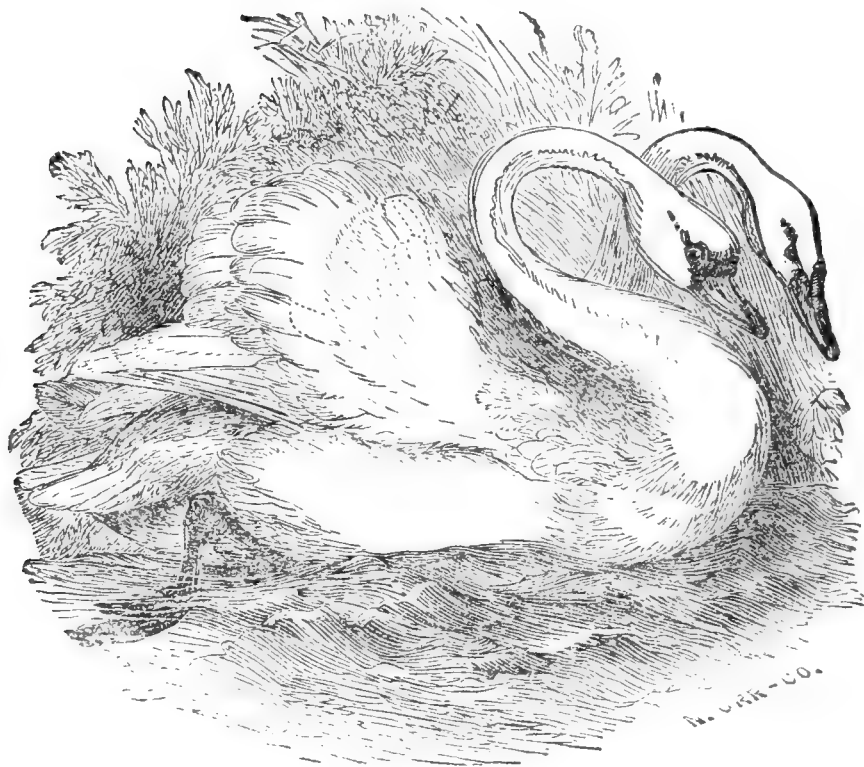


MUSCOVY DUCK.

the duck requires a secluded and soft place. On hatching she should be taken with her brood and put under a coop; a shallow pan of water should be placed near her for her drink and for that of her young ones, but it should be very shallow. In about ten days she may be let loose, when, with her brood, she will immediately take to the water.

Young ducks should be fed upon corn-meal or curds, and kept in a warm place at night-time, and not let out early in the morning. They should, if possible, be kept from water to swim in, as it always does them harm. When the ducks grow large they may be fed upon oats, which should be bruised; to which may be added peameal, some broth, chopped vegetables, such as carrots, turnips, potatoes, and particularly lettuce, of which they are very fond. They may be fattened on the same food, with the addition of corn-meal made into doughy lumps; but all offal and filth should be particularly avoided.

## THE SWAN.



This well-known ornament to the lakes at our Central Park was introduced here from Eastern Europe. All are familiar with the graceful deportment of this bird while sailing on the surface of the water. Unfortunately, its progress on land by no means corresponds with its aquatic grace, being confined to an awkward waddle.

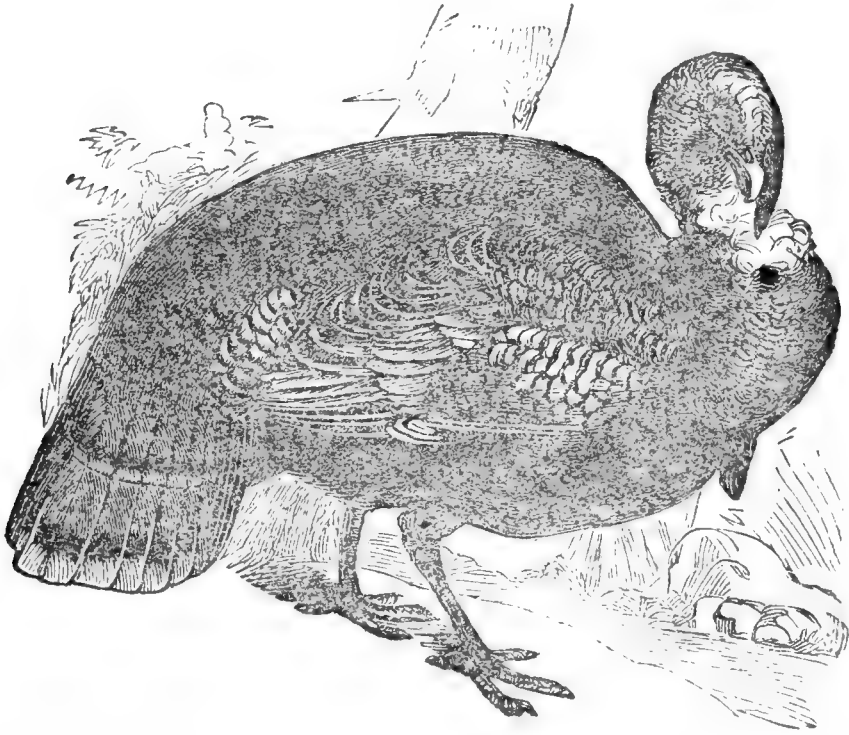
The female swan makes its nest of a great mass of dry reeds placed among osiers or rushes near the water, and lays six or eight large white eggs. During the time of incubation, and while the young are still small, the parent birds defend them with great assiduity and courage.

## THE TURKEY.

Turkeys are too well known to need much description. Their appellation is a misnomer; for they come not from Turkey, but from this country, and were quite unknown in Europe till after the discovery of the New World. In the great forests of the Western States, the turkey is found wild in flocks. It is esteemed a stupid animal in its wild state, and indeed does not seem to belie that character when tamed. Often threatening, but very seldom fighting, it is looked upon with merited contempt by courageous cocks, and in the poultry-yard occupies the equivocal position of a bird known as a bully and a coward. The poultry-yard in which turkeys are kept should be large and roomy. Their food is principally corn, of which they will eat a large quantity.

While the turkey chicks are very young, they may be fed with a mess

made of bread, milk, and hard-boiled eggs chopped small; afterwards with a mash of boiled potatoes, or other vegetables, and bran; then a little soft barley; gradually giving them stronger food, until they are able to take the



same diet as their full-grown companions. As to breeding or fattening turkeys on a large scale, that is quite beyond the province of our young friends, and must be left to those who make the poultry-yard a source of income and profit rather than amusement.

### THE PEA-FOWL.

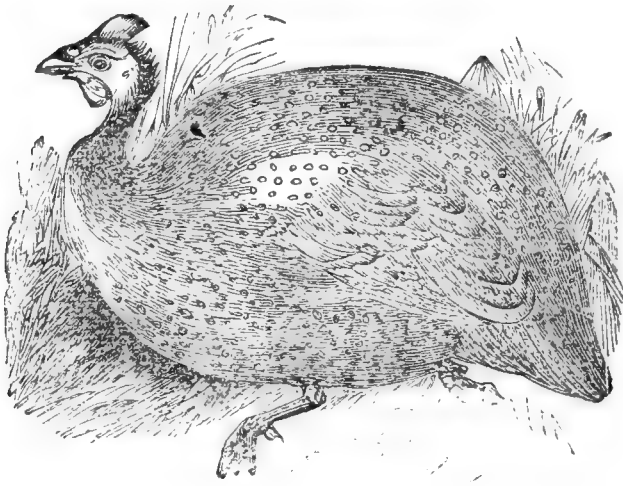
The peacock and hen are two of the most beautiful of our domesticated birds. Though long naturalized in America, it is of Eastern origin, occurring in the greatest profusion in the neighborhood of the Ganges, and in the extensive plains of India. They were brought from India into Greece, about the time of Alexander. They are too well known to need description, but occasionally the peacock has the whole of the plumage of a green white color, the eyes of the train not excepted. There is also a variety or mixed breed between the common and the white variety, in which every different proportion of color between the two is minutely observed.

Peacocks are granivorous like other birds, and they may be fed in the same manner as common fowls. Their age extends to twenty years, and at three the tail of the cock is quite complete.

### THE PINTADO, OR GUINEA-FOWL.

This has been said to unite the character and properties of the pheasant and the turkey. It is an active, restless, and courageous bird, and will even attack the turkey, although so much above its size. Guinea-fowls

assimilate perfectly with the common species in habits and in kind of food; but they have this peculiarity, that the cocks and hens are so nearly alike that it is difficult to distinguish them. They have also a peculiar gait and cry. The head is covered with a kind of casque, with wattles under its bill,



and the whole plumage is either black or dark gray, sprinkled with regular and uniform white spots. The pintado is a native of Guinea and South America, and in the wild state makes its nest in the holes of the palm-tree. It is gregarious, and is often found in large flocks.

These birds lay abundance of eggs, rather smaller than those of the common hen, and speckled. They may be reared by placing the eggs under a hen; but the chicks are extremely tender, and very often a sudden change of the wind in March will sweep off a whole brood in a few hours.

#### DISEASES OF FOWLS.

One of the first diseases of domestic fowls is what is called the pip, a white scale or skin growing upon the tip of the tongue. To cure this, scrape off the skin with your nail, and rub the tongue with salt. An imposthume, or boil, on the rump, is called the roup; this should be opened with a large needle, and the part afterward washed with salt and water. Another disease is the flux, or looseness of the bowels, which is generally cured by good solid food, and a few coriander seeds. Another disease is called the chip, in which the poor little creatures, about six weeks after they are hatched, sit chirping and moping in corners. It is a kind of consumption, and when so affected the chickens should be put into flannel, and placed in a basket near the fire, which will occasionally restore them. The gapes is another disease, or rather a similar disease with different symptoms. The sun or fire warmth, generous diet, and a small quantity of black pepper, are the best remedies.

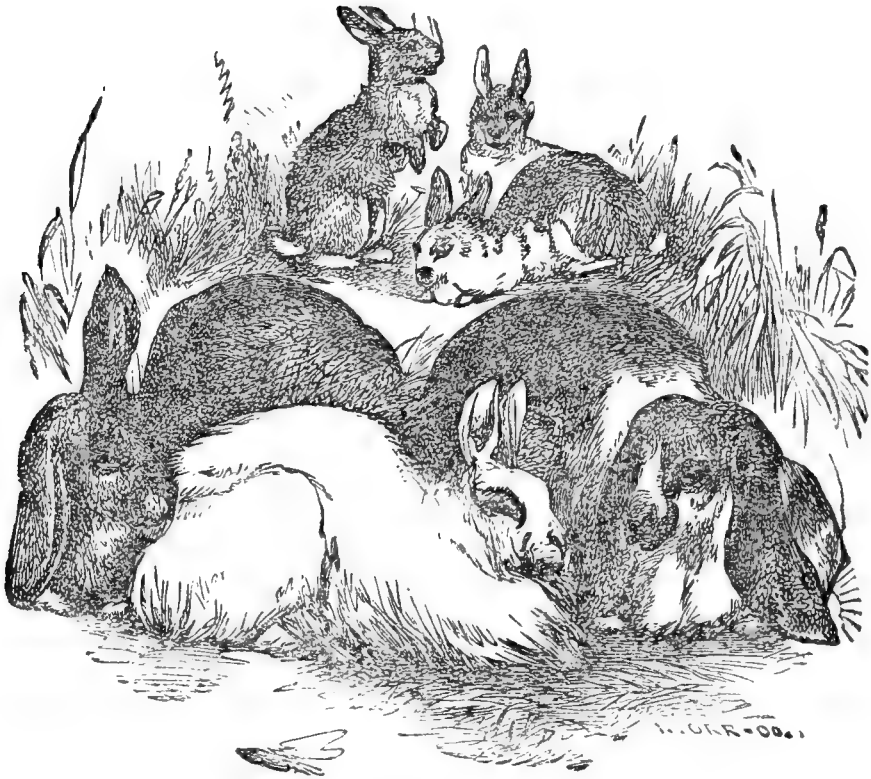
Sometimes it happens that a fowl will overfeed itself, and be unable to dispose of the great quantity of grain lodged in the crop, which will puff

out almost as large as a base-ball; the bird then sickens, and will speedily perish unless some relief is afforded, and the only remedy is to open the crop and take out the obstructing grain; for this purpose the sharp end of a small pair of scissors should be used to pierce the crop a little on one side, and when an opening is thus made, a slit should be cut in it about an inch long. The grain may then be taken out, and the hole being sewn up with a fine needle and thread, the bird will soon be well. It should, however, be kept by itself, and fed on soft food for a day or two.



THE PEACOCK.

## RABBITS.

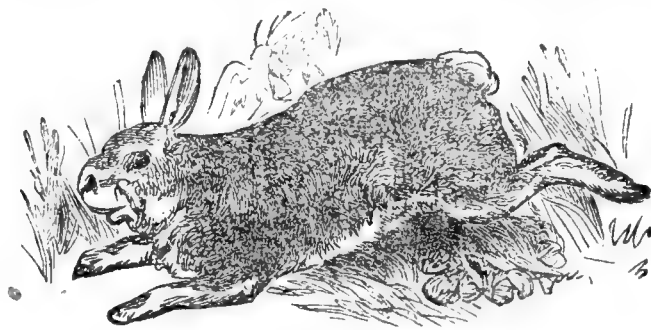


COMMON AND FANCY RABBITS.

RABBITS have long been favorite pets with boys, and they deserve to be so, for they are brisk, merry, bright-eyed little creatures; and being, moreover, easy to rear, will richly repay the care and attention lavished upon them. The color of the wild rabbit is a brownish gray; the tail black above and white beneath. In its domestic state it is of various colors—white, black, and piebald. Over all the temperate and warm parts of America the rabbit is diffused; and in its wild state it thrives admirably in the United States.

The extraordinary prolific nature of the rabbit has often been remarked upon, and it has been calculated that a single pair, whose progeny were left undisturbed and unmolested by the many enemies that prey upon poor bunny, would, in four years, produce the amazing number of 1,274,840 descendants. They attain an age of eight or nine years, under favorable circumstances. A gentleman who devoted a good deal of time to rearing rabbits, and observing their manners and customs, noticed that the offspring paid great deference to their first father. Upon a call which they were accustomed to obey, he always puts himself at their head, marching first, and stationing himself at the entrance of their burrow, where he remained until they had all passed in before him. The males are, however, frequently cruel to their young, whom they sometimes kill and devour. It is a pretty sight, in a rabbit warren, to see them coming out of an evening

to feed, sitting at the entrance of their holes, cleaning their faces with their fore-paws, and darting into their burrows on the slightest alarm.



COMMON WILD RABBIT.

Rabbit-keeping is in general a sufficiently simple affair. As with all pet animals, *regularity* in attending to the little creatures' wants, and care of them during sickness, are most necessary to insure success.

### FANCY RABBITS.

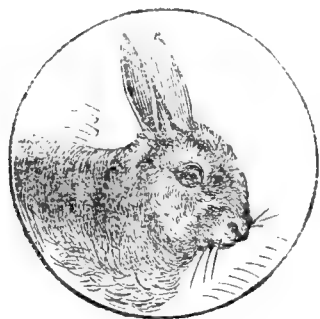
The fancy rabbits bear various names, of which the most common are the smut, the double smut, the lop, the dew-lop, the oar-lop, the horn-lop, and some others. These occasionally fetch very high prices among fanciers; but we would warn our young friends against expensive habits of every kind, and especially against expensive rabbit-keeping. Animals kept for amusement, and also for instruction—for much is to be learned of the instinct and habits of animals from familiar acquaintance with them—should be such as incur little expense beyond what a lad can spare from his own pocket-money; and the habit of seeking assistance from parents for foolish fancies is pregnant with the greatest mischief. We should, therefore, strenuously advise our young friends not to waste their time and money upon those ugly, overgrown creatures which fanciers choose to designate as beautiful, but to confine their attention to the rearing of the finest, most perfect, and purest stock of rabbits that can be produced, and therewith to be content.

According to fanciers, when one ear grows up straight and the other lops over the shoulder, it is a great thing, and when the two ears grow over the nose, so that the poor creature cannot see (as in the horn-lop), or when both ears stick out of each side horizontally (as in the oar-lop), or when the hollows of the ears are turned out so completely that the covered part appears in front (as in the perfect-lop), these peculiarities are considered as marks of varied degrees of perfection, but to unsophisticated minds they present nothing but monstrosities; we can see no beauty in such enormities, and shall no further describe or allude to them. (See Engraving at the head of this article.)

### CHOICE OF STOCK.

With regard to color, rabbits nearest in color to the wild ones are, in general, the most hardy; after the black or black and white, then the white,

then the sandy, and lastly, the gray and white. The young fancier may either purchase a doe with young, or he may obtain four or five young ones.

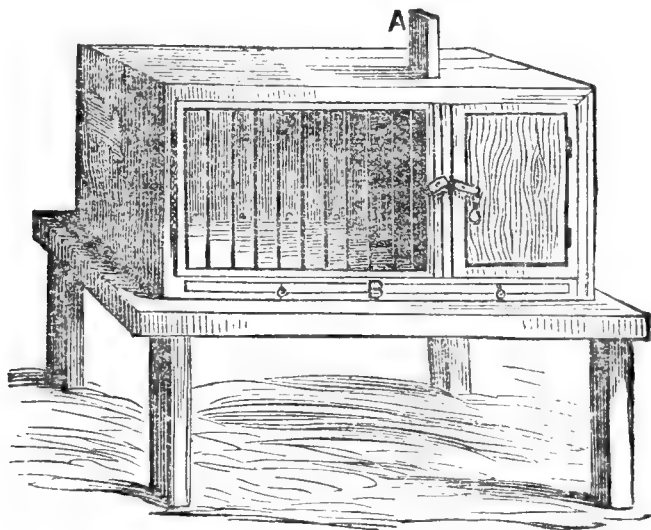


If the former, he should be guided in his selection by some experienced person; if the latter, he should take especial care that the young ones are in good health, and have no signs of pot-belly, and that they are of full size and strong build. The rule is, to "take the largest of the rabbits where there are the fewest in the litter." He should take them when about six weeks old, and when taken they should be placed in pairs, in separate hutches, till they are about four months old, when

each may have a separate hutch.

### THE RABBIT-HOUSE, HUTCHES, ETC.

The rabbit-house should stand upon a dry foundation, and be well ventilated. Frequently a spare loft, or some such place, will be a very good place. The huts, or hutches, should be placed on stands about three feet high, around the sides of the rabbit-house. Each hutch intended for breeding should have two apartments, a bedroom and a dining-room. The floor



of the hutches should be planed smooth, that the wet may run off, and a common hoe, with a short handle and a short broom, are convenient for cleaning the hutches. The breeding-hutches should be about two feet high, two feet six deep, and four feet long; about one-third of this length should be separated from the other by a panel and arched doorway, separating the dining from the bedroom. Above this there should be a sliding door, which can at any time be put down, so as to shut the doe into either of the compartments, as occasion may require. The edges of the doorway should be cased with tin, as should also the edges of the feeding-trough, and



any other part that the rabbit can get at with its teeth. The front of the hutch has two doors, one of which, belonging to the inner apartment, is made of boards, and the other, belonging to the feeding-room, is open, having wirework in front; both these doors are fastened by buttons in front, but open in a contrary direction. The bottom of the hutch should have a long narrow piece of wood in front, below the wires, at B, which should be movable, and this, upon being removed, will permit an iron rod or scraper to be introduced for cleansing the hutch from time to time of any loose matter collected in it. In placing the hutch on the stand, it should be set a little aslant backward, and there should be a few holes drilled at its back partition, for the purpose of letting all liquid pass off as soon as it is voided.

#### THE BUCK'S HUTCH.

It is the plan of some persons to make the buck's hutch different in every way from that of the doe, and to place him in a small, inconvenient place, with the back rounded off in the form of a dutch-oven, in which he has little or no room for exercise. This is *bad* in every respect. The buck should have a large roomy hutch, with a partition, and a back room into which he can retire when he pleases; for it is a great comfort to him to be able to hide himself, and to skip in and out of his little chambers. His hutch ought, also, to be higher than that of the doe, and it should have a little trough for his dry victuals, and a little iron-wire rack on one side for his green food, if you wish to make him very comfortable. It is a bad plan to put hutches on the top of each other, and the buck's hutch should always be put out of the sight of the doe.

#### FEEDING RABBITS.

Rabbits should be fed three times a-day; and the principal thing to be attended to is, always to give a good deal more dry than succulent food. All weeds and the refuse of vegetation should be banished from their diet, except the roots and leaves of dandelion, sow-thistle, and hog-weed. The most nutritious food are the tops of carrots and parsnips, cabbages, parsley, fine grass, clover, tares, coleworts, and the tops of the furze-plant, which should be cut up with their dry food. The grain proper for rabbits are oats, peas, wheat, or buckwheat; to these, as the best kind of dry food, may be added bran, dry clover, pea and bean straw. Rabbits, full grown, which have as much corn as they will eat, can never take much harm from an abundant supply of vegetable food. But young rabbits ought to be very carefully attended to in this respect; and a very little vegetable food is the most proper, and that should be of the best kind, or they will soon depart to that "bourne from which no rabbit e'er returns."

#### NEGLECT.

One of the most common faults of young rabbit-fanciers is, first to over-feed their pets, and afterward to neglect and half-starve them. Not only

do thoughtless boys forget to feed the objects of their care, but too frequently suffer them to become diseased, for want of attention to cleanliness. This is a very cruel and wicked thing. Rabbits should have their hutches cleaned out every morning, and require many little attentions to provide for their comfort and health; and those who are not disposed to afford these, ought not to think of rabbit-keeping.

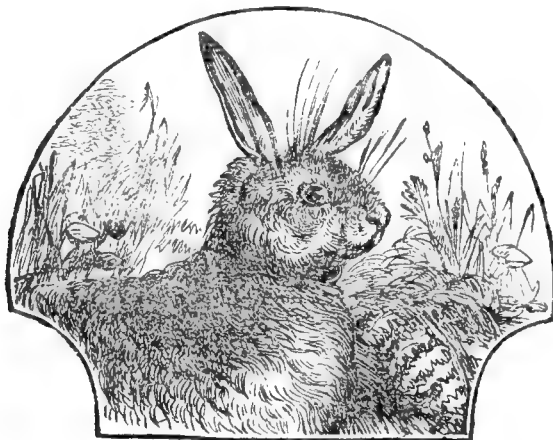
### BREEDING.

The doe will commence breeding at the age of six months. You may know that she is going to have young ones by her biting the straw and hay about in her mouth, and her general restlessness. She should be supplied with plenty of warm, dry litter for her bed while breeding. It is not desirable that a doe should have too many litters in the course of the year, or too many rabbits in each litter. Five or six litters in the year, and five or six rabbits in each litter, ought to be enough for any reasonable fancier.

### DISEASES OF RABBITS.

No animal is less liable to disease than the rabbit, when carefully attended; but neglect and want of cleanliness, or improper food, produce in them many complaints, among the foremost of which is what is called "pot belly," and which is very common to young ones. It is generally occasioned by want of air and exercise, and the use of too large a quantity of green food. The remedy is dry food, and to let the rabbits run about in an open dry space every day; but the best of all remedies is a stroke behind the ears, as few pot-bellied rabbits ever come to any good.

Rabbits are subject to colds and hoarseness, as we are, and have what is called the "snuffles." While this disease lasts, they should be kept dry and warm, and be fed with barley-meal, made into a paste with a little milk; and no water or green food should be given to them till they recover. Rabbits are also afflicted with a complaint of the liver, which generally arises from damp beds and foul hutches, want of exercise, &c. The only remedy for this complaint is the blow behind the ears; but it is easily prevented by nice dry hutches, bedding, and good and wholesome food.



## SQUIRRELS.



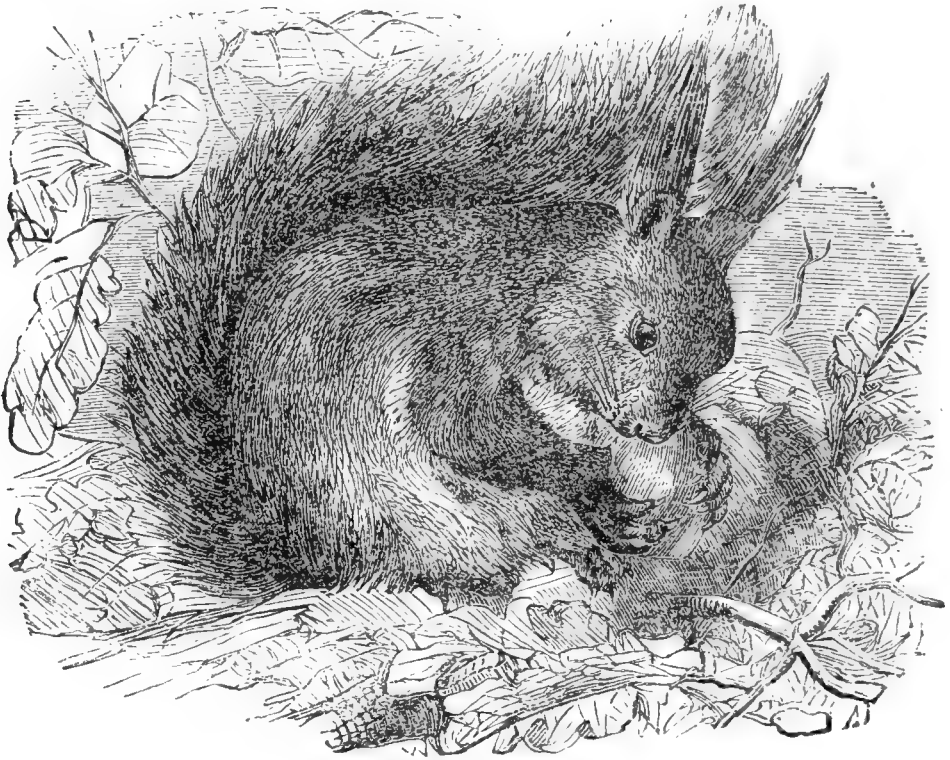
THE squirrel is one of the prettiest and most engaging animals of all the pets. It is elegant in form and cheerful in disposition, and is completely formed for a "life among the trees." When on the ground, it moves by successive leaps, with the tail extended and undulating; when sitting, the tail is elevated over its back like a plume, in a most elegant manner. The squirrels most common here are the gray and flying squirrels.

The squirrel lives upon nuts, acorns, beech-mast, the bark of trees, leaf-buds, and tender shoots. Like the hare and rabbit, it generally sits upon its hind-legs; and it uses its fore-paws, which are like hands, to convey its food to its mouth. It is most provident in laying up its winter stores, not only in a place of safety, but in several holes of trees in the immediate neighborhood of its own retreat.

The squirrel's nest is constructed with great art in the hollow of some old tree, or in the bark; and is composed of twigs and dry leaves. It breeds generally in May or June, and the young family consists of four or five.

The squirrel never appears in the open fields, but keeps among the tallest trees, and avoids as much as possible the habitations of man. It is so extremely vigilant, that if the tree on which it resides be only touched at the bottom, it instantly takes the alarm, quits its nest, leaps to another and another tree, and then travels on till it finds itself in perfect security. They have been seen, when hard pressed, and when the distance to the next tree has been beyond their most extravagant leaps, to throw themselves off,

spreading abroad their limbs, so as to make their bodies as parachute-like as possible, to break their fall; and, on reaching the ground without harm, bound along for the few intervening paces, and ascend the tree with a celerity almost too quick for the eye to follow.



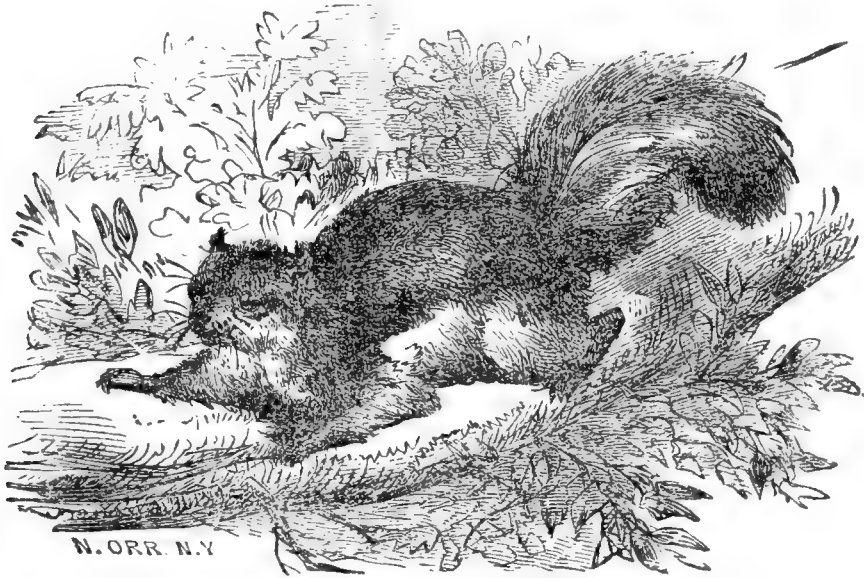
THE GRAY SQUIRREL.

In a domestic state, squirrels are kept in a cage—many persons confine them to a miserably small one. What notions of things such people must have! Think of a free, liberty-loving creature to be

“Cabin’d, cribb’d, confined,”

in a small space of a square foot, in which every motion tends to the brushing off or grinding down of the most beautiful tail in the whole order of mammiferous creation! Oh, my good young friends, if you do keep a squirrel, let him have elbow-room! Teach him as much as possible to forget his native woods, by the freedom you give him in his prison. Let his cage be at least six feet long, and four high; let it have perches like the branch of a tree; let him have a sleeping-box, opening with a door behind, for the purpose of cleaning it; let him have a food-box and water-pan, nicely adjusted, both of which ought to be of glass; while the edges of his cage should all be covered with tin, or else the love of liberty will soon give him means to escape. The movable, or turn-about, cage is a most unnatural affair; it induces the animal to perpetual up-hill running, with the unpleasant feeling of the hill sliding under him, which is neither good for his health or recreation. It is, in fact, a species of misery. The custom, too, of chaining them by a collar, like a dog, is a very foolish one. Chain a squirrel! Why, it is like chaining the air itself, or “putting manacles upon

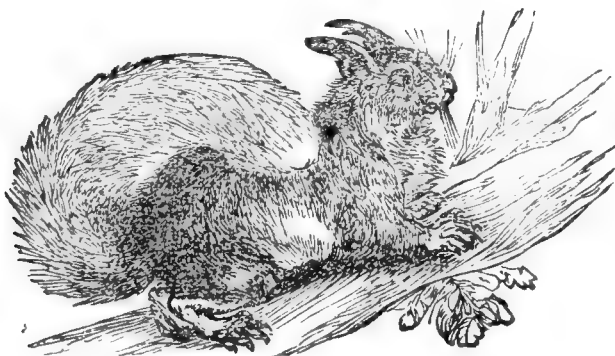
the wind." No; give him a good large cage, and make his captivity endurable, if you wish your squirrel to be happy.



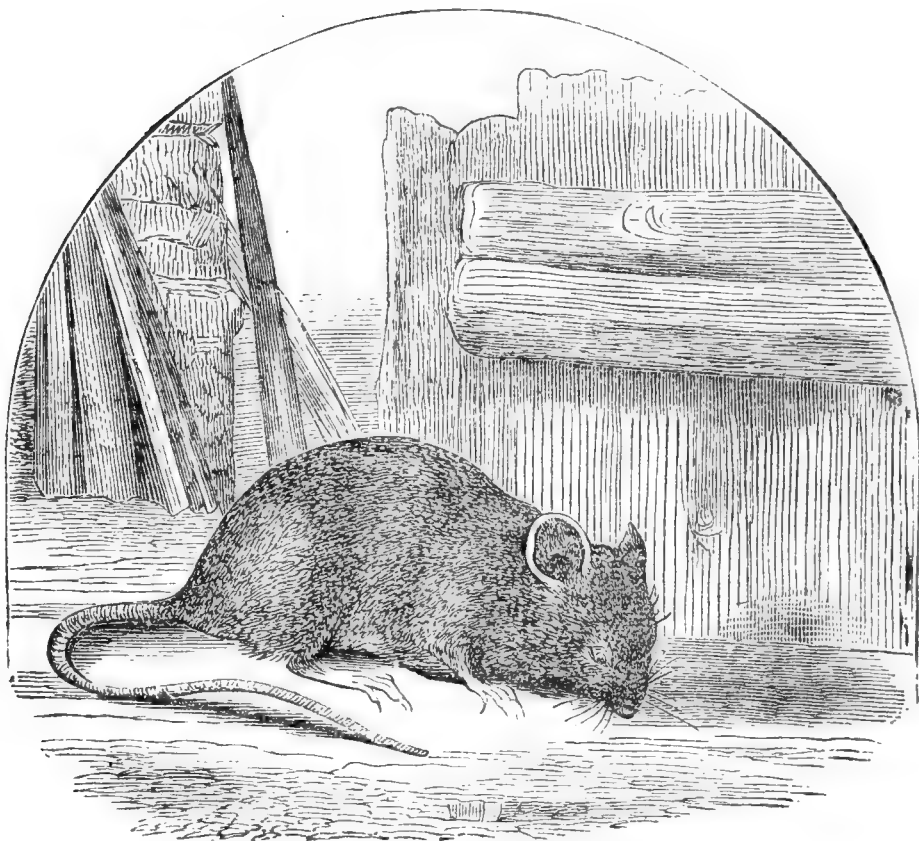
THE FLYING-SQUIRREL.

The flying-squirrel is a gay pet, and is frequently carried in his young master's pocket. He is fed and treated like others of the squirrel kind. He has an expansion of the skin, by means of which he takes enormous leaps, the extended skin acting both as a parachute to support, and an air-rudder to guide him.

Squirrels may be fed on all kinds of fruits, particularly those of the nut kind, such as filberts, woodnuts, walnuts, almonds, acorns, beechmast, and they are very fond of the cones of the fir-tree. They will also sip milk, and eat bread and milk with avidity. Some squirrels are very difficult to tame; and when this is attempted they must be taken from the nest at a very early age. With care and attention, and *method*, for there is a great deal of method required in taming animals, the squirrel is frequently brought to know, love, and obey his keeper, and will come at his call. Some exhibit excessive fondness for those who keep them, and will come and nestle in their bosoms and play all kinds of engaging tricks



## THE MOUSE.



THE COMMON MOUSE.

THE mouse is a lively little animal, and one of the most timid, although he eats in the trap as soon as he is caught. The brown mouse can very rarely be tamed, but white mice are bred and brought up in a state of domestication, and the young fancier can obtain a pair at any of the fanciers. The female has frequently six or eight broods in a year, but at these times she must be separated from the buck, who very frequently destroys the young ones.

The best kind of cage is that like a squirrel's, but on a small scale.

Some boys who have ingenuity will construct pretty little houses for their white mice. We remember seeing one on which there was a mill, by which the white mice, very much like millers in their looks, ground their own corn, by means of a turnabout fixed on a post of the dormitory, and it was very amusing to see the little creatures come out of the chimney and look about, as unlike chimney-sweeps as white is to black.

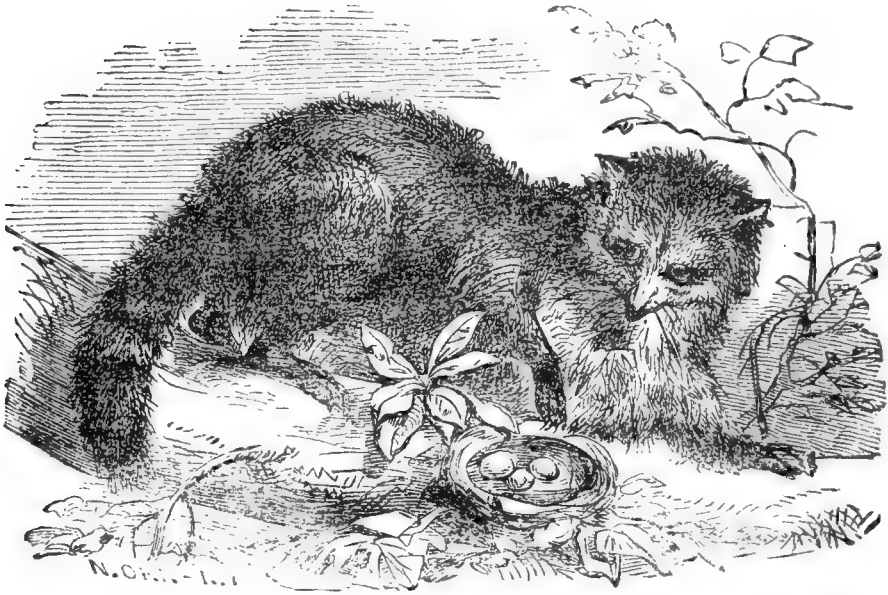
The principal food for white mice is bread and milk, oatmeal grits, and any other common food, except cheese, which is bad for them. They should be kept particularly clean, and their cages ought to be arranged, and beds made up every day, or they will give out a most disagreeable smell. With care the mouse will live several years.

## THE GUINEA-PIG.



GUINEA PIGS AND WHITE MICE.

Guinea-pigs are far less popular now among boys than they used to be; and no wonder, for they are stupid little things, and, as our old gardener was accustomed contemptuously to observe of a specimen on which we lavished much unrequited affection, in our younger days, are "*of no use to nobody.*" All they seem capable of doing is to give a pretty good imitation of a pig, as they run about grunting, from corner to corner. The guinea-pig is a native of Brazil; it feeds on grain and fruits, and may be kept in a domestic state on sopped bread and vegetables, with an occasional slice of apple or a similar fruit. In its wild state the guinea-pig is extraordinarily prolific, and a single pair, it is said, might be multiplied so as to produce a thousand within a year. In their native country they would become absolutely innumerable, were it not for the many enemies against whom they have to contend. Among these may be enumerated dogs, cats, and other animals, which greedily devour their young, and inclement weather and damp, by which vast numbers are annually destroyed. In size they are considerably less than a rabbit; the upper lip is only half divided; they have two cutting teeth in each jaw, and their ears are broad and erect. They are of varied colors, white, black, and fawn; the tortoise-shell (*i. e.*), a mixture of three colors, is generally preferred. Some of the white ones have red eyes, similar to ferrets and white rabbits. Their flesh is said greatly to resemble that of the rabbit in flavor; and it is moreover asserted, that those kept in houses contract the flavor of the wild, or warren rabbit, while the guinea-pigs that run about the garden have the more insipid taste of the domestic rabbit; but we do not think our young friends will make the trial.



### THE RACCOON

Is frequently found among pets, especially in the country. If taken young, he can be thoroughly domesticated. He is a very amusing companion; but never gets over his fondness for chickens. He will have to be supplied with green corn and vegetables, but will help himself to tidbits from the poultry-yard, if not watched.

### THE OPOSSUM,



Or possum, as he is more commonly called, is sometimes a great pet with country boys, though what they can see to pet in so homely an animal is more than we can comprehend. The possum uses its tail for climbing, and swinging from branch to branch, as the monkeys use theirs. Lawson says: "If a cat has nine lives, this creature surely has nineteen; for if you break every bone in their skin, and mash their skull, leaving them for dead, you may come an hour after and they will be quite gone away, or perhaps you may meet them creeping away." The food of the possum consists of insects, birds, eggs, etc. His length is about twenty-two inches, and his height about that of an ordinary cat.

He is a great scamp, and should be watched, as he is very destructive among the hen-roosts.



## D O G S.



DEERHOUNDS.

ALL boys like dogs, and boys' dogs, as a general thing, are well taken care of—the attachment of the young master, as well as motives of humanity, prompting him to guard the interest of his favorite, and see that he is well taken care of. Before giving our young friends some information that may be useful in treating their canine companions, in health and sickness, we will notice the different varieties of dogs known in the United States.

Dogs may be divided into four classes: first, those who find game for man, leaving him to kill it—of which are the setter, pointer, and spaniel; secondly, those who kill it when found, as the greyhound and deerhound; thirdly, those who find and kill it, as the staghound, foxhound, bloodhound, harrier, beagle, otterhound, and terrier; fourthly, those who bring in dead or wounded game, as the retriever, water-spaniel, Newfoundland dog, etc.; fifthly, those that guard property, as the shepherd's and drover's dog; sixthly, those that guard the house, as the mastiff, bull-dog, and bull-terrier; and, seventhly, those who are household pets, as the poodle, lap-dog, etc.

The pointer, of which there are the Spanish and English, is so called from his habit of pointing at game when he scents it, and is a desirable dog. It ranges the fields until it scents the bird lying close on the ground. It then remains still, as if carved in stone, every limb fixed, and the tail pointing straight behind it. In this attitude it remains until the gun is discharged, reloaded, and the sportsman has reached the place where the bird sprung. It then eagerly searches for the game, and brings the bird in its mouth.



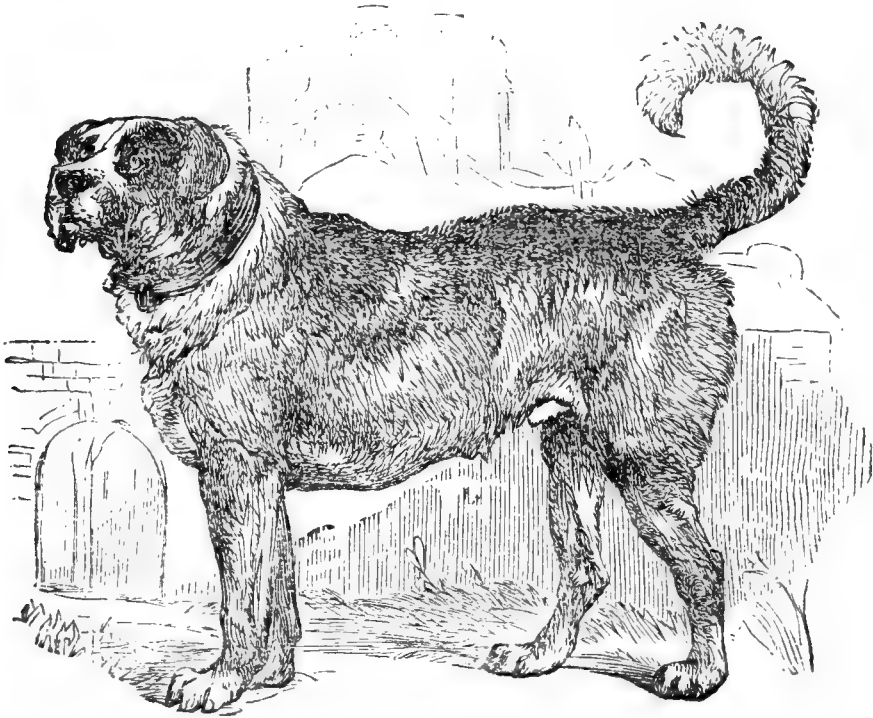
THE POINTER.

There are many anecdotes of its intelligence, among which the following is not the least interesting :

“In 1829, Mr. J. Webster was out on a shooting party, when a female pointer, having traversed the field which the sportsmen were then in, proceeded to a wall, and, just as she made the leap, got the scent of some partridges on the opposite side of the wall. She hung by her fore-feet until the sportsmen came up ; in which situation, while they were at some distance, it appeared to them that she had got her leg fastened among the stones of the wall, and was unable to extricate herself. But on coming up to her, they found that this singular circumstance proceeded from her caution, lest she should flush the birds, and that she had thus purposely suspended herself in place of completing her leap.”

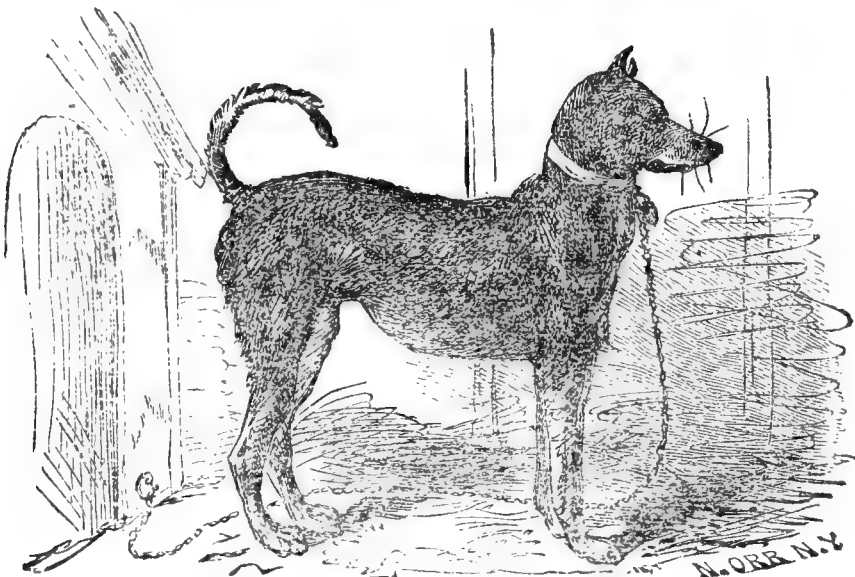
The greyhound and deerhound resemble each other with only this difference—the former having a sleek, and the latter a rough coat. They are long, slender, and elegant dogs, of great swiftness and agility ; but generally

supposed not to be so capable of attachment as other dogs. We believe this to be a slander, especially as regards the deerhound, which, if brought up properly, becomes very much attached to its master.



THE MASTIFF.

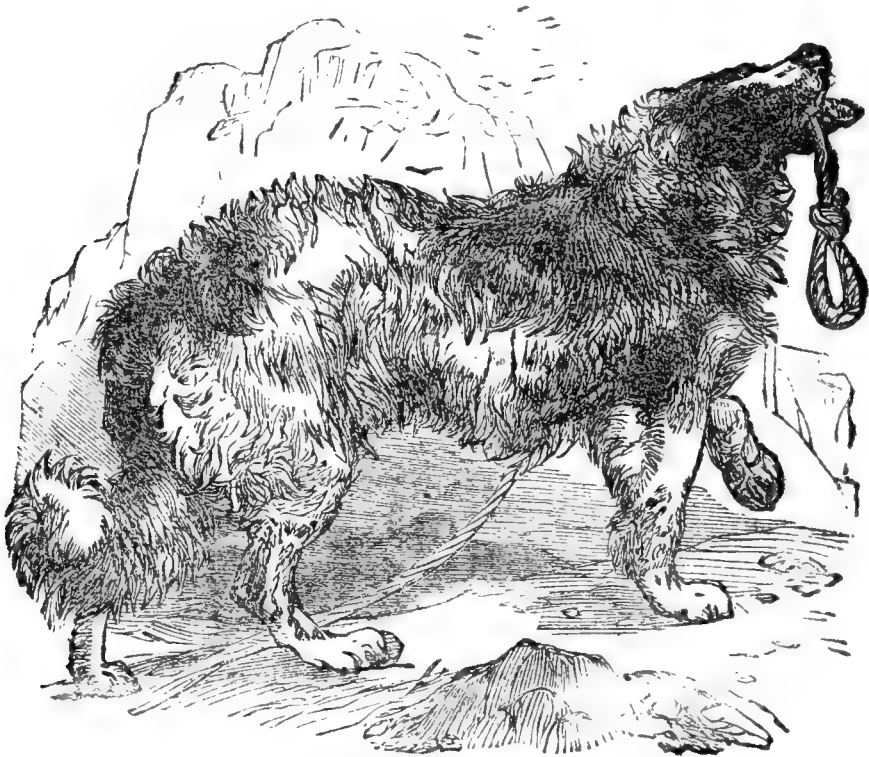
The bloodhound is unknown in this country, and scarce even in England—that which is called bloodhound here, being a mixed variety in which the mastiff predominates, and which is bred principally in Cuba. The stag-hound is little known here; but there are foxhounds, harriers, and beagles in



BLACK AND TAN TERRIER.

abundance, with no end of terriers, from the black and tan English, to the shaggy, wiry, active little Scotch terrier. Either of these are fine dogs for boys to have. They are faithful, affectionate, intelligent, and courageous.

Terriers are extremely attached to their master, and are capable of learning many amusing tricks. An English naturalist says: "I had a terrier, said to be of Irish breed, who had imbibed many of the eccentricities of the Irish character. He was particularly fond of terrifying lapdogs—a species of animal which he held in supreme contempt. On one occasion, he met a very fat lapdog, the property of an equally fat old lady, waddling along the street. Rory looked at it for a short time, and then gave it a pat, which rolled it over on its back. Its mistress immediately snatched it up, and put it on her muff, whereupon Rory erected himself on his hind legs—an art which he possessed in great perfection—and walked along by her side, making occasional snatches at the lapdog. The terrified old lady struck at him with her boa, which Rory immediately caught in his mouth, and carried off down the street in an ecstasy of delight, ever and anon tripping over it, and rolling head over heels."

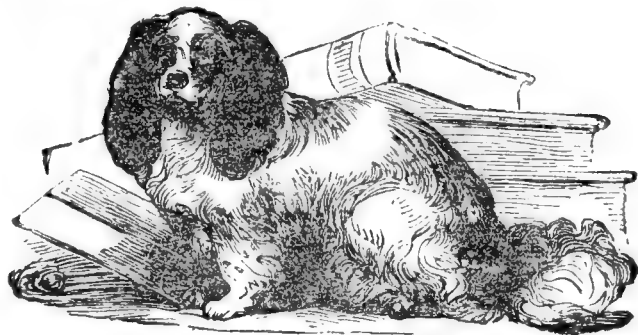


NEWFOUNDLAND DOG.

The Newfoundland dog is a fine fellow, and the boy who has one of a pure breed is to be envied. He is the prince of water-dogs; but you had better keep him home when you go to swim, unless he is well trained, for he will be apt to think you are drowning, and drag you out, whether or no.

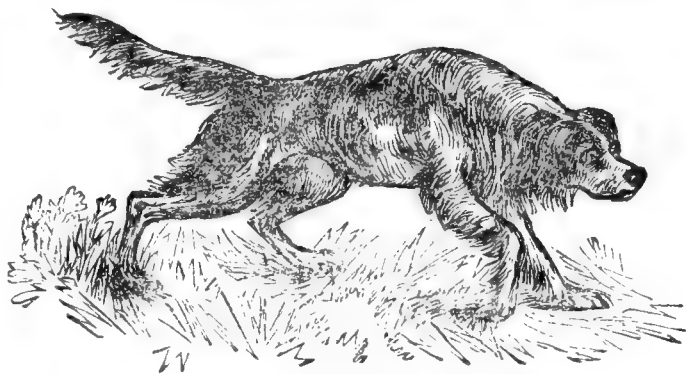
The shepherd's dog and drover's dog are very much alike in character, though not resembling each other in appearance. They are very useful and greatly valued in some parts of England, and in the Highlands of Scotland. They are not much known in the United States.

The spaniels are several. The King Charles, which may be used as a retriever—but he and the Blenheim are usually pets—the springer, cocker, chamber, and water-spaniel. The last is a good one for a boy, being droll, affectionate, and capable of being taught to fetch and carry, bring sticks from the water, etc.



KING CHARLES SPANIEL.

The setter is probably a large species of spaniel. It is taught to set or stand at birds, and is held in great value by sportsmen. He is not always a clean house-dog, and should be confined to his kennel. There are three kinds of setters, the English, Irish, and Russian—the latter more like a poodle.

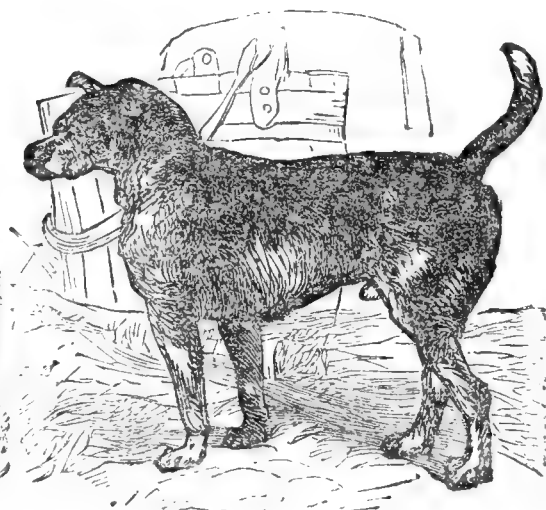


THE SETTER.

The poodle is a curly fellow, about the size of a spaniel, and can be taught an infinite variety of tricks and capers, to find lost money, bring articles from a distance, go through the military exercise, &c.

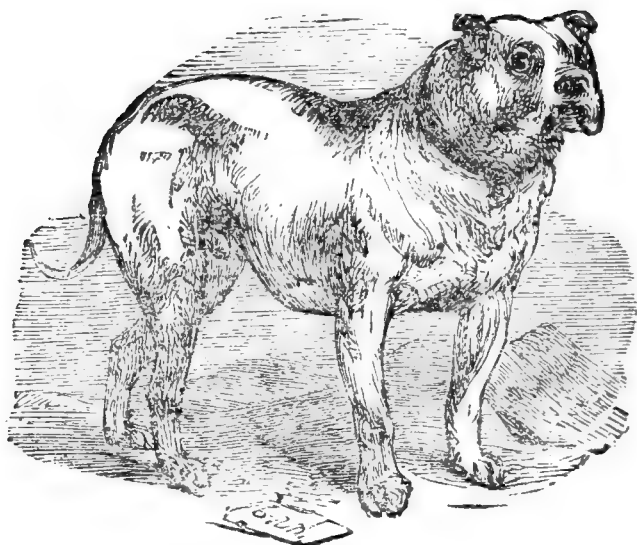


SCOTCH TERRIER.



COMMON ENGLISH TERRIER.

The Scotch terrier is a rough, wiry little dog, with hair hanging over its eyes, so that those organs are hardly visible; and when it is in the water, its wetted hair quite obscures its vision. There is a smaller breed of these dogs, called the "Skye terrier," whose principal beauty seems to consist in their ugliness.



BULL-DOG.

The mastiff is a faithful and valuable dog, especially the Mount St. Bernard breed, and is large and stately. The latter variety is becoming common here—the true, old mastiff is but rarely seen. The bull-dog and bull-terrier are mere fighting-dogs, quarrelsome and disagreeable. Their proper place is, chained up on the premises. They are no companions for boys.

As for the small poodles and lapdogs, a boy who owned one would be laughed at. They are the least useful of any variety of dogs extant.

#### DISEASES OF DOGS.

Dogs are afflicted with various diseases, some of which you may treat yourselves—others, again, would be beyond your skill.

*Mange.*—This is a disagreeable disease, the surface of the skin being covered with sores, and the hair coming off, often in patches. It only comes, however, by neglect, or improper food. You mix up train or tanner's oil, one quart, spirits of turpentine, a wine-glass full; sulphur, sufficient to make a thin batter, as though you were about to put it in pancakes; mix well, apply it all over, rubbing it in for an hour or two. Let it stay on about two weeks, then wash it off with soap and water. About three applications, if they are well rubbed into the skin, will answer.

*Distemper.*—This commences frequently with a white, mucous matter running from the nose, which is rather favorable. If it begin with a dry, hot nose, it is not so good a sign. The dog is restless, has heaviness and disinclination to move about, loss of appetite, looseness of the bowels, a dry cough, general debility, and wasting of the flesh. Some have only part of these symptoms. The first thing is to give the dog an emetic—a tablespoonful of table salt—any quantity that can be got down at once is not too much; for it will be sure to come up again. Let him have beef soup, with rice, and a little meat well cooked, for his diet. The second day give him a teaspoonful to a dessert-spoonful of castor-oil every two hours until it oper-

ates, if he be costive. If his bowels be loose, give him a dessert-spoonful of spiced sirup of rhubarb every two hours, until the passages are colored by it. Give him rich soup, little and often. If he still grow weak, you may put a teaspoonful of whiskey in each pint of soup. With patience and care he will be apt to recover. He may require to have tincture of bark, as a stimulus, and opium, or some mild astringent, to check the looseness of the bowels, but about these, which are rather powerful medicines, you had better consult some experienced person. Do not be too quick to take volunteer advice, for no dog can stand the amount of medicine people will recommend you to give him.

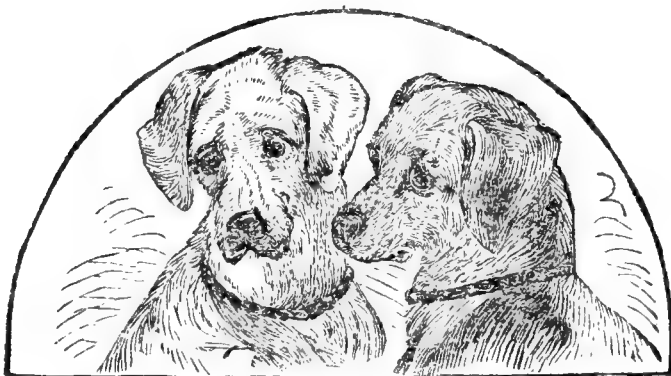
*Worms.*—Dogs occasionally suffer with these, to the injury of health, and you will see the worms ejected now and then in the passages. If the animal starts a deal in his sleep, is troubled with itching at the nose, and does not gain flesh on his fair allowance of food, you may suspect worms. The best remedy is: Cowhage, half a drachm; tin filings (very fine), four drachms. Make up with molasses and flour, into five or six balls, or boluses. You had better get this done by the apothecary, or you may get more of the cowhage than you like on your hands. Give one every day, followed four hours afterward by a purge of salts. Or give the following: Cowhage, a teaspoonful; aloes, forty grains. Make into ten pills, with molasses, and give one every morning.

*Colds, Coughs, etc.*—A purge of oil, a little less food than usual, and keeping him in a warm place, will generally answer.

*Bruises or Sprains.*—Rub opodeldoc well into the part frequently through the day.

*Fleas.*—To kill these, mix a half teaspoonful of snuff in two quarts of gin, and wash him well. If less gin, then less tobacco. If you make it too strong, you will not only kill the fleas, but probably your dog.

*To take out Thorns.*—Extract them with pliers, if they are to be grasped. If too far in, bind up the place with a plaster of shoemaker's wax, or a bread poultice, and you will soon draw it out.



POINTERS.

## THE SALT-WATER AQUARIUM.



ONE of the most delightful amusements of the day, for boys, is the fitting up and stocking an aquarium, or mimic fish-pond. The aquarium is a tank, wherein the fish and water vegetables are placed—the one to consume carbon and give out oxygen, and the other to consume oxygen and give out carbon, in such proportions that the water is always kept pure. In the aquarium, by an imitation of nature, you have a miniature fish-pond, wherein the habits of fish and the growth of sub-aqueous vegetation are laid open to the observer, so as to afford him continual amusement.

### THE PRINCIPLE OF THE AQUARIUM.

The salt-water aquarium is a miniature sea, and the fresh-water aquarium a miniature pond. Both, to be real aquaria, must have in themselves the power of keeping vegetable productions fresh and growing, and animals alive, without the necessity of changing the water. The few cubic feet of water enclosed in the glass box must remain pure from month to month, kept so by the animal and plant life therein existing; and so soon as any appearance of decay in the plants, or of unusual mortality among the live inhabitants is observed, it may be taken as a sure sign that something is wrong in the structure or condition of the little world.

The principle upon which the aquarium, either of sea or fresh water, is founded, is the following: A plant immersed in water will, under the influence of light, exhale oxygen gas; and this oxygen it is that all fish and marine and fresh-water animals require to sustain life. When goldfish are kept in a bowl, they would soon die if the water were not continually



changed; for they exhaust the oxygen from the small supply of water in the bowl, and there is nothing to revivify the water from which they have extracted what is to them an indispensable element of life. The introduction of plant-growth, however, alters all this; the plants give out the necessary oxygen, while some of the animals, on their part, repay the obligation by feeding on any of the vegetable matter that begins to decay, and cause turbidity in the water. Thus a balance is maintained, the vegetable and animal inhabitants of the little glass world being equally and mutually necessary to each other's well-being. A few sea-snails, or periwinkles, for a salt water, and half a dozen pond-snails for a fresh-water aquarium, are the best scavengers in the world; and the best of it is, they *keep* themselves, without putting their owner to any expense whatever.

### THE CASE, OR TANK.

The aquarium is made properly of two materials. The bottom and ends should be made of marble or slate, and the two sides of glass—though for fresh-water aquaria all the sides may be made of glass, set in iron pillars, if the latter be enamelled. We prefer the former method. The end-pieces have grooves cut in them to receive the plate glass, which is then cemented, and made water-tight. There are similar grooves in the bottom. The cement should be such as will not decompose and taint the water. The tank, if you are near a large city, can be bought cheaper than you can make it.

Having bought your tank, see that the cement or putty it may contain is perfectly dry. Cleanse it thoroughly by filling it with successive changes of water. It is useless introducing any specimen until the water in the tank remains perfectly free from any impurity, contracted from the vessel in which it is placed.

### WHERE TO PLACE THE AQUARIUM.

This is a very important point, and one which should be very carefully attended to—the object being to imitate, in the artificial pool of water, as closely as possible, the position of a natural pond, or sea. The first thing to remember is, that *light* is necessary for the exhalation of oxygen; but that the light must fall as it would on a real pool of water—*i. e.*, never laterally, or from the side, but always from the top. The aquarium should, therefore, be placed in a position where it may receive plenty of sunlight, tempered, however, by the shade of over-hanging plants, or by a screen during the hottest hours of the day; for should the water become thoroughly warm, a great mortality among the inhabitants is almost certain to ensue. For this reason, many aquaria are made with a slab of slate on the side where the sunlight, if unchecked, would strike sideways through the water; when this is not done, a thick curtain of green baize, or some other impervious material, will answer the purpose. Do not place the aquarium in any place where it is likely to be moved, or shaken, in closing shutters, or similar operations; a grand point towards success is that, once fixed, it should remain entirely undisturbed.

### HOW TO LAY THE FOUNDATION FOR THE PLANTS, ETC.

The aquarium being thoroughly cleansed and clear, the next thing is to prepare the ground or bottom of the miniature sea. Sand and pebbles, to the depth of about four inches, must first be introduced. Rockwork must now be introduced—either artificial material, such as is used for the borderings of gardens, or pieces of natural rock, collected on the sea-shore. A great deal of the appearance of the aquarium, when finished, will depend upon the manner in which these pieces of rock are distributed and arranged. They should form natural caves, in which the animals may conceal themselves at pleasure, and jutting promontories, one or more extending above the water. These rocks should be firmly fixed, by propping them up with sand and pebbles, scooped away around their bases. No pains should be spared to make the arrangement of rock and water as picturesque as possible, as, once completed, it cannot be again interfered with. In some aquaria, this layer of sand and pebbles is dispensed with, and the pieces of rock are merely fastened with a little cement, or even placed loose on the slate floor of the vessel, on the ground that some of the smaller animals hide themselves among the shingle, and, dying there, infect the water; but, with care, this may be prevented.

### HOW TO STOCK THE AQUARIUM—THE PLANTS.

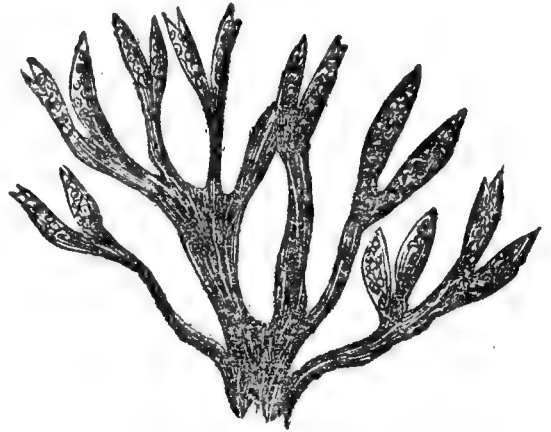
The period of the sea-side visit is the time to procure treasures for the aquarium. There are, indeed, several places in New York and other large cities where specimens of all kinds, both animal and vegetable, may be procured; but no supply thus purchased can make up for the pleasure and profit to be derived from collecting the whole stock for your aquarium yourself, and the specimens thus collected may easily be brought, safe and sound, to the finder's inland home; for this part of the task, moreover, we shall presently give a few directions. At low water, when the sea is retiring from the foot of the cliffs, leaving a large expanse of weed-covered rock uncovered, follow the margin of the retiring waters, armed with a chisel and hammer; for you must, in collecting your specimens, avoid all that are merely lying on the rocks, and which, in nine cases out of ten, are dead. You must chip off a little piece of the rock on which the weeds are growing that you collect, and bring them away adhering to a piece of their native rock—though a very small fragment, just enough for the weeds to cling to, will be sufficient, as sea-weeds have no roots. Take care that there are no decaying weeds or animals on the bits of stone; for if they are suffered to remain, and begin to decay in your vase, they may be the ruin of the whole collection.

In making your selection of sea-weeds, or algæ, choose exclusively the smaller and finer kinds; the large coarse fuci are too strong for the purpose, and cover the aquarium with slime in decaying. The smaller and more delicate specimens are frequently found hidden under the shelter of the larger kinds, or nestling beneath rocky ledges. In every case, remove them

gently, taking care that a portion of the rock on which they grow is detached with them. Endeavor to obtain specimens of as many various colors and forms as possible; for on the judicious arrangement and contrast of colors—crimson, and purple, and green, and olive—the appearance of your aquarium will mainly depend. The pretty little purple-tinted coralline (*corallina officinalis*) is exceedingly well adapted for the purpose; likewise the pinnate-leaved laurencia.



COMMON SARGASSUM.



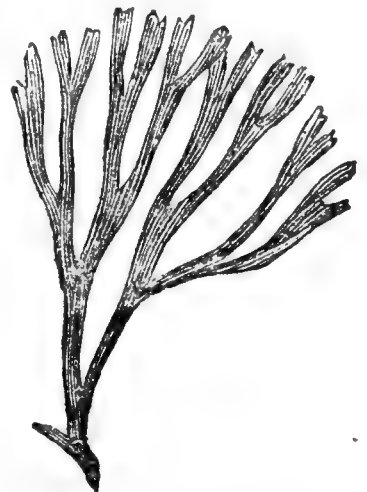
BUCK'S HORN FUCUS.

The COMMON SARGASSUM is an interesting specimen, found on the American shores of the Atlantic. The stems are a foot or more in length, alternately pinnated with simple branches. The plant is dark olive-colored, changing to reddish brown, upon exposure to air. The small pea-like shells growing upon its stems are *air-vessels*, which float the large stems of the plant in water.

The BUCK'S HORN FUCUS is destitute of air-vessels, but the extremities of the fronds are inflated, forming terminal receptacles. The fronds are from a few inches to a foot and a half in length, olive-green color, with a tinge of yellow at the extremities.

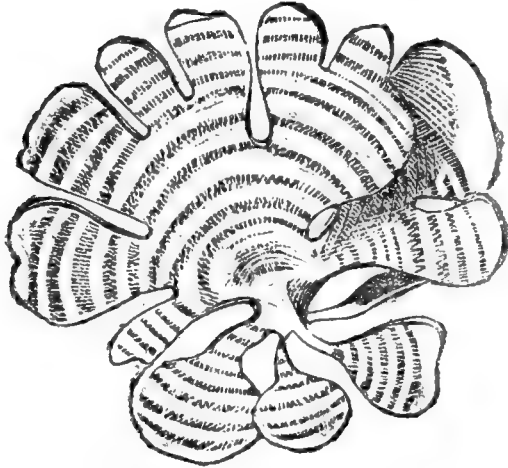
The DICHOTOMOUS DICTYOLA grows upon rocks, as well as upon the larger algæ. The fronds are from two to nine inches in height, green in color, forming a beautiful specimen when dried. There are narrow and broad fronded varieties, of the same species.

The PEACOCK'S TAIL PAVONIA is a curious species, growing chiefly in rocky pools, where the water is still, and exposed at low tide. The frond is membraneous and spreading, presenting various shades of brown, and yellowish or reddish olive, which, with the numerous darker and concentric lines, and a white bloom-like powder, spreading over and more or less modifying the multiplied hues, renders this one of the most

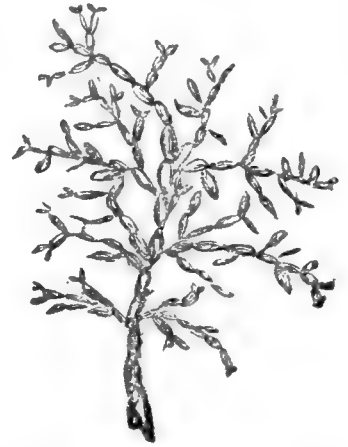


DICHOTOMOUS DICTYOLA.

beautiful and remarkable of all our marine vegetables. Several generally rise from the same base in erect or slightly spreading tufts, seldom more than two or three inches high, the divisions arising apparently not from growth, but from laceration, or separation after growth, the same concentric lines being continued in the same curve through all the segments.



PEACOCK'S TAIL PAVONIA.

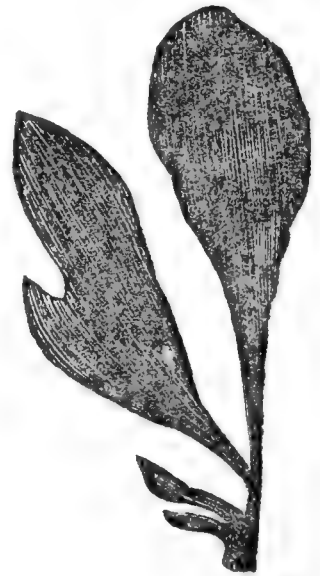


ARTICULATED CHYLOCLADIA.

The ARTICULATED CHYLOCLADIA may be found either growing upon rocks, or attached to some larger plants. Its fronds are tubular, looking like a series of the cells of an orange, united at their extremities; the branches spring from some of these constructions, and the plant grows in tufts, from a creeping, fibrous base, and rises in height from one to six inches; they are of a tender substance, and purplish or pinky red colored.



RED ROCK-LEAVED DELESSARIA.



ESCULENT IRIDÆA.

This plant, and other varieties that are allied to it, are only of annual duration; but the minute disk, in all of them, is accompanied by fibres, which

creep along the rock or stem of the supporting plant, fixing themselves here and there, and forming the rudiments of future fronds.

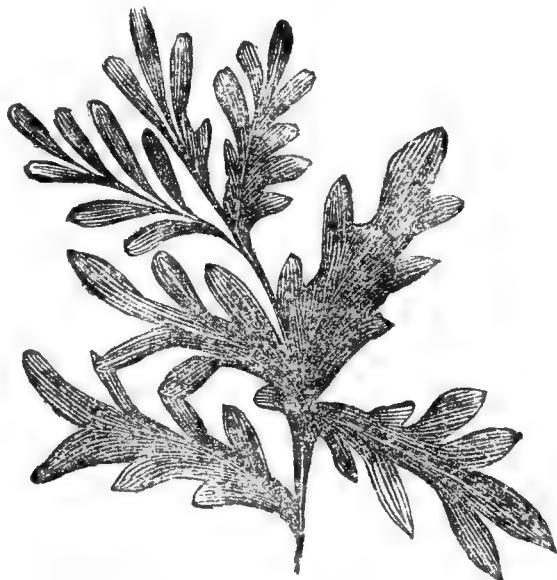
The RED ROCK-LEAVED DELESSARIA is one of a beautiful genus, of which there are about a dozen varieties. They are plants of very fragile texture, rarely found entire, unless growing in rocky pools, or drawn up in nets from deep water. The leaves of the *Delessaria sanguinea* are of a rich red color, and satiny texture, and from three to twelve inches in length; the short-branched stem is fixed by a small red disk.

When this plant is perfect, it is scarcely equalled in brilliancy of hue by any vegetable production, the membraneous part of the frond being of a vivid and glossy rose pink, the midrib and veins of deep carmine. Frequently small zoophytes are found attached to it.

The ESCULENT IRIDÆA consists of a subcartilaginous cuneiform frond, attenuated below into a short stipe. Being an inhabitant of deep water, it is most commonly found near the low-water mark. The fronds are from four to eight inches long, deep blood-red or purple, changing to greenish or yellowish white upon exposure. It is sometimes eaten by fishermen, and other people on the coast, after being fried or roasted, and it is said to taste like roasted oysters. The term *iridæa* has reference to the iridescent hues of the growing frond in some of the species.



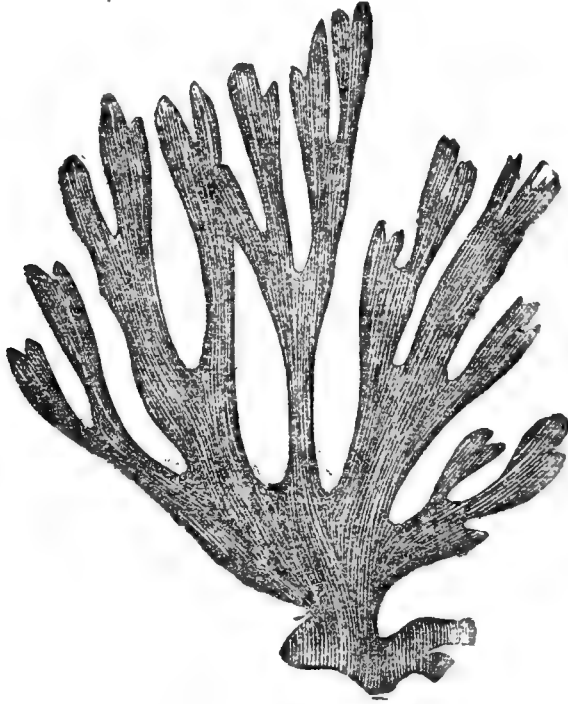
FEATHERED PTILOTA



BLUNT RUSCOUS-LIKE DELESSARIA.

The FEATHERED PTILOTA is of a red color, characterized, with some three or four varieties, by the feathered form of the frond. It is frequent on rocky coasts, grows from three inches to a span in length, and is attached by a small disk. The younger branches are pale crimson or pink; the older, deep purplish red, passing into brown. This is a beautiful object, viewed under a microscope or magnifying-glass of high power; the surface appears dotted with coral-like scales, and the fruit is contained in small involucre at the extremities of the segments.

The BLUNT RUSCOUS-LIKE DELESSARIA is a red-fronded species, growing upon rocks, and upon the larger marine plants. This is remarkable for the production of small leaves from the midrib of the fronds.



LACERATED NITOPHYLLUM.

The LACERATED NITOPHYLLUM is another of the red group, its fronds being irregularly divided. It is very frequently met with on rocky coasts, growing from a minute discoid base, from which it is frequently broken away by the waves. The whole plant is in general very thin and delicate, of a pale pinkish red, varying to reddish brown. The lower part of the frond is always more or less distinctly marked with parallel, interbranching dark veins, originating at the base, and generally vanishing at the length of two or three inches, but sometimes extending even into the branches. The species is exceedingly variable in reference to the breadth and lacerations of the frond. This alga thrives well in a tank.

The feathery bryopsis, leafy laminaria, and curly condrus, also flourish well; and with the broad-leaved ulva, the purple bagnia, and purse-like codrain, will form a beautiful mixture of colors, that may well rejoice the heart of the aspiring projector of the aquarium.

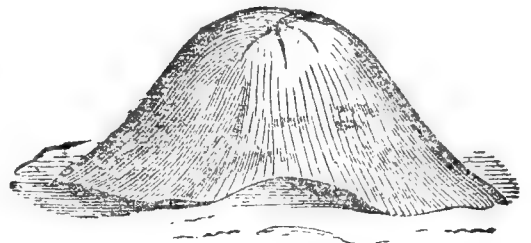
There is much difficulty in exhibiting by small engravings the true portraits of sea-weeds, because the forms of the most interesting specimens are minute, and more particularly the *details* are such as can only be observed by attentive examination, aided, in some cases, by the microscope, or by magnifying-glasses. To be transported from the sea-side to the collector's inland home, these specimens must be very carefully packed in damp seaweed. The broad oar-weed is the best for the purpose, being at once stout and smooth, and holding a great amount of moisture. The weeds should be

replaced in their native element, in the tank, as soon as possible, before the least decay has had time to set in. There are certain periods in each month when the tide recedes lower than usual, leaving a portion of the rocks dry that is usually covered even at low water. If possible, these times should be chosen for collecting, for a rich harvest of beautiful specimens is sure to reward the collector; and the plants that grow just below low water-mark are exactly those that thrive best in the narrow precincts of the tank. Very few of the smaller specimens will fail to flourish if, when obtained, they are quite healthy; but they must be carefully watched, and any weed that exhibits the least sign of yellowness or decay at once removed, before it can infect the rest. Avoid brown weeds of the larger kind; they slough, and make the water turbid and offensive, and thus ruin all your efforts.

### THE LIVING SPECIMENS IN THE AQUARIUM.

When the vegetable products of the ocean have been left undisturbed for a few days in the tank—a fortnight is not at all too long—and the water assumes a clear, greenish, crystal appearance, and when minute bubbles are seen adhering to the sides of the leaves, and rising to the surface of the water, the time has come for introducing the zoological specimens to their new abode; for these minute bubbles are filled with oxygen gas, and their presence is a sign that the water is in a fit state to support animal life with all its acquirements in the way of oxygen. Now is the time to go out on the sea-shore in search of inhabitants for the newly-organized sea; and we must give a description of some of the animals that will best thrive in the aquarium, and a few directions as to the method of finding and preserving them.

The SEA-ANEMONE, or ACTINIA, in its different varieties, is one of the first objects for which the young naturalist should search—if, indeed, it can be called a search, when the objects of quest lie scattered at low tide along every coast, and it is rather a matter of selecting than finding; but on this selection the appearance of the aquarium will greatly depend.

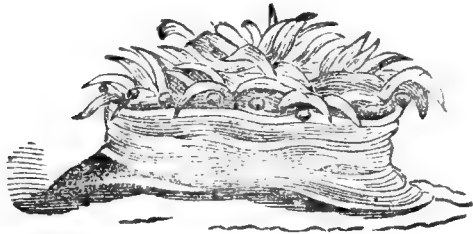


SEA-ANEMONE (Fig. 1).

These are the curious creatures that were once thought to form the link between the animal and vegetable kingdoms. Because they were found attached to rocks, it was contended that they derived nourishment by a system of roots; and because they put forth long and slender arms, it was contended that they had branches analogous to those of a plant; while, being able to move their arms, and taking and digesting food, they were held to partake also of an animal nature.

Attentive observation has shown, however, that they are not *permanently* fixed to rocks: they have the power of moving from one place to another, and attaching themselves anew, whenever such a removal is desirable.

When the animal is left dry by the tide, or is reposing or feeding, the tentacula are drawn in, and the common orifice closed, Fig. 1;



SEA-ANEMONE (Fig. 2).

when covered with water, and searching for food, the tentacula are extended, Fig. 2, and move about with a gentle undulating motion. When the anemone changes its abode, it quits hold of the rock, and, reversing its position, uses the tentacula as legs. When shells, pieces of raw fish, or meat are offered to them, if not too

large, they will be immediately seized and swallowed; and although the shells of mollusks given to them may be firmly closed, they manage in some extraordinary way to consume the fish and to eject the shells empty.

There are many varieties of the sea-anemone; the handsomest is the carnation-like sea-anemone, tinted in various shades of red. The scientific name for the carnation-anemone is *Actinia mesembryanthemum*; but Americans, who don't in general care for long Latin names, have unceremoniously shortened this into "mes." There are other well-known kinds of anemone, known as the "daisy," the "wheatsheaf," and the "crass," which is an abbreviation of crassicrais.

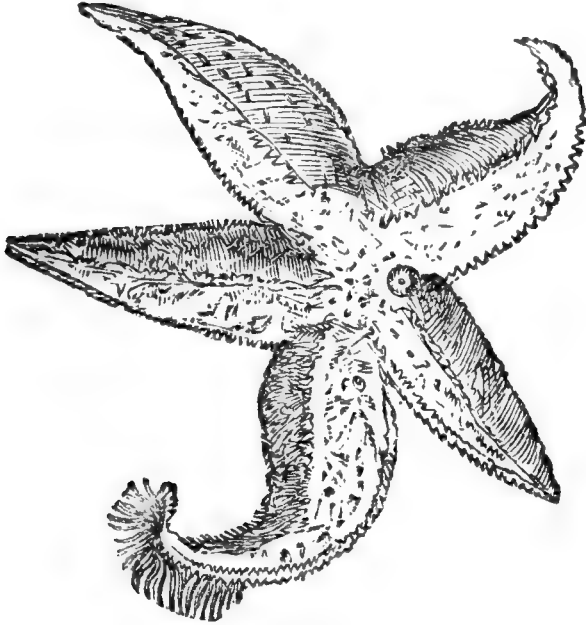
A little below high-water mark, plenty of specimens of the "mes" anemone may be found. The more they are exposed to the light and the air, the darker is their color. Thus, the beautiful pale pink varieties are to be sought for nearer to low-water mark, and in situations where overhanging weeds or stones shelter them from the sun. Those found half-way between high and low water mark are generally a fine bright red; and the anemones in exposed positions are almost brownish in the darkness of their tints.

The "crass" is generally to be sought for in crevices, behind bunches of overhanging weeds. In your wanderings along the coast, if you stop at any overhanging lump of rock, from which sea-weeds hang down, so as to form a natural screen, if you lift this screen, you will see some stones and shells which seem to be arranged on some gelatinous substance. This substance is a "crass." By touching the base with your finger, you will find whether the crass is fixed on the solid rock, or on the loose sand. If the former is the case, better leave him alone, and search for another specimen; for he holds on so tightly, that you will scarcely succeed in detaching your crass without injuring him in such a way that he won't live in the aquarium. A good many are generally found together, so that there is no need to run the risk of carrying away an injured specimen, as a little further search will almost invariably show you plenty more crasses where you have found one. Choose two or three that have fixed themselves to small bits of stone or rock that you can chip off, and bring them away with the stone. The smaller specimens are best, for they live longest, and look most ornamental.

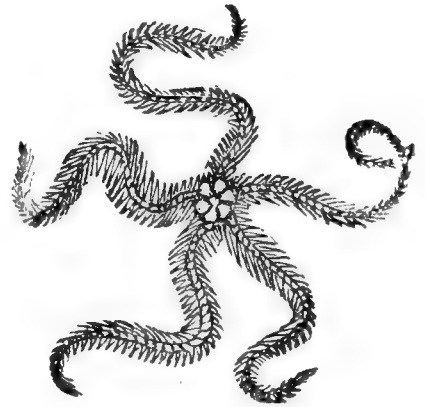
Small specimens of star-fish are very interesting objects for the aquarium, with their strangely colored rays and extraordinary motions. There



are many varieties of this strange creature. The star-fish has a considerable tendency to locomotion, and is quite a lively object among the sedate occupants of the aquarium. The brittle star-fish is one of the handsomest specimens, displaying, in addition to its curious form, vivid hues, arranged in beautiful patterns. It is called brittle from the curious property



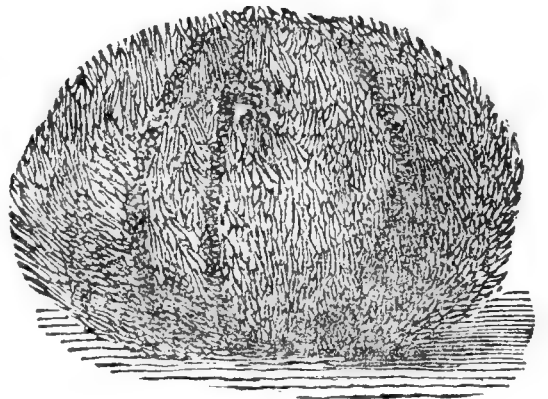
STAR-FISH.



BRITTLE STAR-FISH.

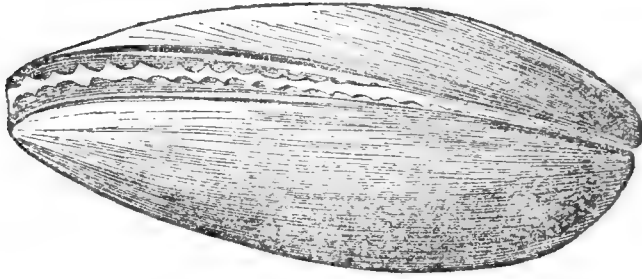
of spontaneously dividing itself, separating into pieces with wonderful quickness and ease. Touch it and it flings away an arm; hold it, and in a moment not an arm remains attached to the body. The star-fish moves by means of a multitude of little suckers on the under side of each ray, which adhere to the surface over which he walks, on the principle of the leathern "suckers" with which boys raise bricks and stones, by exhausting the air between the stone and the sucker. In travelling, the star-fish puts three of his rays out in front, while the remaining two follow behind. They are evidently affected by the presence of light, and in the aquarium will grow lively when a lighted candle is brought near them.

The ECHINUS, commonly called the sea hedge-hog, or sea-urchin, is a great treasure for the aquarium, and may be seized as a prize whenever found. They are mostly of a conical or spherical shape, divided into five segments, covered with minute holes, from which project tentacles, serving as organs of locomotion, touch, etc. The surface of the body is covered with shelly spines, of various forms and thicknesses. The mouth is in the centre; they feed upon marine productions.



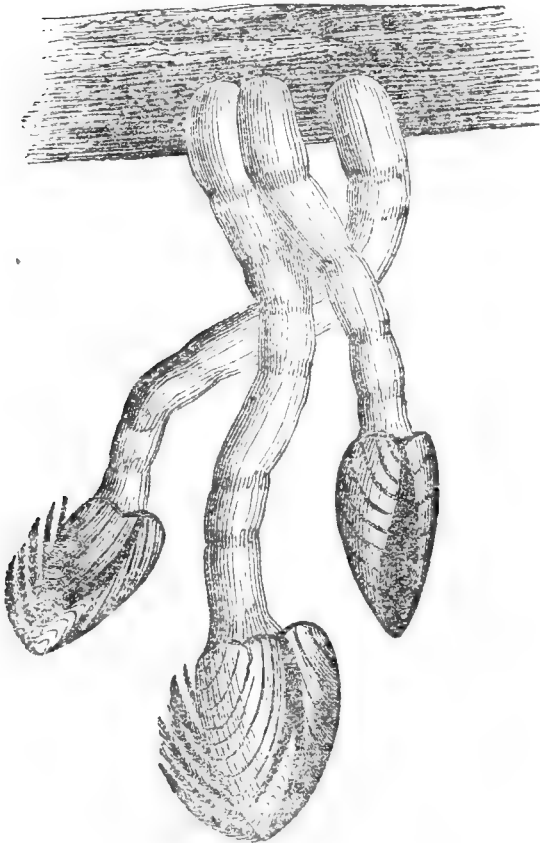
ECHINUS.

MUSSELS are bivalve mollusks, living in strong shells of an oblong triangular form, terminating in a point. The head of the animal is situated to-



MUSSELS.

ward the point near the hinge. Mussels abound on rocks, and the piles of piers and quays, to which they attach themselves by bunches of strong fibres. When they move, which they sometimes do, they thrust a tongue-like foot out of the shell, and, fixing it some way in advance, draw themselves onward. The Mussel should always have a place in the Aquarium. It is a very hardy creature, and although familiar to every one, is by no means an uninteresting object of contemplation. It especially commands our admiration, whenever, by means of its byssus (formed by a number of silk-like threads), it anchors itself to the sides of the tank, becoming so fixed that it would take pretty considerable force to dislodge it.



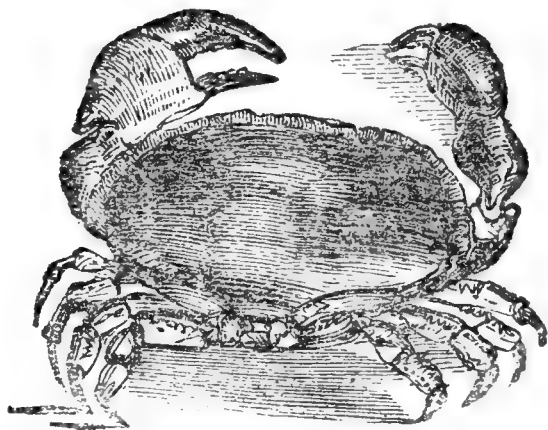
BARNACLE.

BARNACLES are often to be found upon the sea-shore, drifted thither upon the wood of a wrecked ship, or other floating body. We have seen a ship's mast, which had long driven about at sea, literally covered with them. They are often found clinging in great numbers to the bottoms of ships, greatly retarding their speed. They grow or live in clusters, each barnacle consisting of a membranaceous branch or arm, which is fixed to some body, the animal being invested with compressed shells, attached to the pedicel. The larger barnacles cluster with the smaller in the same group, and form bunches of various sizes. They are furnished with many tentacula, with which they gather their food.

When ships covered with the Barnacle arrive in our ports, the Barnacles are eagerly scraped off by men, who take them for sale as marine curiosities, or who make their delicate white porcelain-like shells into some kinds of fancy shell-work. The Barnacles themselves are eaten on some coasts of Africa, where they are very abundant. The shell of this animal is at the end of a long fleshy stalk,

generally of a purplish red, sometimes of a bright orange color, and is of the form called multivalve, being composed of five pieces or valves, two of them on each side of the animal, and a narrow piece down the back. It is a pretty shell, clear and brittle, of a white color, tinged with pale blue.

The COMMON CRAB is too well known to require a description of its peculiarities of form; but there are interesting facts connected with the history of its species which are not commonly understood. Some few species of crabs penetrate to a considerable distance inland, but are compelled to return to the sea at the period of spawning. Among the marine species, the majority do not quit the shores, whilst others are found at great distances in the high seas, where they can rest only on the floating banks of sea-weeds, so abundant in the tropics. Some species again frequent only the rocky parts of the coast, while others prefer sandy shoals, in which they bury themselves.



COMMON CRAB.

The most remarkable facts in connection with their history, are their periodical moulting, and the recently discovered *metamorphoses* which they undergo in the early stages of their existence. Some very curious creatures, long regarded by naturalists as a distinct genus, *zoea*, have been discovered to be the *larvæ* of *crabs*, into which they ultimately become transformed. These transformations take place when the crabs are of very diminutive size, little larger than a flea; and hence they are not open to ordinary observation, but may be seen with the aid of a microscope, or a powerful magnifying-glass. At first the young crab appears with a curiously helmeted head, surrounded by numerous lengthy processes, and having large sessile eyes, Fig. 1; in the second stage it presents more of the crab-like character, the abdominal organs being more fully developed, Fig. 2. A similar metamorphosis takes place amongst both the highest classes of crustacea; and in their earlier stages of development they very nearly resemble each other, though they may differ very widely when fully developed.

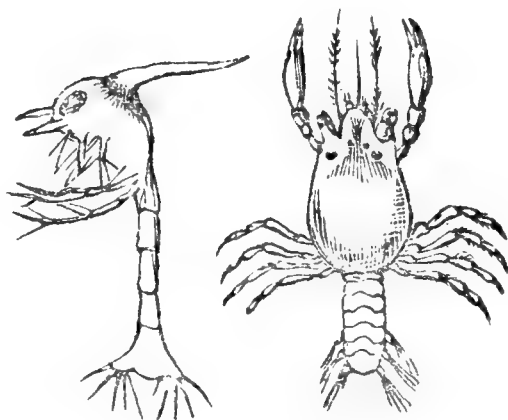
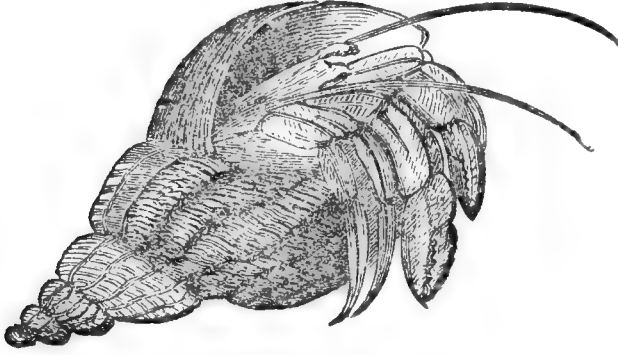


Fig. 1.

Fig. 2.

HERMIT CRABS are soft-tailed creatures, and, in the absence of a shell to cover their posterior extremities, they occupy the empty shells of whelks,



HERMIT CRAB.

or other mollusks, as they may happen to find them. As they grow they are occasionally obliged to quit their old tenement, and seek a larger one. Its manner of doing this is thus described by the Rev. J. G. Wood:

“When a hermit desires to change his habitation, he goes through a curious series of

performances, which, if he had hands, we should be disposed to call manipulations. A shell lies on the ground, and the hermit seizes it with his claws and feet, twists it about with wonderful dexterity, as if testing its weight; and having examined every portion of its exterior, he proceeds to satisfy himself about the interior. For this purpose he pushes his fore legs as far into the shell as they will reach, and probes, with their assistance, every spot that can be reached. If this examination satisfies him, he whisks himself into the shell with such rapidity, that he appears to have been acted upon by a spring.”

Helpless as these poor hermits look, and tossed about as they sometimes are by the waves, when, from a scarcity of shells, they are obliged to occupy tenements too big for them to manage, they are said to be highly pugnacious. The following account of them, given by George Henry Lewes, in his “Sea-Side Studies,” is well worth perusal:

“You doubtless know the hermit crab, *pagurus*? Unlike other crabs, who are content to live in their own shells, *pagurus* lives in the empty shell of some mollusk. He looks fiercely upon the world from out this apparently inconvenient tub, the Diogenes of crustacea, and wears an expression of conscious yet defiant theft, as if he knew the rightful owner of the shell, or its relatives, were coming every moment to recover it, and he, for his part, very much wished they might get it! All the fore part of *pagurus*, including his claws, is defended by the solid armor of crabs. But his hind parts are soft, covered only by a delicate membrane, in which the anatomist, however, discovers shell-plates in a rudimentary condition. Now a gentleman so extremely pugnacious, troubled with so tender a back and continuation, would fare ill in this combative world, had he not some means of redressing the wrong done to him at birth; accordingly he selects an empty shell, of convenient size, into which he pops his tender tail, fastening on by the hooks on each side of his tail; and having thus secured his rear, he scuttles over the sea-bed, a grotesque but philosophical marauder.

“Very ludicrous was the scene which I witnessed between two of these crabs taken from their shells. Selecting them nearly equal in size, I drop-

ped them, 'naked as their mothers bore them,' into a glass vase of sea-water. They did not seem comfortable, and carefully avoided each other. I then placed one of the empty shells (first breaking off its spiral point) between them, and at once the contest commenced. One made direct for the shell, poked into it an inquiring claw, and having satisfied his cautious mind that all was safe, slipped in his tail with ludicrous agility, and, fastening on by his hooks, scuttled away rejoicing. He was not left long in undisturbed possession. His rival approached with strictly dishonorable intentions; and they both walked round and round the vase, eyeing each other with settled malignity."

Mr. Lewes then goes on to describe how the hermits contested for the possession of the shell; and again for the better of two shells, when such were presented to them. And in the following manner he showed that hermit crabs do not, as has been hitherto supposed, devour whelks before taking forcible possession of their tenements. Having placed a shell, containing a living whelk, in the vase—

"The hermit crab at once clutched it, and poked in his interrogatory claw, which, touching the operculum of the whelk, made that animal withdraw, and leave an empty space, into which the crab popped his tail. In a few minutes the whelk, tired of this confinement in his own house, and all alarm being over, began to protrude himself, and in doing so gently pushed the hermit before him. In vain did the intruder, feeling himself slipping, cling fiercely to the shell; with slow, but irresistible pressure, the mollusk ejected him. This was repeated several times, till at length the hermit gave up in despair, and contented himself with his former shell."

So, it is consoling to think that the hermit crab takes possession only of empty tenements, legitimately "to be let," and does not eject and devour the rightful owners!

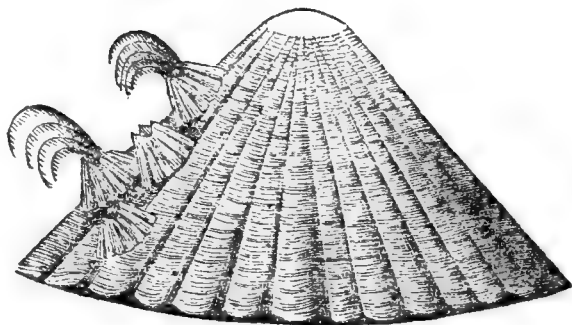
Crabs are very dangerous characters, and are likely to give the keeper of the sea-menagerie a vast amount of trouble. They have a horrible idea of fighting among themselves, and tyrannizing over each other; but worse than this, is their voracity and cruelty towards their weaker fellow-citizens. The large kind, or green crab, should be entirely avoided, for besides their voracity, they are of a terribly restless nature, and, frequently escaping from the "durance vile" of their watery home, introduce themselves unbidden among the visitors in the drawing-room, sitting down on foot-stools and chairs, and in other respects manifesting a disagreeable and intrusive character. The hermit crab, though testy and churlish—a sort of marine Timon of Athens—is generally quiet enough, and will take up his sojourn, with edifying gravity, in an empty whelk-shell. The squinados, or spider-crabs, are very useful as scavengers, being more energetic in that way than even the sea-snails. A successful aquarium-founder relates the following anecdote of the voracity and the churlish disposition of crabs:

"The hermits are very hungry creatures. I put one into a bowl, where I had a few bits of rock and weed, and one or two shell-fish. I laid before

him the half of a good-sized mussel, and he instantly darted upon it in a kind of ecstasy, and hugging it to him, disappeared, with a sudden snap, with it into his shell. There he lay for a minute or two, then he slowly came forth again, pushing his food before him, which he turned over and over with an apparent fondness that was very ludicrous to the beholder; he then handed it to his mouth with his two claws, and bit pieces out of it, just as we do from bread and butter, only that we hold the said bread and butter with one hand. When he had eaten as much as he could, he pushed the remainder under his shell; and I gave the other half of the mussel to a poor little spider-crab, or squinado, who, while the other ate his meal, was looking on with an air of sheepish meekness. He had no sooner made a movement towards it, than the hermit sidled towards him, gave him a rap with one claw, and with the other seized his dinner, which he dragged away, and turned over a good many times; while the spider-crab squatted submissively before him, sitting upright, in the droll manner peculiar to his species. When the hermit was tired of playing with his slave's dinner, he tossed it over his own shell, and as it was plain that he did not mean to let it be approached, I took out the poor persecuted little squinado, and put him into another establishment, where there was no inmate but a crab of his own tribe, rather smaller than himself. And now appeared all the meanness of his nature. I threw a shrimp to him, which I supposed to be dead, but it no sooner found itself in salt-water than it began to spring. The larger crab, however, soon put an end to that, by stretching out his long claw, and clasping its transparent body; the poor shrimp was soon killed. That feat-accomplished, the crab pulled off each leg in turn, and handed it to his mouth, holding the shrimp's body at a distance; he then pulled off its tail, and ate all the soft flesh it contained, allowing the shell to float away. This was evidently enough for his meal. He now drew the remainder to a bit of rock, and pushed it under; sitting near at hand to watch the place. The other crab, who had not yet been fed, looked on with hungry admiration, till at last, when his sated rival moved away altogether, and hid himself behind a large shell, he ventured humbly to the spot, but had no sooner put a claw beneath the rock, in search of the rejected morsel, than out darted the enemy, and he was fain to retreat as fast as his legs would carry him; while his scornful rival took out the shrimp, and played with it in his sight, as a cat does with a mouse, pushing it from him with his claws, tossing it up, and catching it again, tantalizing the other poor fellow, but evidently not able to eat any more himself.

“I then dropped a piece of meat close to the destitute crab; but the other no sooner saw it, than he left his shrimp, and proceeded to the spot; whereupon I took him away to a third receptacle, where there was no one for him to torment with his grudging disposition, and where he walked about disconsolately, finding nothing of the crab kind to fight with. Thus I became practically convinced that it is of no use trying to keep more than one crab in the same aquarium.”

LIMPETS are eligible inhabitants to admit to your little salt-water world. They are eminently quiet and self-contained, and sometimes their shells are very prettily marked. Those should be chosen that are found adhering loosely to the rocks, with the shell raised some little distance from the body; for when they are firmly fixed to rocks and stones, and have to be dislodged with some degree of force, they are likely to become injured and die. It is best to choose those which have a sea-weed growing from the shell; for then you have a sort of *multum in parvo*—several specimens in one.



LIMPET.

Such animals as the limpet, and others resembling it, belong to a species of mollusks called *gasteropoda*, which are so named from their locomotive organs being attached to the under part of their bodies. They are, however, to a certain extent, armed against attack or danger by a shelly covering.

There is another class of mollusks that creep about without any such protection, and whose gills, or lungs, instead of being inside, are exposed on the exterior of their bodies. These are hence called *nudibranches*, or naked-gilled mollusks. The DORIS and EOLIS are types of this class. The gills of the former are spread out in an arborescent form, and have a most elegant



THE EOLIS.

effect. The latter has these organs branching out over its entire body, like semi-transparent quills, giving a most remarkable appearance to the animal, as it glides along. Both are to be found adherent to the under surface of stones, etc.

The writer had always been led to believe that these animals were very voracious, and, indeed, that "a wolf would be about as appropriate an inmate of a sheep-fold, as one of them in an aquarium, where sea-anemones live." Naturally, in consequence of this sweeping assertion against the beautiful eolis, he watched his specimen with considerable attention for several weeks, and came to the conclusion that he had been shamefully libelled by sundry writers. But, that this opinion on his part was premature, he one day discovered. Happening to give my usual peep into the tank before going to bed, I saw plainly that my eolis "was no better than he should be," and that the charge of greed brought against him was perfectly correct. I was therefore obliged to come to the conclusion that his quiet,

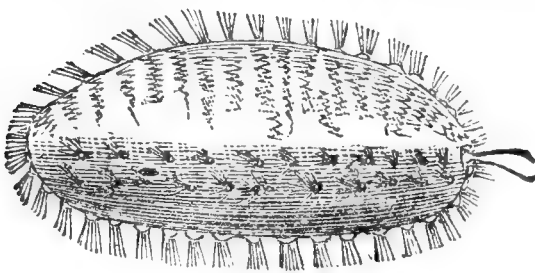
sedate manner was merely assumed for my deception. During the dusk of evening, the little fellow had crept to the neighborhood of a sweet purple bellis, that sat flowering on a grassy bank. Upon my first discovering him, he had just reached the object of his attack. The plan of his operation was rather remarkable. It seemed as if he possessed the power of fascinating his victim by a basilisk glance; for if I touched the little daisy, though ever so slightly, it would close its hands quickly over its breast, shrinking, like the sensitive plant, in evident alarm. But now, this dandified mollusk, with his milk-white coat, and purple-tipped streamers waving therefrom, not only touched my pet, but insidiously crawled about, and by slow degrees detached it entire from the disk, the tentacles not being in the slightest degree contracted during the whole of the manœuvre. When this was done, he dragged down the unsuspecting creature, and, serpent-like, crept forward until he reached her pretty golden lips. Then, and then only did she infold her blossom, and,

“Like a lily drooping,  
Bow her head and die.”

Next morning, having dispatched his meal, the colis appeared highly delighted with himself; and to show that his gormandizing had had no bad effect upon his usual graceful gait, but, on the contrary, had rather exhilarated his spirits, he marched prettily up the sides of the tank. Thereafter, to my great astonishment, he walked on the surface of the water, like a fly upon the ceiling of a room, *head downward!*

Such an occurrence is by no means unusual with this class of animals; but it struck me at the time as being very curious, as I had not had any opportunity of witnessing it before. I have often done so since.

THE SEA-MOUSE belongs to the class *annelida*, or red-blooded worms. Its appearance is much like that of an enormous caterpillar.



SEA-MOUSE.

Its upper surface is covered with a double row of broad membranous plates overlapping each other, beneath which are the gills, resembling little fleshy crests. These plates are covered with a sort of hair, which springs from their outer margin, and besides these the upper surface is beset with

bundles of iridescent bristles, brilliant as the plumage of the humming-bird, and of which metallic blue, green, and gold are the predominating tints. After a gale of wind, many of them are thrown upon shores, and fishermen frequently dredge them from deep waters.

The FISH-LOUSE, or ROCK-LOUSE, may frequently be seen running over rocks, and particularly quays, where the crevices between the stones afford them a safe retreat. They resemble in appearance the common wood-louse, and are sometimes used as bait for small fishes. When disturbed it rolls itself into a ball.



CORALLINES, or ZOOPHYTES, are compound animals that live upon one general structure, frequently assuming a plant-like form. Those most commonly known are *moss corals*, so called from their moss-like appearance. In some instances they grow upon sea-weeds, completely covering their surfaces with small cells, resembling honeycomb. These possess a higher organization than the simpler *polyps*, many of which so closely resemble delicate sea-weeds, that they have frequently been mistaken for them. Viewed under the microscope these are highly interesting objects; specimens enclosed in vials with a little salt water may be favorably observed, the animals coming forth from their concealment and displaying their beautiful and delicate forms.



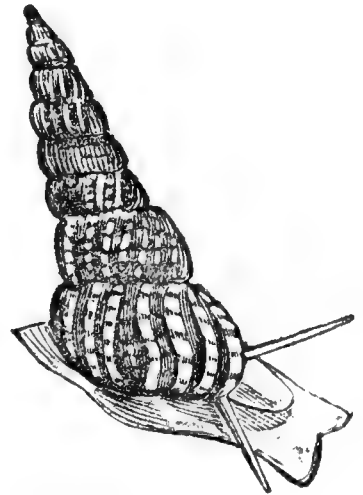
CORALLINES, OR ZOOPHYTES.

The tank will sometimes begin to be coated on the inside with green matter; this is a sure sign that you want a few sweepers, or scavengers, among your colony. Sea-snails, or periwinkles, are very useful in this department; they are active devourers of decaying vegetable matter, and will often keep the aquarium perfectly free from confervoid growth. They are likewise very good, quiet, inoffensive citizens, which is more than we can say of all the inhabitants usually introduced into aquaria, some of whom require to be very carefully watched, on account of their pugnacious and voracious habits.

The PERIWINKLE is one of the *gasteropodous* mollusks, so called because of their habit of creeping, using the *belly* as a foot. It is well known to our young friends who have visited the sea-shore, where it is found in great quantities. Its eyes, unlike those of the land-snail, are placed at the base of the tentacula,



COMMON PERIWINKLE.



SPIRAL PERIWINKLE.

instead of at their extremities. Their tongues are long, and armed with transverse rows of teeth. Members of this group inhabit all regions of the sea, but by far the greater number of them live near the shore, and a

very considerable portion of them are found between tide-marks. The shells of some of the species are more spiral and acute than that of the common periwinkle.

A writer, treating of this mollusk, pleasantly observes:

“The pleasures of a sea-side ramble are much increased by an intelligent observation of the various forms of animation that are met with—among which the periwinkles are often prominent, not only for their numbers, but also for their activity. They dot and stud the slimy rocks with their turbinated shells, or creep through the tiny corallines, or slide among the overhanging fuci in search of food—

‘Part single, or with mate,  
Graze the sea-weed, their pasture;  
And through groves of coral stray.’”

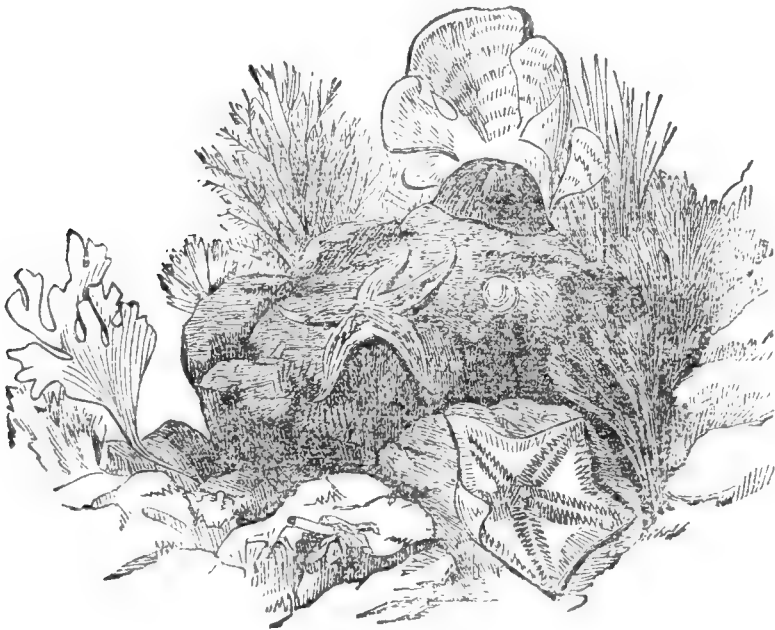
### GENERAL DIRECTIONS FOR MANAGEMENT.

Do not over-crowd your aquarium at first. Introduce the animals gradually, and you will be able to see, by careful watching, if any specimen is objectionable, by disagreeing with the rest of the inhabitants, or if the aquarium disagrees with him. Remove decaying weeds and drooping animals at once. Never allow the full glare of the sun to rest for hours together on the aquarium, during a hot day; and particularly take care that the sun does not shine through the *side* of the tank. When the weather has been dull for some days, or if the water looks turbid, you may stir it slightly with a small stick, taking care, of course, to avoid injuring the plants and animals; this will oxygenize the water, and make up for the deficient generation of oxygen by the plants, in the absence of sunlight. The water must never be allowed to get lukewarm. Avoid introducing voracious animals among the quietly disposed. Dust is another evil to be guarded against, for if it once thoroughly coats the surface of the water, it will hinder the oxygen of the air from mixing with it, and your creatures will pine and die. A plate of glass, as a lid to the aquarium, raised about half an inch above its upper edge, so as to allow a passage to the air, and the occasional stirring of the water, by agitating the dust, will also prevent its accumulation on the surface. Remember that light is the great means by which oxygen is generated from plants; and give your aquarium plenty of it. But, though your tank must stand in a window which admits plenty of light, the blind should be kept down during the heat of the day. Once let the water get warm, and your pets are, in all probability, doomed.

If you find the water-level in your salt water aquarium sinking, you must fill up the deficiency by adding fresh water, a very little at a time. Do not fear that your aquarium will thereby lose its saline properties. Remember that the salt does not evaporate, and that the water drawn by the sun out of your tank has been as fresh as that with which you supply its want.

## HOW TO BRING YOUR SPECIMENS TO TOWN.

The vegetable contents of the aquarium are transported easily enough. A good supply of the brown sea-weed, called "wrack" by the fishermen, to wrap them in, and care in seeing that each specimen is attached to its original rock, or stone, will generally insure your treasures arriving in good condition at their inland destination, though it be two days' journey distant from their sea-side home. But with the animals more care must be taken. The best method is to procure two or three glass or earthen jars, about ten inches in height, and six or seven in diameter. Fill this three parts full (*not more*) with good sea-water, as shortly before your departure as you can; have a close-fitting lid, or a bladder, over the mouth of each jar. Any heavy shells, or bits of rock, or stone, which you have to put in the jars, must be suspended from the top with string, that they may not roll about and bruise the more delicate creatures at the bottom. Put the animals into the tank as soon as you get home; for the sooner they are put in, the better chance have they of thriving. As a last direction, we would impress on our young friends to make a point of visiting their aquariums at least once every day, and ascertaining, by a critical glance, if any thing is to be done in the way of removing dead specimens, agitating the water, or even feeding some of the more unruly inhabitants with minute pieces of meat, if they are found especially voracious, and consequently disposed to prey upon their weaker neighbors.



## THE FRESH-WATER AQUARIUM.



SOME of our young friends may wish, before engaging in the more difficult task of stocking and maintaining a sea-water aquarium, to try the easier but not less charming experiment of establishing an aquarium in which fresh-water plants and fresh-water animals shall live and grow, and disport themselves, and afford endless delight and instruction to the proprietor, and all who will take the trouble to watch with intelligent interest their ways and habits, and the changes that occur in their short lives. The theory of the fresh-water is exactly the same as that we have just described in explaining the sea-water aquarium. In both it is the oxygen, generated by the plants under the influence of light, that supports the animal life; and the precautions to be taken with regard to heat, the selection of animals, and the removal of all impurities, are likewise, in both cases, exactly identical.

The tank for the fresh-water collection is like the receptacle for marine animals and plants. It may be either cylindrical, standing on a broad foot, or rectangular. The cylindrical form is the cheapest.

Having your tank prepared, you cover it about an inch deep with clear, well-washed white sand, on which you strew fine pebbles, with here and there a few coarse lumps of stone. At or near the centre, place two stones near together, and so arranged as to form a sort of arch, and to support each other. These must be so large that the end of one will project out of water when the tank is seven-eighths full, so as to allow your newts, *et*

*cetera*, to occasionally get into the atmosphere. On the summit you may place a little moss, and a small fern-plant, by way of variety. This arrangement of rocks should have a natural and accidental appearance, as though it had not "come there on purpose." Into the crevices between these pieces the little fish like to hide at times, when they wish to shun observation.

You now pour river or spring water into your tank, and after a few days remove it, and replace it with fresh. After the scum has ceased to rise, and the water seems to be pure, you remove it, and replenish with fresh. Now is the time to stock it.

The first thing is vegetable matter. Go to the nearest brook, pond, or run, and you will soon be able to select small water-plants, with which to commence your water-garden. Of these, you may begin with a single plant of starwort, which you will find in any pond. Then add a plant of *valisneria spiralis*. At the bottom of brooks and runs, you will find, on rocks and stones, small plants of river weed. Add one of these, stone and all. The water weed, a species of *anacharsis* which you will find in ponds and slow-running streams, is a necessary as well as a handsome plant; but it multiplies so fast that you will be obliged occasionally to remove some of it. The tape-grass will be found in some rivers, and you must obtain two plants, one male and the other female. They are to be distinguished by their flowers—the male being borne on short and straight, while the female flowers are on long, spiral foot-stalks. On the projecting rock you may cultivate the forget-me-not. To these you may add one or two others, from time to time, but do not crowd your aquarium. To set them, place a ball of clay around the roots, sink it, and hold it in place with two or three pebbles. It will soon take care of itself.

### THE FISH AND INSECTS.

About a week after the plants are in, removing in the mean while dead leaves and scum, or other impurities, you introduce your fish, and one or two fresh-water snails, who will act as scavengers. Of these last, one of the varieties of *planorbis* is best. The crawfish, which every boy knows, will be a very pleasant inhabitant.

Of fish, the first fellow to introduce to confined quarters will be the dace, a lively, graceful little fellow, with a black stripe running lengthwise. You will find him in most small streams, where he may be caught with a hand-net. The stickleback is a fine fish for your purpose. You want a pair of

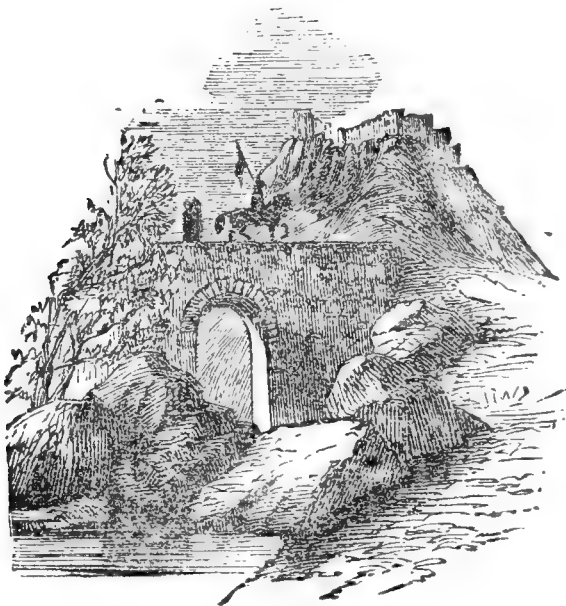


CRAWFISH.

these, for they will breed in the tank; and as the stickleback builds his nest somewhat like a hanging-bird's—a regular little house, with back door and front door—and is a lively, spirited fellow, he will afford you a deal of amusement. A small eel or two will be nice enough until they grow large. The gudgeon, and the catfish, dace, or rockfish, will answer. So will the sunfish, while very small. As he grows older he is apt to disturb the others. A small goldfish, where you can obtain it, will add variety, and the newt, or water-lizard, to be had in every pond and stream, must not be forgotten. They soon grow tame, and will feed from your finger.

The fish must be fed occasionally with small pieces of worms and shreds of lean beef, cut fine. Occasionally a few dough-pills is a kind of medicine they will take with relish. Do not starve them, but, on the other hand, do not overfeed them. Whatever they do not eat must be removed, as its decomposition will affect the water.

Theoretically, the balance of animal and vegetable life will supply the fish with enough oxygen; but practically not, because you cannot attain the exact proportion between the two. The water must be aerated from time to time, and this is done with a small pair of common bellows, with which you blow air into the water, to the comfort and satisfaction of the inhabitants of your pond.



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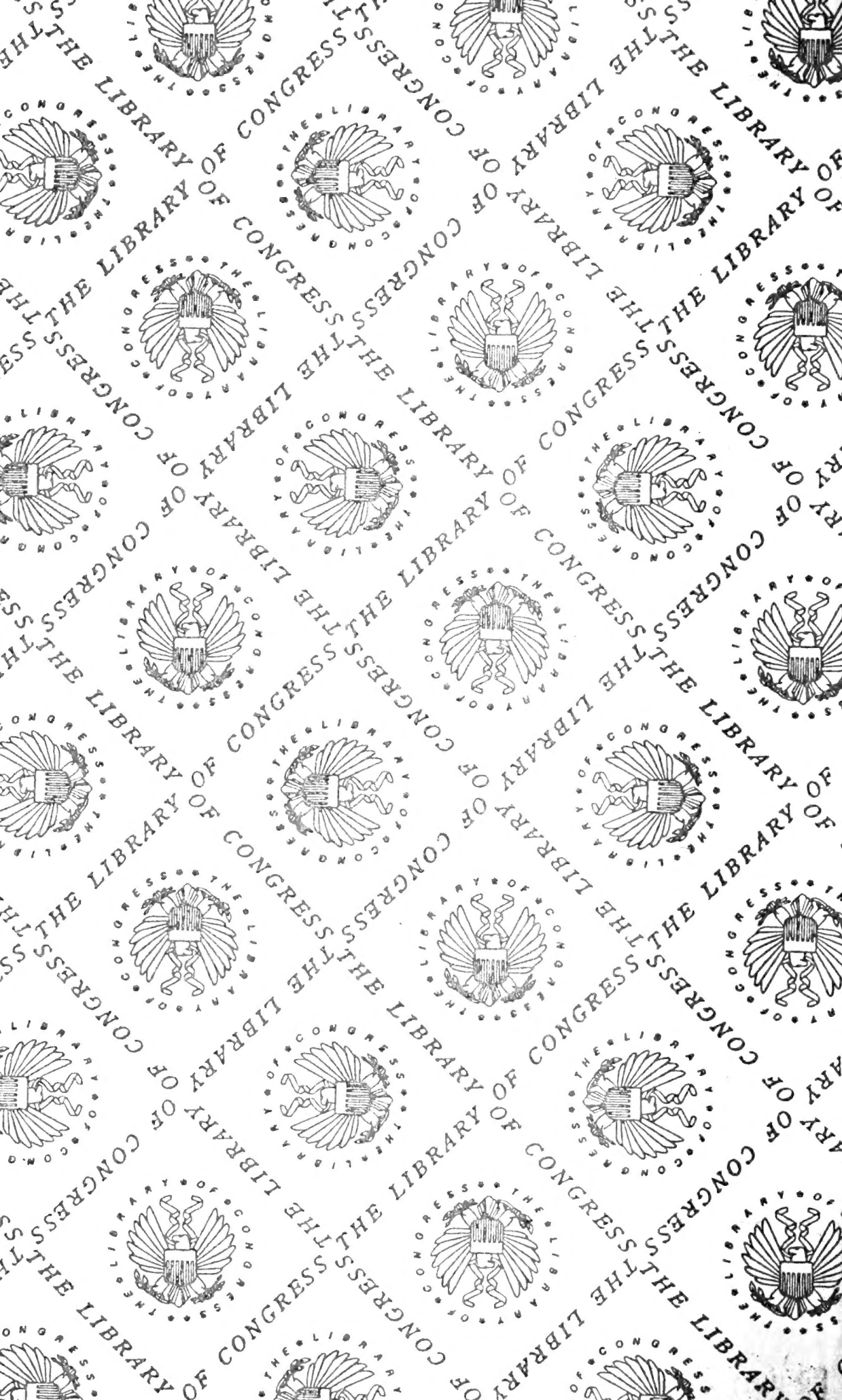
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