

On the voice of birds.

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Duncan, Philip Bury, 1772-1863.
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Publication/Creation

[London?] : [publisher not identified], [between 1830 and 1839?]

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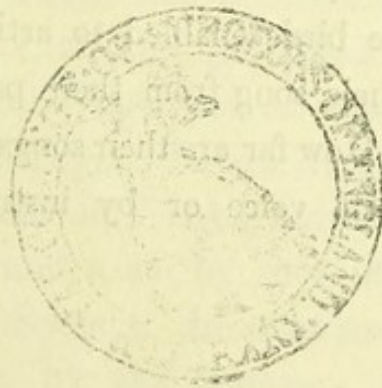


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ON

THE VOICE OF BIRDS.



SYNOPSIS.

ORGANS of the human voice.—In what respects do the organs of voice in birds differ from those of men?—Various structure of the tracheæ in birds, particularly of the duck tribe; such as those of the whistling swan, golden eye, scaup, &c.—From what peculiarity of structure are some birds enabled to articulate words?—Do birds learn their song from their parents, or acquire it intuitively?—How far are their songs imitable by the human organs of voice or by instruments? Auspices Conclusion.

THE VOICE OF BIRDS.

THE subject I propose to investigate in the following Essay is the Voice of Birds; a voice which amuses the young, cheers the sad and contemplative, inspires the poet, and perplexes the curious research of the naturalist.

To have a clear view of this subject it will be expedient to examine first the structure of the human organs of voice.

The earliest naturalists knew that those animals only had a *true* voice which possess lungs; the lower orders of animals not possessing this faculty. They knew also that the principal organ of the voice is the larynx. Φωνει μεν ουν ουδενι των αλλων μυριων ουδεν, πλην τῷ φαρυγγί^a: διο ὅσα μη εχει πνευμονα ουδεν φθεγγεται. "No animal," says Aristotle, "can talk without lungs, and none by any other part than the larynx." "Speech," he continues to say, "is voice articulated by the tongue. Sound, modulated by the *larynx*, will give the vowels. The tongue and the lips are necessary to produce consonants, and these two constitute articulated words."

"C'est dans les levres," says Cuvier, "surtout qu'il faut chercher l'explication de l'impossibi-

^a The pharynx is the upper part of the œsophagus, where the aliment is received. It derives its name from its *funnel* shape.

“*lité où sont les quadrupedes d’imiter notre parole.*” Besides speech, man is indebted to his lips for all that vivacity of countenance and variety of expression, which is another sort of language, of which no other animal is capable. The lips of man are in the same plane with his teeth; but those of animals with an angular countenance turn round with the teeth, so that they cannot purse up their lips so as to make an U, or round them so as to pronounce an O. In monkeys two large membranous bags cover the front of the neck under the skin and open into the larynx between the os hyoides and the thyroid cartilage, which prevents their power of speaking. In apes there is under the skin an uniform muscular expansion, under which four muscles are traceable, and about as many in a dog.

Men have more muscles in the lips, and they are more distinct than in those of any quadruped. Man has nine pair and one odd muscle in the lips, nineteen in all.

One may easily conceive what an infinite variety of movements and configurations such a complicated apparatus can produce, whereas quadrupeds can only make uniform grimaces.

Reptiles have no epiglottis^b, and their larynx is composed of parts analogous to the upper larynx of birds; but they have no inferior larynx like birds. They have no lips or palate to modify sounds. “*I y a ni ventricules ni rubans vocaux.*”

“The principal instrument of the voice,” says

^b The epiglottis, the fifth cartilage of the larynx, is thin and moveable, and resembling an ivy leaf or little tongue.

Galen, "is the larynx." But on minute examination, you will find an apparatus of cartilages, muscles, nerves and the epiglottis, which together constitute the whole machinery of voice.

Modern naturalists agree with Aristotle and Galen as to the fact, that the larynx is the most efficient part of the instrument of voice, but differ as to the mode in which the human voice is produced. Dardart, Duclos and others, think, as the ancients did, that the instrument is exactly similar to a pipe, of which the trachea is the tube and the larynx the reeds. Monsieur Ferrein considers it to be analogous to an Æolian harp, a mixture of a stringed and wind instrument. In confirmation of this doctrine he exhibited many experiments to the French Academy, as well upon the human subject as on different brute animals.

Monsieur Ferrein blew into the trachea, holding at the same time what he calls the ribands of the glottis, lengthened or shortened; and the human voice was heard to rise or fall in tone, or remain stationary, in proportion to these circumstances. He says, "the necessary lengthening or shortening
 "the vocal strings for the purpose of forming the
 "whole extent of the human voice, is not above two
 "or three lines, or three twelvths of an inch. In
 "common stringed instruments lengthening a string
 "makes it flatter, or of a tone more grave, and
 "shortening it has a contrary effect; but with respect to the vocal strings it is quite different, for
 "they are rendered more acute by being lengthened."

"The glottis (he continues) is only capable of one

“ modification, which is the mutual approach or re-
 “ cess of its lips ; it is this, therefore, that produces
 “ the different tones. Now that modification in-
 “ cludes two circumstances ; the first and principal
 “ is, that the lips are stretched more and more from
 “ the lowest to the highest. The second is, that
 “ the more they are stretched the nearer they ap-
 “ proach. From the first it follows, that the vibra-
 “ tions will be so much the quicker as they come
 “ nearest their highest tone, and that the voice will
 “ be just, when the two lips are equally stretched,
 “ and false, when they are unequally ; which agrees
 “ perfectly well with the nature of stringed instru-
 “ ments.”

Monsieur Savart, one of the latest writers on this subject, says, (in the *Annales de Chimie* for Sept. 1825.) “ The human voice has been attributed by
 “ some to an instrument like that of an organ pipe,
 “ by others to that of a stringed instrument ; but
 “ neither of these opinions is correct.” He made various experiments with organ pipes of different dimensions, and with pipes constructed of parchment and hunters’ whistles ; and from these he concludes, that the formation of the human voice may be explained, by considering the vocal organ as composed of the larynx, and of the *mouth as a conical tube*, in which the air is made to vibrate. The vocal tube possesses all the properties that are necessary, in order that the mass of air which it contains may be susceptible, in spite of its small volume, to yield : sufficiently great number of sounds. Its inferior part is formed with elastic sides, which can assume all degrees of tension, while the mouth, by opening

more or less, and consequently changing the dimensions of the column of air, exerts also a notable influence on the number of vibrations conjointly with the lips, which by their approach and recession transform at pleasure the vocal tube into a conical tube, sometimes open and sometimes almost shut.

If we construct a pyramidal tube nearly of the same length as the vocal tube, namely, four inches and an half, approaching to the same capacity, and membranous in the lower third of its length, we may make it produce all the sounds of an ordinary voice, either by making the tension of the membranous part vary, or by shutting more or less its great orifice, an aperture, however, being always left. Majendie's explanation of this subject is probably the most satisfactory. He says, "The larynx
" is the organ of voice properly so called ; propor-
" tionally smaller in children and women, it is
" larger in grown up youth, and still more so in
" adults. The larynx not only produces the voice,
" but is also the agent of its principal modifica-
" tions.

" Four cartilages and three fibro-cartilages enter
" into the composition of the larynx, and in some
" degree form the timber-work or skeleton. These
" cartilages are called the cricoid, the thyroid, and
" the two arytenoid.

" The fibro-cartilages of the larynx are the epi-
" glottis, two small bodies on the summit of the
" arytenoid cartilages, called *capitula cartilaginum*
" *arytenoidarum*.

" Numerous muscles are directly or indirectly at-
" tached to the larynx, to move it in different direc-

“ tions. The larynx is lined with a mucous membrane. There are four nerves belonging to it.”

The glottis is the space between the thyro-arytenoid muscles and the arytenoid cartilages. In the dead body it appears a longitudinal chink eight or ten lines in length, and two or three in breadth. The sides of the slit are called the lips of the glottis: they vibrate in the production of the voice, and may be called the human reed. I do not know of any instance in which the human glottis has been examined during life^c.

Nothing can exceed the human voice in variety of execution. Dr. Barclay calculates that there are seven pair of muscles attached to the larynx, and fifteen pair to the ossa hyoidea, which are capable of producing many millions of millions of combinations of sounds, from the different degrees of force and velocity, and infinitely varied order of succession, in which they may be brought into action. A combination of muscles enables the tongue to change its state 3000 times in a minute! Dr. Barclay says that

^c There appears to be occasionally some confusion in the terms *glottis* and *rima glottidis*, the whole being used for a part. Lawrence says, “ The part by which the two divisions of the laryngeal cavity are connected together is a slit-like opening, named the *rima glottidis*, or inferior opening of the glottis, and formed by two membranous folds, called the *thyro-arytenoid ligaments*, properly called *chordæ vocales*; by the passage of the air through this opening (of which some unknown state, produced in obedience to an exertion of the will, is necessary) the voice is formed. The upper opening of the larynx seems rather improperly to have obtained the name of *glottis*, since it is totally unconcerned in the formations of voice.”

“Haller could articulate 3000 letters in a minute, which required 1500 contractions, and as many relaxations of the lingual muscles!” The power of contraction and dilatation is perhaps the most powerful part of the mechanism of the voice. The diameter of the glottis never exceeds $\frac{1}{10}$ th of an inch. Now suppose a person capable of sounding twelve notes, (to which the voice easily reaches,) there must be the difference of a $\frac{1}{120}$ th part of an inch for each note. But if we consider the subdivision of notes of which the voice is capable, the motion of the sides of the glottis appears still more minute; for if of two chords so stretched as to be exactly in unison one be shortened the $\frac{1}{200}$ th part of its length, a correct ear will perceive the difference of the two sounds, and a good voice will sound the difference, which is only the $\frac{1}{196}$ th part of a note. But suppose that a voice can divide a note into 100 parts, it will follow that the different openings of the glottis will be 1200 in the $\frac{1}{10}$ th of an inch, each of which will produce a sound perceptible to a good ear. But the movement of each side of the glottis being equal, it is necessary to double this number, and the side of the glottis actually divides the $\frac{1}{10}$ th of an inch into 2400 equal parts; so that each vibration is the $\frac{1}{24000}$ th part of an inch.

If the trachea and larynx of a man or any other animal be taken, and air forcibly driven into the trachea towards the larynx, no sound is produced, but merely a slight noise, resulting from the friction of the air against the sides of the larynx. If, continuing to blow, you approximate the arytenoid cartilages to each other, so that their internal surfaces

touch, a sound will be produced something analogous to the voice of the animal whose larynx is employed in the experiment. The sound will be more or less acute, according as the cartilages are more or less strongly pressed against each other. It will be easily seen in this experiment, that it is the inferior instrument of the glottis that produces the sound. An opening made in the trachea below the larynx deprives men and quadrupeds of their voice. On the contrary, if there be a wound above the glottis, even in the epiglottis^d, and the muscles of the superior ligaments of the glottis^e, and even the upper part of the arytenoid muscles are wounded, the voice continues. In short, the glottis, if exposed, in a

^d The *epiglottis* seems to belong essentially to the vocal apparatus, from its form, position, and elasticity, and from the motions which the muscles are capable of giving it. It contributes to narrow the vocal tube. Monsieur Grenié, in his experiments on reed instruments, was led to conclude, "that the epiglottis also contributes to give us the power of increasing our vocal sounds without making them rise."

^e The *glottis* is elongated on puberty, and this changes the tone of the voice. It is hardened in age, and this again changes the tone by diminishing the power of vibration. It is probable that in singing, the ligaments of the glottis are disposed in a particular manner. An ordinary voice has usually about nine notes between its lowest and its highest sounds. There are two kinds of sounds, grave and acute, their difference is about an octave. In general, grave voices belong to adult men; however, those with the gravest voices can produce acute notes by falsetto. Acute voices are those of women, children, and eunuchs. In females, as the lips of the glottis do not experience the increase of breadth usual at puberty, their voice generally remains acute. The voice at the change in young men falls, in general, an octave; sometimes in a few days, sometimes instantaneously.

living animal, shows at the moment when it cries, that its voice is formed by the vibrations of the vocal chords.

The following appears to be the most probable explanation of the successive process of the human voice.

The air driven from the lungs passes first through a pretty large canal. This canal soon grows narrower, and the air is compelled to pass through a narrow slit, the two sides of which are vibrating plates, and which, like the plates of a reed, alternately permit and prevent the passage of air, and determine by these alternations sonorous undulations in the current of the air which is contained.

The ligaments of the glottis acquire the power of vibrating like reeds, only in proportion to the contraction of the thyro-arytenoid muscles, and consequently when these muscles are not contracted, there will be no voice. Experiments on animals completely accord with this doctrine. If the recurrent nerves attached to these muscles be cut, the voice is entirely lost; if only one be cut, the voice is but half lost.

The intensity of the voice depends, like that of all other sounds, upon the vibrations of the vocal chords; for the more forcibly the air is driven from the chest, the greater is the extent of their vibrations, and the longer these chords are, (that is, the larger the larynx,) the more vigorous will be the vibrations.

A vigorous person, whose chest and larynx are large, is in the most advantageous condition for intensity of voice. If this person falls sick, and loses

his strength, his voice will lose much of its intensity, simply because he cannot forcibly drive the air from the chest^f.

The organs of voice in birds differ in these particulars from those of men.

“Birds,” says Blumenbach, “possess a double larynx, but which may be more properly described as a larynx divided into two parts placed at the upper and lower end of the trachea. They have also two rimæ glottidis. The superior or proper rima glottidis is placed at the upper end of the trachea, but is not furnished with an epiglottis. The apparent want of this organ is compensated in several cases by the conical papillæ, placed at both sides of the rima. The apparatus which is chiefly concerned in forming the voice of birds is found in the inferior or bronchial larynx, situated at the bifurcation of the trachea. This contains a second rima glottidis, formed by tense membranes, which may be compared in many cases, particularly among aquatic birds, to the reed at the mouth of musical instruments.”

“In birds,” says Cuvier, “there is seen at the bottom of their trachea, at the place where it is

^f Some mysterious structure of the organs of voice has been attributed to ventriloquists, but this does not appear to be the case. They are only good imitators of distant sounds; they neither produce vocal sounds nor articulate them differently from other people: and as to their speaking without moving their lips, it is because they take care to use words in which there are no labial consonants. They use various tricks, to aid the illusion of apparently distant sounds; and we can no more avoid being impressed by these illusions, than we can avoid seeing objects larger, when viewed through a microscope.

“ divided in two to enter the lungs, a bent part, the
 “ sides of which are furnished with membranes sus-
 “ ceptible of various tensions and vibrations; in fact,
 “ there is a true glottis, provided with every thing
 “ necessary to produce sound^g. And it is not by
 “ inspection only that I have been assured of this
 “ fact, it has been confirmed to me by experience.

“ I have proved by the section of the throat of
 “ several birds, particularly of a duck, which has
 “ cried with the same force and the same body of
 “ sound as usual. The beak was stopped, and the
 “ upper section of the trachea tied in this operation.
 “ It was carried still further in another instance;
 “ for after the head was cut off, it still walked on a
 “ steps, and when beaten uttered a few feeble, but
 “ very perceptible, sounds.”

These experiments proved quite clearly, that the voice of birds is formed at the base of their trachea. In them, therefore, the trachea is not a simple tube to conduct air, but a true instrument to conduct sound.

Thus the Creator has made a more careful provision for the organs of voice in birds than in mammiferous animals.

^g Cuvier, in his *Journal de Physique*, vol. i. p. 426, says,
 “ The only bird of 150 that I have dissected, that has no in-
 “ ferior larynx, is the vultur papa, le roi des vautours.”

Any one who wishes to examine more at large the comparison of the human voice with musical instruments, and with the voice of birds, will find much interesting information in Cuvier's treatise on the organs of the voice of birds, in this first volume of the *Journal de Physique*, p. 426.

He will also find much curious investigation of this subject in Monsieur Geoffrey de St. Hilaire's *Philosophie Anatomique*, *Pieces Osseuses des Organes Respiratoires*, p. 249.

The trachea being composed of entire rings, birds can contract or lengthen it at pleasure. It varies also much in different birds, as to length, contractibility, figure, and convolution, which have all a great influence on the voice.

In mammiferous animals, on the contrary, the trachea is of an uniform structure.

The variety of tones in birds is produced in three ways; 1st, by the variations of the glottis, which correspond to the lips of a person playing on a trumpet, or the reeds of a clarionet. 2nd, By the variations in the length of the trachea, which correspond to the convolutions of a French horn, or the different length of organ pipes. 3d. By the contraction or enlargement of the superior glottis, which corresponds to the use of the hand in the player of a bugle, or to the closed chimneys of organ pipes^h.

These points being established, it is impossible not to see that the organ of voice in birds is a simple wind instrument, and has nothing to do with strings, unless you choose to call a French horn a

^h Aristotle, in his 4th book, c. 9. of animals, speaking of the voice of birds, says, " Birds have voice, and the power of articulating words in proportion as their tongue is large or small.

" In some species of birds the male and female have the same voice, in others they have a different voice. Small birds have more voice and are more noisy than great birds. In all the species the pairing time is the time when they sing most. Some, like the quail, are vocal when they are fighting. Some cry out before the combat, as if to defy their enemy: some cry out after the combat, like the cock. Sometimes the male and female sing equally, as do the nightingales. The female ceases, however, to sing when she sits on her eggs, or has young. It is otherwise with the cock and the quail. The male in these species has the most voice; the female does not sing."

stringed instrument. As a further confirmation of this, you find the forms of the trachea of birds correspond to the forms of those wind instruments which produce similar tones.

The facility of lengthening or contracting the trachea depends not only on the muscles attached to it, but on its texture. Those tracheæ whose rings are thin and separated by great membranous intervals, are more variable than those whose rings are large, and almost touch one another: thus all singing birds have their strings as thin as threads, and the members uniting them thin and flexible, inso-much that one may by pressure contract the trachea one half. Most river birds and ducks have their rings proportionally large, and almost in contact, and others have the rings in the lower part of the trachea almost cemented.

The general conclusion is, 1st, That the voice of birds is produced by instruments like our French horns. 2nd, That the sound is determined by the same laws as in those instruments. 3d, That those birds have the greatest variety of tones which have the most complete command over those three parts of their organs which are employed in producing sounds. 4th, That those have the most agreeable notes whose trachea most resembles those instruments which produce the sounds most delightful to the human ear.

“A very slight comparison,” says Blumenbach, “of the mechanism of wind and musical instruments, “with the organ of the voice in birds, will show “how nearly they are allied to each other; and it “may be observed, that the sound produced by some

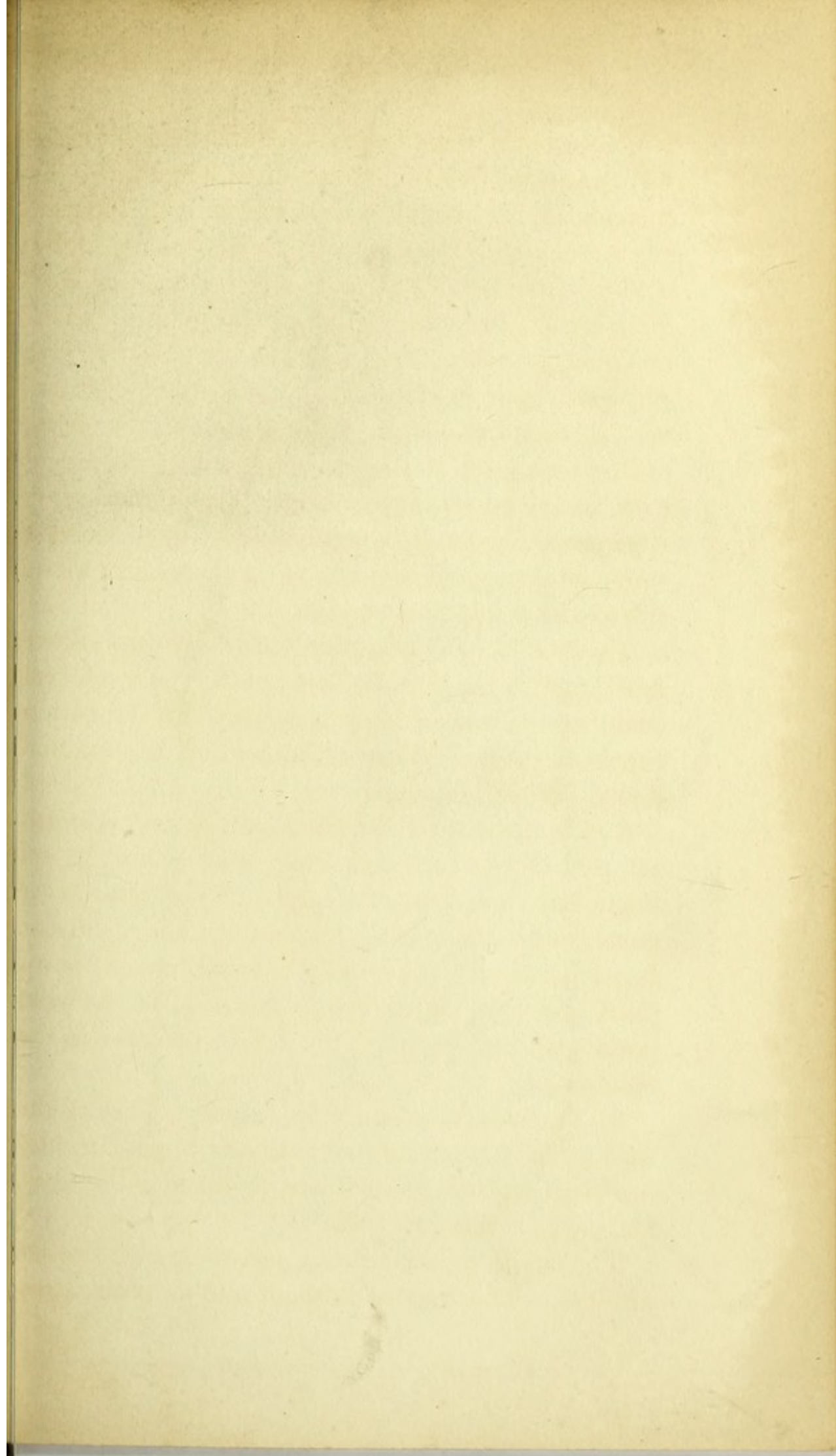
“ of the larger birds is exactly similar to the notes
 “ that proceed from a clarionet or hautboy in the
 “ hands of an untutored musician. The inferior
 “ glottis exactly corresponds to the reed, and pro-
 “ duces the tone or simple sound. The superior
 “ larynx gives it utterance, as the holes of the in-
 “ strument ; but the strength and body of the note
 “ depend upon the extent and capacity of the tra-
 “ chea, and hardness and elasticity of its parts.
 “ The convolution of the windpipe, therefore, may
 “ be compared with the turns of a French horn,
 “ or the divisions of a bassoon, and they produce
 “ the effects of these parts in the voices of those
 “ birds in which they are found.”

The tracheæ of birds vary in their texture, figure and length. 1. The tracheæ of the peacock and swan are formed of bony rings surrounded with a tough cartilage. Those of the coot, golden eye, and scaup, are membranous.

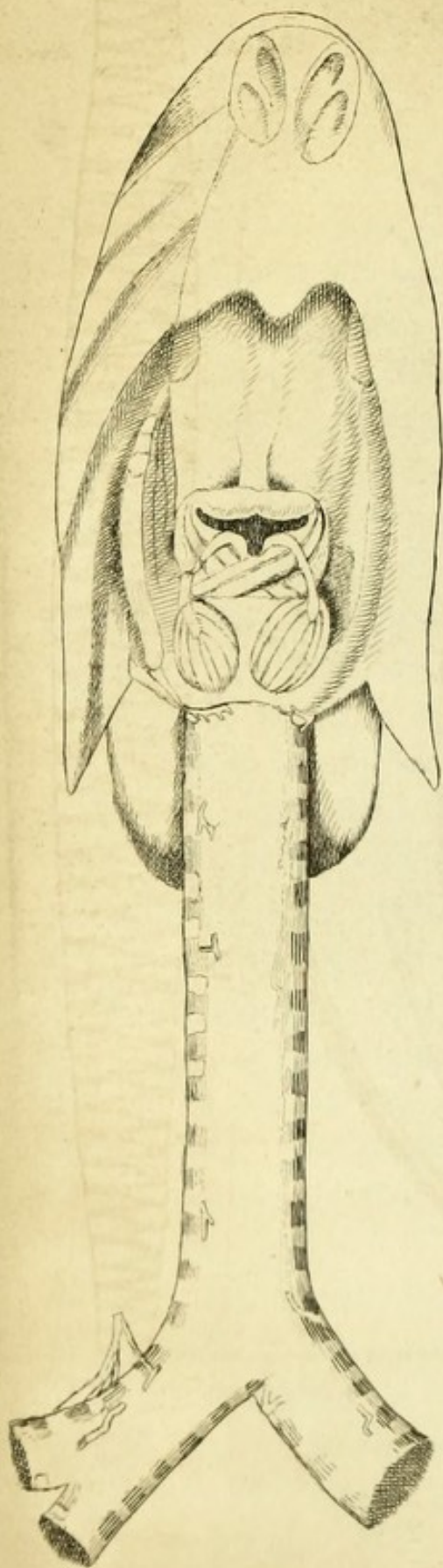
2. The tracheæ of the former birds are cylindrical, that of the coot and other birds is nearly flat. Some have *one* part of it more dilated than other parts ; others have *two*. In some birds it undulates. In various birds it is strait : in others much convoluted and shut up in the sternum, as in the wild swan and the crane. This is not the case in the tame swan.

3. Tracheæ vary much in length. That of the wild swan is much twisted and very long. In singing birds, and the gallinaceous, and also in the crow, and cuckoo tribes, it is short.

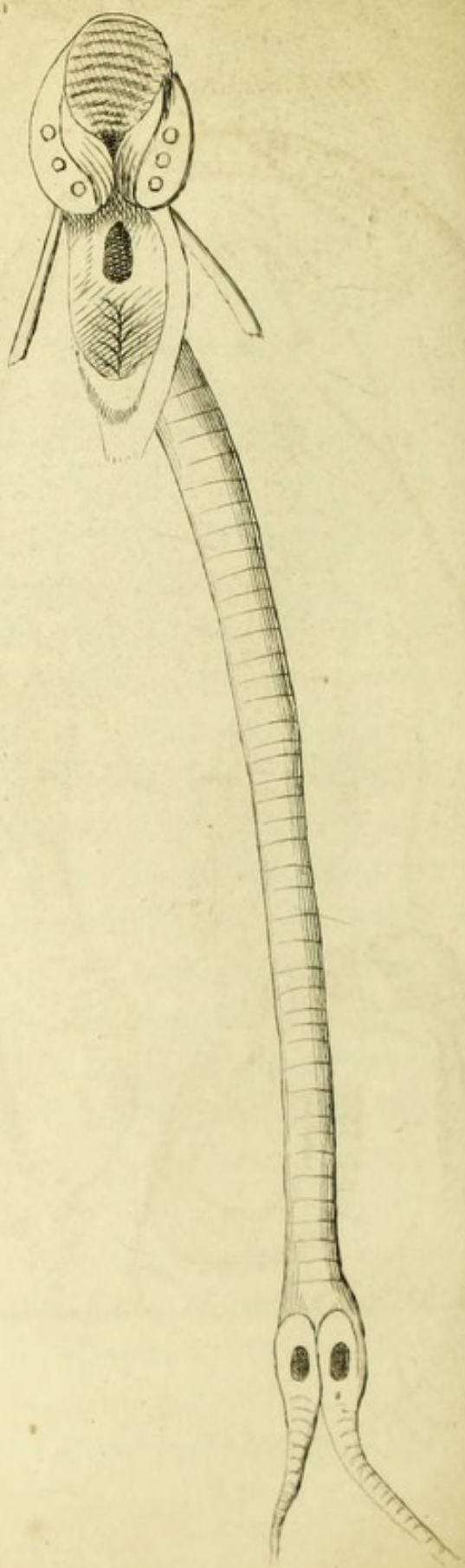
The length of the trachea increases with the age of birds. This has led Latham into an error, attri-



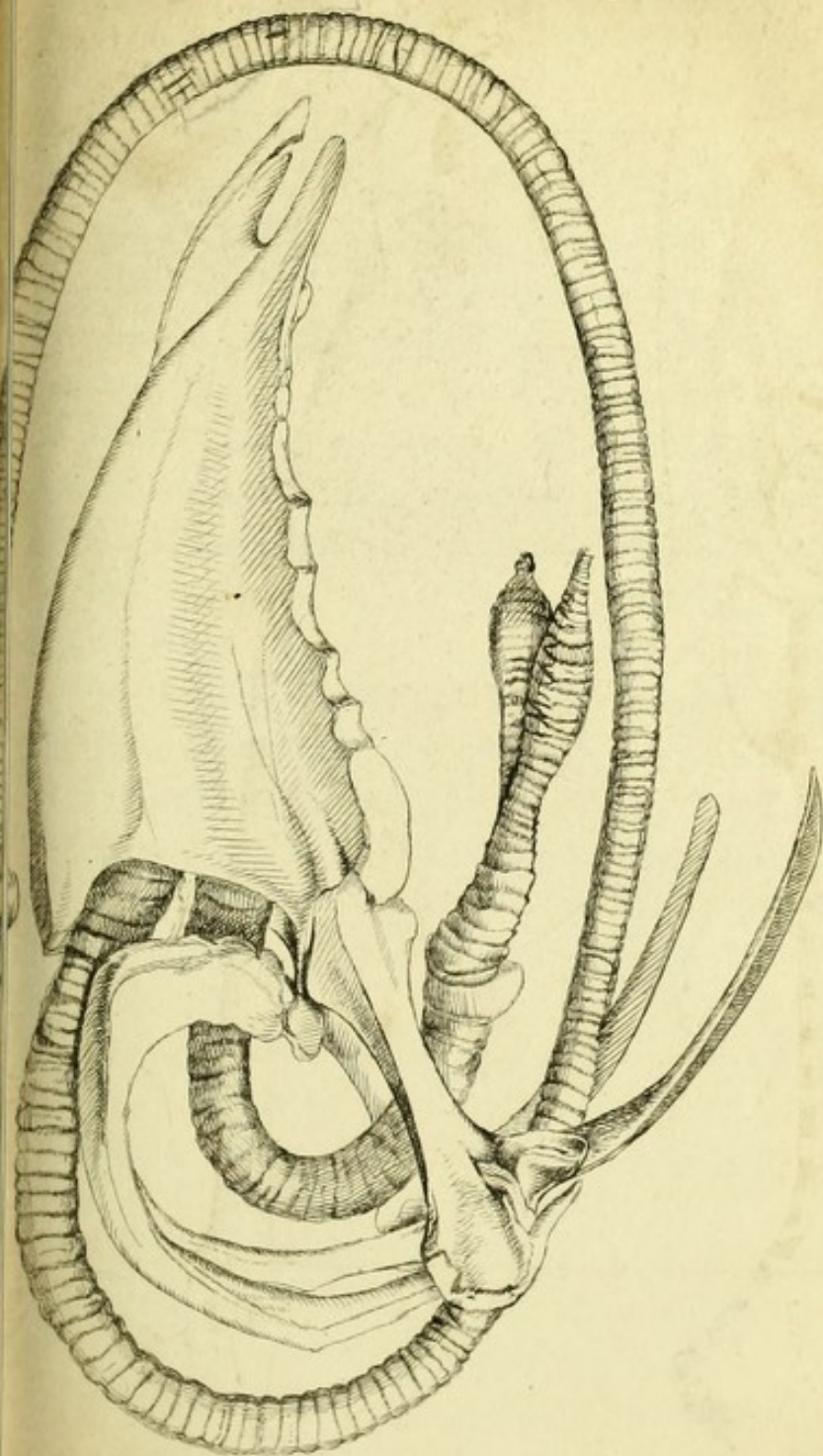
Human



Parrot

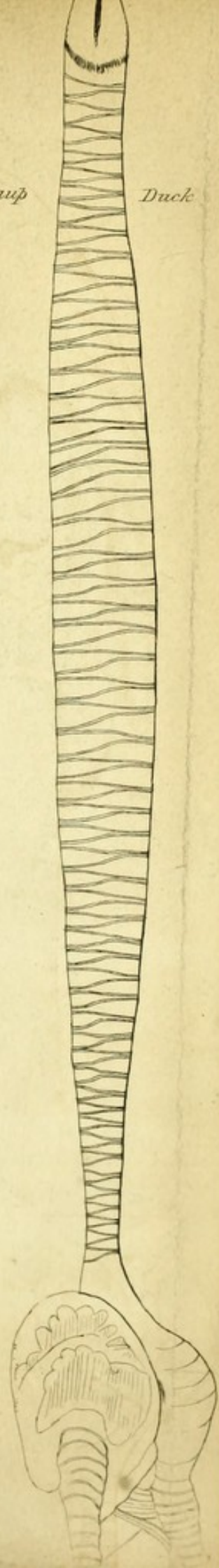


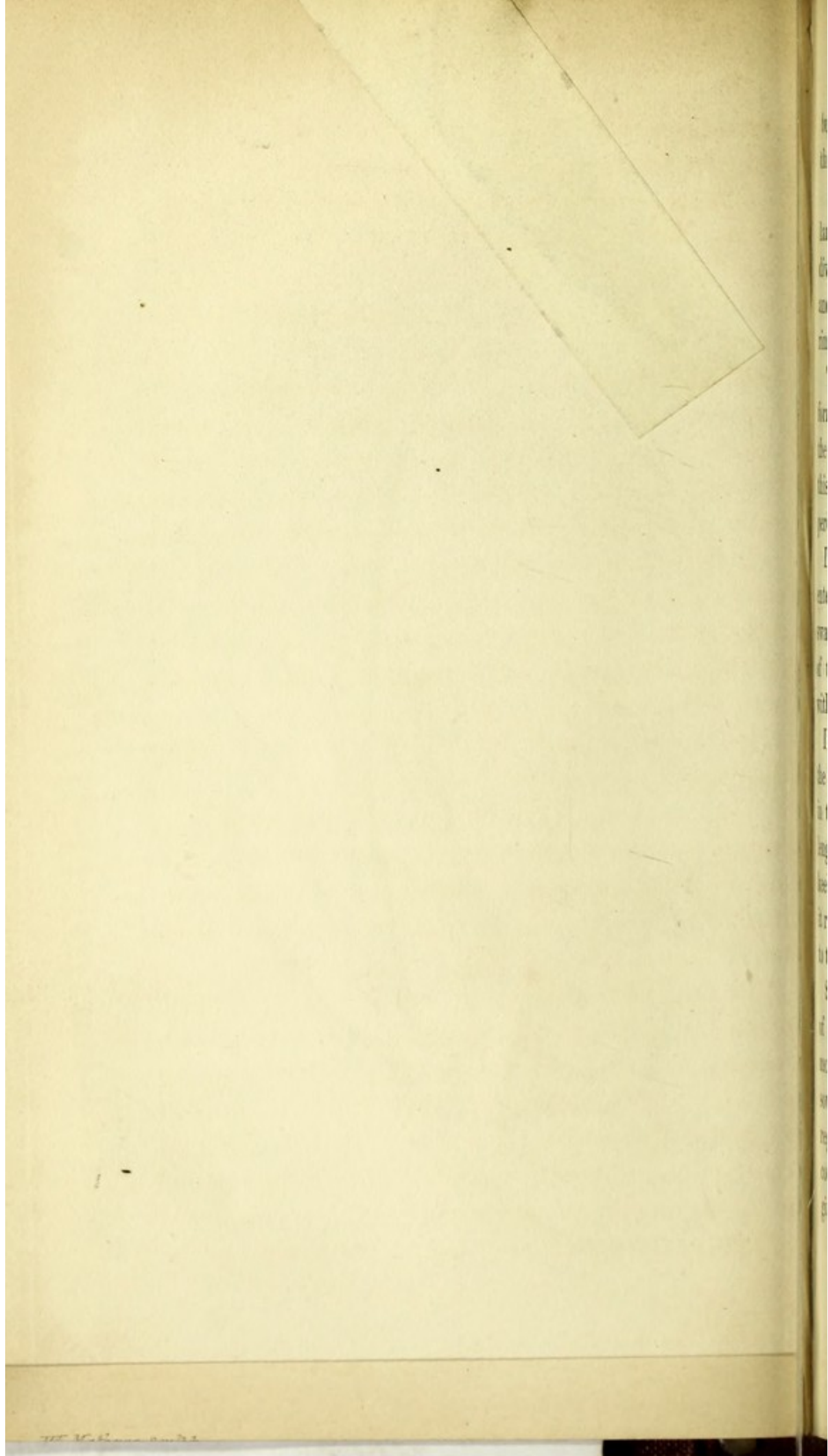
Whistling Swan



Scaup

Duck





buting the different length in the same species to the different sexes, instead of to the age.

The tracheæ of several of the duck tribe are enlarged in various parts, especially at the angle of divarication; and where they enter the lungs; and this enlargement is called the ampulla, or labyrinth.

The *anas semipalmata* has a windpipe which forms several circumvolutions on the breast, under the skin, before it enters the thorax. The note of this bird is said to be melodious; and it sometimes perches on trees, like the whistling duck.

In the crane the trachea is doubly reflected. It enters the keel of the sternum like that of the wild swan. It is compared to a French horn; but that of the tame swan to a trumpet, being straight within the bone.

In the tame swan little more occurs respecting the configuration of the windpipe than is to be seen in the common cock, whilst in the wild swan it is lengthened greatly, and, entering a hollow in the keel of the sternum, forms a doubling therein before it returns to enter into the cavity and attach itself to the lungs.

Singing birds are distinguished by the strength of the pulmonary muscles. The *strength* of pulmonary muscles gives the power of uttering strong sounds. The quantity and velocity of air expelled regulates the power of sound. The *dilatation* or contraction of the *aperture* through which it passes gives the grave or acute sounds.

The next point I proposed to investigate is the

peculiarity of structure which enables some birds to imitate the human voiceⁱ.

This is a difficult subject, and I confess I have read nothing very satisfactory in explanation of it. Aristotle asserts, that birds have the power of articulating words in proportion as their tongue is moderately broad and thin. That the superior pliancy of the tongue should give a great advantage in pronouncing words one cannot doubt; but probably other organs are more effective in conferring this privilege.

It is said, that in those birds which are capable of articulating words the top of the trachea much resembles the mouth-piece of an hautboy; which instrument can be made to produce tones the most nearly resembling those of the human voice. We have the following instances of birds being taught

ⁱ “ I have examined with attention the tongues of paroquets, “ to find out why some kinds of birds are unable to articulate “ words, whilst others talk so well. I have imagined that I “ have discovered a solution of this important problem, by a “ view of the conformation of the os hyoides of the parrots. “ In the paroquets which talk, this bone is very thin, and length- “ ened at the point; in the maccaws, on the contrary, which are “ the heaviest in flight, but the most beautiful in colours, the “ os hyoides is of an extraordinary size. The interval between “ the two horns is filled up partly with an osseous membrane, “ which is contracted towards the end, and fixed to a square “ bone, which is more than a quarter of an inch in breadth. It “ is this extraordinary appendage, this bone in the form of a “ spatula, which enters the point of the tongue, and which renders it so inflexible in the psittacus ararauna, and in the “ maccaw.” *Humboldt's and Bompland's Travels, Observations in Comparative Anatomy*, part II. p. 7.

to speak by the Greeks and Romans, upon which we never try the same experiment. Moschus addresses nightingales and swallows that were thus instructed :

Ἀδονίδες πασαι τε χελιδόνες ας ποκ' ετερπεν
 Ἀς λαλεειν ἐδιδασκεν.

Pliny mentions a cock-thrush and nightingale which articulated : “ Habebant et Cæsares juvenes
 “ turdum item lusciniæ Græco atque Latino ser-
 “ mone dociles, præterea meditantes in diem et assi-
 “ due nova loquentes longiore etiam contextu.” Sta-
 tius also takes notice of some birds speaking which we never attempt to teach in this manner :

Hæc doctæ stipentur aves queis nobile fandi
 Jus natura dedit ; plangat Phœbeïus ales,
 Auditasque memor penitus dimittere voces
 Sturnus, et Aonio versæ certamine picæ ;
 Quique refert jungens iterata vocabula perdix,
 Et quæ Bistonio queritur soror orba cubili.

Monsieur Savart says, that “ birds which have a
 “ varied song, and are most capable of learning to
 “ *talk*, have two folds of a mucous membrane above
 “ the larynx, which float in the midst of the air
 “ that *sounds* around them, and of whose motion
 “ they necessarily partake.”

“ In birds whose voice is limited,” he affirms,
 “ nothing like this apparatus is to be found, even
 “ when their larynx is provided with the proper
 “ muscles. These floating membranes being sus-
 “ ceptible of a variable tension,” he thinks, “ must
 “ be principally used in modifying, sometimes sud-
 “ denly, sometimes gradually, the number of vibra-

“ tions of the air. When they are stretched their
 “ height diminishes, and consequently the sound be-
 “ comes more acute at first, because the sides which
 “ contain the columns of air then are more resisting,
 “ and afterwards, because the dilatable parts of the
 “ sides have a less extent.”

To utter words like a human being the following conditions seem to be necessary. 1st, That the natural note of the bird imitating them should be like that of a man^k; and this is probably the case in the parrot, magpie, daw, crow, raven, jay, and rook, and even in the starling, which has a wonderful compass of notes, some raucous, some shrill, by which it is enabled to articulate words, and to imitate the shrillest and mellowest too of the singing birds. 2nd, A flattish pliable tongue. 3rd, A good ear and taste for imitating sounds; for those which acquire the power of imitating the human voice are prone to imitate all other kinds of sounds. Bewick says, “ We have heard a jay imitate the sound made by
 “ the action of a saw so exactly, that though it was
 “ on a Sunday, we could hardly be persuaded that
 “ the person who kept it had not a carpenter at
 “ work in the house.”

Another, at the approach of cattle, had learned to *hound* a cur dog upon them, by whistling and calling upon him by his name: at last, during a severe frost, the dog was by those means excited to attack a cow big with calf, when the poor animal fell on

^k Barrington mentions a linnet that could utter two words, “ Pretty boy;” and some say that a bulfinch has been taught to talk.

the ice and was much hurt: the jay was complained of as a nuisance, and the owner was obliged to destroy it.

Locke gives the following curious account of the talking powers of a parrot, which he quotes "from an author of great note," whose name he does not mention:

"I had a mind to know from prince Maurice's own mouth the account of a common but much credited story, that I had heard so often from many others, of an old parrot he had in Brazil during his government there, that spoke and answered common questions like a reasonable creature; so that those of his train there generally concluded it to be a witchery and possession; and one of his chaplains, who lived long afterwards in Holland, would never from that time endure a parrot, but said they had all a devil in them. I had heard many particulars of the story, and asseverated by people hard to be discredited, which made me ask prince Maurice what there was in it. He said, with his usual plainness and dryness of talk, that there was something true, but a great deal false, that had been reported. I desired to know of him what there was of the first. He told me he had heard of such an old parrot when he came to Brazil, and though he believed nothing of it, and it was a good way off, yet he had so much curiosity as to send for it: that it was a very great and very old one. When it came first into the room where the prince was with a great many Dutchmen about him, it said presently, 'What a company of white men are here!' They

“ asked it what that man was, pointing at the
 “ prince. It answered, ‘ Some general or other.’
 “ When they brought it close to him, he asked,
 “ ‘ D’où venez-vous?’ It answered, ‘ De Marinman.’
 “ The prince—‘ De qui êtes-vous?’ The parrot—
 “ ‘ A un Portugais.’ Prince—‘ Que fais-tu là?’
 “ Parrot—‘ Je garde les poules.’ The prince laugh-
 “ ed and said, ‘ Vous gardez les poules?’ The par-
 “ rot answered, ‘ Oui, je le sçais bien faire,’ and made
 “ the chuck four or five times which people use to
 “ make to chicken when they call them. I set down
 “ the words of this worthy dialogue in French, just
 “ as prince Maurice said them to me : I asked in
 “ what language the parrot talked? he said, in
 “ Brazilian; and he had taken care to have two in-
 “ terpreters with him, the one a Dutchman, that
 “ spoke Brazilian, the other a Brazilian, that spoke
 “ Dutch : that he asked them separately and pri-
 “ vately, and both agreed in telling the same thing
 “ the parrot said.”

How far this story may be true, it is difficult to
 say : possibly the prince was imposed on by both
 interpreters : possibly a bird may have been brought
 to give consecutive answers. ¹Colonel O’Kelly’s
 parrot, the most famous of modern days, would sing
 the words of a song, and in perfect tune, as it is re-
 ported. One bon-mot has been told of it, which is
 not quite so credible. When sulky, it was made to
 talk by the cook, who ducked it in a tub of water :
 once, when this had been done, it saw a dead

¹ Sir J. Trevyllian declares that he has heard this parrot sing
 the *Pretty Girl of Derby* in correct tune, and pronouncing al-
 the words articulately.

chicken floating on the surface: "What! have you
 " been sulky too?" cried the parrot.

Gresset's pleasant story of *Vert vert* is familiar to most readers of French poetry: "A parrot which
 " had been kept in a nunnery was so well educated
 " by some pious sisters, that it could say its *Pater-*
 " *noster*, and sing many short Psalms quite correctly.
 " Its fame was spread far and near; and the sisters
 " of a neighbouring nunnery borrowed it for the day
 " of celebration of their patroness saint. Much talk
 " had passed about the astonishing piety of Poll, and
 " some believed it was inhabited by a good spirit.
 " Two days before the appointed day of the festival
 " it was committed to the hands of some sailors, to
 " take it carefully in its cage down the river in their
 " passage-boat. Here it paid close attention to the
 " language of the boatmen and other low passengers,
 " and so well caught all their ribaldry, that when all
 " the nuns and their friends were waiting to receive
 " the pious visitor, and were expecting the purest
 " devotional salutations, what was their surprise to
 " hear the foulest language of the most abandoned
 " profligates! 'What wicked horrible wretches
 " must be the sisterhood who instructed it!' they
 " cried; 'Send it back, send it back to the detestable
 " creatures! O where could they themselves have
 " learned such abominable obscenity!'"

I shall now consider whether birds learn their notes from their parents, or are naturally endowed with them.

Aristotle says, "Sometimes little birds have not
 " the same note as their parents when they have
 " not been educated by them, and when they have

“ only heard birds of another species.” A nightingale has been seen in the act of teaching its young to sing. Voice is a different thing from a modulation of sounds; and this faculty is acquired and perfected by education. Barrington, in his dissertation on the singing of birds, in the 63rd volume of the Philosophical Transactions of the Royal Society, says, “ the *chirp* is the first sound heard from “ a young bird; and this characteristic note may be “ easily distinguished in each species. It is very “ weak and tremulous, and dropped entirely as the “ bird grows stronger; nor is it afterwards inter- “ mixed with its song: the chirp of a nightingale, “ for example, being weak and disagreeable.

“ The *call* is that sound it is able to make at a “ month old. It is a repetition of the same note, “ and is retained by the bird as long as it lives, and “ is common generally to both cock and hen.

“ The next stage is called by the bird-catchers “ *recording*, and may be compared to the imperfect “ attempt of a child to babble. Some will record at “ a month old. The first essay does not seem to “ have the least elements of the future song; but as “ the bird grows older and stronger one may begin “ to perceive what the nestling is aiming at. Whilst “ the scholar is thus endeavouring to form his song, “ when he is once sure of a passage he commonly “ raises his tone, which he drops again when he is “ not equal to what he is attempting; just as a singer “ raises his voice when he not only recollects certain “ parts of a tune, but is certain of executing them. “ What the nestling is not thoroughly master of, he “ hurries over, lowering his tone, as if he did not

“ wish to be heard, and could not yet satisfy himself.”

I have never happened to meet with a passage that relates to this stage of singing in a bird, except perhaps in the following lines of Statius :

—————nunc volucrum novi
 Questus inexpertumque carmen
 Quod tacita statuere brumâ.

A young bird continues to *record* for ten or eleven months, at which time he is able to execute every part of his song, which afterwards continues fixed, and is scarcely ever altered. When the bird is become thus perfect in his lesson, and able to sing his song round, or in all its varieties of passages, he then connects it together, and executes it without a pause. I would define a bird's *song* therefore, a succession of three or more different notes, which are continued without interruption during the same interval with a musical bar of four crotchets in an adagio movement, or whilst a pendulum swings four seconds.

Notes in birds are no more innate than language is in man, and depend entirely upon the master under which they are bred, as far as their organs will enable them to imitate the sounds which they have frequent opportunities of hearing.

“ I have educated linnets,” continues Barrington, “ under three of the best singing larks, the sky-lark, “ wood-lark, and tit-lark, every one of which, instead of the linnet's song, adhered to that of their “ respective instructors. I had some curiosity to find

“ out whether an European nestling would equally
 “ learn the note of an African bird ; I therefore
 “ educated a young linnet under a vengolina, which
 “ imitated its African master so exactly, without
 “ any mixture of the linnet’s song, that it was im-
 “ possible to distinguish the one from the other.
 “ The vengolina linnet was absolutely perfect, with-
 “ out ever uttering a single note by which it could
 “ be known to be a linnet.

“ Every one knows that the common house-spar-
 “ row in its natural state does nothing but chirp :
 “ this, however, does not arise from want of powers
 “ in this bird to imitate others, but because he only
 “ attends to the parental note. But to prove this
 “ decisively, I took a common sparrow from the
 “ nest when it was fledged, and educated it under a
 “ linnet ; the bird, however, by accident heard a
 “ goldfinch also, and his song was therefore a mix-
 “ ture of that of the linnet and goldfinch.”

The same author declares that the notes we hear from Canary birds are not their native notes, but those derived from other birds with which the bird tutors associate them. Their natural note, which may be heard from those caught and immediately imported from the Canary islands, is only a repeated chirp.

All this is quite conclusive as to the power which some birds have of imitating other notes than those of their parents ; but Mr. Montague thinks it does not prove that the notes are not innate.

“ That confined birds will learn the song of others
 “ they are constantly kept with, there is no doubt ; but

“ then it is generally blended with that peculiar to the
 “ species. In the spring, the very great exertion of
 “ the male birds in their vociferous notes is certainly
 “ the call of love, and the peculiar note of each is
 “ an unerring mark for each to discover its own
 “ species. If a confined bird had learned the song
 “ of another without retaining any part of its na-
 “ tural notes, and was set at liberty, it is probable it
 “ would never find a mate of its own species, and
 “ even suppose it did, there is no reason to believe
 “ the young of that bird would be destitute of its
 “ native notes ; for if nestling birds have no innate
 “ notes peculiar to the species, and that their song
 “ is only learned from the parent bird, how are we
 “ to account for the invariable note each species
 “ possesses, when it happens that two different spe-
 “ cies are bred up in the same bush, or very conti-
 “ guous, or when hatched and fostered by a different
 “ species? A goldfinch hatched and fostered by a
 “ chaffinch retained its notes^m. We have every
 “ reason to believe it is necessary there should be
 “ native notes peculiar to each species, or the sexes
 “ might have some difficulty in discovering each
 “ other, the species be intermixed, and a variety of
 “ mule birds produced ; which last, we believe, never
 “ happens in a state of nature. We cannot suppose
 “ birds discriminate colours by which they know
 “ their species, because some distinct species are so
 “ exactly alike, that a mixture might take place.
 “ The males of song-birds, and many others, do not

^m A cuckoo does the same, though hatched by a hedge-spar-
 row ; but it is possible that his organs of voice are incapable of
 imitating the notes of its foster parent.

in general search for the female, but on the contrary, their business in the spring is to perch on some conspicuous spot breathing out their full and amorous notes, which by instinct the female knows, and repairs to the spot, to choose her mateⁿ. Mr. Montague's first objection, as to the necessity of distinct notes in birds to enable them to discriminate their mates, may be answered by saying these notes may be as distinct, whether communicated by instruction or implanted by nature. As to the second objection, "that being bred in a bush with the nests of many other species about them, they would be as apt to catch the notes of other birds as of their own parents, if their notes were learned by imitation;" it may be said, that they never possess any thing more than the simplest cry, till some time after they have left their nest: and probably have as little idea of their future song, as a child in a cradle has of the most polished language.

Whether this song be *taught* by the parents afterwards, it is difficult to say^o. The singing of the *cock* bird (which is the one endowed with the power of song) takes place before and during incubation,

ⁿ This is particularly verified respecting the summer birds of passage.

^o Mr. Montague says, "With the utmost attention, we have never been able to discover the parent birds giving their young a musical lesson. Aristotle says, on the contrary, a nightingale has been seen teaching its young to sing. It is much questioned if the late brood of many species ever hear the song of their parents till they join chorus the ensuing spring, when they also feel the impulse of love, the great dictate of nature." Ladies drop their music when they have children.

and is said to cease when he is required to assist in feeding the young: and, *when they are able to feed themselves*, the parent birds cease to associate with them. Now Barrington says the nightingale does not learn its song under ten or eleven months. Where does he procure a tutor during this time, if separated from his parents? Mr. Montague's story of the goldfinch which retained its own notes though hatched by a chaffinch, would be conclusive in favour of innate notes, if he means that the goldfinch retained its native song, and not the chirp only: for I apprehend that Barrington only means to contend that the song is taught.

The call of each bird, which he says he is able to make at a month old, and is *retained* by each as long as it lives, is probably that note which is necessary to bring the birds of the same species and of different sexes together: and this may be the note which is innate, and the song may be acquired by education and practice.

It is however very difficult to conceive, if it be acquired by imitation, why the song of the parents should be always imitated, and not that of other birds, which it must hear probably nearly as often. This objection occurred to Mr. Barrington, and he says, "The question, indeed, may be asked, why the
 " wild sky-lark with these powers of imitation ever
 " adheres to the parent note? but it must be recol-
 " lected that a bird when at liberty is for ever
 " shifting its place, and consequently does not hear
 " the same notes eternally repeated, as when it
 " hangs in a cage near another bird. In a wild
 " state the sky-lark adheres to the parental notes,

“ as the parent cock-bird attends the young and is
 “ heard by them for so considerable a time.

“ Scarcely any two birds,” he adds, “ of the same
 “ species have exactly the same notes, if accurately
 “ attended to, though there is a general resemblance.
 “ Though most people see no difference in sheep,
 “ the shepherd knows them all, exactly as the goose-
 “ herd does his geese.

“ Kentish goldfinches and Surrey nightingales are
 “ esteemed the best. Birds have a patois or pro-
 “ vincial dialect ^p.”

After all, Mr. B. candidly allows that the origin
 of the notes of birds, together with the gradual
 progress, is as difficult to trace, as that of the lan-
 guages of different nations. As to the *time* of the
 singing of birds we may generally observe that the
 pairing season is the time of their full song.

This waste of music “ is the voice of love.”
 The cock-nightingales come to this country some-
 times three weeks before the females, about the first
 week in April ^q. As soon as the hen-birds appear

^p The redstart, perhaps, sings earlier than any diurnal song-
 ster. It has been heard after ten at night, and as early as three
 in the morning. It imitates other birds successfully, as do most
 of the summer songsters. Vide Linn. Trans. vol. XV. pp. 1. 18.

^q “ The nightingale seems to have been fixed on universally
 “ as the most capital of singing birds. Pliny and Strada have
 “ fully expatiated on its merits, and certainly it may challenge
 “ a superiority over all the other sylvan songsters. Its tone is
 “ infinitely more mellow than that of any other bird, though
 “ at the same time, by a proper exertion of its musical powers,
 “ it can be excessively brilliant. When it sings its song round
 “ in its whole compass, sixteen different beginnings and clos-
 “ ings may be observed, at the same time that the intermediate

dreadful battles ensue, and their notes are considerably changed ; sometimes their song is hurried through without their usual grace and elegance ; at other times modulated into a soothing melody. The first we conceive to be a provocation to battle on the sight of another male ; the last an amorous cadence, a courting address. This variety of song lasts no longer than till the female is fixed in the choice, which is in general a few days after her arrival.

The male now no more exposes himself to sing as before, nor are his songs heard so frequent or so loud ; but whilst she is searching for a secure place to nidificate in, he is no less assiduous in attending her with ridiculous gestures, accompanied with notes peculiarly soft. After incubation the

“ are commonly varied in their succession with such judgment,
 “ as to produce a very pleasing variety. The bird that approaches nearest to the excellence of the nightingale, in this
 “ respect, is the sky-lark ; but then the tone is infinitely inferior in point of mellowness : most other birds have not
 “ above four or five changes. The next point of superiority in a
 “ nightingale is its continuance of song without a pause, which
 “ I have observed to be not less than twenty seconds. When-
 “ ever respiration, however, becomes necessary, it was taken
 “ with as much judgment as by an opera singer.

“ The sky-lark in this particular too is only second to the
 “ nightingale. Some excel others, not only in tone and variety, but in judgment and taste, and begin their song like
 “ the ancient orators, reserving their breath to swell certain
 “ notes, which by this means has a most astonishing effect, and
 “ exceeds all verbal description. Our European birds are superior in song to all those of the East, and Thompson says
 “ that this is a compensation for the comparative dulness of
 “ their plumage.” *Barrington.*

male bird is heard loud again, but when the callow brood appears he instantly ceases his song, to assist in furnishing them with the necessary food.

The thrush, the robin, wren, hedge-sparrow, and occasionally the blackbird, and some other birds, will sing on the milder days of winter, when the sun shines cheerfully.

The fieldfare, redwing, and other winter birds, which are said to sing very delightfully in their breeding countries, seldom utter any notes but harsh screams in England. They will sometimes on the warmest days of the beginning of spring, just before their departure, make a pleasant twittering in concert on the top of some high tree, and pay their *quit* rent with a song. The full tide of song amongst the warblers seems to be soon after sunrise: it is renewed with less power an hour or two before sunset. Philomel almost alone

—— the livelong night

Pours forth his amorous descant.

The reed fauvette, indeed, is as incessant in song at this time, and the owl and goat-sucker contribute to the nightly concert^r.

^r The notes of birds may be heard at a great distance. Mr. Barrington calculates that the note of the nightingale on a still evening may be heard half a mile off. The *ampelis carunculata*, or araponga, is said to utter sounds (resembling the blow of a hammer) which may be heard half a league off. Mr. Waterton mentions a bird, whose note resembles the sound of a bell, which may be heard at as great a distance. He gives the following description: "The campanero is about the size of a jay. His plumage is white as snow. On his forehead rises a spiral tube nearly three inches long, which has a communication with the palate, and when filled with air looks like a

The next point I proposed to consider was, how far the notes of birds were imitable by the human voice or by musical instruments.

Several professed imitators of birds have exhibited their talents in this way to the public in London and elsewhere : particularly a man who gave himself the title of Rossignol. They, like ventriloquists, would fain persuade their auditors that this is a particular gift, arising from a peculiar structure of the whistling organs ; when in fact the effect is in general produced by artificial means, with the aid of a bird-whistle. Without doubt many of the notes of birds may be very exactly imitated by the human voice and lips, so as to attract them to a particular spot, and to excite them to sing, especially the nightingale.

An exhibition of the human power of imitating birds was very amusingly displayed in one of the theatres not a long time ago. A singer on the stage

“ spire : when empty it becomes pendulous. His note is loud
 “ and clear, like the sound of a bell, and may be heard at the
 “ distance of three miles. No sound or song from any of
 “ the inhabitants of the forest, not even of the clearly Whip
 “ poor Will of the goat-sucker, causes such astonishment as
 “ that of the campanero.

“ With many of the feathered race he pays the common tri-
 “ bute of a morning and an evening song, and continues it in
 “ mid-day also. You hear his toll, and then succeeds a pause
 “ for a minute—then another toll—and then a pause again—
 “ and then a toll and again a pause. Then he is silent for
 “ eight or ten minutes, and then another toll ; and so on.

“ Actæon would stop in mid-chase, Maria would defer her
 “ evening song, and Orpheus stop his lute to listen to him—so
 “ sweet, so novel, so romantic is the toll of the pretty snow-
 “ white campanero!”

began a ditty in which the songs of various birds were invoked—Hark, 'tis the linnet: Hark, 'tis the thrush, &c. At the mention of every bird's name, a bird-vocalist in the gallery gave the appropriate melody of each sylvan songster that was invoked with astonishing accuracy of resemblance.

The artificial calls for birds are made in different ways, according to the different birds whose notes are intended to be imitated^s. "They are most of them," says Dr. Rees, "composed of a pipe or reed, with a little leathern bag or purse somewhat in form of a bellows, which, by the motion given thereto, yields a noise like that of the bird to be taken." The call of partridges is formed by an instrument like a boat, bored through, and fitted with a pipe or swan's quill, to be blown with the mouth, to make the note of the cock-partridge, which is very different from the note of the hen. Calls for quails are made of a leathern purse in shape of a pear stuffed with horsehair and fitted at the end with the bone of a cat's, hare's, or rabbit's leg, formed like a flageolet. The notes are formed by squeezing the purse in the palm of the hand, at the same time striking on the flageolet part with the thumb, to counterfeit the voice of the hen-quail.

In some countries where hares are very numerous, as about Naples, they are taken by a call, which

^s Lord Bacon mentions that in the instrument called a *regall*, which was a species of portable organ, there was a nightingale stop, in which water was used to produce a stronger imitation of the bird's tone. He says, I have procured an organ pipe to be immersed partly in water, which, when blown, produced a tone very similar to that of birds.

imitates the squeaking sound of courtship between the male and female^t.

The notes of birds have been observed with superstitious awe in almost all countries; and in those of Greece and Rome they formed a very important part in the sacerdotal influence.

Rosini, in his *Antiquitates Romanæ*, mentions the *corvus*, *cornix*, *noctua* aut *bubo*, as those quæ ore canentes auspicia faciebant. *Præposteros* aut *vespertinos* gallorum cantus optimi eventus signa aliqua notavere. *Gallarum* cantus nunquam exaudiri nisi quando dirum aliquid immineret. *Corvi* inauspicatæ garrulitatis aves a dextra ut *cornices* a sinistra spes non ambiguas: si ab ortu occinerent clara voce præsentem felicitatem significabant. Ab occasu vel læva si proclamarent aut glutirent vocem velut strangulati exitium apportabant. The same birds are said to have given warning to Alexander on his entry into Babylon, and to Cicero, to

^t The voice of birds has not been given to them only for their and our amusement, but to communicate their wants and express their passions. How different in each is the note of alarm, of joy, of anger, of love, of warning, or calling to their young, or to each other, amongst those which fly in flocks, and of hunger in the unfledged birds! Rooks, and swallows, and redwings, and fieldfares seem to hold a conclave, and a kind of debate, before their departure; then rise suddenly, on some measure having been generally decided on. Many birds that congregate keep sentinels, which give a sound of alarm on the approach of an enemy. Young partridges immediately crouch, to conceal themselves, on a particular warning note from the old bird. Few are unacquainted with the challenging note of a common barn-door cock, and his note of exultation when he has gained the victory.

avoid the snares of Antony. The cry of the common owl was said to have foretold the defeat of the Roman army at Numantia.

If the screech owl cried in fine weather, it denoted a tempest; if in foul weather, it denoted a speedy change to a serene sky.

——— Cras foliis nemus
Multis, et alga littus inutili
Demissa tempestas ab Euro
Sternet; aquæ nisi fallit augur
Annosa cornix,

says Horace.

Tum cornix plena pluviam vocat improba voce,
Et sola in sicca secum spatatur arena,

says Virgil, in confirmation of this presage. The cry of the screech-owl and the croaking of the raven are still sounds of fearful import to the terrified villager. But to conclude with a pleasanter view of the notes of birds. Addison says the music of the grove has in it something so wildly sweet, as makes him less relish the most elaborate musical compositions of Italy^u. Jenner, in his interesting

^u “ In a room where many birds are singing at the same time, no discord, like what is called a Dutch concert, takes place, which induces me to believe that they all sing in the same key,” says Bacon.

Lucretius thinks the first musical notes were learned from birds :

——— Voces imitaries ore
Ante fuit multo, quam lævia carmina cantu
Concelebrare homines possent, aureisque juvare.

A proof that our musical intervals were borrowed from birds arises from most of our musical compositions being in a flat third, where music is simple, and consists merely of melody.

paper on the migration of birds, has given a delightful rhapsody on this subject: "How sweetly on the
 "return of spring do the notes of the cuckoo first
 "burst upon the ear; and what apathy must that
 "soul possess that does not feel a soft emotion at
 "the song of the nightingale. Surely it must be fit
 "for treasons, stratagems, and spoils. And how
 "wisely is it contrived that a general stillness should
 "prevail whilst this heavenly bird is pouring forth
 "its plaintive and melodious strains—strains that
 "so sweetly accord with the evening hour.

"To an observer of the divine laws, which harmonize the general order of things, there appears
 "a design in the arrangement of the sylvan minstrelsy. It is not in the haunted meadow nor frequented field we are to expect the gratification of
 "indulging ourselves in this pleasing speculation to
 "the fullest extent: we must seek for it in the park,
 "the forest, or some sequestered dell half enclosed by
 "the coppice or the wood.

"First the robin, not the lark, as has generally
 "been imagined, as soon as daylight has drawn the
 "impenetrable line between night and day, begins
 "his lonely song. How sweetly does this harmonize
 "with the soft dawns of day! He goes on, till the
 "twinkling sun-beams begin to tell him his notes no
 "longer accord with the rising scene. Up starts the
 "lark, and with him a variety of pleasing songsters,
 "whose lively notes are in perfect correspondence
 "with the gaiety of the morning. The general
 "warbling continues, with now and then an interruption, for reasons before assigned, by the tran-

“ sient croak of the raven, the screaming of the jay,
 “ and the swift and the pert chattering of the daw.
 “ The nightingale, unwearied by the vocal exertions
 “ of the night, withdraws not proudly by day from
 “ his inferiors in song, but joins them in the general
 “ harmony. The thrush is wisely placed on the sum-
 “ mit of some lofty tree, that its loud and piercing
 “ note may be softened by distance, before they reach
 “ the ear, while the mellow blackbird seeks the in-
 “ ferior branches. Should the sun, having been
 “ eclipsed by a cloud, shine forth with fresh efful-
 “ gence, how frequently we see the goldfinch perch
 “ on some blossomed bough, and hear his song poured
 “ forth in a strain peculiarly energetic, much more
 “ sonorous and lively now than at any other time;
 “ while the sun, full shining on his beautiful plumes,
 “ displays his golden wings and charming crest to
 “ advantage. The notes of the cuckoo blend with
 “ this charming concert in a perfectly pleasing man-
 “ ner. At length the evening advances, the per-
 “ formers gradually retire, and the concert gradually
 “ dies away. The sun is seen no more. The robin
 “ again sets up his twilight song, till the still more
 “ serene hour of night sends him to the bower of
 “ rest. And now to close the scene in full and per-
 “ fect harmony, no sooner is the voice of the robin
 “ hushed, and night again spreads a gloom over the
 “ horizon, than the owl sends forth his slow and
 “ solemn tones. They are more than plaintive, and
 “ less than melancholy, and tend to inspire the ima-
 “ gination with a train of contemplations well adapt-
 “ ed to the serious hour. Thus we see that birds,

“ the subject of my present inquiry, bear no inconsiderable share in harmonizing some of the most beautiful and interesting scenes in nature ^x.”

Here I might well conclude this dissertation, were there not one passage in a poem familiar to our boyhood so exquisitely fine, so descriptive of the foregoing scene, that if it did not inspire the former writer, it will show that they drew their picture from the same great original, the face of Nature.

“ When first the soul of love is sent abroad,
 “ Warm through the vital air, and on the heart
 “ Harmonious seizes, the gay troops begin
 “ In gallant thought to plume the painted wing,
 “ And try again the long-forgotten strain ;
 “ At first faint warbled: but no sooner grows
 “ The soft infusion prevalent and wide,
 “ Than, all alive, at once their joy o'erflows
 “ In music unconfin'd. Up springs the lark,
 “ Shrill voic'd, and loud, the messenger of morn :
 “ Ere yet the shadows fly, he mounted sings
 “ Amid the dawning clouds, and from their haunts
 “ Calls up the tuneful nations. Ev'ry copse
 “ Deep-tangled, tree irregular, and bush
 “ Bending with dewy moisture o'er the heads
 “ Of the coy quiristers that lodge within,
 “ Are prodigal of harmony. The thrush
 “ And wood-lark, o'er the kind contending throng
 “ Superior heard, run through the sweetest length
 “ Of notes ; when list'ning Philomela deigns
 “ To let them joy, and purposes, in thought
 “ Elate, to make her night excel their day.
 “ The blackbird whistles from the thorny brake ;
 “ The mellow bullfinch answers from the grove :
 “ Nor are the linnets, o'er the flow'ring furze

^x No bird is said to sing that is larger than a blackbird.

" Pour'd out profusely, silent. Join'd to these,
 " Innum'rous songsters, in the fresh'ning shade
 " Of new-sprung leaves, their modulations mix
 " Mellifluous. The jay, the rook, the daw,
 " And each harsh pipe discordant heard alone,
 " Aid the full concert ; while the stock-dove breathes
 " A melancholy murmur through the whole.
 " 'Tis love creates their melody, and all
 " This waste of music is the voice of love."

From the Journal of a Naturalist.

" The object of the song of birds is not agreed
 " upon by ornithologists, and we will not now think
 " of it, but merely in passing, note how singularly
 " timed is the song of the robin. The blackbird
 " and the thrush, in mild seasons, will sing occa-
 " sionally throughout the winter : but the robin,
 " after having been absent all the summer, returns
 " to us late in autumn, and then commences its
 " song, when most of our feathered choristers are
 " silent. An apparent contention in harmony en-
 " sues amongst them : at length the rivals approach,
 " menace, and fight with a seeming vexation at each
 " other's prowess. The song of no one bird is per-
 " haps observed with more attention, and remem-
 " bered better, than the autumnal, and at times me-
 " lancholy sounding, farewell of the robin."

From the same.

" From various little scraps of intelligence scat-
 " tered through the sacred and ancient writings, it
 " appears certain, as it was reasonable to conclude,
 " that the notes now used by birds, and the voices

“ of animals, are the same as uttered by their ear-
 “ liest progenitors. The language of man, without
 “ any reference to the confusion accomplished at
 “ Babel, has been broken into innumerable dialects,
 “ created or compounded as his wants occurred, or
 “ his ideas prompted; or obtained by intercourse
 “ with others, as mental enlargement or novelty ne-
 “ cessitated new words to express new sentiments.
 “ Could we find a people from Japan or the Pole,
 “ whose progress in mind has been stationary, with-
 “ out increase of idea, from national prejudice, or
 “ impossibility of communication with others, we
 “ probably should find little or no alteration in
 “ the original language of that people: so by ana-
 “ logy of reasoning, the animal, having no idea
 “ to prompt, no new want to express, no converse
 “ with others, for a note caught and uttered merely—
 “ is like a boy mocking a cuckoo;—so no new lan-
 “ guage is acquired. With civilized man every
 “ thing is progressive; with animals, where there
 “ is no mind, all is stationary. Even the voice of
 “ one species of birds, except in particular cases,
 “ seems not to be attended to by another species.
 “ That peculiar call of the female cuckoo, which as-
 “ sembles so many contending lovers, and all the
 “ various amatorial and caressing language of others,
 “ excites no influence generally, that I am aware of;
 “ with all but the individual species it is a dialect
 “ unknown. I know but one note, which animals
 “ make use of, that seems of universal comprehen-
 “ sion, and this is the signal of danger. The instant
 “ that it is uttered we hear the whole flock, those
 “ composed of various species, repeat a separate

“ moan, and away they all scuttle into the bushes
 “ for safety. The reiterated *twink, twink*, of the
 “ chaffinch is known by every little bird as informa-
 “ tion of some prowling cat or weasel. Some give
 “ the maternal hush to their young, and mount to
 “ inquire into the jeopardy announced. The wren,
 “ that tells of perils from the hedge, soon collects
 “ about her all the various inquisitive species within
 “ hearing, to survey and ascertain the object, and
 “ add their separate fears. The swallow, that shriek-
 “ ing darts in devious flight through the air, when
 “ a hawk appears, not only calls up all the hirun-
 “ dines of the village, but is instantly understood by
 “ every finch and sparrow, and its warning attended
 “ to. As nature in all her ordinations had a fixed
 “ design and foreknowledge, it may be, that each
 “ species had a separate voice assigned it, that each
 “ might continue as created, distinct and unmixed;
 “ and the very few deviations and admixtures that
 “ have taken place, considering the lapse of time,
 “ association, and opportunity, united with the pro-
 “ hibition of continuing accidental deviations, are
 “ very remarkable, and indicate a cause and original
 “ motive. The voice of birds seems applicable in
 “ most instances to the immediate necessities of
 “ their condition; such as the sexual call, the invi-
 “ tation to unite when dispersed, the moan of dan-
 “ ger, the shriek of alarm, the notice of food. But
 “ there are other notes, the designs and motives
 “ of which are not so obvious. One sex only is
 “ gifted with the power of singing, for the purpose,
 “ as Buffon supposed, of cheering his mate during
 “ the period of incubation; but this idea, gallant as

“ it is, has such slight foundation in probability,
 “ that it needs no confutation: and after all, per-
 “ haps we must conclude, that, listened to, admired,
 “ and pleasing as the voices of many birds are, either
 “ for their intrinsic melody, or from association, we
 “ are uncertain what they express, or the object of
 “ their song. The singing of most birds seems en-
 “ tirely a spontaneous effusion, produced by no ex-
 “ ertion, or occasioning no lassitude in muscle, or
 “ relaxation of the parts of action: in certain sea-
 “ sons and weather the nightingale sings all day and
 “ most part of the night; and we never observe that
 “ the powers of song are weaker, or that the notes
 “ become harsh and untunable, after all these hours
 “ of practice. The song thrush, in a mild moist
 “ April, will commence his tune early in the morn-
 “ ing, pipe unceasingly through the day, yet, at the
 “ close of eve, when he retires to rest, there is no
 “ obvious decay of his musical powers, or any sensi-
 “ ble effort required to continue his harmony to the
 “ last. Birds of one species sing in general very
 “ like each other, with different degrees of execu-
 “ tion. Some counties may produce finer songsters,
 “ but without great variation in the notes. In the
 “ thrush, however, it is remarkable, that there seems
 “ to be no regular notes, each individual piping a
 “ voluntary of his own. Their voices may always
 “ be distinguished amid the choristers of the copse,
 “ yet some one performer will more particularly
 “ engage attention by a peculiar modulation or tune;
 “ and should several stations of these birds be
 “ visited in the same morning, few or none, proba-
 “ bly, will be found to preserve the same round of

“ notes ; whatever is uttered seeming the effusion
 “ of the moment. At times a strain will break out
 “ perfectly unlike any preceding utterance, and we
 “ may wait a long time without noticing any repe-
 “ tition of it. Harsh, strained, and tense, as the
 “ notes of this bird are, yet they are pleasing from
 “ their variety. The voice of the blackbird is in-
 “ finitely more mellow, but has much less variety,
 “ compass, or execution, and he too commences his
 “ carols with the morning light, persevering from
 “ hour to hour without effort, or any sensible falter-
 “ ing of voice. The cuckoo wearies us throughout
 “ some long May morning with the unceasing mo-
 “ notony of its song : and though there are others
 “ as vociferous, yet it is the only bird I know that
 “ seems to suffer from the use of the organs of voice.
 “ Little exertion as the few notes it makes use of
 “ seem to require, yet, by the middle or end of
 “ June it loses its utterance, becomes hoarse, and
 “ ceases from any further essay of it.

“ But here I must close my notes of birds, lest
 “ their actions and their ways, so various and so
 “ pleasing, should lure me on to protract

‘ My tedious tale through many a page ;’

“ for I have always been an admirer of these ele-
 “ gant creatures, their notes, their nests, their eggs,
 “ and all the economy of their lives ; nor have we
 “ throughout the orders of creation any beings that
 “ so continually engage our attention as these our
 “ feathered companions. Winter takes from us all
 “ the gay world : of all the miraculous creatures
 “ that sported their hour in the sunny beam, the
 “ winter gnat (*tipula hiemalis*) alone remains to fro-

" lie in some rare and partial gleam. The my-
 " riads of the pool are dormant, or hidden from our
 " sight ; the quadrupeds, few and wary, veil their
 " actions in the glooms of night, and we see little of
 " them ; but birds are with us always, they give a
 " character to spring, and are identical with it ;
 " they enchant and amuse us all summer long with
 " their sports, animation, hilarity, and glee ; they
 " cluster round us, suppliant in the winter of our
 " year, and, unrepining through cold and want, seek
 " their scanty meal amidst the refuse of the barn, the
 " stalls of the cattle, or at the doors of our house ; or,
 " flitting hungry from one denuded and bare spray to
 " another, excite our pity and regard ; their lives are
 " patterns of gaiety, cleanliness, alacrity, and joy."

THE MUSICIAN AND NIGHTINGALE.

Translated from the Latin of Strada.

Now from the west the radiant orb of day
 Scarce ting'd the valleys with a parting ray ;
 Yet o'er proud Tiber's breast its lingering beam
 Still gaily danced along the rippling stream ;
 On whose fair bank, beneath an oak's tall shade,
 That bent majestic down the flowery glade,
 A wandering minstrel lay, and soothed his care,
 Cheered by the verdant shade and fragrant air :
 On his sole friend, his harp, he hung reclined,
 And told his sorrows to the whispering wind.
 Whilst o'er the strings his listless fingers stray,
 As Chance directs, or Fancy prompts the lay,
 Glad to repose, he sought the woody scene,
 And from its covert tuned his notes unseen,
 Yet not unheard ;—for 'mid the leaves above
 Sate Philomel, the songstress of the grove :
 She, lovely syren of the sylvan throng,
 With gentle rapture heard the varying song.

And as his flying fingers poured the strain,
 Caught each fond note and sent it back again.
 The minstrel paused, and with amazement heard
 The soft responses of the tuneful bird:
 Pleased with the sound, again his hands inspire
 The vocal chords with all a master's fire;
 O'er every nerve with rapid sweep he flies,
 And swelling strains in swift succession rise.

Now with faint touch he tunes the votive shell,
 Now one by one the kindred measures swell
 In sweet accord, and bear unto the sky
 Each varying maze of music's melody.
 Again he stops—again the sylvan muse
 Displays her skill—now negligent she strews
 A few short vagrant notes, now pours along
 One undivided stream of native song.
 From her smooth breast in mellow'd fulness roll
 The rich emotions of her varied soul.
 Now in short stops the fitful numbers play,
 Or in soft trembling accents melt away.

Surprised the minstrel heard her little throat
 With ease repeat and answer every note.
 Once more he strikes his harp with loftier skill,
 The quivering threads with new vibrations thrill.
 While the shrill tone in pealing volume rings,
 Slow, deep'ning murmurs roll along the strings;
 As borne on hurrying winds from fields afar,
 The deep-mouth'd clarion sounds the blast of war;
 So from the harp this intermingled strain,
 In dying echo vibrates through the plain.

Once more the rival bird resumes her part,
 With all the changes of her mimic art:
 Awhile in air the shrill-toned measures float,
 Tone equals tone, and note responds to note:
 Then in swift change her deeper numbers peal;
 Soft through the leaves the plaintive numbers steal,
 Now high, now low, now weak, now sharply clear,
 Th' alternate movement bursts upon the ear;

As sounds the trumpet when its loud alarms
 Inspire each heart, and wake the soul to arms.—
 With conscious shame the minstrel blushed to find
 How weak was all the science of mankind,
 When plastic Nature could with voice inspire
 Her meanest child, and emulate the lyre.
 Fired at this humble thought, "One more," he cried,
 "One trial more the contest shall decide.
 "Should I again be forc'd to yield to thee,
 "My broken harp shall mourn on yonder tree."
 E'en as he speaks each chord beneath his hand
 Starts to new life, and answers his command ;
 The golden wires rebound in rushing tide ;
 Th' awaken'd concert swells on every side,
 As here and there his artless fingers range,
 From shrill to deep, th'alternate numbers change,
 Now fast and clear, now murmuring and slow ;
 Now in short starts, or undivided flow.
 At length, collecting for the closing strife
 Each latent power and energy of life,
 With great and matchless art he sends along
 One full-toned chorus of commingled song.
 Then stood expectant once again to hear
 The rival warbling of his small compeer.
 But she, poor bird ! (though wearied by display,
 Her little voice had lost its loveliest lay,)
 Reluctant still to yield, recalls in vain
 Each modulation of her earliest strain ;
 For whilst her simple throat attempts to swell
 Above the raptures of the ten-string'd shell,
 Unable to achieve a task so great,
 Unable to sustain her vanquish'd fate,
 A few weak notes she heav'd, her falt'ring breath
 Grew short and faint beneath the touch of death—
 She fell upon the harp with gasping sigh,
 And gave at once her life and victory.

NATURE'S CONCERT ;

A Scene from Nature.

Two nightingales with swelling throats
 Pour the full tide of rival notes ;
 The soaring lark from fleeced sky
 Flings down his liquid minstrelsy ;
 The thicket's 'tangled boughs among,
 The blackbird chaunts his mellow song ;
 The little wren a lively strain
 At early morn renews again,
 And near, the breast of friendly robin
 In ecstasy of song is throbbing ;
 And many a finch on many a bush
 Twitters his lay ; but not a thrush
 Joins in the chorus ; we may spare
 His song, as philomel is there :
 The cawing rook and cooing dove
 Make up this harmony of love ;
 All hearts the sylvan concert cheers,
 Attun'd by God to human ears.

THE END.