Title: Birds and All Nature, Vol. 4, No. 6, December 1898

Author: Various

Release date: December 20, 2014 [EBook #47728]

Language: English

Credits: Produced by Chris Curnow, Joseph Cooper, Christian Boissonnas and the Online Distributed Proofreading Team at http://www.pgdp.net

BIRDS AND ALL NATURE.

ILLUSTRATED BY COLOR PHOTOGRAPHY.

VOL. IV. DECEMBER, 1898. NO. 6.

CONTENTS.

VOICES.

W. E. WATT.

ALL animals with lungs have some sort of contrivance in the windpipe that is able to set the air in vibration as it is expelled or inhaled. Some have not only this means of making vocal sound, but have also power to vary the quality and intensity of it. Out of this second ability come speech and song.

Ants converse with their antennæ, having no lungs nor windpipe. Bees do the same. Those of her attendants who first perceive the absence of the queen from the hive apply their antennæ to the feelers of their companions. The ensuing excitement settles the question as to their ability to talk. This shows that while voice is the usual organ of language there is yet a good deal of conversation going on about us that is not expressed in words, just as there is much music performed by insect orchestras with no vocal contributions.

Hares and Rabbits never use their voices except when suffering intensely. When caught by an enemy or wounded in the chase they utter the only cry that ever escapes from their throats. Spasmodic agitation of the chest muscles and the larynx gives forth the sound. Such unintentional utterances are frequent in other animals that use their voices freely when nothing has injured them, as the death shrieks of cattle and the screams of horses attacked by wolves.

It is of little use to ask why animals are equipped with voices, for the fact is an animal could hardly be constructed with lungs and apparatus for controlling ingress and egress of air without the controlling organ's being more or less noisy or even musical. Snorts, snores, whistles, purrs, groans, and trumpetings follow naturally where the bellows and pipe are active.

Although Darwin considers that the habit of uttering musical sounds was first acquired for courtship, and that in man it was early associated only with his strongest emotions, such as love, rivalry, and triumph, the writer holds the opinion that both significant and musical utterance originated not in any desire to move others, but was cultivated solely for the pleasure it gave the one who made it.

If primitive man did not receive language ready-made at creation, but developed it as the philologists claim, it was a gradual acquisition. While our early ancestor dug in the ground he emitted certain sounds, as he pursued he uttered others, and as he devoured he indulged in a different grunt or exclamation. When he wished to call the attention of others to one of these acts he merely reproduced the sound that went naturally with it. And so *clamor concomitans* became *clamor significans*. But the sound as it came forth at first had no meaning and no design. The man made the sound rather instinctively than mentally and he enjoyed making sounds as much as a baby now enjoys crowing or a youngster delights in yelling when he has no ideas he cares to convey. Much of the singing of birds is done merely because the birds wish to please themselves with the sounds peculiar to themselves. They are, as a rule, in no-wise trying to charm their [Pg 202] mates, and they are not at all desirous of pleasing anyone but themselves. It would be as reasonable to claim that the carpenter on the roof is whistling to please his sweetheart or that the lumberman alone with his cattle in the forest trolls forth his jolly song for any amorous reason. There are times when these purposes are the cause of singing, but the fact is that the great majority of the singing and whistling done by men, birds, and beasts sounds far better to the ones that produce it than to any other. In fact, society itself would be in a far better state if the men and women who sing would only acknowledge that they are doing so mainly to please themselves, and they might then be persuaded in part to leave off trying to surprise their hearers at times by singing louder or higher or faster than nature intended they should do. Most people enjoy listening to song, but no one can appreciate the beauties of it so well as the artistic singer who has acquired his talents by assiduous and intelligent discipline. His enjoyment of his own efforts is as much higher than that of his auditors as is the pleasure of the man who sings out of tune above the felicity of his hearers.

Elephants speak in three ways. Pleasure is evinced by blowing the proboscis in a sharp manner—like the sound of a trumpeter learning. Wants are murmured over in the mouth. Rage roars tremendously low in the throat. While these sounds are not made for the purpose of informing others of states of feeling, yet they do convey to man and beast an idea of what is going on. So the lower animals accidentally, if you please, have a sort of language. It is instinctive and conveys no intelligence not immediately connected with the present state of the speaker or his community.

Marcgrave says he has frequently seen the meetings held by the Ouarine Monkeys and enjoyed their deliberations. "Every day they assemble in the woods to receive instructions. One takes the highest place on the tree and makes a signal with his hand for the rest to sit round. As soon as he sees them placed he begins his discourse in a loud and precipitate voice; the rest preserve a profound silence. When he has done he makes a sign with his hand for the rest to reply. At that instant they raise their voices together, until by another signal silence is enjoined."

Professor Garner has studied simian speech so carefully that he is able to converse with Monkeys to a limited extent. He says they have words for "food" and "drink," have a spoken salutation, and can distinguish numbers up to about three, and have some notion of music. "In brief, they appear to have at least the raw material out of which are made the most exalted attributes of man."

Aristotle noticed that voices vary with conditions when he gravely announced that the Calf

affords the only instance in nature where the voice of the young is deeper and graver than that of its parent. Wild animals frequently change their voices on domestication. Domestic Dogs and even tame Jackals have learned to bark, which is a noise not proper to any species of the genus, with the possible exception of the *Canis latrans* of North America. Columbus discovered that Dogs left by him on an island where there was no game nor any other occasion for barking lost their voices completely before he visited them on a subsequent voyage. Some breeds of domestic Pigeons coo in a new and quite peculiar manner not manifested in their wild state.

The same species of birds living in different localities sometimes have different vocal habits. An excellent observer says an Irish covey of Partridges spring without uttering a call, while, on the opposite coast, the Scotch covey accompany their springing with intense shrieks. Bechstein says that from many years of experience he is certain that in the Nightingale a tendency to sing in the middle of the night or in the day runs in families and is strictly inherited.

As the Parrot acquires human language by association with unfeathered bipeds, so do many voices modify themselves as circumstances alter, and the particular sound which one day may [Pg 203] accompany and express fright or anger may be laid aside for another more suitable to new conditions, much as a man uses different sounds in asking for butter at a French restaurant and in a German inn. And while it is probably not true that speech was given for the purposes of communicating with others, it has occurred in nature that speech has become the principal means of transmitting ideas.

An old Goose had her nest in the kitchen of a farmer. She had been endeavoring for a fortnight to hatch some eggs, but was taken ill rather suddenly and found she could not finish the task. With evident agony she repaired to an outhouse where was a Goose of but one year's growth. In some way she told the young sister that her valuable mission was about to be interrupted ere its fulfillment and implored her to become her successor. So complete was the communication between them that the young one entered the kitchen and took her place, with evident maternal pride, remaining there till the eggs were hatched and afterwards caring assiduously for the welfare of the Goslings. The old Goose expired contentedly before incubation was complete.

A gentleman who visited London occasionally was usually accompanied by a small Dog. Nearing the city, he put up at an inn and left the Terrier there to await his return. Once, as he came back from London, the Dog was not there. He had had a fight with a large Housedog and been so badly wounded that it was thought he would not recover. But after lying quietly for a couple of days he disappeared. About a week later he returned with a larger animal, sought his adversary, and by union of efforts gave him a terrible punishment. It was found that his coadjutor was a neighbor, and that the wounded animal must have traveled long to visit his friend, had been able to tell him of his sorrows, awaken his sympathies, and keep him enlisted in his cause all the while they were on their way to seek their enemy, and was no doubt able to congratulate his partner many times during the homeward journey on the success of their valorous enterprise.

Professor Morgan says: "I find that the sounds emitted by young Chicks are decidedly instinctive—that is to say, they are inherited modes of giving expression to certain emotional states. And some of them are fairly differentiated. At least six may be distinguished: First, the gentle, piping sound expressive of contentment—for example, when one takes the little bird in one's hand. A further low note, a sort of double sound, seems to be associated with extreme pleasure, as when one strokes the Chick's back. Very characteristic and distinct is the danger note. This is heard on the second or third day. If a large Humble-bee, or a black Beetle, or a big lump of sugar, or in fact anything largish and strange, be thrown to them this danger note is at once heard. Then there is the piping sound, expressive apparently of wanting something. It generally ceases when one goes near them and throws some grain, or even only stands near them. My Chicks were accustomed to my presence in the room, and generally were restless, and continuously made this sound when I left them. Then there is the sharp squeak when one seizes a Chick against its inclination. Lastly there is the shrill cry of distress, when, for example, one of them is separated from the rest. I have very little doubt that all of these sounds have a suggestive value of emotional import for the other Chicks. Certainly the danger-note at once places others on the alert, and the pleasure-note will cause others to come to the spot where the little bird is when the note is sounded."

A good story is told by H. B. Medlicott to show what ideas wild pigs can express in sounds. "In the early dawn of a gray morning I was geologizing along the base of the Muhair hills in South Behar, when all of a sudden there was a stampede of many Pigs from the fringe of a jungle, with porcine shrieks of *sauve-qui-peut* significance. After a short run in the open they took to the jungle again, and in a few minutes there was another uproar, but different in sound and in action; there was a rush, presumably of the fighting members, to the spot where the row began, and [Pg 204] after some seconds a large Leopard sprang from the midst of the scuffle. In a few bounds he was in the open, and stood looking back, licking his chaps. The Pigs did not break cover, but continued on their way. They were returning to their lair after a night's feeding in the plain, several families having combined for mutual protection; while the beasts of prey were evidently waiting for the occasion. I was alone, and though armed, I did not care to beat up the ground to see if in either case a kill had been effected. The numerous herd covered a considerable space, and the scrub was thick. The prompt concerted action must in each case have been started by a special cry. I imagine that the first assailant was a Tiger, and the case was at once known to be hopeless, the cry prompting instant flight, while in the second case the cry was for defense. It can scarcely be doubted that in the first case each adult Pig had a vision of a Tiger, and the second of a Leopard or some minor foe."

The structure of throats that talk and sing varies greatly, and scientists have yet much to learn about the adaptations of forms to purposes. Agassiz gives the following clear description of the throats of birds: "The proper larynx is very simple, destitute of vocal chords, and incapable of producing sounds; but at the lower end of the windpipe there is a second or inferior larynx, which is very complicated in structure. It is a kind of bony drum, having within it two glottises, formed at the top of the two branches of the windpipe, each provided with two vocal chords. The different pieces of this apparatus are moved by peculiar muscles, the number of which varies in different families. In birds which have a very monotonous cry, such as the Gulls, the Herons, the Cuckoos, and the Mergansers, there is but one or two pairs; Parrots have three; and birds of song have five." But there are still further items regarding special uses that make the question hard to solve.

Some throats that have apparently the same structure as far as the scalpel and microscope can distinguish have marvelously different powers of delivery. MacGillivray has pointed out that the Rook and the Hooded Crow seem to have just as complex an apparatus for their sepulchral utterances as the Nightingale and the Blackbird. But where loudness of sound is required without regard to range and quality there are some notable conformations, as in the Whooping Crane and the Howling Monkey. This Monkey has large cavities communicating with the glottis, and the air reverberates as it passes the larynx so the most deafening noises are produced.

Birds sing and other animals yell, roar, and snort, not for love-making purposes, but rather because of the joy of life that is in these creatures, and it manifests itself in this way as well as in the gambols of the Lambkin or the antics of the Monkey. The voice of the Mule is the sweetest sound in the world—to some other Mule. But it is sweeter still to the Mule that makes the joyful sound. Placzeck notes that a bird frequently sings lustily when he knows himself to be entirely alone. "In the spring-time of love, when all life is invigorated, and the effort to win a mate by ardent wooing is crowned with the joy of triumph, the song reaches its highest perfection. But the male bird also sings to entertain his mate during the arduous nest-building and hatching, to cheer the young and, if he be a domesticated bird, to give pleasure to his lord and the Providence that takes care of him, and in doing so to please himself. Lastly, the bird sings—by habit, as we call it—because the tendency is innate in the organs of song to exercise themselves." In other words, animals have the apparatus for making noises provided them in their organs of breathing, and because they have them they use them and are delighted with them, each in his own kind. Finding them a source of joy unto themselves it is not to be wondered at that they employ their voices in their love-making because they feel that what pleases themselves so much must not be without effect upon their loved ones.

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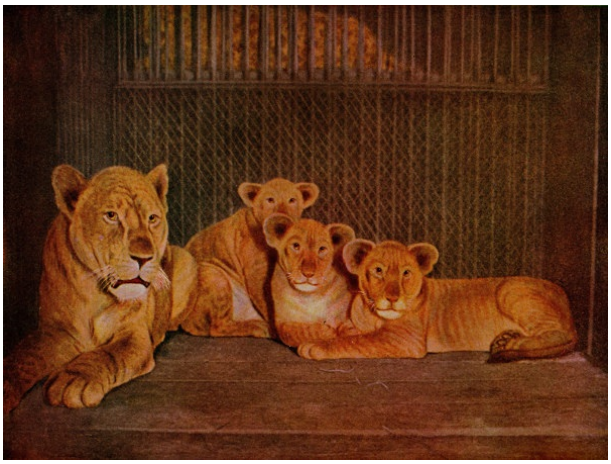

AFRICAN LION.

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THE AFRICAN LION.

Amid the far-off hills,
With eye of fire, and shaggy mane upreared,
The sleeping Lion in his den sprang up;
Listened awhile—then laid his monstrous mouth
Close to the floor, and breathed hot roarings out
In fierce reply.

—Edwin Atherstone. (1821)

THE common opinion of the Lion from the remotest times is that he is King of Beasts, and a single glance at his face of majesty is sufficient to make us accept it. His roar is terrific, and the fact is well known that all animals tremble at the mere sound of his voice. The effect of it on his subjects is said to be indescribable. "The howling Hyena is stricken dumb, though not for long; the Leopard ceases to grunt; the Monkeys utter a loud, gurgling sound and mount to the highest tree-tops; the Antelopes rush through the bushes in a mad flight; a bleating flock becomes silent; the laden Camel trembles and listens no longer to his driver's appeal, but throws load and rider off and seeks salvation in flight; the Horse rears, snorts, and rushes back; the Dog, unused to the chase, creeps up to his master with a wail." But it is said we must not think that the Lion lets his roar re-echo through the wilderness at all times. His usual sounds are a deep growl and a long-drawn tone, like the mewing of a giant Cat. His real roar is uttered comparatively seldom, and many people who have visited countries inhabited by Lions have never heard it. It is the only one of its kind, and is surpassed in fullness of tone by the voice of no living creature except the male Hippopotamus, according to Pechnel-Loesche. "The Arabs have a pertinent expression for it: '*raad*,' meaning thunder. It seems to come from the very depth of the chest and to strain it to the utmost."

This Lion is distributed all over Central and Southern Africa. They are regularly met with on the banks of the Blue and White Nile, and in the deserts of central and Southern Africa they are of common occurrence.

The Lion leads a solitary life, living with his mate only during the breeding season. Selous says that in South Africa one more frequently meets four or five Lions together than single specimens, and troops of ten or twelve are not extraordinary. His experience taught him that the South African Lion prefers feasting off the game some hunter has killed to exerting himself to capture his own prey. This is why he regularly follows nomadic tribes wherever they go; he regards them as his tributary subjects and the taxes he levies on them are indeed of the heaviest kind.

The Cubs are usually two or three and the Lioness treats them with great tenderness. They play together like Kittens. In well-managed zoological gardens Lions are now bred as carefully as Dogs; and even in circuses, where the animals have but little room and often insufficient nourishment, they are born and sometimes grow up. The cubs are at first rather clumsy. They are born with their eyes open and are about half the size of a Cat. Towards the close of the first year they are about the size of a strong Dog. In the third year the mane begins to appear on the male, but full growth and distinction of sex, according to Brehm, are only completed in the sixth or seventh year. Lions in captivity have lived to be seventy years old.

Brehm, who loved the Lion and was probably better acquainted with his habits than any other traveler, says: "The most prominent naturalists give the Lion credit for qualities which in my opinion include nobility enough. And whoever has become more closely acquainted with that animal; whoever has, like myself, intimately known a captive Lion for years, must think as I do; he must love and esteem it as much as a human being can love and esteem any animal."

A SYMBOL.

BY IRWIN RUSSELL. [1]

Over the meadow there stretched a lane,
Parting the meadow in segments twain;
And through the meadow and over the sod
Where countless feet had before him trod—
With a wall forever on either hand
Barring the lane from the meadow-land,
There walked a man with a weary face,
Treading the lane at a steadfast pace.

On before him, until the eye
To gauge the distance could no more try,
To where the meadow embraced the sky,
The lane still stretched, and the walls still barred
The dusty lane from the meadow sward.
He paid no heed to the joyous calls
That came from men who had leaped the walls—
Who paused a moment in song or jest,
To hail him "Brother, come here and rest!"
For the Sun was marching toward the West,
And the man had many a mile to go,
And time is swift and toil is slow.

The grassy meadows were green and fair
Bestudded with many a blossom rare,
And the lane was dusty, and dry, and bare;
But even there, in a tiny shade
A jutting stone in the wall had made,
A tuft of clover had lately sprung—
It had not bloomed for it yet was young—
The spot of green caught the traveler's eye,
And he plucked a sprig, as he passed by;
And then, as he held it, there came a thought
In his musing mind, with a meaning fraught
With other meanings.

"Ah, look!" said he,
"The spray is one—and its leaves are three,
A symbol of man, it seems to me,
As he was, as he is, and as he will be!
One of the leaves points back, the way
That I have wearily walked to-day;
One points forward as if to show
The long, hard journey I've yet to go;
And the third one points to the ground below.
Time is one, and Time is three:
And the sign of Time, in its Trinity—
Past, Present, Future, together bound
In the simplest grass of the field is found!
The lane of life is a dreary lane
Whose course is over a flowery plain.
Who leaps the walls to enjoy the flowers
Forever loses the wasted hours.
The lane is long, and the lane is bare,
'Tis tiresome ever to journey there;
But on forever the soul must wend—
And who can tell where the lane will end?"

The thought was given. Its mission done,
The grass was cast to the dust and sun;
And the sun shone on it, and saw it die
With *all three leaves* turned toward the *sky*.

[1] Died in 1878. The Century Co. published a small volume of his poems a few years ago. This poem has never before been printed.—Ed.

From col. Chi. Acad. Sciences.

CACTI.
½ Life-size.

THE CACTUS.

PROF. W. K. HIGLEY.

BECAUSE the Greeks in olden times applied the word Cactus to a prickly plant, Linnæus, often called the Father of Botany, gave the same name to our wonderful American growth and since his time these strange and varied plants have borne this nomenclature.

We can hardly imagine any group of plants more interesting. There are over eight hundred varieties of curious and unexpected forms, bearing tubular or rotate flowers most varied in size and color—white, pink, purple, yellow, crimson, deep red—all beautiful and fascinating, and in our Northern country, protected in the conservatories. The Night-blooming Cereus is most renowned, most admired of all.

The Cacti are commonly found in the United States, in Mexico, and in South America, and some species are cultivated on the borders of the Mediterranean Sea, where the fruit is eaten.

They vary in size from an inch or two in height to enormous growths of fifty or sixty feet (*Cereus giganteus*) which stand like telegraph poles, sometimes nearly bare, sometimes with many vertical branches, reminding one of a huge candelabrum. Then again some forms are nearly spherical, while others are long, jointed, and square, one species (*Echinocactus visnaga*) grows about nine feet in height with a diameter of three feet or more and a single plant of this species will sometimes weigh a ton. One of our most common forms is flat and broad. This, the Prickly Pear or Indian Fig (*Opentia Vulgario*), is the only species found as far north as Wisconsin and New York.

As many of the Cacti require but little care, they are quite extensively cultivated, not only for the rare beauty of their flowers, but for economic purposes. However, nearly all are worthy of culture because of their peculiar forms.

In structure they are fitted for growth in the most arid regions; they abound in the deserts of New Mexico and southward, in many cases obtaining their food from a soil in which no other plant will grow, their thick coats enabling them to retain moisture and vitality for many weeks. Specimens of the Prickly Pear have been known to grow after lying on a dry floor, in a closed room, for six months and they have blossomed when left in this condition for some time.

These plants, which are more or less succulent, are usually protected from the ravages of animal life by a formidable array of spines and prickles. Those who have carelessly handled our common Prickly Pear can attest to the intensely irritating character of its defensive armor. Thus does nature provide for the care of its otherwise defenseless forms.

A form of the Prickly Pear (*Opuntia coccinellifera*) is cultivated in Mexico for the purpose of raising the Cochineal insect (*Coccus cacti*) which feeds upon it. Some of these plantations contain as many as 50,000 plants. The females are placed on the Cactus in August and in about four or five months the first gathering of the Cochineal takes place, being then ready for the market.

There are many other interesting uses to which these plants are put. When suffering from thirst animals will tear off the hard outer fibers and eagerly devour the moist, juicy interior of the stems. The Moki Indian basket makers use the fiber in their work. This they dye different colors and wind around the foundations, giving strength and beauty. The spines of one species (*Echinocactus visnaga*) are used by the Mexicans as toothpicks. It has been estimated that a single plant may bear upward of 50,000 spines.

A unique and beautiful sight was a group of Cacti blooming in a Colorado garden, where the owner had spent much time and expense in gathering together many varieties, and one was made to realize how remarkable a thing Nature had lavished upon us: for, as Mr. Grant Allen has said: "The Cactuses are all true American citizens by birth and training, and none of them are found truly indigenous in any part of the Old World."

MYTHS AND THE MISTLETOE.

On Christmas Eve the bells were rung;
On Christmas Eve the chant was sung;
That only night in all the year
Saw the stoled priest the chalice near;
The damsel donned her kirtle sheen;
The hall was dressed with Holly green;
Forth to the woods did merry men go
To gather in the Mistletoe.

THE Mistletoe, particularly that which grows on the Oak, was held in great veneration by the Britons. At the beginning of their year the Druids went in solemn procession into the forests, and raised a grass altar at the foot of the finest Oak, on which they inscribed the names of those gods which were considered the most powerful. After this the chief Druid, clad in a white garment, ascended the tree and cropped the Mistletoe with a consecrated golden pruning-hook, the other Druids receiving it in a pure, white cloth, which they held beneath the tree. The Mistletoe was then dipped in the water by the principal Druid and distributed among the people as a preservative against witchcraft and disease. If any part touched the ground it was considered an omen of some dreadful misfortune.

In the Eddas of mythological Norse lore, Loke, the evil spirit, is said to have made the arrow with which he wounded Balder (Apollo), the son of Friga (Venus), of a branch of Mistletoe. Balder was charmed against everything which sprang from fire, earth, air, and water, but the Mistletoe, springing from neither of these, was fatal, and Balder was not restored to the world till by a general effort of the other gods. In some parts of Germany and Switzerland it is believed that by holding in the hand a branch of Mistletoe one will be enabled not only to see, but to converse with departed spirits.

The Druids, partly because the Mistletoe was supposed to grow only on the Apple tree and the Oak, and also on account of the usefulness of the fruit, paid great attention to its cultivation. Many old rites and ceremonies, in connection with the Apple, are practiced to this day in some parts of England. On Christmas Eve the farmers and their men take a huge bowl of cider, with a smoking piece of toasted bread in it and, carrying it to the orchard, salute the Apple trees with great ceremony, in order to make them bear well next season.

The wassail bowl drank on Christmas Eve, and on other church festivals, was compounded of old ale, sugar, nutmegs, and roasted apples, of which each person partook, taking out an apple with a spoon and then a deep draught out of the bowl.

Under the Mistletoe of Christmas, the custom of kissing has been handed down to us by our Saxon ancestors, who, on the restoration of Apollo, dedicated the plant to Venus, the Goddess of Love and Beauty. It was placed entirely under her control, thus preventing its ever again being used against her in future ages.—*E. K. M.*

From col. Chi. Acad. Sciences.

FLYING SQUIRREL.
½ Life-size.

THE FLYING-SQUIRREL.

WITH the exception of Australia, Squirrels are found in all parts of the globe; they extend tolerably far north and are found in the hottest parts of the South. As a family they are lively, quick, and nimble in their movements, both in trees and upon the ground, Flying Squirrels alone being ill at ease when upon the surface of the earth. In compensation for this, however, they are possessed of a faculty which enables them to make exceedingly long leaps, which they take in an obliquely descending direction.

The nocturnal Flying Squirrels, says Brehm, differ from the diurnal Tree Squirrels mainly in having their fore and hind legs connected by a wide flying-membrane. This membrane acts as a parachute, and enables them to execute considerable leaps with ease, in an inclined plane from above downward. This membrane consists of a stout skin, extending along both sides of the body, thickly grown with hair on the upper side, while the lower one shows but a scanty covering. A bony spur at the first joint of the fore-legs gives especial strength to the membrane. The tail serves as an effective rudder and is always vigorous, though it is not of the same conformation in the different species, one group having it simply bushy, while the other has the hair on it arranged in two lateral rows. There are also slight differences in the structure of the teeth.

The Flying Squirrel of North America, Assapan, is next to the smallest variety of the whole species, the Jaguan, or East Indian, being the largest, nearly equaling a cat in size.

The fur of the North American Flying Squirrels is exceedingly soft and delicate. In captivity they suffer themselves, by day, to be gently handled, making no effort to bite with their little sharp teeth as other Squirrels do. Overcome with sleep they lie curled up in their cage, as much hidden from view as possible, rarely bestirring themselves before nine o'clock at night. Then, "on the upper edge of the sleeping-box, which one must give them as a substitute for their nest, a round little head becomes visible; the body follows and soon one of the little creatures sits on the narrow edge of the box in a graceful Squirrel-like attitude, the flying membrane half folded against its body, half hanging down in a soft curve. The small, expanded ears move back and forth as does the bewhiskered muzzle, and the large, dark eyes inquisitively scan the cage and surroundings. If nothing suspicious is visible, the Assapan glides down like a shadow, always head first, whether the plane be inclined or vertical, without any noise, without a perceptible movement of the limbs, the greater part of which is covered with the membrane. It proceeds on the woven ceiling of the cage, back downward, as if it walked on level ground; it rope-dances over thin twigs with unsurpassed precision and agility at a uniform speed; spreading its membrane to the full, it darts through the whole space of the cage like an arrow, and the next instant seems glued to the perch, without having made an effort to regain its balance.

During all this moving about it picks up a crumb, a nut, a grain of meat from its dish; drinks, sipping more than it laps, washes its head with saliva, combs its hair with the nails of its fore-feet, smooths it with the soles of its small paws, turning, stretching, stooping all the while, as if its skin were a bag in which its body sits quite loosely.

After hunger and thirst are somewhat appeased, and the toilet over, a playful humor succeeds. Up and down, head upward or inverted, along the ceiling, or the floor, running, jumping, gliding, soaring, hanging, sitting, rushing ahead as if it could move a thousand joints at once, as if there were no such thing as gravity to be overcome."

HUMMING-BIRDS.

IF these exquisite little creatures are called Humming-birds, you little folk may ask, why wasn't the Bee called a Buzzard because it buzzes?

Well, really, that is a question which I will not attempt to answer, but the fact remains that no other name would have been so appropriate for these jewel-like birds but the one above, on account of the humming sound which they produce when hovering in their curious fashion over a tempting blossom, and feeding on its contents while suspended in air.

There are four hundred and sixty-seven species of these little birds, and no two of them, 'tis said, make precisely the same sound, one producing a noise exactly like the whizzing of a wheel driven by machinery, while that of another is very like the droning hum of a large Bee. But no two voices in even one human family, you know, are alike, so it is not amazing that the rule holds good among the birds.

You can capture and tame these lovely little creatures, too, though I wouldn't advise you to keep them in a cage very long. They will pine away and look very doleful if you do. Rather, after you have accustomed them to your presence, and fed them regularly upon the honey and syrup and other sweets which they dearly love, open the cage door and give them their liberty. A gentleman once did this and was delighted to see them return to their old quarters in a very little while. By watching them the next morning after setting them free again, he found they had been pining for a nice fresh garden Spider which they had been accustomed to daintily pick from the center of his web. He had provided them with Spiders and Flies, but they wanted to flit about and search for themselves. For dessert they liked the sweets which he gave them, so back they went to their cage, instead of extracting it from the flowers with their long bills, as they were wont to do.

A Humming-bird one summer built its nest in a butternut tree very near a lady's window. She could look right down into its nest, and one day, as it began to rain, she saw the mother-bird take one or two large leaves from a tree near by and cover her little birdlings with it. She understood how to make an umbrella, didn't she?

[Pg 218]

From col. Chi. Acad. Sciences.

HUMMING-BIRDS. Life-size.

[Pg 219]

"Minutest of the feathered kind,
Possessing every charm combined,
Nature, in forming thee, designed
That thou shouldst be

"A proof within how little space
She can comprise such perfect grace,
Rendering thy lovely fairy race
Beauty's epitome."

IT has been said that what a beautiful sonnet is to the mind, one of these fairy-like creations is to the eyes. This is true even in the case of mounted specimens, which must necessarily have lost some of their iridescence. Few can hope to see many of them alive. The gorgeous little birds are largely tropical, the northern limit of their abundance as species being the Tropic of Cancer. They are partial to mountainous regions, where there is diversity of surface and soil sufficient to meet their needs within a small area. The highlands of the Andes in South America are the regions most favored by a large number of species. They are most abundant in Ecuador, the mountain heights affording a home for more than one hundred species. Columbia has about one hundred species; Bolivia and Peru claim about ninety-six; then follow, in consecutive order, Central America, Brazil, Venezuela, Mexico, Guiana, the West Indies, and the United States.

The eastern part of the United States has but one representative of the Humming-bird family, and only seventeen species have been found within the limits of the country. As ten of these really belong to the Mexican group, we can claim ownership of only seven, most of which, however, migrate far south in winter. Only one of these, the Anna, spends the winter in the warm valleys of California.

Most of the Hummers are honey-lovers, and they extract the sweetest juices of the flowers.

The "soft susurrations" of their wings, as they poise above the flowers, inserting their long beaks into tubes of nectar, announce their presence. Some of the Warblers and Kinglets will sometimes poise in this way before a leaf and peck an insect from its surface, but it is not a regular habit with them. The Hummer's ability to move backwards while on the wing is one of the most wonderful features of its flight, and this movement, Mr. Ridgway says, is greatly assisted by a forward flirt of the bird's expanded tail.

The nests of the Humming-birds are of cup-shape and turban-shape, are composed chiefly of plant-down, interwoven and bound together with Spider webs, and decorated with lichens and mosses. Usually the nest is saddled upon a horizontal or slanting branch or twig, but that of the Hermit Hummer is fastened to the sides of long, pointed leaves, where they are safe from Monkeys and other predaceous animals.

"Dwelling in the snowy regions of the Andes are the little gems called Hill-stars," says Leander S. Keyser, "which build a structure as large as a man's head, at the top of which there is a small, cup-shaped depression. In these dainty structures the eggs are laid, lying like gems in the bottom of the cups, and here the little ones are hatched. Some of them look more like bugs than birds when they first come from the shell. The method of feeding the young is mostly by regurgitation; at least such is the habit of the Ruby-throat, and no doubt many others of the family follow the fashions of the Humming-bird land. The process is as follows: The parent bird thrusts her long bill far down into the throat of her bantling, and then, by a series of forward plunges that are really terrible to witness, the honey food is pumped from the old bird's craw into that of the youngster. So far as is known the babies enjoy this vigorous exercise and suffer no serious consequences from it."

CHRISTMAS TREES.

FRED. A. WATT.

OUR Christmas tree is a relic of the old heathen times and came down to us as a part of the Yule festival. It seems to have originated in Germany and can be traced back as far as the year 1604 with certainty, and as it was an established custom at that time it is evidently much older.

How the early man conceived the idea is open to dispute, but in my opinion it is due to an old superstition which has some believers even to this day. It is said that any maid who is not kissed under the Mistletoe at Christmas will not be married during the year following. I have no doubt that the anxiety of the young ladies to be always found under the Mistletoe on that day has led to the profuse green decorations, from which it is only a step to the Christmas tree.

It was introduced into the Court of St. James in 1840 by Prince Consort Albert of Saxe-Cobourg, and the custom spread rapidly through the aristocratic families of London and was almost immediately adopted by all classes throughout England.

It was introduced into the court at Paris in 1830 by the Duchess of Orleans and is now a French custom.

It seems, however, that in our own country it has taken deepest root. Here, by reason of the democratic nature of the people, it may be said to be distinctively American, as the German who first introduced it undoubtedly became an American citizen long ago and his successors are probably numbered among our best citizens even to the present time. Our people of all nationalities have adopted it and we find it installed in our churches, our family gatherings, our schools, and private clubs. Our nineteenth century inventor has even tried to change it into an affair of cast iron, through whose hollow trunk and branches gas pipes are conducted and gas jets among the branches take the place of candles. One of the results of all this is that the demand for Christmas trees and Christmas greens has grown to enormous proportions in our larger cities and furnishes employment during the latter part of September and through November and December to a number of people who make a business of gathering the gay green branches and transporting them to market.

While traveling through the southern part of Maine a few years ago, I was struck by the symmetry and beauty of a tract of Evergreen Trees and remarked that they would make good Christmas trees. I afterward found that such was likely to be their fate, as men who make a business of "clam-whopping" and fishing during the summer months turned their attention during the fall to the business of gathering these trees and shipping them to New York, Philadelphia, and Boston.

In looking the subject up to determine what became of all these Trees I found an industry which I had not dreamed of. I find that the Christmas greens for New York City were first shipped from Keyport, N. J. That as the demand for them assumed larger proportions the raw material was exhausted in that neighborhood, but the inhabitants having become interested in the business, and finding it a source of profit, have continued to advance into the surrounding country, little by little, until now they are gathering Spruce from Maine, New Hampshire, and Vermont, Princess Pine from Vermont, White Pine from Michigan and even Wisconsin, Laurel and Holly from the South, and in fact they can now gather only Balsam on the home grounds in paying quantities.

In addition to the above-named evergreens, quantities of Ground Pine, Cape Flowers, Fir, Hemlock, the plants of the Club Mosses, berried Black Alder, Quill Weed, and Mistletoe are sought out and gathered wherever found and shipped—the Christmas trees to New York where they lie piled up by thousands along West street facing the dock lines, for several weeks before the holidays, and the other greens to Keyport and vicinity where they are made up into stars, [Pg 221] anchors, crosses, wreaths, hearts, triangles, horseshoes, and miles of roping for decorative purposes.

For the entire length of Monmouth county the families within a mile of the bay shore are nearly all engaged in the business of making these decorations at this season. Four miles from Keyport is the town of Keansburg which now surpasses the former place in this industry. Neighbors are referred to as "making" or "not making" and numbers of new faces appear in the town, attracted by the industry from the north, south, and west. The wages paid are not high but anyone who can "make" can always find a position during the busy season.

The small villages along this strip of country now present a pretty appearance. The houses are almost hidden behind stacks of evergreens of all kinds. A peep into a detached summer kitchen will disclose a group of girls gathered around a long table piled high with evergreens, and at first glance they appear to be principally engaged in pleasant conversation, but you will not have to watch them long before you are aware that their busy fingers are turning out Christmas decorations at an astonishing rate. Or, if you should happen to look in at night, you might see the tables and evergreens pushed to one side and gay groups of girls and young boat-builders, oystermen, and fishermen engaged in a lively neighborhood dance.

Materials other than evergreens are used in this industry to a considerable extent; laths are used to make frames for the stars and crosses. Willows are gathered in quantities from the marshes with which frames for wreaths are made, but the trade in rattan is probably the most benefited,

as nothing else will give such satisfaction in making the frames for hearts, anchors, and other decorations of this kind.

The completed decorations are shipped to New York, Philadelphia, and Boston, but not to Chicago. In Chicago we find a different state of affairs. We are so near the evergreen forests of Wisconsin, where Christmas trees may be had for practically nothing, that the cost of transportation alone from New Jersey would be greater than the price realized would amount to.

Numbers of hulks of condemned vessels lie in and around Chicago which are practically worthless. These boats are taken in the fall by seamen who are out of employment up along the Wisconsin coast and there loaded with evergreens, are brought back to the Chicago river and docked, and lie there until the load is disposed of to the holiday trade. The decorations are mainly manufactured in the city in the store-rooms of the dealers.

That the business of bringing these trees down from the north is not without serious danger and hardship is evidenced by the wreck of the schooner S. Thal, which occurred off the coast near Glencoe, Ill., a short time ago, in which five lives were lost. Five lives yielded up that our children may enjoy an hour of pleasure!

Do they ever think of the cost?

A WINTER'S WALK.

Gleamed the red sun athwart the misty haze
Which veiled the cold earth from its loving gaze,
Feeble and sad as hope in sorrow's hour—
But for thy soul it still hath warmth and power;
Not to its cheerless beauty wert thou blind;
To the keen eye of thy poetic mind
Beauty still lives, though nature's flowrets die,
And wintry sunsets fade along the sky!
And naught escaped thee as we strolled along,
Nor changeful ray, nor bird's faint chirping song.
Blessed with a fancy easily inspired,
All was beheld, and nothing unadmired;
From the dim city to the clouded plain,
Not one of all God's blessings given in vain.

—*Hon. Mrs. Norton.*

THE SILK-WORM.

THE Caterpillar, or Silkworm, is at first of a dark color, but soon becomes light, and in its tints much resembles the perfect insect—a circumstance common in Caterpillars. Its proper food is the Mulberry, though it will likewise eat the Lettuce, and some few other plants, on which, however, it does not thrive equally well, and the silk yielded is of a poor quality.

The Silkworm is about eight weeks in arriving at maturity, during which period it changes its skin four or five times. When about to cast its skin it ceases to eat, raises the forepart of the body slightly, and remains in perfect repose. In this state it necessarily continues for a time, in order that the new skin, which is at this time forming, may become sufficiently mature to enable the Caterpillar to burst through the old one. This operation is performed thus: The forepart of the old skin is burst; the Silkworm then, by continually writhing its body, contrives to thrust the skin back to the tail and disengage itself; this is difficult, however, since it is no uncommon occurrence for them to die from not being able to free themselves.

When full grown the Silkworm commences spinning its web in some convenient spot, and as it does not change the position of the hinder portions of its body much, but continues drawing its thread from various points, and attaching it to others, it follows that after a time its body becomes, in a great measure, enclosed by the thread. The work is then continued from one thread to another, the Silkworm moving its head and spinning in a zig-zag way, bending the forepart of the body back to spin in all directions within reach, and shifting the body only to cover with silk the part which was beneath it. In this way it encloses itself in a cocoon much shorter than its own body. During the time of spinning the cocoon the Silkworm decreases in length considerably, and after the work is done it is not half its original length. At this time it becomes quite torpid, soon changes its skin, and appears in the form of a chrysalis. In this state the animal remains about three weeks; it then bursts its case and comes forth in the imago state, the moth having previously dissolved a portion of the cocoon by means of a fluid which it ejects. The moth is short lived; the female in many instances dies almost immediately after she has laid her eggs; the male survives her but a short time.

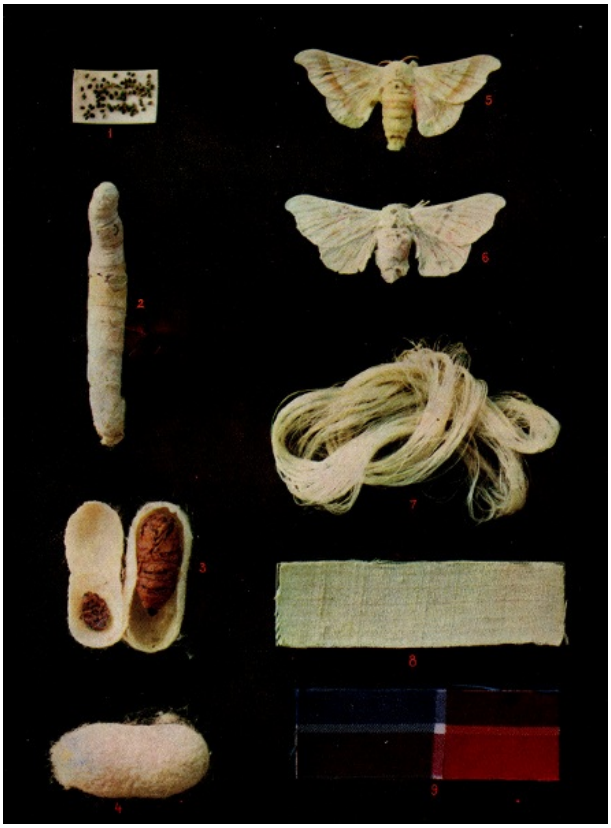
China was the first country in which the labors of the Silkworm were availed of, and Aristotle was the first Greek author who mentions it. It was not until the fifteenth century that the manufacture of silk was established in England. The raising of Silkworms in the United States has been attempted with success in the Southern States, and especially in California. As the Silkworms in Europe are affected by disease, immense quantities of eggs are sent from this country.

Reeling from the cocoons is only performed in countries where the silk is produced. In plain silk-weaving the process is much the same as in weaving wool or linen, but the weaver is assisted by a machine for the even distribution of the warp, which frequently consists of eight thousand separate threads in a breadth of twenty inches. The Jacquard loom, invented by a weaver of Lyons, has been the means of facilitating and cheapening the production of fancy or figured silks to an extraordinary extent.

The Pan-American delegates during their tour through this country were presented with silk flags by the Woman's Silk-Culture Association of Philadelphia. The flags were made from material produced in the United States.

The eggs from which our photograph was taken are "live eggs," and if properly handled will hatch out in the spring. In order to bring about this result care must be taken that they do not become too warm; freezing will not hurt them, but heat or dampness will cause them to hatch or spoil.

Forty thousand eggs weigh about one ounce, and when hatched will produce about one hundred pounds of fresh cocoons.



Life-size.

No. 1—Silkworm eggs. No. 2—Fourth-stage Worm. No. 3—Pupa in Cocoon. No. 4—Cocoon. No. 5—Male Moth. No. 6—Female Moth. No. 7—Unspun Silk. No. 8—Raw Manufactured Silk. No. 9—Manufactured Silk

ANIMALS' RIGHTS.

That there is pain and evil, is no rule
That I should make it greater, like a fool.
—*Leigh Hunt.*

Never to blend our pleasure or our pride
With sorrow of the meanest thing that feels.
—*Wordsworth.*

A GOOD man," said Plutarch, "will take care of his Horses and Dogs, not only while they are young, but when old and past service."

The organs of sense, and consequently feeling itself, are the same as they are in human creatures. I can't imagine how a man not hardened in blood and massacre is able to see a violent death, and the pangs of it, without concern.—*Bernard de Mandeville, 1723.*

However we may differ as to speculative points of religion, justice is a rule of universal extent and invariable obligation. See that no brute of any kind, whether intrusted to thy care or coming in thy way, suffer through thy neglect or abuse. Let no views of profit, no compliance with custom, and no fear of the ridicule of the world, even tempt thee to the least act of cruelty or injustice to any creature whatsoever. But let this be your invariable rule everywhere, and at all times, to do unto others as, in their condition, you would be done unto.—*Humphry Primatt, D. D., 1776.*

But a full-grown Horse or Dog is, beyond comparison, a more rational, as well as more conversable animal than an infant of a day, a week, or even a month old. But suppose the case were otherwise, what would it avail? The question is not, Can they *reason*? nor, Can they *talk*? but, Can they *suffer*?—*Jeremy Bentham, 1780.*

Animals are endued with a capability of perceiving pleasure and pain; and from the abundant provision which we perceive in the world for the gratification of their several senses, we must conclude that the Creator wills the happiness of these his creatures, and consequently that humanity towards them is agreeable to him, and cruelty the contrary. This, I take it, is the foundation of the rights of animals, as far as they can be traced independently of scripture, and is, even by itself, decisive on the subject, being the same sort of argument as that on which moralists found the Rights of Mankind, as deduced from the Lights of Nature.—*Thomas Young, 1798.*

The claims of the lower animals to humane treatment, or at least to exemption from abuse, are as good as any that man can urge upon man. Although less intelligent, and not immortal, they are susceptible of pain; but because they cannot remonstrate, nor associate with their fellows in defense of their rights, our best theologians and philosophers have not condescended to plead their cause, nor even to make mention of them; although, as just asserted, they have as much right to protection from ill-usage as the best of their masters have.—*W. Youatt, 1839.*

There is a moral as well as a physical character to all animal life, however humble it may be—enveloped indeed in obscurity, and with a mysterious solemnity which must ever belong to the secrets of the Eternal. Let us then approach with caution the unknown character of the brute, as being an emanation from Himself; and treat with tenderness and respect the helpless creatures derived from such a source.—*Ralph Fletcher, 1848.*

THE CALIFORNIA VULTURE.

Among the crags, in caverns deep,
The Vulture rears his brood;
Far reaching is his vision's sweep
O'er valley, plain, and wood;
And wheresoe'er the quarry lies,
It cannot 'scape his peering eyes.
The traveler, from the plain below,
Sees first a speck upon the sky—
Then, poised on sweeping wings of woe,
A Vulture, Bat-like, passes by.

C. C. M.

DOCTOR BREWER states that the single species composing this very distinct genus belongs to western North America, and, so far as known, has the most restricted distribution of all the large raptorial birds in the world. It is found on the coast ranges of southern California from Monterey Bay southward into Lower California. It has become very much reduced in numbers and extinct in localities where it was formerly abundant, which is doubtless due to the indiscriminate use of poison which is placed on carcasses for the purpose of killing Wolves, Bears, Lynxes, Cougars, and other animals which destroy Sheep, Calves, and other cattle of the stockmen. Davie says it is more common in the warm valleys of California, among the almost inaccessible cliffs of the rough mountain ranges running parallel with the Sierra Nevadas for a hundred miles south of Monterey. It associates with the Turkey Buzzard, and the habits of both species are alike, and they often feed together on the same carcass.

The Vulture's flight is easy, graceful, and majestic. A writer who watched one of these gigantic birds thus pictures it: "High in air an aeronaut had launched itself—the California Condor. Not a wing or feather moved, but resting on the wind, like a kite, the great bird, almost if not quite the equal of its Andean cousin, soared in great circles, ever lifted by the wind, and rising higher and higher into the empyrean. Not a motion of the wing could be seen with careful scrutiny through the glass, but every time the bird turned and faced the wind it seemed to bound upward as though lifted by some super-human power, then bearing away before it, gathering the force or momentum which shot its air-laden frame higher and higher until it almost disappeared from sight—a living balloon."

The ordinary California Buzzard and the singular Ravens of Santa Catalina Island often give marvelous exhibitions of soaring or rising into the air without moving their wings, and when it is remembered that their bodies are reduced to a minimum of weight, and that even the bones are filled with air, it is almost scientifically and literally true that they are living balloons. And yet the weight of the Vulture is sometimes twenty-five pounds, requiring immense wings—eight and a half to eleven feet from tip to tip—to support it.

Mr. H. R. Taylor, of the late *Nidologist*, says there have probably but three or four eggs of the California Vulture been taken, of which he has one. The egg was taken in May, 1889, in the Santa Lucia Mountains, San Luis Obispo County, California, at an altitude of 3,480 feet. It was deposited in a large cave in the side of a perpendicular bluff, which the collector entered by means of a long rope from above. The bird was on the nest, which was in a low place in the rock, and which was, the collector says, lined with feathers plucked from her own body. This assertion, however, Mr. Taylor says, may be an unwarranted conclusion. From the facts at hand, it appears that the California Condor lays but a single egg.

The Condor is not an easy bird to capture, for it has a fierce temper and a powerful beak. An unusually large one, however, was recently taken in Monterey County, California. To catch the mighty creature William J. Barry made use of a lasso, such as ranchmen have with which to round up obstreperous cattle. The strength of one man was barely sufficient to imprison it. It is said that the appetite of the bird was not affected by its loss of liberty.

From col. F. M. Woodruff.

CALIFORNIA VULTURE.
⅕ Life-size.

A GAMELESS COUNTRY.

THE West Indian Archipelago, with its four islands and numberless islets, is called the gameless country, because in a region of more than 100,000 square miles there are no Monkeys, Bears, Raccoons, Wild Hogs, Jaguars, Pumas, Panthers, Lynxes, Wild Cats, Foxes, Wolves, or Jackals. There is not even a Woodchuck to be dug out of the many caves. Dogs and Cats, too, are unknown, and this lack of household pets seems to have driven the aborigines to expedients, for in a book called "Ogilvy's Voyages" there is a story told of a San Domingo native who kept a tame Manatee or Sea Cow that made its headquarters in an artificial pond, and was so well trained that when called by its name it would come out of the water, go to a neighbor's house and after receiving food return to the pond, accompanied by boys who seemed to charm it by singing, and it often carried two children on its back. Its instinct was wonderful. It was once struck by a pike in the hand of a Spaniard and after that always refused to come out of the water when there was a clothed man near.

Manatees are often seen northwest of Cuba in shoals, sporting about the reefs like Sea Lions. They are cunning creatures and can dodge the harpoon with more success than any other aquatic animal. The largest land animal of this strange territory is a huge Rat, measuring eighteen inches in length without the tail. With this exception, it is claimed, Cuba, Jamaica, San Domingo, and Porto Rico have no land animals.

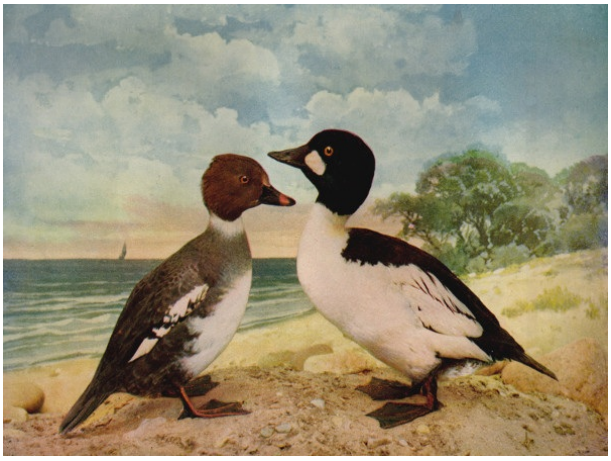
SNOWFLAKES.

Out of the bosom of the air,
    Out of the cloud folds of its garments shaken,
Over the woodlands brown and bare,
    Over the harvest fields forsaken,
        Silent, and soft, and slow,
            Descends the snow.

Even as our cloudy fancies take
    Suddenly shape in some divine expression,
Even as the troubled heart doth make
    In the white countenance confession,
        The troubled sky reveals
            The grief it feels.

This is the poem of the air,
    Slowly in silent syllables recorded;
This is the secret of despair,
    Long in its cloudy bosom hoarded,
        Now whispered and revealed
            To wood and field.

—*Longfellow.*



From col. Chi. Acad. Sciences. CHICAGO COLORTYPE CO., CHIC. & NEW YORK.

AMERICAN GOLDEN-EYE.
⅓Life-size.

THE AMERICAN GOLDEN-EYE.

We watch the hunters creeping near
    Or crouching in the silvery grasses;
Their gleaming guns our greatest fear,
    As high o'erhead our wild flock passes.

But we are of the air, and speed
    Like meteors dropping from the sky;
He's "the man behind the gun" indeed
    Who can fairly wing a Golden-eye.
—C. C. M.

FOR beauty this bird will compare favorably with any of the family except the Wood Duck, whose colors are more various and brilliant. Whistler is the name by which it is more commonly known, from the peculiar noise of wings made while flying. In spite of its short, heavy body and small wings, it covers immense distances, ninety miles an hour being the speed credited to it by Audubon, who, however, was not always accurate in his calculations. It is an abundant species throughout the fur countries, where it frequents the rivers and fresh-water lakes in great numbers. It breeds as far north as Alaska, where, on the Yukon, it nests about the middle of June. Like the Wood Duck, it makes its nest in hollow trees and decayed trunks. This consists of grass, leaves, and moss, lined with down from the bird's breast. The eggs are from six to ten in number, and ashy green in color.

The Golden-eye is a winter visitant to Illinois. On Long Island it is better known among the hunters as the "Whistler," and by others it is also called the "Great-head," from its beautifully rich and thickly crested head. On that island it is said to be a not very abundant species, arriving there in company with other migratory Ducks. Mr. Girand met with it in the fall and spring on the Delaware and in Chesapeake bay. Its food consists of small Shell and other Fish, which it procures by diving. In the fall the flesh of the Golden-eye is very palatable. It is very shy and is decoyed with great difficulty. In stormy weather it often takes shelter in the coves with the Scoup Duck, and there it may be more readily killed. Naturally the Golden-eye is chiefly seen in company with the Buffle-head, the Merganser, and other species that are expert divers like itself. When wounded, unless badly hurt, its power of diving and remaining under water is said to be so remarkable that it cannot be taken.

The Golden-eyes always have a sentinel on the watch to announce the approach of an enemy. They have been very little studied in their haunts. The word *Clangula* indicates in some degree the tone of their voices. They swim under water like fish, out of which they can bound upward and make off with prodigious speed.

GOLDEN ROD.

A lady who has lately been making a visit in the West was telling the other day about the forlorn aspect of the country out that way to her. "Even the Golden-rod," she said; "you can't imagine how scraggly and poor it looks, compared with our magnificent flowers along the road here. I wonder what makes the Western Golden-rod so inferior." The very next day there arrived at her house a relative whom she had been visiting when she was in the West. He sat on the veranda, and looked indulgently—even admiringly—at the landscape, and praised its elements of beauty. But as his eye ran along the roadside near by, he said: "But there is one thing that we are ahead of you in—you have no such splendid Golden-rod here as we have out West! The Golden-rod growing along that road, now, is tame and poor compared with ours." What a blessed thing it is that the gold of our own waysides is richer than the gold of all other waysides!

[Pg 233]

From coll. Mr. F. Kaempfer.

SKUNK.
⅖ Life-size.

THE AMERICAN SKUNK.

THIS little animal is distinctively American, the one figured being found only in North America. It has a beautiful jet-black fur, varied with a larger or smaller amount of white forming a stripe on each side of its body and head, and more or less of its tail. In some cases the white is reduced to a small "star" at the top of the head, and without doubt some specimens are entirely black, while occasionally a white specimen may be seen.

The fur of the Black Skunk is considered the best, and brings the highest price which decreases as the amount of white increases, the white ones being almost valueless. A slight unpleasant odor clings about the manufactured fur, which detracts much from its commercial value, although some dealers claim that this is never noticed when it is sold as "Alaska sable."

Another common name for the Skunk is Polecat. Though found in the woods, they prefer to inhabit grassy or bushy plains. During the day they lie sleeping in hollow trees or stumps, in clefts of rocks, or in caverns, which they dig for themselves; at night they rouse themselves and eagerly seek for prey. Worms, insects, birds, and small animals, roots and berries constitute their food.

The range of the Skunk is quite extensive, the animal being most plentiful near Hudson Bay, whence it is distributed southward.

It is slow in its movements, can neither jump nor climb, but only walk or hop. Knowing how formidable is its weapon of protection, it is neither shy nor cowardly.

The Skunk is a much respected animal, both man and beast preferring to go around him rather than over him, and many amusing anecdotes are related by hunters and naturalists, which lead us to believe that he does not always come out second best in an encounter. When in search of food he is so bold that he can be approached without difficulty, and he wears a look of innocence that effectually deceives the uninitiated, and brings about very unexpected results.

Hensel says that when it is pursued by dogs it lays its tail along its back like a sitting Squirrel, turns its hinder quarters towards the dogs and performs queer, angry, hopping antics, such as one sometimes sees in the cages of Bears. The attacked animal never wastes its secretion by unnecessary haste, but continues to threaten as long as the dogs are a few yards distant from it.

"Skunk Farming" cannot be said to be a growing industry, but there are a number of such "farms" in the northern and eastern states which are said to pay fairly well. A small plat of land is enclosed by a high board fence; stakes are driven into the ground close together under the fence so that the animals cannot burrow out. Small shelters are built in, some hay thrown in for nests, and the farm is ready for the skunks.

Skunks get very tame in captivity and tolerably well accustomed to their keeper, though great care is required not to irritate them. Hay is their favorite bed, on which they curl up like a ball. After eating, they wipe their snouts with their forepaws, being very cleanly, and they always keep their fur dainty and dressed. The fur is not very fine or soft, but it is valuable and in considerable demand.

BIRDS IN "THE ILIAD."

EMILY C. THOMPSON.

THE universe is so ordered that Birds are essential to the life of Man. To-day we believe this and value them accordingly. Years ago as well as now the birds held the same relation toward man but the latter did not then understand this relationship as we do in this age of scientific enlightenment. About twenty-eight hundred years ago, nine hundred years before the beginning of our era, a poet flourished in the East, or certain poets as some scholars maintain. He is supposed to have been a blind bard, who wandered around to the courts of the petty kings, sang his heroic lays and left them for our inheritance, and a noble inheritance it is to those who have the desire and will to go to the depth of the treasure. These poems tell of the people of that time and show us many sides of their life and the chief characteristics of their civilization.

One scarcely expects from a great poem, dealing with war and adventure, to gather information about birds. Yet it is there, but not so much scientific as ethical. Birds, they believed, were here on earth as the messengers of the gods. Rarely did a bird appear before them or raise a cry which did not do so by the direct command of some ruling divinity. Imagine with what anxiety these old Greek heroes watched for and listened to the heaven-sent messages. Great was the fear at certain omens, and great the rejoicing at others. As a rule only special men could interpret these signs and these men were of immense importance in a community. They were almost a priesthood in nature, as nearly so as any order which the people then possessed, for the priesthood was not developed at that time.

In the Iliad, at four of the critical points in the story a bird appears and shows the will of the gods to mortals. It is related that before the Greeks sailed to Troy, while the ships were yet assembled at Aulis, one of these omens occurred and was interpreted thus: Near the ships was an altar and by the altar stood a plane-tree, upon the bough of which a little bird had built its nest, and already within the nest were nine fledglings. Suddenly a serpent darted forth from beneath the altar straight toward the tree; the nine little birds were soon devoured and at last the serpent ended his feast by catching the mother which had flown crying about it. At once the serpent was turned into stone. This wonderful prodigy was shown by one of the prophets to mean that for nine years the Greeks would toil fruitlessly before Troy as the serpent had devoured the nine little birds; but in the tenth year they would seize the city.

The flight of birds was watched and upon this rested often the movements of whole armies. As the seer had foretold for nine years the Greeks had been fighting before the walls of Troy; their ships were drawn up on the shore of the sea and before them they had built a wall and dug a ditch for protection. The nine years had passed, the tenth year was already going by and never had the people from the beleaguered city dared to approach their ships. But now, after so many years, all was changed. The great hero of the Greeks, the great swift-footed Achilles, was angry and refused to fight for them and sat apart at the stern of his ship on the shore of the barren sea wearing out his heart with anger. Now the Trojans, never before so successful, had reached the wall and were encamped there for the night. The Greeks felt that it was necessary to send out spies to observe the movements of their foes. Diomede volunteered his services and chose Odysseus for his comrade. They crept away from their companions in the darkness but had gone only a few steps when the cry of a Heron was heard on their right. This meant good luck for them, for they knew that Athene, the protecting goddess of Odysseus, had sent this favoring sign, and it proved true, for their sally was prospered and they returned unharmed, having slain [Pg 237] thirteen of the enemy, and bringing as booty a noble pair of steeds, a prize in which all Greeks took delight.

Even in Homer we see the dawning of skepticism, a skepticism of which we approve and the sentiment of which we cannot but admire. The next day after the favorable sign of Athene to her favorite, after nine long years of terrible war the Trojans stand at the very edge of the ditch before the Greek ships. Hector their noble leader, a hero who may well inspire modern men to noble deeds of patriotism, stands at their head. One rush more, one impetuous dash through the ditch and against the wall, and the ten years' war may be ended with the weary Trojans victors. But at this critical moment a bird appears, it is the favorite bird in Homer and also the favorite bird with us, for it is our national bird, the Eagle. Homer calls it the bird that is surest to bring fulfillment with its omens and tells us that it belonged to mighty Zeus the thunderer, the ruler of gods and men. The bird appeared flying at the left. The people halted. A bird flying at the left meant disapproval. It held in its mouth a snake not yet dead, which, coiling its head, bit at the breast of the bird. The bite was effective, and with a sharp cry, the bird dropped the serpent at the feet of the awe-inspired Trojans and fled shrieking away. Well might the people halt. What was to be done, an onward move against such a portent, or a calm withdrawal when everything was in their favor? One of the common people declared that they must withdraw or death would come upon them. Then noble Hector with frowning brows answered him: "Polydamas, no longer do you speak words pleasing to me. You know how to speak another word better than this. If you speak this truly in earnest, the gods themselves have taken away your senses from you who bid me to forget the counsels of high-thundering Zeus, the promises he made me and the plans to which he nodded assent. You bid me put my trust in long-winged birds which I do not heed or regard at all, whether they fly to the right toward the sun and the dawn, or to the left toward the murky darkness. Let us trust the counselings of great Zeus who holds sway over gods and men. One bird is the best to defend one's fatherland."

In the last book of the Iliad in the sad scenes surrounding the death and burial of this hero we have again an omen. Priam, the aged, feeble man, determined to go to the strange, wrathful Achilles and beg for the body of his dear son Hector, which the swift-footed hero had been mutilating in his wrath, dragging it behind his chariot about the city walls. Priam was determined to go. His wife tried to dissuade him from such a dangerous undertaking, he bade her not to be a bird of ill omen in his halls, but she insisted, and finally persuaded him to pray to Zeus to send him an omen that his journey would be successful. He prayed; thereupon an Eagle appeared flying at his right. Hecuba was now satisfied and the old lord of windy Troy started out on his errand of love. The omen was true this time for he did persuade the heart of Achilles and returned to his city with the remains of his son.

There are other instances of omens given by the presence and flight of birds, but these are sufficient to show us the great importance which the men of two thousand years ago attributed to them. Although birds are most prominent in Homer in this connection, still we find them mentioned many times just as parts of the physical world and without divine import. Among the birds thus mentioned we find names which our scholars have interpreted to designate Cranes, Meadow Larks, Jackdaws, Geese, Swans, Nighthawks, Vultures, and Eagles. Birds are especially noted for their quickness in flight, and the horses were most prized which flew like the birds. Birds were always mentioned in connection with the dead, and a favorite curse was to wish that one might be left a prey to the dogs and birds.

Gods often honored this part of the animal world by assuming their forms. We find Athene and Apollo in the likeness of Vultures settling down upon the Oak tree to watch the battle of the Greeks and Trojans. Sleep watches the wiles of Juno toward her lord while he sits as a Nighthawk upon a tree. But Homer is essentially a poet, and in many places a nature-poet, and in these touches of nature he does not forget the birds, but very often compares the movements of his heroes to them. [Pg 238]

"As a tawny Eagle darts upon the flocks of winged birds feeding by the river, flocks of Geese, of Cranes, of long-necked Swans, so Hector darted upon them."

"The Trojans went with hue and cry—like the birds when the cry of the Cranes is in the front of heaven, who, when they flee from the winter and portentous storms, with cries fly to the streams of Oceanus bearing death and fate to the Pygmies, and at dawn they bear forth with them their evil strife."

"As a bird bears a morsel for its unfledged young whenever it obtains any, but fares badly itself, so I have toiled for other men and gained naught myself."

"As many flocks of birds, of Geese, Cranes, long-necked Swans, in an Asian meadow by the banks of the Cayster fly hither and thither exulting in their wings as they settle down with cries and the meadow reëchoes, so flocks of men poured from the tents and ships into the plain of the Scamander."

"As a flock of Meadow Larks or Jackdaws comes with full, unbroken cry when they see before them a Hawk which bears destruction to small birds, so with full, unbroken cry went the youths of the Achæans before Æneas and Hector."

SUMMARY.

Page 206.

AFRICAN LION—*Felis leo capensis*.

RANGE—All over central and southern Africa from the western to the eastern coast, and as far north as the 20th degree of northern latitude.

Page 210.

CACTI—(1) *Echinocadus Le Contii*, Tempe, Arizona. (2) *Mamillaria Sheerii*, Nogales, Arizona.

Page 214.

AMERICAN FLYING SQUIRREL—*Pteromys volucella*.

RANGE—All over the United States and Central America.

Page 218.

HUMMING-BIRDS—(1) *Lampornis gramineus*, Venezuela. (2) *Petasophora Anais*, Columbia. (3) White-tailed Hummer.

Page 223.

SILK-WORM—*Bombyx mori*. Originally from China.

Page 227.

CALIFORNIA VULTURE—*Pseudogryphus californianus*. Other name: California Condor.

RANGE—Coast ranges of southern California from Monterey Bay southward into Lower California; formerly north to Frazer River.

NEST—On the bare floor of a cave in a lofty precipice.

EGG—One.

Page 230.

AMERICAN GOLDEN-EYE—*Glaucionetta clangula americana*. Other names: Whistler, Whistle Wing, Brass-eyed Whistler, Great Head, Garrot.

RANGE—North America, nesting from our northern boundaries to the far south, and wintering in the United States southward to Cuba.

NEST—In hollow trees, lined with grass, leaves, and moss.

EGGS—Six to ten, ashy green in color.

Page 233.

AMERICAN SKUNK—*Mephitis varians*.

RANGE—Extensive, being most plentiful near Hudson Bay, whence it is distributed southward.

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VOLUME IV.—JULY TO DECEMBER, 1898.

Transcriber's Note:

- Minor typographical errors have been corrected without note.
- Page 204: "glottides" changed to "glottises."
- Punctuation and spelling were made consistent when a predominant form was found in this book; otherwise they were not changed.
- Ambiguous hyphens at the ends of lines were retained.
- The American Golden-Eye illustration has been moved from page 231 to page 230 and the Skunk illustration from page 235 to page 233.
- Duplicated section headings have been omitted.
- The Contents table was added by the transcriber.
- The index contains links to articles in other issues of *Birds and Nature* magazine:
  - Gutenberg #47498: Volume IV Number 1, July, 1898.
  - Gutenberg #47580: Volume IV Number 2, August, 1898.
  - Gutenberg #47581: Volume IV Number 3, September, 1898.
  - Gutenberg #47579: Volume IV Number 4, October, 1898.
  - Gutenberg #47603: Volume IV Number 5, November, 1898.

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