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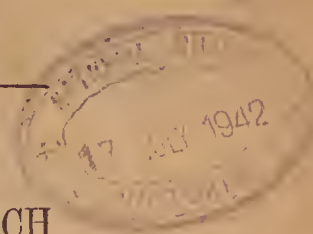
A POPULAR SKETCH  
OF THE  
NATURAL HISTORY  
OF  
QUEENSLAND.

By PRICE FLETCHER.



*Colonial and Indian Exhibition,*  
1886.

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INTRODUCTORY.

OF the many curiosities peculiar to the animal life of Australia, a fair share falls to the colony of Queensland. The immigrant, whether he be a scientific scholar or simply an observer, will find a constant book of novelty open for inspection. It is this charm of novelty which makes this Austral land such a paradise to the lover of nature. No matter what direction a journey is taken, whether into the ordinary forest of the coast, or to the dense jungles of the river banks, or over the vast prairies of the interior, forms new to the eye of the European naturalist will be observed, until at last real pleasure is actually experienced at the relief from novelty which is felt by finding a form almost identical with some well-remembered species of the old world.

Even from the deck of a ship, and before a foot has been placed on land, a feeling of pleasure will be experienced by the naturalist as his glance takes in the vast expanse of forest before him, and he ponders over the fact that its growth is that of the wonderful eucalyptus family of trees, whose medicinal and other virtues are the talk of the world. In imagination he will revel in the happiness of a ramble in a virgin forest of an extent greater than that of an English county—indeed greater than the whole area of England. The land breeze blowing will waft to him a sweet scent, which he will at once pronounce to be that of the mimosa, his book knowledge having previously told him that the acacia family of trees is the one that most successfully combats with the eucalyptus in the struggle for existence against the many vicissitudes of Australian life.

Upon landing, the first journey into this forest will be a drop into wonder-land. The newly-arrived naturalist will see the Eucalypt in its grandest stage of beauty, that is as a gnarled, broken-limbed gigantic old gum tree, whose gray bark is grizzled and ragged, and whose bare branches stretch out to such an extent that the wonder is excited as to how they are sustained. He will notice the peculiarly narrow leaves, with their hardened surfaces, suspended so as not to be constantly exposed to the one ray from the overpowering sun. The bark, hanging in shreds, will attract attention, and on tearing down a strip his entomological fancies will rejoice, for he will see before him

a mine of novelty in the ants, spiders, beetles, &c., that he has dislodged, and in the host of crystals, nests, and curiosities this one tree has brought to light. A thud on the ground will cause him to turn round, and, to his delight, he will see an animal hopping along, which he at once recognises as the world-renowned kangaroo, and a thrill of pleasure runs through his senses as he realises that at last he has seen a marsupial in a state of nature and in its own wild haunts. Unconsciously he follows the direction it went, when suddenly he is startled by the hurried scamper of a creature from a tussock of grass near by, and away goes another hopping animal, which by its more graceful shape, rapid jumping, and general activity he concludes must be one of the numerous species of the smaller Macropodidæ called *Halmaturæ* or "wallabies."

Suddenly shrill, short, sharp screeches reach his ear, and even before he can turn his head to discover the cause, a flock of paroquets whiz with speed of an arrow past, then giving a wheel and a turn in their flight, they with one impulse settle in the gum tree before him. Cautiously he approaches—but the caution is needless, for the birds heed him not—and as he sees the bright green birds hanging in every possible attitude and climbing about among the extreme tips of the twigs, and sucking out the honey and pollen from the small flowers of the eucalypt, he knows that they must belong to that curious group of paroquets which have a brush-tip to their tongue and so are called trichoglossus, and his admiration is excited at noticing how suitable this strange peculiarity is for the work it has to do. Also for the first time in his life he will have brought under his observation how admirably adapted to their mode of life are the scansorial peculiarities of the parrot family, and again he will be astonished at having brought home to his immediate attention that the bright green and yellow plumage so conspicuous upon the bird when in a cage renders it all but invisible when among the leaves and flowers of the eucalypt. Pleased at having facts new to his observation brought before him he hardly notices a rustle beside his feet, but looking unconsciously downwards, a black snake is seen with the fore part of its body raised from the ground, the head flattened cobra-like, and prepared for defence. Instinct tells him this reptile is venomous, and a blow from a stick is speedily bestowed upon it. Then the pleasure of having overcome a really dangerous creature will be another new sensation, and if imbued with the true naturalist fervour, he will rejoice in being in a country where the reptilia are represented in their most interesting form, that of the poison secreting ophidian.

The limits of this paper will permit of no more than the bare mention of some of the chief characteristics of life as found among the animals, the birds, and the reptiles of Queensland. Upon each division a volume could be written, and yet much be left unsaid. The entomologist will find in this country of heat and moisture an inexhaustible field of study, for insect life is truly multitudinous in its developments, so much so that it is useless touching upon it in this essay. Amongst the numerous fishes that abound in the reef-sheltered seas

that surround the coast of tropical Queensland, there is a mine of undiscovered wealth to the student. Fishes of all shapes, some most beautiful, elegant and graceful, others on the contrary, ugly, ferocious—absolutely infernal looking. Their varieties are exceedingly numerous; their individual numbers legion.

### THE MAMMALIA OF QUEENSLAND.

It is in this branch of natural history that the island continent, Australia, shows its most distinctive peculiarities. To everyone it is known as the land of the kangaroo, and to the student as the home of the marsupialia. Every immigrant, before his arrival even, has seen a picture of a kangaroo with the young one peeping out of the abdominal pouch, and so is interested in such a peculiar animal, but the student recognises that when in Queensland he is in the centre of as strange a group of animals as he could possibly find; a group which at one time existed over Europe, Asia, and America, but which now, with one or two exceptions, is only to be found in this island continent. A group of which the external marsupium or pouch is only one peculiarity; a group which has developed species analagous to the placental flesh-eaters, grass-eaters, and insect-eaters, and yet they are wholly different; a group which is as much at home upon the ground and in the burrow as it is upon the tree-tops or even in the air; a group which is an animal world of its own, showing in the species even now living, a distinct development through the monotremes from the reptiles. Fossil remains already discovered show that in the ages of long ago there were far more species then in existence, and some of these were of enormous size, taking the place of the gigantic ancient pachyderms of the old world, but still retaining the peculiar shape and anatomy of the marsupials. It is noteworthy that no fossil remains of large placental carnivora have been discovered such as would account for the disappearance of so many species. The settler in Queensland need fear no lions, tigers, bears, or wolves, for no animal exists larger than the dingo or wild dog, that can do harm to his flocks and herds. In Tasmania there are two specimens of carnivorous marsupials, which for ferocity and strength equal any animal of their size among the placentals, but they do not exist in this colony at the present day. There are, however, flesh-eating marsupials which can and do make considerable havoc among the poultry yards of the country settler; these animals, commonly called "native cats," take the place and somewhat the shape of the weasel or stoat of the old world. Other animals of the tribe of phalangers commonly called "opossums," are often very destructive to the gardens and orchards; but the greatest damage has been done to the farming and grazing industry by the many various species of the macropodidæ or kangaroo tribe. Australia in general, and Queensland in particular, offers an anomaly in the progress of settlement by mankind of uncivilised countries, insomuch that the wild herbivorous animals have largely increased since the advent of the European race and not decreased. Especially has this been the case with the kangaroo tribe, for evidently

the destruction of the dingo, and of the eagles by the settlers, and the decrease of the aboriginal natives destroyed the balance of nature so much that many parts of this colony became overrun with these grass-eating marsupials. They were as a plague in the land, to be seen by hundreds and thousands, eating out the grass which otherwise could support the more useful but less interesting sheep and cattle, therefore legislative interference was called for, and a bonus per scalp given for their destruction. Since the passing of this Act, only five years ago, no less than 6,000,000 scalps have been paid for. But this legislative Act alone would not have annihilated the plague, nature even stepped in with her aid, for the animals increased to such numbers they caused their mutual destruction, insomuch that they completely devoured every blade of grass in districts as large even as the whole area of England; then drought supervening their destruction was completed. Thus it is that districts which were overrun and useless are now again restored to abundance of grass and to occupation by domestic herds.

The only animals natural to Australia that are not marsupials are the wild dog, or dingo, as he is popularly called, the rodents, or rat-tribe, and the bats, of which the flying fox, a large fruit-eating species, is the best known.

The young of the marsupials are all born in the usual way, but in a very immature state, that of the great kangaroo being not over one inch in length. They never have any placental connection with their dam. Immediately upon birth they are transferred to the pouch, and in a mysterious way the apparently minute lump of flesh, which has no power of voluntary movement, is attached to the teat, from which the little creature is never separated until fully developed. The above is a scientific fact demonstrable by any anatomist. Nevertheless bush residents unacquainted with anatomy strictly affirm that the young one is born on the nipple. The larger kangaroos have only one young at a time, but some of the smaller genera sometimes have two in the pouch, generally differing in ages.

### THE MACROPODIDÆ OR KANGAROOS.

Ever since the sailors of the veteran navigator, Captain Cook, announced to him that they had seen "the devil," in the shape of an animal as tall as a man, and that stood upright and hopped away on its hind legs only, has the kangaroo been associated in the popular mind with Australia, so without reference to scientific classification I pander to the popular fancy, and place the well-known animal first in the list for description. Necessity for curtailing space compels me to give but a brief account of the different families of our fauna, mentioning only by name one or two of the best known or peculiar species typical of the family, and leaving entirely alone that most interesting branch of natural history—the development of one species into another. A study which if pursued among the marsupialia and in conjunction with fossil discoveries of recent date will repay any amount of trouble, for it is a marvellous book of wondrous surprises.



THE GREAT KANGAROO (genus *Macropus*)

of Queensland number about four species. In height they range from four feet to six feet, and in weight from 100lbs. up to 200lbs, the males being always larger, heavier and more powerful than the females. Their peculiarity is the great development of the posterior parts of the body and of the tail as compared with the anterior parts. Except when lying down, the kangaroo rests with its entire weight upon the hinder legs and the tail; when feeding the fore feet are put to the ground, and while the body is supported by them and the tail, the hinder legs are pushed forward both at once; when alarmed the animal raises the anterior portion of its body to its full height, and when frightened it leans forward and hops away by taking tremendous jumps, thus bounding over grass, logs, fences, or obstructions. In thus jumping, the weight of the animal comes solely upon the two elastic and strong tarsi of the hind feet, the tail never touching the ground, but merely by its weight balancing the creature in its rapid flight. The idea that the kangaroos use their tail to help them when jumping, or as a weapon of offence or defence is entirely erroneous. The anterior parts of the kangaroos when seen above the long grass as the animal, by his keen hearing becomes aware of an intruder, appear very graceful and deer-like, but this grace is dispelled as soon as movement takes place, for, except when flying rapidly before the pursuing dog, the movements of the greater kangaroos are decidedly ungainly. They are gregarious in their nature, and are frequently seen in flocks of from a dozen to one hundred; but in districts where they are not much hunted, the writer's observations are that they prefer to keep in groups of from six to a dozen, and in such a party, although the sexes will be equally divided, there will be one large and powerful male, termed by the colonists an "old man." He is the master, and will fight long and desperately with any rival who chooses to challenge him. When the family is disturbed, this "old man" will always be the last to move.

The kangaroo is perfectly peaceable and harmless to every living creature, but when hunted by dogs, after fleeing as far as it can go, it then turns at bay, and with its back against a tree, or standing up to its middle in water, it will fight to the last gasp. Its powers of defence are very great, for with its fore arms and feet, which though apparently small, yet are very muscular, it can catch up a dog and run away with it, or will hold it under the water until it is drowned; or with a stroke from one of its powerful hind feet, armed as they are with a long strong protruding claw, it will rip the dog completely open. It will also, when at bay, not hesitate to attack any man, even when on horseback. The extraordinary rapid increase in their number necessitated the settlers to combine and assist each other in the work of clearing them from the stock runs. Therefore, driving parties were systematically organised, and by the extensive erection of high fencing, with large strongly-fenced yards at the end, thousands of these animals were, by skill and care, driven in and slaughtered. The writer was at one such hunt when no less than 3200 grown animals

were yarded and slaughtered in the one day. This fact is stated just to show that it is only through the animals having increased to excessive numbers that this apparently wanton slaughter is undertaken. The peculiar formation of the lower incisor teeth of all the macropodidæ is such that they can hold their own in the struggle for existence against any domestic animal. These teeth are but two in number, as opposed to six in the upper jaw, but their peculiar conformation is such that not only can they graze as can other animals, but the two lower teeth, which are long and curved, can be opened and closed scissors-like, and thus the shortest and choicest grasses and herbs be cut off and eaten.

The flesh of the kangaroo is sometimes eaten, and from the tail is made an excellent soup.

On the fore feet of the macropodidæ there are always five well-developed toes, each of which is armed with a large and strong nail, curved; the two outer toes are the shortest and the central one the longest. The hind feet are furnished with one very large central toe, and an outer one, which is shorter and smaller, but like the first, armed with a large solid nail slightly curved. On the inner side of the foot are two small slender toes, united in one common integument, and having the appearance of a single toe; the nails, however, are separate, of very small size and hollow beneath. The use of these small nails is to cleanse the fur from vermin, such as ticks, which abound in the grassy and scrubby country. The tarsus underneath is hairless, but is covered with minute hardened tubercles, which are most distinctly developed and hardened in those species whose habitat is among rocky land. In color the great kangaroos are generally grayish-brown, but one species peculiar to the interior plains is of a decided red hue, more particularly so in the males. This species (*Macropus rufus*) attains to the largest size of any.

A peculiarity in the habit of all the kangaroo family which deserves mention, as it to a great extent accounts for the rapid increase of the animals when their natural enemies the dingoo and the eagles were extirpated, is that when hard pressed by any pursuer the doe will eject the helpless young one from its pouch. Thus lightened, she is better able to escape from her pursuer, and the dog or eagle in pursuit immediately seizes the young one, and satisfies his appetite on it. A doe kangaroo unencumbered by young is very fleet, and is seldom caught by the native dog, who in most cases ceases to follow when he finds no young is ejected.

#### THE BRUSH KANGAROOS OR WALLABIES (genus *Halmatur*).

The immigrant will not have been long in the country districts of the colony before he will have seen numbers of what appear to be small kangaroos; he will have observed them suddenly hopping out from a tussock of long grass, or from under some bushy shrub, or, perhaps, feeding in hundreds by the side of a patch of dense scrub, just about the time of sunset. These all come under the designation of wallabies, brush kangaroos, and pademelons. There are about a score of species of them, varying in size from 10lbs. in weight up to 50lbs.

They are identical in shape with the great kangaroos, but are decidedly more agile and graceful in their movement, more fleet of foot, and more beautiful in their fur. Their colour ranges from a silver-gray to reddish-brown, and even black; often the underparts are white, sometimes yellow, and they nearly all have a bridle mark along the shoulder, and a horizontal stripe across the haunch. Distinguishing the species is difficult, for the colouring of the fur is not constant. In captivity (according to Kroeft) they interbreed freely. Like the larger kangaroos, these smaller sized species increased to such numbers that they became a veritable plague, and even now require constant and stringent measures to keep them in check. To the settlers' crops they are very destructive; indeed, it is only by fencing in the cultivated ground with wire netting or close fencing, that a crop can be grown in districts where they are numerous.

#### THE ROCK WALLABIES (genus *Petrogalea*).

This genus differs from other wallabies in their possessing a long pliable tail, which is not thickened at the base, and the apical half of which is generally very bushy. They weigh up to 30lbs., and some of the species are very beautiful in the colouring and softness of the fur. As inferred from their name, they are partial to rocky country, and, notwithstanding their jumping system of locomotion, they are as sure-footed and active among rocks as any goat. Indeed, their agility is wonderful, and the almost vertical leaps they will take are quite astonishing. The long tail is not used so much as a support as in the other larger species, but by its pliability is admirably adapted for balancing the animal in its erratic movements.

#### THE TREE KANGAROOS (genus *Dendrolagus*).

This genus shows a curious variation of the typical habits of the family. Their fore limbs are more powerfully formed than in any other genus, and this peculiarity enables them to climb trees easily. There are four species found in New Guinea, and two that are inhabitants of Queensland. Their weight is said to reach up to 30lb. Very little is known of the animals or their habits, as they are very rarely seen, for they are residents of the dense scrubs and rough mountain country in the tropics. The fore feet are formed somewhat after the shape of the sloth, and the hind feet also have a grasping power. The tail is long and thin like the *Halmatur*.

#### THE NAIL-TAIL KANGAROOS (genus *Onychogalea*).

These comprise two or three species of small animals that inhabit the interior plains. They seldom weigh over 10lbs. Their peculiarity is that the tail terminates in a bare nail-like tip, and also that their fur, which is of a light gray color, is of a soft, silky nature.

#### THE HARE KANGAROOS (genus *Lagorchestes*).

These are very similar to the preceding animals both in habit and peculiarities. In appearance and size they very much resemble the common hare, and they are the fleetest of the whole group of macro-

podidæ. In running they press the fore legs close to the side so that they cannot be seen, and they will make clear jumps of eight and ten feet high. The hind legs are very long and slender, and the tail rather short and stiff, but not thickened at the base. One great peculiarity of these two last genera is that in them the canine teeth are observable for the first time among the family of macropods.

#### THE BETTONGS, OR JERBOA KANGAROOS (genus *Bettongia*).

These are small animals for the kangaroo family, for they are only about the size of a rabbit. They also are similar to the rabbit in their habit of forming extensive burrows and living in communities. They are essentially inhabitants of the dry interior, and though four or five species are known, only one or two are to be found in Queensland. This group connects the kangaroo tribe with the Phalangers or opossums.

#### THE RAT KANGAROOS (genus *Hypsiprymnus*).

This genus completes the list of kangaroo tribe. There are several species of them, and they differ but little from the preceding genus. Their size is the smallest of the tribe, running probably from 3lbs. to 6lbs. in weight. Their limbs are of more equal length, they progress rather slowly, and the tail is short and stiff. In the Bettongs the tail is more or less prehensile. Through the *Hypsiprymni* the kangaroos approach the bandicoot tribe or *peramelidæ*.

#### THE PHALANGISTIDÆ (PHALANGERS.)

This family of the Marsupialia is one that will be constantly coming under the observation of the immigrant to this colony. It comprises the native bear, the opossums, and the flying squirrels. These animals are all arboreal, and nocturnal in their habits. They are peaceable in disposition, but when wounded the opossums will bite severely. They have increased greatly in numbers (excepting the Koala, or native bear), and in many places in the Southern colonies the opossums have proved very destructive to farm and orchard crops.

There is no animal that the immigrant will be so certain to make the acquaintance of than the opossum. He is to be found every where that there are gum trees, from Tasmania to Cape York, in the interior or on the coast, although he is not so numerous in the interior country. His proper name is

#### THE VULPINE PHALANGER (*Phalangista vulpina*),

but every one calls him "opossum." There are several species of these animals, but they differ only slightly from each other and all are dubbed "'possums" by the colonists. Queensland possesses a greater number of species than any of the other colonies. In habit they are all nocturnal; during the day time they sleep in the hollow holes of old gum trees and so cannot be seen, but at sundown they pop out of their concealment and at once make for the extreme twigs of the tall trees, where they feed upon the gum leaves. Upon moonlight nights they are shot in great numbers by the younger members of the settlers' families. They do not show much intelligence when being hunted

for no matter what noise is made they seldom attempt to move from the branch they are on, or to take advantage of any sheltering hole. So muscular are they that when shot from the top of a tree even 90 feet high, if only slightly wounded, the fall has not the slightest effect upon them, and they will immediately run and ascend again. They can and will bite severely when wounded if carelessly taken hold of. The tail is strongly prehensile, and it is as easy for the animals to hang by it when curled round a branch as it is for others to hold on by their feet. In size the common opossum is about that of a domestic cat, but some of the Queensland species are rather smaller. In colour the vulpine opossum is an ashy grey, but the underparts of the body are yellowish, and old males have a rusty-coloured neck and breast; the fur is long and woolly; the tail is long, bushy with black hair, strongly prehensile, and it is naked underneath. The female has a pouch similar to the kangaroo; there are four teats in it, but she seldom has more than one or two young at a time. Their food is varied, but it is principally leaves, grass, and fruit; still, in confinement, the common opossum will readily eat meat, small birds, bread, and drink milk greedily. One that the writer once kept as a pet would not refuse beer when offered to it. The peculiarity of the phalanger tribe is that the hind feet have an opposable prehensile nailless thumb, and four toes, the two inner ones being small and united by a membrane. The fore feet have the usual five strongly-clawed toes. The incisor teeth still show the same peculiarity of the macropodidæ in being six above as opposed to only two in the lower jaw; the canines are always present. These animals are the principal food of the aboriginal native, who shows great skill in detecting by the claw-scratches on the bark whether the animal is asleep in the hollows of the tree. If so, then by a method of cutting notches with a stone tomahawk in the bark of the tree, alternating from side to side but distant each one about two feet higher than the other, the aboriginal will scale the straightest and biggest gum tree by using these notches for the purpose of placing his big toe in them. They thus act as steps, and rapidly and surely the black climbs the tree. He then cuts a hole with his tomahawk just over the part of the branch where the opossum is sleeping, pulls it out by the tail and stunning it against the branch throws it to the ground. The opossum is but seldom eaten by the settler as its strong eucalyptus flavour is not pleasant to a European palate.

#### THE CUSCOS, RINGTAILS (genus *Cuscos*, &c.)

Besides the few species of the phalangers commonly called opossums there is a genus peculiar to tropical Australia which differs somewhat from the typical phalanger. This is called *Cuscos*. The tail has only the basal portion covered with hair; the ears are short and almost hidden by the fur of the head; the eyes with a vertical pupil. In size they are about the same as the common phalanger and their habits are identical. There are several species of them, some having only recently been discovered in the northern scrubs. Then there are also the Ring-tailed opossums (*P. Cookii*, *p. viverrina*, and others), the

first mentioned being the very first phalanger ever discovered in Australia. In size these ring-tails are smaller than the ordinary opossum and more like the euscos in appearance. They get their popular name from the white or sometimes reddish tip to their long, thin, and extremely prehensile tail, which is always more or less curved like a ring.

#### THE FLYING PHALANGERS.

These comprise three genera—*Petaurista*, *Belideus*, *Dactylopsia*. By the colonists they are all called "flying squirrels," but they are true phalangers, so flying opossum would be nearer the truth, for the squirrel proper is not indigenous to the country. These animals have a membrane extending from limb to limb, and they have a long bushy tail; their fur is long, loose, and soft. They do not fly, but, climbing to the top of a tree, they will then jump off, and spreading out their legs to the utmost, the membrane thus acts as a parachute and they descend in a graceful incline towards the ground; but with the momentum of their descent they can, if desired, ascend to a considerable height again, just as a boy's kite ascends against the wind. They will thus make a "flight" of from fifty to one hundred yards, according to the height of their starting point; generally they alight upon the naked bole of a tree in a line with the one they started from, for they have no power of flapping their "wings" as do the bats, but they have considerable control over the direction of their flight and thus are enabled to avoid the limbs and branches in their way. After alighting upon the trunk of a tree they rapidly ascend to the top, and again jumping off are away to another one before the observer has time to follow their agile movements. They are strictly nocturnal and live on similar food to the opossums.

The Great Flying Phalanger, the largest of the species, measures 20 inches from the tip of the nose to the root of the tail and this tail is itself often 22 inches long. The other various species range in size downwards to a length of 6 inches of body with a tail of 9 inches. The whole of the species are beautiful creatures, graceful in all their movements and at night time the personification of activity. They are fairly numerous in some districts but are only seldom seen by the general colonist on account of their nocturnal habits and rapid movements.

One species is a marvellous little miniature, being only the size of a common mouse. It is called the *Acrobates Pygmaea*, or "flying mouse." It differs from the larger species in the tail being "feathered" with a web of hair on each side. It is seldom obtained unless discovered asleep in the day time by some wood-splitter when felling a tree.

Space will not permit of more than the mere mention of the genus of small rat-like phalangers called *Dromicia* and the genus *Tarsipes*, the latter of which is not found in Queensland, but is interesting as it is acknowledged to be one of the links connecting the marsupialia with the monotremata.

#### THE KOALA, OR NATIVE BEAR (*Phascolarctos Cinereus*).

The immigrant will not have been long in the wooded country of the Queensland mountain and coast districts before he makes

the acquaintance of this the most harmless, the meekest of marsupials. Though called "Native Bear," it has not the remotest connection with the bear tribe of animals, for it is a marsupial and allied to the phalangers. Like the opossums, its habits are strictly nocturnal and arboreal. In size it is larger than the opossum, for its total length is about two feet, and its general appearance is round and plump. It will weigh, if full grown, over 28lbs., and it is such a mass of muscle that a fall of 100 feet does not disconcert it in the least. In this animal is seen a strange exception from the long and strong tails which are such a common feature of the marsupialia, for the koala has no external tail although in the skeleton are to be found several flattened caudal vertebrae. In colour the animals are an ashy-grey, which renders them very inconspicuous against the grey bark of a gum tree when coiled up during their diurnal sleep. Unlike the opossums they do not seek the shelter of hollow spouts in the large trees but choosing some fork to sit in, they tuck their head into their breast and thus sleep out the day without the slightest protection from external foes. The koala is a powerful climber and seldom troubles the ground except when wishing to change from tree to tree; its food is almost entirely the leaves of the eucalyptus and other trees. The female has one young at a time, which, after it gets of an age to leave the pouch, is carried upon the back of the mother. Even when wounded the koala seldom attempts to bite.

#### THE DASYURIDÆ OR CARNIVOROUS MARSUPIALS.

Those two large flesh-eating marsupials, the Dog-headed Thylacine (*Thylacinus cynocephalus*), and the Tasmanian "devil" (*Sarcophilus ursinus*) not being found in the colony of Queensland, it is sufficient in this paper to say that they are the most ferocious and strong of all Australian animals, not excepting even the Dingo. This ferocity and the slaughter they inflicted upon the shepherd's flock earned for them the soubriquets of "hyæna," "tiger" and "devil." There are, however, several species of the different genera of the family *Dasyuridæ*, which are common in this colony, and which are popularly known by the name of "native cats." In appearance they have not the slightest resemblance to the domestic cat, but have more the shape of the ferret. The genus most commonly known is that of *Dasyurus*. The length of the body varies, but about 12 inches is the average, and the tail will average 9 inches; the fur is yellowish in colour with spots of white over the back and sides, and the underparts are white. There is a variety in which a jet black takes the place of the yellow, and there is another variety which attains to a much larger size than above mentioned, and yet all these are classed as the same species. The *dasyuri* are ferocious little creatures, and at times commit sad havoc among the poultry flocks of the settler. They are easily trapped, but will fight valiantly when escape is impossible. They are nocturnal in their habits. The female has from four to six young at one birth, and possesses a shallow pouch; the young are firmly attached to the nipple as in the kangaroos.

Another genus which will very likely cross the path of the settler is that of *Phascogale*. These animals are about the size of a rat; they are of a blueish-gray colour, and the underparts white, and the most common species can be distinguished by the bushy tip to the tail, hence its name *P. penicillata*. All these species are nocturnal and arboreal in their habits, but unlike the *Dasyuri* they do no havoc to the poultry, their food being smaller creatures, such as young birds, &c. The writer has found this little animal in all parts of Australia, from Cape York in the north to Cape Otway in the south. The female has no pouch, yet it is a marsupial.

There is a genus of this family called *Myrmecobius*, which, although not as yet having been found in this colony, deserves mention here, because the species composing it are regarded as one of the links in the chain of development of the marsupialia from the Eciduæ or Monotreme ant-eaters. The teeth (52 altogether) of the myrmecobius are small, weak, do not touch each other, and in number are not exceeded by any living mammal. It is not unlikely that further research will show this interesting little animal to be an inhabitant of the interior western plains of this colony.

#### THE PERAMELIDÆ OR BANDICOOTS.

There are several genera and at least a dozen species of these pretty little marsupials found in Australia, and Queensland has her fair share. Space compels me to group them all under the common head of bandicoot. The settler is certain to become acquainted with them, for they make far too free with the sweet potatoes and other crops. In size they vary from that of a rat to that of a rabbit. They can be recognised at once by their elongated muzzle, short tail, and burrowing habits. The fur is harsh, but with an under fur very soft; their fore feet are short and weak; in appearance the bandicoot proper (*perameles*) is not unlike a miniature pig. Their food consists of roots, grasses, insects, and small animals. The pouch in the female has the opening the reverse way to that found in the kangaroos; the number of the young is four, although there are eight mammæ. These little creatures are very tame, frequently coming into the huts at night time and picking up the crumbs on the floor notwithstanding the presence of persons.

#### THE MONOTREMATA.

No essay upon the mammalia of this colony would be complete without mentioning the two wonderful animals which comprise this sub-section of the Marsupialia. The one is called by the colonists the "porcupine," and the other the "duck-bill."

#### THE SPINY ANT-EATER OR *ECHIDNA HYSTRIX*.

This strictly Australian animal is common in Queensland. In size it is about 18 inches in length, of stout, low build, and in appearance somewhat like the hedgehog of England. The upper parts are covered with strong spines, which are the natural defensive armour of the animal; an armour indeed quite impregnable to all enemies



other than man, for, like the hedgehog, it has the habit of rolling itself up into a ball when danger threatens; the strong spines then protrude in all directions, and the animal remains thus rolled up until the danger has disappeared. The face of the animal is prolonged into a long sloping thin snout with a very small mouth-opening at the end, and the tongue is long and flexible. Its food is supposed to be ants and insects. It has no teeth, but some horny excrescences on the palate behind. This interesting creature is amazingly strong, and can burrow with extreme rapidity, indeed, it has the most extraordinary faculty of sinking out of sight of the observer, provided the ground be loose or sandy. The male has a spur on the heel of the hind foot, this spur is perforated and supplied with a secretion from a special gland, but for what object is not known; as there is no case on record of injury from this spur it cannot be called poisonous. The female possesses two small rudimentary pouches, in each of which a minute young one has been observed; she has, however, no mammæ, but the milk exudes into the pouch. Through the *Echidna* the marsupials are linked to the reptiles, and in many anatomical respects these animals are one of the curiosities of nature in this southern world.

#### THE PLATYPUS OR DUCK-BILL (*Ornithorhynchus*.)

Curious as is the *Echidna* yet its interest pales before that of its congener, the platypus, or water-mole. This is without doubt the most interesting of all the many interesting animals peculiar to Australia. It is one of the wonderful links which nature now and again presents, showing how one form of life can develop into another. The platypus is the lowest living form yet discovered of the mammalia, and through it the marsupials are connected with the reptiles. The anatomical peculiarities of these pretty little water-loving creatures are so great that they excited surprise and almost doubt as to their reality when first presented to the naturalists of Europe. The *ornithorhynchus* is common in many parts of Queensland; being amphibious it is never found away from the river banks, where, during the day time, it sleeps in burrows. In appearance it is not unlike a large mole, for it has the same dense fur and rounded, sleek contour. But in size it is very much larger than the mole, adult males being found 24 inches in length including the tail, which is about 5 inches long, broad, and beaver-shaped. The body is broad, flat, and reptile-like; it is carried close to the ground, for the legs are short, but provided with five strong toes, which are webbed in such a manner on the fore feet that the webs protrude when swimming beyond the powerful claws and form perfect paddles. On the heel of the hind foot of the male is a spur and gland, but whether poisonous or no has not been satisfactorily decided. The head of this curious animal terminates in a beak like a duck's—hence the name. The only teeth this animal possesses are four horn-like molars situated far back in the head. The eyes are very small, black, and bright, and there is no external ear to be seen, but examination of the head shows the natural orifice which the animal has the power of opening

or closing at will. These little creatures are perfectly harmless, they can be seen about sunset swimming and diving in the still lagoons of some water course. Their food consists of vegetable matter, insects, small mollusca, and the ova of frogs and fishes, for the obtaining of which their peculiar mandible is admirably adapted. Until lately nothing was known of the manner of bringing forth their young, but the researches of Mr. Caldwell, a young British scientist, who visited Australia expressly to study the habits of the Monotremata, discovered that this curious mammal is rendered still more curious by the fact that the female lays eggs, which are afterwards hatched, and the young nourished by the milk of the mother exuded from mammary glands, although no teats are observable.

## THE PLACENTAL MAMMALS.

### THE DINGO.

Having completed the mention of all the different families of marsupials found in Queensland, I must give some notice of the non-marsupial or placental mammalia of this paper will not be complete. There are so few of them that the chapter will not be a long one. The one deserving most notice is the Dingo or native dog (*canis dingo*). Owing to the discovery of fossil remains of dogs having been discovered in Australia it is now an accepted fact that this animal is indigenous and has not been introduced, as many have supposed. The dingo is essentially a dog, and the settler will recognise it the first time he sees one. In colour it generally is of a yellowish-red, or reddish brown, but sometimes it is black, with tan underparts. Though varying in colour yet they are all of the one species and all are alike in appearance, having a bushy fox-like tail and a wolf-like head, and in size they are equal to that of a large shepherd's-dog. They are very strong, agile, and fleet, and possess also a large share of fox-like cunning; they also know and sometimes practice the wolf-like habit of hunting in companies, though these companies seldom exceed six or eight in number. They are very destructive to the sheep and calves of the settlers, but strychnine has now exterminated them from districts where they were once numerous. The fact is the dingo and civilization cannot coalesce and the dog is doomed. In many parts of Queensland they are still very numerous, and their mournful howl at night time and particularly during the winter months can frequently be heard even within a few miles of Brisbane. The dingo breeds freely with any of the domestic dogs.

### THE RODENTS.

The family of rodents, or rats, are the only animals, other than the dingo, that belong to the placental mammals of Australia, excepting of course those aerial mammals, the bats, and those sea animals, the seals, dugongs, and porpoises. There are three genera and many species. In size they vary from that of a common mouse to that of a large rat. At times, some of the species increase to very great numbers in a most unaccountable way until they become like a plague in the districts of the interior plains, and these myriad hosts will just as quickly dis-

appear. There is one genera which jump on their hind legs like the kangaroos, and there is another which build curious nests of twigs in the bushes; some live in burrows or cracks in the ground, and some in the hollows of trees, but the most curious and beautiful of the whole tribe is the Beaver-Rat (*Hydromys*). These animals are peculiarly Australian, as much so as the kangaroo. They are amphibious in their habits, and are found almost in every water-hole or creek. They dive well and are admirably constructed for an aquatic life. Their food consists of moluscs, fish, and water insects, and they are very partial to cream, according to the observations of the writer, whose dairy used to be regularly visited by these animals living in a neighbouring lagoon. The fur is beautifully dense, of a brown or black colour on the back and head, but of a golden yellow or else white on the underparts, and the tail is always tipped with white or yellow. They live in burrows in the banks of the river, and the female produces four young at a litter. They, like many others of the rat species, are frequently the prey of snakes.

#### THE KALONG, OR "FLYING FOX" (*Pteropus Poliocephalus*.)

There are about two dozen species of bats found in Australia, five or six of which are Fruit Bats, commonly called "Flying Foxes," probably on account of their rusty colour and somewhat fox-like head. The species most commonly seen is about the size of a large squirrel in the body, but the wings are enormous in proportion, for the common measurement from tip to tip is four feet. These animals are the most formidable pest that the orchard-owner in Queensland has to encounter. They sally out at sunset from their camps or roosting-places in countless numbers. A constant stream of them can be noted, all flying in one direction, until some orchard is espied, when they dive down, and, in a very short time, commit frightful havoc among the ripened fruits. Shooting has no effect upon the crowd, for, though scores may be killed, yet hundreds and hundreds take their place. No certain way of warding them off has yet been discovered, but of late years the plan of burning sulphur has been found to check them. During the day time they congregate in "camps" of thousands, hanging from the topmost twigs of the loftiest trees in clusters: they thus sleep out the day, head downwards. When one of these haunts is discovered they can be shot in hundreds, for they are loth to take wing during day-light. In the woods they live on the wild figs and other fruits, the flowers of the bloodwood, gum-tree, and ti-tree. They also are fond of honey, and probably devour insects as well. Although they are sometimes called Vampires, they are perfectly harmless to all animal life. Moreover, during the season of the year that they are living upon honey-bearing flowers, they are by no means bad eating when better food cannot be got. Their flight is, noiseless and with measured beat, but they can keep this up for many miles, for it is no uncommon thing for them to visit orchards nightly which are ten to twenty miles from their known camps. While feeding, they are constantly quarrelling and screeching, and flying from

tree to tree. I am not aware that there is any creature that preys upon them, hence their great numbers, notwithstanding that the female has only one young at a birth.

### ORNITHOLOGY.

The number of known species of birds common to Australia is fully 700, and of these in all probability 600 are to be found in the colony of Queensland. This land of the marsupials is as rich in curious and anomalous species of birds as it is in animals. There are birds varying in size from the minute wrens to the gigantic emu and cassowary; in colour, there are families that can vie with the gorgeous trogons and parrots of the Indies; in beauty, with the humming birds, and some show peculiarities of construction and habit found among the birds of no other country on earth. The merest sketch of a few of the principal families will be all that space will allow in this essay. For further information the student must turn to Gould's magnificent book upon the *Birds of Australia*.

#### RAPTORES.

The large and powerful birds of this order are not to be found in Australia—that is, there are no vultures, condors, or large eagles. Doubtless the absence of the larger herbivorous animals has something to do with this. However, there are eagles, ospreys, falcons, kites, and harriers, in great numbers. The WEDGE-TAILED EAGLE (*aquila audax*) is the common eagle-hawk of the colonies. It is the noblest of our raptors; is univorsally distributed over the whole of Australia, and is common upon the sheep farms of the interior plains, where at times it causes much loss among the lambs. In courage it does not come up to the golden eagle of the northern hemisphere, for although it will and does pursue and kill the smaller species of kangaroo, yet it prefers the more easily obtained carcass of the already dead sheep or bullock, and the defenceless lamb. It also chases the doe kangaroo until she ejects her young one from the pouch, which the bird then immediately seizes. In size this eagle will measure between six and seven feet from tip to tip of the wing. The talons are very powerful, and never relax their hold when once a grip is taken. In colour the birds vary from a light brown to a very dark brown, almost black. They build gigantic nests in the fork of some large gum tree or some solitary tree of an extensive plain.

The WHITE-BELLIED SEA-EAGLE (*haliaeetus leucogaster*) takes the place upon the sea shores and bays that the wedge-tail does on the land, but it has not the same pluck and courage. A smaller eagle very common about the bays of Queensland is the White-breasted Sea-eagle (*haliaeetus leucosternus*.) The immigrant will recognise it as soon as the ship enters the port, by the snow-white breast and head, contrasting with the rich chestnut-red of the upper parts and wings.

The FALCONS (*genus Falco*) are represented in this colony by the Black and the Brown, and the Black-checked Falcons. Of these, the former (*falco subniger*) is the largest, strongest, and most daring, and

its powers of flight are very great. It and the brown falcons are the constant attendants upon the drovers of the large herds of cattle which traverse the continent. The advancing cattle cause the quails to rise and fly, and these are then pounced upon by the falcons and kites which are circling around and in front. The KITES (*milvus*) are the commonest birds of prey in Queensland. They are to be seen in flocks of hundreds about every settler's homestead, where they perch upon the rails of the stockyards in the hopes of picking up offal from the slaughtering of cattle, &c. They are very bold, showing absolutely no fear of man. They fortunately seldom steal the poultry, preferring more easily obtained food such as offal or grasshoppers.

There are several species of Hawks, Goshawks, Harriers, etc., and a beautiful little Kestrel of a Nankeen colour; this bird exhibits the same peculiarity of "hovering" as does the European species. Many of these hawks are very active and pertinacious in their attack upon the poultry flocks of the settlers.

The night birds of prey have some fine noble species among them. The Owls number some half-a-dozen or more species. In some districts they are common, but, being night birds, they are not so often seen, and many people even do not know that they exist in the colony. The Great Owl (*hieracoglaux Strenuus*) measures no less than 24 inches in length; it frequents the scrubs of the coast districts, sleeping during the day in some dense scrubby tree; it is a swift flyer, is powerful, and, at night its loud sonorous note can be heard for a great distance.

The Boobook Owl (*spiloglaux Boobook*) is much smaller, and it is more commonly seen than any of the family. The peculiarity of the bird is its cry of "Buck-buck," "Buck-buck;" this can often be heard at night, and upon a still evening even for the distance of a mile. It sounds so exactly like the English cuckoo's note, that the immigrant upon hearing it for the first time, at once puts it down as that bird, and he is astonished to hear it at night time.

#### INSESSORES.

This order of birds is represented in Queensland by numerous species of numerous families, and they comprise some forms peculiar to the country. A glance at a few of the more prominent will be all that can be undertaken in this paper.

The settler will not have been long established in his new home in the bush, before he makes the acquaintance of some species of the family CAPRIMULGIDÆ or Night-jars, the vulgar name for which is "goat-sucker." These birds are nocturnal in their habits, they are clothed with a peculiar moth-like plnmage, and are noiseless in their flight. Their peculiarity is the mouth, the enormous gape of which astonishes the settler who sees it for the first time. At night, these birds force themselves into notice by reason of their rather mournful, but loud cry of "more-pork," "more-pork," slowly but frequently repeated, and which, like the "buck-buck" of the owl, is one of the voices of the night time in Australia. The bird is invariably called "more-pork" by the colonist. There are several species of them,

some being very small; all have the same moth-like plumage and soft sailing flight.

The SWIFTS and the SWALLOWS have numerous representatives in Queensland. One species of swift is almost identical with the European species, but the other is a noble bird, the largest of the swifts of the world, and the grandest flyer on the face of the earth. It is the Spine-tailed Swift (*Chaetura caudacuta*). A native of India, it nests in the Himalaya Mountains, and migrates for a summer holiday to Australia. Its powers of flight are most marvellous, indeed unequalled for rapidity and for ability to tarry, and it is never known to rest from flight until the shades of night drop around, when it dives down and enters into the hollow spout of some old eucalypt of the primeval forest.

There are several species of swallows in the colony and they have, since the advent of civilized man, adopted the social habits of their congeners in the old world, and nest under the verandahs and eaves of the houses, both in the towns and the country. Previously to houses being built, they constructed their mud nests in hollow trees, and in caves and under projecting rocks. One species, the Welcome Swallow (*Hirundo frontalis*), is very like the English swallow, and is very commonly distributed. The Fairy Martin (*Lagenoplastes ariel*) is another graceful swallow which crowds its long-necked, hemispherical, mud nests in scores under the verandahs.

THE BEE-EATER (*Merops ornatus*) is very common in some parts of the colony, more particularly in sandy country. It is elegant in shape, graceful in flight, and beautiful in its green, blue, and orange plumage. It nests in holes in the sand, the entrance to which is approached by a tunnel, often two or three feet in length. It is very destructive in the neighbourhood of an apiary. It arrives in Queensland in the Spring time. Another bird which arrives about the same time as the Bee-eater is the Dollar-bird, or Australian Roller (*Eurystomus pacificus*). It is sure to force itself upon the settler's notice by reason of its green colour, its noisy chattering habit, and the peculiar white spot, about the size of a dollar, that appears in each wing as it flies. Hence its name. It nests in the holes of the gum-trees. It is useful by destroying the larger beetles and moths, &c.

The KINGFISHERS of this colony are individually very numerous, and there are several species of five or six distinct genera. The most noted of them is the "Laughing Jackass" (*Dacelo gigas*), a bird which is one of the oddities of the Australias, and is now world-renowned for its peculiarities, and absurdly comical, gurgling, laughing note or song. The bird is very common, and there is not a homestead in the country that it does not visit, for it shows little fear of man, indeed it is one of those birds which takes kindly to the advent of civilized man, attending him while engaged in ploughing, or gardening, and always on the lookout for any lizard, young snake, mouse, or other vermin that shows itself. Then this stolid, ungainly bird flies down from its observing place on some neighbouring tree, nips up its prey, flies back again to the branch, and, after beating the victim to death, swallows

it whole, and gives vent to its satisfaction by pouring out its loud and hearty laugh. This laugh is the first sound the bushman hears in the morning, and the last at night. The bird is in consequence frequently called the settler's clock, is a universal favourite, and is seldom shot, except by the thoughtless boy. In colour it is brown, the head and beak are large, and as it ruffles the crest feathers frequently, this makes the head appear larger than it is, and still more ungainly. The nest is simply the decayed wood of a hollow spout of a gum tree, and the eggs are white. The other Kingfishers are all more or less blue in colour, like the Aleyone of Europe. One species that frequents the river's banks is very similar in appearance and habits to the English bird; but others, which are common about the homesteads do not trouble themselves about the water, but in their habits are similar to those of the Laughing Jackass. The names of the two most common species are the Sacred Kingfisher (*halcyon sanctus*), and the M'Leay Kingfisher (*cyanaleyon Macleayi*). The last named bird can easily be distinguished by reason of its white collar.

The ARTAMIDE or WOOD-SWALLOWS are a family of birds, the headquarters of which is in Australia. There are several species of them, and the immigrant will recognise them when he observes a group of birds, about the size of a starling, and of a brown or grey color, which from time to time fly from the branch they are perched upon, and sail in a swallow-like manner, until the insect that is being hunted is caught, when they return to the same branch. They are fearless of man, and frequently nest in trees near the homestead; like the bee-eater, they are fatal to bees, and will soon decimate an apiary.

The PARDALOTES are another family of birds peculiarly Australian. There are several species of them, all of small size, all very prettily marked with dots or spots of yellow or red or black. They all have a sweet plaintive note, which is incessantly uttered. They would escape the notice of any but the observant settler, if it were not for their habit of burrowing tunnels, three feet in length, in the sides of the wells and water-holes, at the end of which they excavate a chamber, and build a loosely formed nest. The common name for them is Diamond bird.

There are no true Shrikes in Australia, but there is a family of CROW-SHRIKES, some species of which are common in Queensland. The members of one genus are called Butcher-birds, and well they deserve the name, for they are bold and ruthless destroyers of small birds, their eggs and young; also, they hesitate not to fly under the verandah, and tear the canary from its cage; the long thin beak, with its powerful hook at the end, being admirably formed for this purpose. The bushmen give them the absurd name of "Van Dieman's Land jackass," presumably because of some slight resemblance they have to the laughing jackass. They have a musical melodious song, but of short duration.

The AUSTRALIAN MAGPIE is classed among these Crow-shrikes. This is a noble bird—handsome in its contrasting colors of black and white. Like the laughing jackass, it is a universal favorite, and it is

found about every farm in the southern and interior plains of the colony. Its powers of song eclipse those of any other Australian bird. During the nesting season its loud organ-like notes are constantly heard, and are indescribably sweet and liquid. The birds are easily tamed, and show equally as much cunning and sense as does the magpie of Europe. They learn to talk, and repeat the words clearly and distinctly. A tame one is generally to be seen hopping about every homestead in the bush. There are several species of them, and they are among the farmers' best friends, eating all kinds of insects destructive to the crops.

The MAGPIE-LARK (*grallina picata*) is another bird seen about every homestead, provided there is water in the neighbourhood. Its shrill whistling note is a common sound of the farm. The bird is about the size of, and not unlike, the English lapwing, and it will be easily recognised by this description, coupled with its pied black and white plumage. It builds a large nest of mud on some bare branch overhanging the water.

The family of FLYCATCHERS (*Muscicapulæ*) has many representatives in Australia, all of which are to be found in Queensland. Some of the species are very common both in the country and in the town suburbs. Following the aim of this essay, which is just to speak of such birds as are sure to be seen by the immigrant, or else are of such peculiarity as to demand special notice—

I must mention the BLACK FANTAIL (*sauloprocta motacilloides*). This bird is universally distributed over the whole of Australia. It is one of the most tame and familiar of birds, evincing not the slightest fear of man or animal. It is constantly in motion, skipping about the horses, the cattle, the sheep, and snapping up the flies that torment them. It flies on to the back, runs along, mounts on to the horns, snapping at the flies, and all the time incessantly opening and shutting its tail and its wings, and uttering its short cheerful chirping note. It is well named the "shepherd's companion," for it is his constant attendant, his cheerful little mate. Some of the species are triumphant architects, constructing closely-felted nests of elegant, wineglass-shaped form.

The ROBINS are by no means left behind when the immigrant sails from the "old country." Under the family name of *Saxicolida* there are nearly a score of species of many different colours, and yet they are all robins in appearance. Accustomed as the British farmer is to the sombre hue of the Redbreast, he will be astonished beyond measure the first time he sees perched upon the furrow slice he has just ploughed, the gorgeous scarlet, black and white robins of Australia. The contrast of these colours is so vivid that it excites involuntary surprise. The head and upper parts are black, with white on the wings, and a white tip on the forehead, and the whole of the breast is vivid geranium scarlet. They show all the boldness and familiarity of their European prototype, and in habits and manners are very similar, but they do not nest on the ground in banks; on the contrary they construct a beautifully neat, chaffinch-like nest in



the fork of a tree, or between the loose bark of the tree trunk. The scarlet-breasted species is only seen in the southern plains-land of Queensland. Its place is taken upon the farms of the scrub lands and of the river banks by the Yellow-breasted Robin, which, however, is a more retiring bird. Other species are the red-capped, the pied, the brown, the white eye-browed, &c.

The LYRE-BIRD (*menura*) is one of the curiosities of Australia, but unless the immigrant settles in the densely-wooded mountain districts of the southern part of Queensland, he is not likely ever to see it in a state of nature. The bird is about the size of a game fowl, but it is higher on the legs, which are especially formed for running; its colour is a dark-brown. Its peculiarity consists in the tail, which is identical in shape to that old fashioned musical instrument, the lyre. There are three species; the one that is found in Queensland being called Prince Albert's Lyre-bird, in distinction to one common to the Southern Australian Colonies which is called Queen Victoria's Lyre-bird, but the difference between it and the New South Wales bird is problematical. The birds are most wonderful vocalists, they are indeed the mocking bird of Australia, imitating accurately every sound of the bush.

The WRENS (*Maluri*) are numerous individually, and of many species. Unlike the sombre-coloured Jenny-wren of Europe the Queensland birds are marvellous little gems of beauty. They are excelled only by the finches in the lovely contrasting of their brilliant colouring. Among them is to be seen deep cerulian blue contrasted with jet velvety black; red with black; blue with white, and in others a blending of the whole of these colours. They go in families of six or eight, flitting about from bush to bush; every now and again the gorgeous-coloured male,—the father of the group,—mounts on to some topmost twig and utters his lively, shrill little song, as if anxious to draw attention to his beauty. The females and young males are invariably a sombre brown in colour. The whole of the species construct domed nests placed in tussocks of grass.

The FINCHES (*Fringillidae*) of Australia number as many species as do the wrens, and individually, are far more numerous. The settler will come across many varieties. It is with regret that I shall have to curtail my writing concerning these lovely birds into a paragraph, for there are several genera, all showing distinct peculiarities and containing several species each, and yet they all are finches. All the species build large, loosely-constructed domed nests of grasses, and some of which have a spout-like entrance projecting from the top; all the eggs are white and barely distinguishable one species from another. In colour these birds show in some species the same contrasts of bright scarlet, against black, or brown, or white as do the robins; some, again, are beautifully spotted white on black and others with black on white; a fiery-red over the tail shows conspicuously in some species, and there is another which is wholly of a blood-crimson colour. Some are uniform olive-brown, and some brown and white; a

peculiarity of one genus is the curious masked markings of the face and head, and there is another genus called *poephillia*, or grass lovers, the several species of which are the most elegantly beautiful combination of colours outside of the butterfly world. Anything more lovely than the Gondian Grass-finch it is not possible to find, even among the humming birds of the Indies. It is pleasing to think that the ornithologist, who has done so much to make the birds of Australia known to the world, has so beautiful a gem named after him. It is an everlasting monument to his genius. Unfortunately the bird is uncommon, being only found in a limited district of Queensland.

The family *Paradiseidæ* are represented in Australia by the world-renowned BOWER-BIRDS. There are four or five species of them, all to be found in Queensland. In size these birds are about that of a large missel thrush, but plumper in form. Some of the species are very beautiful, notably the Satin-bird (*ptilonorhyncus holosericeus*), the male of which has the whole of the plumage of a deep shining blue-black resembling satin, and the Regent-bird (*sericulus melinus*), the male of which has a gorgeous livery of golden yellow, and deep velvety black. Other species are fawn-coloured, with more or less iridescent mauve-like collars upon the back of the neck. The whole of the species are fruit-eaters, and at times very destructive to the gardens. The peculiarity of the family is their habit of constructing bowers of twigs and grasses, erected on end and arching over like a bower. This structure is about one to two feet in length by a breadth that enables the bird to run easily through it. Shells, bits of bones, feathers, stones, and anything gay-coloured or glittering are collected, and placed about the bowers as ornaments. These are not nests, but are used simply as courting grounds, and playing places. Each species makes its own peculiar shaped bower, some being longer and more elaborately decorated than others.

The CROW (*corvus Australis*) is to be found everywhere over the whole of Australia. Wherever there is a dead animal, large or small, whether in the forest, or on the plain, by the side of the sea shore, or in the far interior desert land, there is the crow. He is the universal scavenger and also destroys more bird's eggs than any other creature in the country. However, he is outwitted by the gigantic eukoo (*Scythrops novæ hollandiæ*), which lays its eggs in the nest; thus the crow becomes foster parent to the young one.

The HONEY-EATERS (family *Meliphagidæ*) are the most special feature of Australian Ornithology, nevertheless, I shall have to curtail my description of them down to a single paragraph. The ornithologist Gould, in writing of this extensive family, says, "They are to the fauna of Australia, what the *Eucalypti*, *Banksiæ* and *Melaleucæ* are to the flora. The economy of these birds is so strictly adapted to those trees, that the one appears essential to the other; for what can be more plain than, that the brush-like tongue is especially formed for gathering the honey from the flower cups of the *Eucalypti*, or that their diminutive stomachs are especially formed for this kind of food, and the peculiar insects, which constitute a portion of it." There are

fully sixty species of these birds, and they comprise many of graceful form, and elegant plumage. In size they range from about four inches, including the tail, to about twelve inches. Amongst them are some sweet songsters, though of no great power. Others are incessantly chattering, so much so, as to have been named the "garrulous honey-eaters." Others again exhibit an air of comicality in their rich vocalism, apparently uttering such words as "four o'clock! four o'clock!" etc. Some species are of a sombre-brown, or olive-green, while others show yellow in all its brilliance. Yet, another has an intensity of scarlet over the whole of the head, neck, breast, back and upper-tail coverts. In Queensland there is allied to this family the Sun-bird (*nectarina Australis*) which, by nature of its form, and its long curved bill is the nearest approach to the humming bird that Australia possesses.

There are no wood-peckers in Australia, but their place is occupied by numerous TREE CREEPERS (*climacteres*) and the SITELLAS (*sitellæ*) which are frequently seen climbing the trunks of the trees, or clinging back downwards to the branches.

The Cuckoos exist in Australia, but they are not regarded as the harbingers of spring as in the old world, neither is their song that of the familiar "cuckoo, cuckoo." There are several species of them, varying in colour from one similar to the European cuckoo, to that of deep glossy, greenish, blue-black, with scarlet eye. Others are of a beautiful metallic bronze colour, with the cuckoo-like bars on the breast and belly. The smallest of the family is the Bronze Cuckoo (*lamprococcyx minutillus*) which has a total length of five and a half inches, and the largest is the gigantic Channel-bill (*scythrope*) called by the colonists the "hornbill," and which, as before stated, is parasitic upon the White-eyed crow. A genus which is not parasitic is the *Centropus* or Pheasant-cuckoo. This bird is very common in Queensland, and is sure to be roused up from the grass by the settler on his farm. It is commonly called the "pheasant," on account of its pheasant-like appearance and long tail. It is a poor flyer, being very weak in wing development. The nest is placed in a tussock of grass, is composed of grass, and is sometimes domed over.

The family *Psittacidae*, or PARROTS. No group of birds will so attract the eye of the immigrant, and cause him to realise that he is in a foreign and tropical country, as will the cockatoos and parrots. They are exceedingly numerous individually, and also as regards their varieties. To do justice to their peculiarities and their beauty, would require a volume, all that can be attempted here, is a glance at a few of the leading varieties, most commonly seen by the settler. There are several White Cockatoos, all of which congregate in flocks, and all of which, when caged, can be taught to speak with more or less fluency. The best known is the Sulphur-crested Cockatoo (*cacatua galerita*), which is a bird of large size and of pure snow-white plumage, excepting that on the head is a sulphur-coloured crest, which is constantly being raised and lowered. These birds exist in countless numbers in some localities, and are very destructive

to the newly sown cornfields of the farmer. Their wariness is so great that it is difficult to approach near enough to shoot them, when engaged in these pillaging expeditions. The Long-billed Cockatoo (*Nymphicus tenuirostris*), commonly called "corella," is undoubtedly the best "talker" of all the species. Its powers of vocalization are simply wonderful, and its intelligence is so great that after some years of domestication, it certainly is able to associate certain phrases with certain effects. The birds are not so common as the sulphur-crested, for they are peculiar to the interior plains. They have no crest; the long bill is a good distinguishing mark. Other cockatoos that are kept in cages are the Little Corella (*N. pastinator*), the Rose-breasted Cockatoo (*C. rosicapilla*), which is of a grey colour on the upper surface, and rose-red on the head, breast, and under parts. There is one bird caged within a few feet of the writer, as he is penning this paper, and it is incessant in its efforts to attract the attention of the children by crying out "Who are you?" "Naughty boy, cockey," "No, cockey's pretty," etc., etc. Many of the different species of parrots and paroquets are also kept as pets, and some of which learn to talk well, but in a whistling tone of voice.

There could not possibly be a greater contrast to the white cockatoos than are the several species of Black Cockatoos. These comprise the largest known species of the family, and some of them are very handsome, the dense black of the general plumage being relieved by brilliant scarlet bars across the tail; or yellow, or scarlet and yellow, or by yellow markings upon the body plumage. None of the black-coloured species are so commonly seen as the white birds, and there is a popular notion that their presence foretells rain, but the writer's observations by no means confirm the statement.

The exquisite beauty of the paroquets of the country is beyond description and it is useless attempting to depict it by words. To the immigrant, fond of ornithology, the field that opens up before him as he lands in this colony is one of beauty and interest, the *psittacidae* alone being a theme of study worthy of a life-time. Among them are the elegant polytelis, the gorgeous lories and platycerei, which last named genus includes those beautiful and common birds the Rose-bill paroquets. The grass-paroquets are the personification of elegant, grace, and beauty; one little species, the warbling grass-paroquet, which the reader may doubtless have seen in the bird shops of London, under the name of "love birds," the writer has frequently met with in countless thousands, nesting among the stunted eucalypts of the interior level country.

#### RASORES.

This order of birds would be sparingly represented in Anstralia were it not for the PIGEONS, family *Columbidae*. Of these there are over twenty species, the great majority of which are to be found in Queensland. They are everywhere, in the forests, in the scrubs, and on the far inland plains. The fruit-pigeons of the scrubs vie with the parrots in the superb colouring of their plumage and the beautiful metallic and varying hues of these colours. The species that frequent

the interior plains, or that seek their food upon the ground, are of more sombre appearance, as befits their exposed habitats. These species exist in incredible numbers upon the interior plains of Queensland; they are gregarious except at the breeding season, and are much preyed upon by hawks, dingos, and the natives. The Bronze-wings of the forest land are greatly sought after by the sportsman, as they are exceedingly delicate eating. All the species are considered as game, and are a frequent dish upon the tables of the settler. There are several species of small doves, which are as elegant in form, graceful in manner, and beautiful in their plumage as the well-known turtle-dove of Europe.

This order of birds also embraces that curious family the *Megapodidae*, the nesting habits of which are so extraordinary. The Queensland representative is the WATTLED TALEGALLUS (*T. Lathamii*). The settler upon the coast lands of the colony is certain to come across it, for it is the "wild turkey" of the colonists, and is constantly in demand for the table. It is one of the anomalies of the animal life of Australia, so much so that it has puzzled naturalists in what family to place it. In size the bird is about that of a small turkey, and in appearance very similar, the wattles of the head and neck adding greatly to this similarity. Its colour is blackish-brown. The most remarkable circumstance connected with the bird is that the eggs are not incubated in the manner of other birds, but are deposited two or three feet deep in mounds of earth and vegetable matter. These heaps are often truly gigantic when considered as the work of birds, for the writer has seen them eight feet high by a circumference of even sixty feet. They are constructed in dense scrub, and the method adopted by the bird is to grasp a foot-full of material and throw it backwards as if kicking. The muscles of their legs are very strongly developed, and when kept in captivity the birds are incessantly throwing material from one end of their yard to the other. The same mounds are used year after year, only some fresh material is annually added. When the laying season commences the birds scratch out holes in this mound and deposit the egg, large end up, at the bottom; fresh decaying vegetable matter is then added and the egg left to hatch. In due time the young bird is hatched fully developed, works its own way out, and is perfectly able to take care of itself. As the scrubs get cleared these birds will become scarce, but there is no reason why they should not become an addition to our domesticated poultry.

QUAILS are also common game birds of the country, and are universally distributed. In scientific eyes there is only one true quail, the other species being of a genus more allied to the partridge. Whoever is fond of shooting, can, if living near plains or cultivated fields, always have a day's sport, provided a good dog can be obtained, otherwise the birds lie so close that they will only rise when the sportsman is close upon them.

The EMU (*dromaius nova-hollandicæ*) is the largest of Australian birds, and is so well known both in Britain and in the colonies that description is unnecessary. It is not equal in size to the ostrich, nor

is it as graceful in its movements and appearance, neither are the feathers of any value. The settler is not likely to see the birds in a state of nature unless he travels into the far interior plains. As settlement progresses they are bound to become extinct. The eggs are large, about six inches in length, and are of a beautiful dark green colour; they are laid in a shallow cavity in sandy soil, and both parents take part in incubating them.

Queensland also possesses the CASSOWARY (*casuarius Australis*), a bird which is only second to the emu in size and ostrich-like appearance. It is an inhabitant of the scrubs of the extreme north. When erect the bird will stand about five feet high; the head is bare of feathers, but covered with a bright-blue skin and is surmounted by a helmet of horn of a bright red colour. The bird is not common, and in all probability will soon share the fate of all large wild animals and birds—namely, extinction.

Another of the large game birds of the colony is the AUSTRALIAN BUSTARD (*choriotis australis*) commonly called the Plain Turkey. These birds have a very stately air as they walk the plains; they attain to a height of three feet to the top of the head from the ground. The male will often weigh as much as fifteen pounds, but the female is considerably smaller. Yearling birds are excellent for the table. The birds are seldom shot, except the shooter be on the back of a horse or in a vehicle, for it is next to impossible for a foot-sportsman to get within gunrange. As they only lay one or (sometimes) two eggs, and that only once a year, they also bid fair to be eventually exterminated.

Of PLOVERS, DOTTERELS, SANDPIPERS, and CURLEWS, there are many species to be found in the colony, and there is also a SNIPE, almost identical with that of Europe. The Curlew is noted for the particularly mournful wail which it gives voice to at night time. The Whimbrel is found all along the shores and bays, and is as noisy in the day time as the curlew is at night. Of the Ibis there are several species, including the well-known Sacred Ibis of Egypt. The gigantic Jabiru, which is to be found on the marshes and lagoons, is a noble bird, in appearance like a crane, and which, when walking erect, measures fully five feet in height.

The ARDEIDE or Herons, as also the Egrets and Spoonbills are of many species, and are very commonly distributed. In colour they vary from pure white to delicate nankeen-brown, and from grey to black. Many are adorned with elegant head plumes, and their snow-white plumage, and statuesque forms, as they stand knee-deep in the water, make quite a prominent feature in the water-side scenes of this country.

#### NATATORES.

Of the birds of this order the immigrant will see many, for he will be constantly coming across ducks, geese, pelicans, and the black swan, while upon every water-hole he will be sure to see some one of the many species of cormorants and grebes.

The AUSTRALIAN WILD DUCK (*anas superciliosa*), and also the TEAL (*a. punctata*) are universally distributed over the whole of the continent, either inland or along the sea shores. They are both considered excellent eating, and are consequently much sought after by sportsmen. They are now protected in all the colonies during the breeding season; a wise precaution, for the keenness with which they were sought after was fast leading to a diminution of their numbers. There are several other species of ducks, some of which are individually of excessive numbers. Two or three species of the Wild Goose are to be found in Queensland, and they also are hunted for the table. Individually they are not nearly so numerous as the ducks, but they are gregarious, and at certain seasons flocks of great numbers are seen.

The BLACK SWAN (*chenopsis atrata*) is peculiarly an Australian bird. One time the *rara avis* of the world, it is here common to bay and marsh. The black plumage and musical voice attract attention from afar, and the settler is sure, sooner or later, to have the pleasure of seeing it. Easily tamed; these birds are to be seen on the ornamental waters of our public parks and gardens. They are considered game, but require the skill of a good cook to make them truly enjoyable.

Another large bird, which will be seen frequenting the same feeding grounds as the Swan, is the Pelican (*pellicanus conspicillatus*.) This is a truly noble bird, fully equal to the European species in size, and is shot for the sake of the skin, which, when properly cured, makes excellent muffs and tippets. These birds are found in large flocks upon the sea-side, bays, and creeks, and in companies of from a dozen to twenty upon the far interior water holes of the river-beds. In these latter places they are exceedingly destructive to fish, and they also prey largely upon the mussels and crayfish.

Along the sea shores, and over the bays, inlets, seas and oceans that surround Australia are to be found many species of Gulls, Terns, Gannets, Petrels, Albatrosses, and Frigate-birds. These I cannot attempt in this essay even to name.

Enough has been written to show the immigrant what a vast field there is before him if his inclinations lead towards the study of ornithology. He will notice that the old world forms are represented in this southern and most ancient of the earth's countries by species analagous, but seldom identical. The student of development will have a fresh and extensive field for following out the why and the wherefore of the anomalous forms, the peculiar habits, the remarkable modification, and the extreme beauty and variations of the species and genera. He will, indeed, as mentioned in the introductory chapter of this essay, have before him a book of nature always opening upon a new page.

### THE REPTILES.

The reptiles peculiar to Australia are numerous and some of them dangerous to life. The object of this paper is just to mention such as are thus dangerous so that they can be avoided by the immigrant.

The SNAKES have many representative species in Queensland, and the individuals of some of them are very numerous. All our snakes are not venomous, indeed, taking a given number casually seen during the course of several years residence in Queensland, about one half will have been of innocuous species. This fact is mentioned in order to calm the mind of any one who may be bitten, and so prevent undue fear, which may cause a foolish action to be taken, such as chopping off the finger or hand.

One of the commonest snakes of the colony is the Carpet Snake (*morelia variegata*). It is also the largest snake found in Australia, for in Northern Queensland it has been obtained up to twenty feet in length. It has a villainous-looking mouth and set of teeth with which it can bite severely, yet it is non-venomous. It belongs to the Boa-constrictor tribe, inasmuch as it kills its prey by enveloping it in the folds of its long body, and afterwards swallowing it whole. Sooner or later the settler, on the farm or in the country, will be certain to make its acquaintance, for it will find out the fowl-house and commit havoc there. It can be at once recognised by its mottled olive-brown and yellow skin, and its sluggish habits. It will bite severely when wounded. In habit it is nocturnal, but it also sometimes is found travelling during daylight.

The GREEN TREE SNAKE is another very common species in Queensland. It haunts the climbing plants that cover the verandahs of the houses, its object being to prey upon the frogs that live in the spouting and water tanks. It can be recognised by its long thin whip-like appearance, and by the upper parts being a dark olive-brown or green, and sometimes even black, and the under parts more or less yellow. Also, the belly scales are placed flat on the ground, and are not rounded as in terrestrial snakes. In length it reaches six feet. It is amazingly active, and disappears like a flash of light. It is entirely non-venomous, and will bite no one unless injured. There are several species of them, all non-venomous.

The BROWN TREE SNAKE is also non-venomous, but it is of altogether different build and looks ugly enough to be thought dangerous. Its colour is that of a copper-brown above, the belly being salmon-coloured; its length is about six feet, but its thickness through the body is fully twice that of the green snakes, for it will sometimes measure two inches whereas the others seldom exceed one inch. This snake can be recognised by the colour and the shortened tail. Its habits are nocturnal, while those of the green tree-snakes are diurnal. There are several other non-venomous snakes, chiefly of small size; also there are the small blind-snakes, which will be found sometimes when digging the garden, they again are perfectly harmless.

There are two very common and very frequently seen snakes in Queensland, which are deadly venomous, inasmuch, that a bite will prove fatal to man or beast unless instant precautions are taken. These two are the Black Snake and the Brown Snake (*pseudechis* and *diemenia*). There are several species of each of them recognised by the naturalist, but to the ordinary observer they may all be classed



as above. The black snake is intensely black upon the upper side from head to tail, but the belly is sometimes bright red, sometimes salmon-coloured, and again yellow. When alarmed it raises the front third of its body off the ground, bends forward the head which is *flattened*, and is ready to strike certain death upon its enemy. When in this attitude it does not wait to be injured before striking. The flattening of the head is a certain sign of anger, and at once distinguishes the venomous nature of the species, inasmuch that none of the non-venomous snakes practice the habit. In length the black snake averages about four to five feet, and in thickness about two to three inches. There is apparently very little neck, that is the head and neck are much of the same thickness, and this again is a distinguishing mark of the venomous from the non-venomous sorts, for the latter have a distinct head joined upon a much narrower neck. The black snake is both diurnal and nocturnal in its habits, and is particularly fond of haunting swamps and river banks, though it is found in all localities. It can swim well, indeed is fond of the water. Always approach it with caution! One blow from a stick will, however, disable it.

The BROWN SNAKE attains to even a greater length and greater thickness than the black snake. Its average length on the coast lands is about five to six feet, but upon the interior western plains it is frequently met with eight feet in length. In young specimens the belly is yellow-spotted, but in aged individuals these disappear, and the whole snake is of a brown colour. In the writer's opinion it is even more deadly in its bite than the black snake, for he has seen strong healthy bullocks succumb in a few hours to its terrible venom. Also he can positively attest that it will sometimes even when unprovoked attack both man and horse. So that a person attempting to kill one must always act with caution. As a rule one sharp blow with a stick or whip will break the vertebrae of any snake, this renders it unable to travel and it can be killed at leisure.

No specific antidote has yet been discovered to the poison of these snakes. There have been many so called discoveries, notably that of Underwood and also of Shires, but both these, when tested by medical experts, proved useless. The only action that can be taken is to tie a ligature tightly round the limb between the bite and the heart, and then to cut the wound so as to make it bleed freely, or to suck it forcibly. Send at once for a medical man and, in the meantime, keep up the depression that will ensue, by frequent drinks of strong spirits of any sort. A man can consume a bottle of spirits in a very short time, if bitten by a venomous species, and yet he will not get drunk. It should always be remembered that to the strong man who is bitten, there is the chance of life if the above precautions are taken; much depends upon whether the snake was extremely angry, as when wounded, or whether merely annoyed, as when touched or trod upon, for the reptile has the power to eject at will, more or less poison; again, the quantity of poison decreases rapidly with every bite. Much also depends upon the state of health

of the bitten person, and whether, through nervousness, he allows fear to overcome him.

The DEATH ADDER (*acanthophis antartica*) is another species which is equally as venomous as the two just mentioned. This snake can be at once recognised by its short length—only about twenty inches—and its breadth in proportion—fully two to three inches—and its peculiarly shortened tail which terminates in a point like a gigantic sting. The danger of the reptile lies in its poison fangs and not in this tail. It is very sluggish, never troubling to move out of the way; it frequents sandy country and is often found under logs when the latter are moved. It is nocturnal in its habits.

The immigrant should remember that, as a rule, if a healthy man is bitten by any snake not thicker in the neck than his little finger that it will not be fatal. If possible obtain the snake that inflicted the bite, it may prove to be a harmless species, and so save from much agony of mind and useless cutting and doctoring. There is one invariable rule by which Australian venomous snakes can be distinguished from the non-venomous. It is this:—Count the lip-scales of the upper lip—if there are only six on each side, of the nasal or front shield or scale, then the snake is venomous; if there are more than six, then the snake is not venomous. The lower lip shields also are only six in the poisonous species, never more, with the single exception of the death adder, which has seven in the lower lip but only six in the upper. This distinguishing mark should be remembered by all. It is only applicable to Australian colubrine snakes and not to the sea-snakes nor to the blind snakes, nor to snakes of other countries.

#### ALLIGATORS.

The only other reptile dangerous to mankind, found in Queensland, is the Crocodile or Alligator, which is numerous upon all the tropical rivers of the colony that have not been disturbed to too great an extent, by the advent of civilization. As a rule, it is never a safe practice to swim in any tidal stream in the north of the colony. Our alligators do not confine themselves exclusively to tidal waters, the writer having several times seen them attack cattle in waters above the influence of the tide.

There is another and smaller species called *Phyllus Johnsonii*, which is numerous in the upper waters of the rivers that flow into the Gulf of Carpentaria, but this novel species never attacks man or animals, its principal food being fish and sometimes waterfowl.

There are many gigantic lizards—commonly called Ignanas, which are numerous in the colony, but, though diabolical looking, they are all harmless as regards their bite. Turtles of large size are found in all the coastal waters, and small fresh-water species in the interior rivers.

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