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THE
GARDENS AND MENAGERIE
OF THE
ZOOLOGICAL SOCIETY
DELINEATED;
BEING
DESCRIPTIONS AND FIGURES
IN ILLUSTRATION OF THE
NATURAL HISTORY
OF THE
LIVING ANIMALS IN THE SOCIETY'S COLLECTION.
THE DRAWINGS BY WILLIAM HARVEY;
ENGRAVED BY BRANSTON AND WRIGHT,
ASSISTED BY OTHER ARTISTS.

THE
GARDENS AND MENAGERIE

OF THE
Zoological Society
DELINEATED,

PUBLISHED, WITH THE SANCTION OF THE COUNCIL,
UNDER THE SUPERINTENDENCE OF THE
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PREFACE.

IN complying with the customary formality of a Preface to this which forms, in point of time, the Second Volume of his illustrations of the living Animals in the collection of the Zoological Society, the Editor has little to add to the exposition already given of the views with which this publication was originally undertaken. Its primary object was the diffusion of correct zoological information, in plain and intelligible language, in a form calculated to render it acceptable, and at a price sufficiently moderate to make it accessible, to the mass of the reading public. On these principles the first volume was prepared; and they have been applied with equal steadiness to that which is now given to the world.

In it the reader will find descriptions and representations of upwards of seventy species of Birds, forming it is true but a small numerical proportion of those which exist in the Society's Menagerie, but comprehending nevertheless nearly all the most striking and interesting forms. To these more prominent objects the Editor has determined to limit the ornithological division of his work. Several considerations have induced him to abstain

from figuring the remaining species, and thus increasing the bulk, and at the same time the expense of the present publication. Thus with respect to British Birds, he has given only a few of the rarer species, because most of the others are familiar to the generality of readers, and have been already well figured and described in books of easy access and good zoological authority. Many too of the exotic species are scarcely capable of being distinguished from their fellows without the aid of colours; while in others the splendour and variety of their hues form their most striking characteristic. This is particularly the case with the Pigeon and Parrot families; and for this reason, although the collection afforded him an ample choice of both, and especially of the latter, (in which it is rich beyond example,) he has restricted himself to the illustration of a few of their more remarkable forms.

In conclusion the Editor has only to observe, that in the ornithological department he has adopted the arrangement of Mr. Vigors, as developed by that gentleman in the fourteenth volume of the *Linnean Transactions*, and subsequently in the second volume of the *Zoological Journal*: an arrangement which he regards as having made the greatest advance towards the exposition of the natural system of any that has yet appeared.

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THE CONDOR.

SARCORAMPHUS GRYPHUS. DUM.

THAT the vulgar opinion of the immense size and ferocity of this, the largest of the American Birds of Prey, should have extended its influence over the minds even of scientific zoologists, can scarcely be regarded as affording just grounds of surprise, when we consider how very imperfectly the Condor was known to naturalists down to the commencement of the present century. Twenty years ago one or two mutilated specimens formed the only memorials of its existence in the cabinets of Europe; and all our knowledge of the living bird was derived from the relations of travellers, for the most part but little conversant with natural history, many of whom merely repeated without examination such stories as they found current; while others, less scrupulous or more fanciful, drew on their invention

for those additional traits which they considered necessary to render the imaginary likeness perfect. Thus the Condor of the Andes was compared with the fabled Roc of Eastern mythology, and this monstrous fabrication of ignorant credulity was declared to be fully equalled, if not surpassed, by the stupendous native of the Western Hemisphere.

There were, nevertheless, even among these travellers, some few, such as Feuillée and Molina, better versed in the study of nature, and trusting to their eyes rather than to their ears, whose observations contributed to throw a strong shade of suspicion over the miraculous tales of their less circumspect predecessors. But it was reserved for one of the most scientific of modern travellers, the learned Baron Von Humboldt, completely to dispel the mist of prejudice which had so long enveloped the history of the Condor, and to describe that bird such as it really exists; to reduce its dimensions, its powers, and its propensities, within their just and natural limits, and to exhibit a faithful and highly interesting portrait in the place of an extravagant and grossly exaggerated caricature. To the Essay on the Natural History of the Condor, which forms part of the Zoological Observations made by him in conjunction with M. Bonpland, we are indebted not only for the removal of a prevailing delusion, but also for the most authentic information which we possess with regard to the habits of the living bird in its free and native state.

The Condor forms the type of a genus, a second species of which is the Vultur Papa of Linnæus, the King of the Vultures of British writers. They are both peculiar to the New World, but approach in their most essential characters very closely to the Vultures of the Old Continent, differing from the latter prin-

cipally in the large fleshy, or rather cartilaginous, caruncle which surmounts their beaks; in the large size of their oval and longitudinal nostrils, placed almost at the very extremity of the cere; and in the comparative length of their quill-feathers, the third being the longest of the series. The most important of these differences, the size and position of their nostrils, appears to be well calculated to add to the already highly powerful sense of smell possessed by the typical Vultures, and for which these birds have been almost proverbially celebrated from the earliest ages. There is also a third species, the Californian Vulture, two noble specimens of which, the only pair in Europe, are preserved in the Society's Museum, rivalling the Condor in bulk, and agreeing in every respect with the generic characters of the group, except in the existence of the caruncle, of which they are entirely destitute.

In size the Condor is little, if at all, superior to the Bearded Griffin, the Lämmergeyer of the Alps, with which Buffon was disposed conjecturally to confound it, but to which it bears at most but a distant relation. The greatest authentic measurement scarcely carries the extent of its wings beyond fourteen feet, and it appears rarely to attain so gigantic a size. M. Humboldt met with none that exceeded nine feet, and was assured by many credible inhabitants of the province of Quito that they had never shot any that measured more than eleven. The length of a male specimen somewhat less than nine feet in expanse was three feet three inches from the tip of the beak to the extremity of the tail; and its height, when perching, with the neck partly withdrawn, two feet eight inches. Its beak was two inches and three quarters in length, and an inch and a quarter in depth when closed.

The beak of the Condor is straight at the base, but

the upper mandible becomes arched towards the point, and terminates in a strong and well curved hook. The basal half is of an ash-brown, and the remaining portion towards the point is nearly white. The head and neck are bare of feathers, and covered with a hard, wrinkled, dusky reddish skin, on which are scattered some short brown or blackish hairs. On the top of the head, which is much flattened above, and extending some distance along the beak, is attached an oblong, firm caruncle or comb, covered by a continuation of the skin which invests the head. This organ is peculiar to the male. It is connected to the beak only in its anterior part, and is separated from it at the base in such a manner as to allow of a free passage of the air to the large oval nostrils, which are situated beneath it at that part. Behind the eyes, which are somewhat elongated and not sunk beneath the general surface of the head, the skin of the neck is, as it were, gathered into a series of descending folds, extending obliquely from the back of the head, over the temples, to the under side of the neck, and there connected anteriorly with a lax membrane or wattle, capable of being dilated at pleasure, like that of the Common Turkey. The neck is marked by numerous deep parallel folds, produced by the habit of retracting the head in which the bird indulges when at rest. In this position scarcely any part of the neck is visible.

Round the lower part of the neck both sexes, the female as well as the male, are furnished with a broad white ruff of downy feathers, which forms the line of separation between the naked skin above and the true feathers covering the body below it. All the other feathers, with the exception of the wing-coverts and the secondary quill-feathers, are of a bright black, generally mingled with a grayish tinge of greater or

less intensity. In the female the wing-coverts are blackish gray; but the male has their points, and frequently as much as half their length, white. The wings of the latter are consequently distinguished from those of the female by their large white patches. The secondary quill-feathers of both sexes are white on the outer side. The tail is short and wedge-shaped. The legs are excessively thick and powerful, and are coloured of a bluish gray, intermingled with whitish streaks. Their elongated toes are united at the base by a loose but very apparent membrane, and are terminated by long black talons of considerable thickness, but very little curved. The hinder toe is much shorter than the rest, and its talon, although more distinctly curved, is equally wanting in strength; a deficiency which renders the foot much less powerful as an organ of prehension than that of any other of the large birds of the Raptorial Order.

The Condor has been observed throughout the whole range of that immense chain of mountains which traverses the continent of South America, from the Straits of Magellan to the seventh degree of north latitude. It appears, however, to be much more common in Peru and Chili than in any other part of the chain, and is most frequently met with at an elevation of from ten to fifteen thousand feet above the level of the ocean. Here, in the regions of perpetual snow, they may be seen grouped together to the number of three or four, but never in the large troops in which the true Vultures sometimes assemble, on the bold points of the jutting rocks, many of the most remarkable of which are designated by the natives with names derived from the bird that haunts their pinnacles. It is only when driven by hunger that it descends into the plains, which it quits as soon as its appetite is satiated, unable, as it would seem, to support for any

great length of time the increased weight of the atmosphere and the warmer temperature of the lower world. On such occasions it rarely perches on the branches of the trees, but generally takes up a position on the ground, for resting on which its comparatively straight talons are peculiarly fitted. It is said that the female bird builds no nest, but deposits its eggs upon the bare rock without protection of any kind. These eggs are stated to be perfectly white and three or four inches in length. The female is also said to remain with her young for a whole year.

The habits of the Condor partake of the bold ferocity of the Eagle and of the disgusting filthiness of the Vulture. Although, like the latter, it appears to prefer the dead carcase, it frequently makes war upon a living prey; but the gripe of its talons is not sufficiently firm to enable it to carry off its victim through the air. Two of these birds, acting in concert, will frequently attack a Puma, a Llama, a Calf, or even a full grown Cow. They will pursue the poor animal with unwearyed pertinacity, lacerating it incessantly with their beaks and talons, until it falls exhausted with fatigue and loss of blood. Then, having first seized upon its tongue, they proceed to tear out its eyes, and commence their feast with these favourite morsels. The intestines form the second course of their banquet, which is usually continued until the birds have gorged themselves so fully as to render themselves incapable of using their wings in flight. The Indians, who are well acquainted with this effect of their voracity, are in the habit of turning it to account for their amusement in the chase. For this purpose they expose the dead body of a horse or a cow, by which some of the Condors, which are generally hovering in the air in search of food, are speedily attracted. As soon as the birds have glutted themselves on the carcase, the

Indians make their appearance armed with the lasso, and the Condors, being unable to escape by flight, are pursued and caught by means of these singular weapons with the greatest certainty. This sport is a peculiar favourite in the country, where it is held in a degree of estimation second to that of a bull-fight alone.

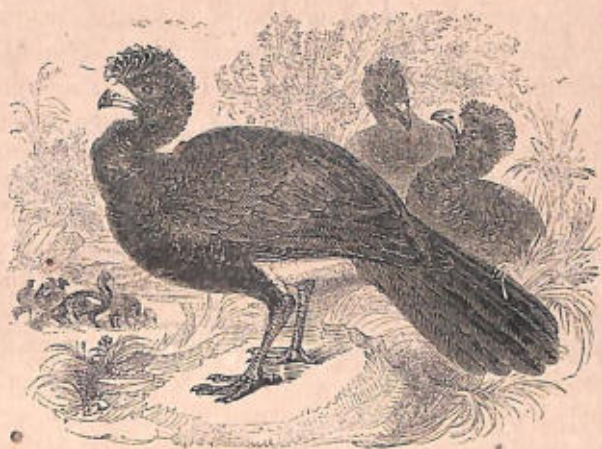
In tenacity of life the Condor exceeds almost every other bird. M. Humboldt relates that during his stay at Riobamba he was present at some experiments which were made on one by the Indians who had taken it alive. They first strangled it with a lasso, and hanged it on a tree, pulling it forcibly by the feet for several minutes; but scarcely was the lasso removed, when the bird arose and walked about as though nothing had occurred to affect it. It was then shot with three balls discharged from a pistol at less than four paces, all of which entered its body, and wounded it in the neck, chest, and abdomen: it still, however, kept its legs. Another ball struck its thigh, and it fell to the ground: this was preserved by M. Bonpland for a considerable time as a memorial of the circumstance. Ulloa had previously asserted that in the colder parts of Peru the skin of the Condor was so closely covered with feathers that eight or ten balls might be heard to strike it without penetrating its body. M. Humboldt's bird did not die of its wounds until after an interval of half an hour.

The stories which have long been current, on the authority of credulous travellers, imputing to the Condor a propensity to carry off young children and even to attack men and women, appear to have originated solely in that common feeling which delights in regarding mere possibilities in the light of positive facts. M. Humboldt declares that he never heard of an instance in which a child was carried off, although the children of the Indians who collect the snow on the

mountains for sale are constantly left sleeping in the open air in the midst of these birds, and offer of course a temptation which would be irresistible if not counteracted by some peculiar instinct. With respect to the risk incurred by men, while he confesses that two of these birds would be dangerous enemies for a single man to encounter, he states that he has frequently approached them within ten or twelve feet, as they sat three or four together perched upon the rocks, and that they showed no disposition to attack him. The Indians of Quito, moreover, unanimously assured him that men have nothing to apprehend from the Condors.

When first taken captive they are sulky and timid; but the latter feeling soon wears off, and they become savage and dangerous. After a time, however, they seem to become reconciled to captivity, which they bear tolerably well. The fine male figured at the head of this article, which was purchased for the Society in Holland, is as quiet and resigned as any of the other birds of prey in the Collection, and appears to have suffered little from his continued residence in a climate so much more temperate than that from which he was originally brought.





THE CRESTED CURASSOW.

CRAN ALECTOR. LINN.

OF all the Gallinaceous birds in the Collection, the most interesting are those which hold out to us a prospect of supplying our farm-yards with new breeds of poultry of a superior kind. Such are especially the Curassows. In many parts of South America these birds have long been reclaimed; and it is really surprising, considering the extreme familiarity of their manners, and the facility with which they appear to pass from a state of nature to the tameness of domestic fowls, that they have not yet been introduced into the poultry-yards of Europe. That, with proper treatment, they would speedily become habituated to the climate we have no reason to doubt; on the contrary numerous examples have shown that they thrive well even in its northern parts; and M. Temminck

informs us that they have once at least been thoroughly acclimated in Holland, where they were as prolific, in their domesticated state, as any of our common poultry. The establishment, however, in which this had been effected, was broken up by the civil commotions which followed in the train of the French revolution, and all the pains which had been bestowed upon the education of these birds were lost to the world by their sudden and complete dispersion. The task, which had at that time been in some measure accomplished, still remains to be performed; and it may not be too much to expect that the Zoological Society may be successful in perfecting what was then so well begun, and in naturalizing the Curassows as completely as our ancestors have done the equally exotic, and, in their wild state, much less familiar, breeds of the Turkey, the Guinea-fowl, and the Peacock. Their introduction would certainly be most desirable, not merely on account of their size and beauty, but also for the whiteness and excellence of their flesh, which is said by those who have eaten of it to surpass that of the Guinea-fowl or of the Pheasant in the delicacy of its flavour.

The Curassows give name to one of the primary divisions of the Rasorial Order, but recede from its typical characters in several important particulars. The principal of these occurs in the structure of the hinder toe, which is very long, far more robust than in the common fowl, and placed but little above the level of the anterior portion of the foot. In the remarkable modification which is thus presented in so important a part of the organization of birds, they offer an approximation to the Insessorial or Perching Order, which is further confirmed by the habit, connected with this conformation, of perching and building their nests on

the branches of the tallest trees of the forests which they inhabit. They are distinguished by a bill of moderate length and considerable thickness, deeper than broad, covered at the base with a naked cere, with the upper mandible curved and vaulted from the base to the point, and sometimes surmounted by a gibbous protuberance; their nostrils are lateral, longitudinal, partly covered above, and open in front; their head ornamented with long curled feathers forming a closely tufted crest; their wings short; their tail rather long and formed of twelve broad pens; their legs moderately long, thick, and spurless; and their toes four in number, the three anterior united by a membrane as far as the first joint. The greater number of these characters are common to the nearly related genera, Pauxi and Penelope; but the form and coverings of the bill and the shape of the nostrils, together with the nakedness of the throat and the lower position of the hinder toe in the last mentioned genus, afford tangible external grounds of distinction between these groups and the Curassows. They are generally more or less remarkable for the developement of their windpipes, which are frequently prolonged in sinuous convolutions; a structure which is rarely met with elsewhere among Gallinaceous Birds, although not unfrequent in the Swimming and Wading Orders.

The plumage of the Crested Curassow is of a deep black with a slight gloss of green upon the head, crest, neck, back, wings, and upper part of the tail; and dull white beneath and on the lower tail-coverts. Its crest is from two to three inches in length, and occupies the whole upper surface of the head: it is curled and velvety in its appearance, and capable of being raised or depressed at will, in accordance with the temporary feelings by which the bird is actuated. The eyes are surrounded by a naked skin, which extends into the

cere and there assumes a bright yellow colour. In size the bird is almost equal to a Turkey.

This species is a native of Mexico, Guiana, and Brasil, and probably extends itself over a large portion of the southern division of the American Continent. In the woods of Guiana it appears to be so extremely common that M. Sonnini regards it as the most certain resource of a hungry traveller, whose stock of provisions is exhausted, and who has consequently to trust to his gun for furnishing him with a fresh supply. They congregate together in numerous flocks, and appear to be under little or no uneasiness from the intrusion of men into their haunts. Even when a considerable number of them have been shot, the rest remain quietly perched upon the trees, apparently unconscious of the havoc that has been committed among them. This conduct is by no means the result of stupidity, but proceeds rather from the natural tameness and unsuspectingness of their character. Those, however, which frequent the neighbourhood of inhabited places are said to be much wilder and more mistrustful, being kept constantly on the alert to avoid the pursuit of the hunters who destroy them in great numbers. They build their nests on the trees, forming them externally of branches interlaced with the stalks of herbaceous plants, and lining them internally with leaves. They generally lay but once a year, during the rainy season; the number of their eggs being, according to Sonnini, five or six, and to D'Azara as many as eight. They are nearly as large as those of a Turkey, but are white like a Hen's, and with a thicker shell.

Of their domesticated habits, and of several other points connected with their history, we shall give some account when we come to speak of the other species in the Collection.



THE RED AND BLUE MACCAW.

MACROCERUS MACAO. VIEILL.

EVEN among the splendid family of the Parrots, the Maccaws claim a preeminent rank for their superior size, and the brilliancy and variety of their colours. They are at once distinguished by the nakedness of their cheeks, which are furnished at the utmost with a few minute lines of scattered hairs or feathers; by the great length and deep curvature of their upper mandible, and the extreme brevity of the lower, which latter is generally indented on either side with a notch of greater or less extent corresponding to an elevated tooth in the former; and by the prolongation and regular graduation of their tail, which is longer than the rest of the body. The elegance of their plumage, the singular gravity of their deportment, their mildness of temper, and docility in captivity, render them peculiar

favourites ; but they are by no means equal to most of the other divisions of the Parrot tribe in activity, in intelligence, in familiarity, or in the imitative powers of their voice. Their diet is entirely vegetable, consisting chiefly of fruits and seeds, of which they prefer such as are enclosed in a nut-like or coriaceous rind. They are said to be very long-lived ; but require in this climate great attention to preserve them from the effects of cold.

At the head of this truly magnificent group stands the Red and Blue Maccaw, the largest and one of the most highly ornamented of its species. It measures nearly three feet from the top of the head to the extremity of the tail, and the latter, when in fine condition, is full two thirds of the total length. The general colour of its plumage is a deep and brilliant red, separated, on the intermediate wing-coverts and behind the shoulders, by a broad band of bluish green, from the deep violet blue of the large quill-feathers of the wings. The tail is usually blue at the base, crimson in the middle, blue again at the extremity, and blood red beneath ; but all these colours vary both in intensity and extent. Three or four transverse lines of minute clustered crimson feathers ornament the naked cheeks, which, as well as the cere covering the base of the bill, are perfectly white. The lower mandible and the base of the upper are of a blackish horn-colour ; the middle of the latter is dirty yellowish white ; and its point again assumes a dusky hue. The claws are of the same colour as the base of the beak, as are also the scales which cover the legs and toes.

This species is found in Brasil and in some of the West India Islands. The specimen figured belongs to the young Queen of Portugal, but has been for some months an inmate of the Gardens.



THE RED AND YELLOW MACCAW.

MACROCERCUS ARACANGA. VIEILL.

It has long been a question among naturalists, and does not appear to be yet definitively settled, whether the present bird is really a distinct species from that which forms the subject of the previous article, or whether it ought not rather to be regarded as a mere variety descended from the same original stock. The differences between the two, not only in size and colour, but also in some more important particulars, are, however, so uniform and permanent, that we cannot but follow the example of the best modern writers in considering them as distinct, although it must be confessed that the distinction is not very strongly marked.

In size the Red and Yellow Maccaw is inferior to the bird last described, seldom attaining a length of more than two feet and a half from the head to the tip of the tail. Its general colour is less deeply red; and the blue of its quill-feathers is of a brighter and livelier

hue. Instead of the greenish band which, in the preceding species, separates the two principal colours from each other, it has a tinge of green on the extremity of each of the feathers which clothe the lower part of its neck, and also of its upper wing-coverts; the larger wing-coverts on the contrary being of a light yellow, tipped and partly edged with a deep border of bright green. The naked part of its cheeks, white as in the other species, is always perfectly bare, exhibiting no vestiges of the lines of minute feathers which distinguish the latter; neither does the membranous expansion extend over the base of the upper mandible. This division of the bill is of a dull yellowish white throughout, with the exception of a spot of black near its base. The lower mandible, the claws, and the scales of the legs are deep black, the white skin being more or less visible in the interstices of the latter.

The native country of this species is more particularly Cayenne and Surinam, where it is said to be excessively common, and whence it is sent in considerable numbers to Europe. It is much more frequently seen in this quarter of the globe than the foregoing, which is extremely rare.





THE WHITE STORK.

CICONIA ALBA. RAY.

IN the methodical arrangements of Ray and Brisson the Storks formed a distinct genus from the Herons and the Cranes, with which, and with various other less closely allied groups, they were united in the Linnean system of classification. Later naturalists have, however, seen the necessity of reverting to the older method, and of again separating these groups, which form in the arrangement proposed by Mr. Vigors two families, distinguished by well marked characters, and each comprehending several genera of considerable numerical extent. The first of these families is the Gruidæ, which comprise the Cranes, the Trumpeter, and other nearly related genera, distinguished by the comparative shortness and obtuseness of their bill, and the slight degree of palmation exhibited by their feet, which are smaller in proportion and consequently better adapted to the

terrestrial habits of these birds, as the bill is to their vegetable food. The second is the Ardeidæ, whose produced and generally pointed bill, and long, slender, and more deeply webbed toes, are equally well suited to their aquatic habits, and to the nature of the food, chiefly fishes and reptiles, on which they subsist. In the latter family are comprehended not only the Storks and the Herons, but also the Spoonbills, the Ibis, and several other groups remarkable as well for the singularity of their forms, as for the peculiarity of their manners, and the interesting nature of many of the facts connected with their history, both as regards themselves and with reference to the services which they actually render, or have been supposed to render, to mankind.

The distinguishing characters of the genus which at present engages our attention consist in a long straight beak, broad at the base, regularly narrowing to the point, opening to a moderate extent, and unimpressed on its upper surface either with lateral furrows or with a nasal pit; nostrils in the form of a longitudinal fissure, situated near the base of the bill and directed upwards; tongue extremely short; eyes surrounded by a naked skin; wings broad, expanding to a great extent, and prolonged posteriorly beyond the extremity of the tail; legs reticulated with hexagonal scales, of which the uppermost are the largest; web between the two outer of the anterior toes much more developed than that which is found at the base of the inner; posterior toe on the same level with the anterior ones; and claws broad, flat, and obtuse, approaching in form to the nails of man, and scarcely overlapping the extremities of the toes.

The species thus characterized are especially remarkable for the extent and regularity of their migrations,

which are chiefly determined by the nature of their food. This consists of various kinds of garbage, of worms, and insects, fishes and reptiles, and among the latter more particularly of frogs. At the approach of the colder season, when these animals begin to conceal themselves in holes, in order to pass the winter in a state of torpor, the Storks are driven by the failure of their usual means of subsistence to seek a more temperate climate, in which the same scarcity of food is not likely to be felt; but they constantly return northwards with the return of spring. The most common and the most celebrated among them is the White Stork, which generally passes its winters in the north of Africa, and more particularly in Egypt, and migrates during the summer season to France and Holland, Sweden, Germany, Poland, and sometimes even Russia, but is very rarely met with in England. It is rather larger than the succeeding species, measuring more than three feet from the extremity of the bill to the tip of the tail, and standing about the same height from the ground to the top of its head. Its bill, which is usually of an orange red, measures from seven to eight inches in length; the naked and wrinkled skin surrounding its eyes is nearly of the same colour, but generally of a duskier hue; and its legs are also red. The greater part of its plumage is of a clear white, which is however relieved by the striking contrast of the feathers covering the lower part of the shoulders, the larger wing-coverts, and the quill-feathers, thirty in number, all of which are of a glossy black, with a slight metallic reflection. When fully expanded the extent of the wings exceeds six feet, and in this state the eight or nine primary quill-feathers offer a very singular and indeed unique disposition, being separated from each other so as to leave a vacant space between.

The feathers of the lower part of the neck are long, pendulous, and pointed. There is little distinction in any of these particulars between the male and the female; but the young have a browner tinge in their wings, and their bills are of a duskier red.

These birds have in all ages been regarded with peculiar favour, amounting, in some countries, almost to veneration, partly on account of the services which they perform in the destruction of noxious animals, and in removing impurities from the surface of the earth, and partly on account of the mildness of their temper, the harmlessness of their habits, and the moral virtues with which the imagination has delighted to invest them. Among the ancient Egyptians the Stork was regarded with a reverence inferior only to that which, for similar causes, was paid to the sacred Ibis, considered, and with some show of reason, as one of the tutelary divinities of the land. The same feeling is still prevalent in many parts of Africa and the East; and even in Switzerland and in Holland something like superstition seems to mingle, in the minds of the common people, with the hospitable kindness which a strong conviction of its utility disposes them to evince towards this favourite bird. In the latter country more particularly, the protection which is accorded to it is no more than it fairly deserves as the unconscious instrument by which the dykes and marshes are relieved from a large portion of the enormous quantity of reptiles engendered by the humidity and fertility of the soil.

On the other hand the White Stork appears to be influenced by the same friendly feelings towards man. Undismayed by his presence, it builds its nest upon the house-top, or on the summits of the loftiest trees in the immediate neighbourhood of the most

THE WHITE STORK.

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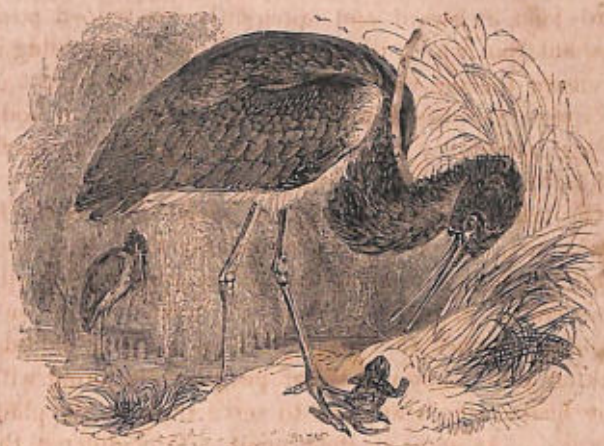
frequented places. It stalks perfectly at its ease along the busy streets of the most crowded towns, and seeks its food on the banks of rivers or in fens in close vicinity to his abode. In numerous parts of Holland its nest, built on the chimney-top, remains undisturbed for many succeeding years, and the owners constantly return with unerring sagacity to the well known spot. The joy which they manifest on again taking possession of their deserted dwelling, and the attachment which they testify towards their benevolent hosts, are familiar in the mouths of every one. Their affection for their young is one of the most remarkable traits in their character. It is almost superfluous to repeat the history of the female which, at the conflagration of Delft, after repeated and unsuccessful attempts to carry off her young, chose rather to perish with them in the general ruin than to leave them to their fate: and there are many other and well authenticated proofs of a similar disposition. They generally lay from two to four eggs, of a dingy yellowish white, rather longer than those of the goose, but not so broad. The incubation lasts for a month, the male sharing in the task during the absence of the female in search of food. When the young birds are hatched, they are carefully fed by their parents, who watch over them with the closest anxiety. As soon as they become capable of flying, the parents exercise them in it by degrees, carrying them at first upon their own wings, and then conducting them in short circular flights around their nest.

When in search of food the Stork is commonly seen, in its usual attitude of repose, standing upon one leg, with its long neck bent backwards, its head resting on its shoulder, and its eye steadily fixed. Its motions are slow and measured, the length of its steps corresponding with that of its legs. In flight its head and neck are

directed straight forwards, and its legs extended backwards; an awkward and apparently constrained position, but that which is best calculated for enabling it to cleave the air with rapidity. The large extent of its wings and the comparative lightness of its body are also admirably adapted to the lofty pitch at which it flies, and to its long continuance upon the wing.

The Storks generally migrate about the beginning of August, and the preparations for their departure usually occupy several weeks. They appear gradually to assemble in one spot from the whole of the surrounding district to the number of many hundreds, making when they meet that peculiar clattering with their beaks, which appears to serve them in the place of voice. As soon as their number is completed the entire body mount at once into the air, without noise or confusion, and are speedily lost sight of in the loftiness of their flight. Their departure has rarely been witnessed by scientific observers; and many incredible stories have consequently been told respecting it. They return to Europe in smaller bands in the months of March and April. Those which remain in the more northern countries during the winter, either tamed or in captivity, in which state they appear perfectly contented, do not seem to suffer in the least from the severity of the weather.





THE BLACK STORK.

CICONIA NIGRA. RAY.

THE Black Stork resembles the White in form and proportions, but is somewhat smaller in size; and the hue of its plumage, as might be gathered from the epithets applied to the two birds, is very different. But these epithets, if taken strictly, are far from being correct: the White Stork having, as we have seen, a portion of its plumage black; and the Black exhibiting a variety of shades, of which, however, that from which it derives its name is the most predominant. Its bill, like that of the former bird, is full seven inches in length, and of a dusky red, approaching to orange; as are also the legs and toes. The colour of the naked skin surrounding the eyes is dull red, and that of the irides hazel. On the head, neck, upper surface of the body, and wings, the feathers are of a deep glossy black, intermingled with varying shades and reflections of violet and green, which become more strongly

marked on the back and wings. Those of the whole under surface from the bottom of the neck to the base of the tail are white. The tail itself is black. The wings are extremely long, and so powerful as to raise the bird, in its flights and migrations, to such a height in the air as to be almost invisible to human eye.

Like the foregoing species, the Black Stork is a migratory bird, seeking the more southern parts of Europe during the inclemency of the winter. In the spring it advances to a much higher latitude than the White, visiting even Russia and Siberia, and passing over Sweden towards the north in considerable numbers. But it seldom comes so far westward as the other, being almost unknown in Holland, although common in the eastern departments of France and throughout the whole of Germany. A solitary instance of its occurrence in Great Britain fell under the notice of the late Colonel Montagu, and forms the subject of an interesting paper in the twelfth volume of the Linnean Transactions.

The character of the Black Stork is in one respect diametrically opposed to that of the White. Instead of domesticating itself as it were with man, it shuns his society, and makes its temporary dwelling in the most secluded spots, frequenting impenetrable morasses or the banks of such rivers and lakes as are seldom disturbed by the presence of intruders, and building its nest on the summits of the loftiest pines. Its food is exactly similar to that of its more social fellow; and their manners, except in this peculiar sullenness on the part of the Black Stork, closely correspond. It submits itself with perfect resignation to captivity, never using its powerful bill as a weapon of offence against its companions. It appears to have no other voice than the clattering sound which it produces by the snapping of its mandibles.



THE WHITE SPOONBILL.

PLATALEA LEUCORODIA. LINN.

THERE is perhaps no organ the modifications of which are so infinitely varied or have such influence on the physiognomical expression of birds as the bill. In the shape of this distinguishing feature nature appears to have exhausted every possible kind of variation, and sometimes even to have amused herself, if the expression may be allowed, with uniting in the same natural family forms the most dissimilar. Thus it may appear startling to some of our readers, but it is nevertheless an indisputable fact, that there is the closest affinity between the Spoonbills and the Storks, notwithstanding the great discrepancy which at first sight seems to exist between the conical tapering and pointed bill of the latter, and the broad, flat, and expanded figure of the same organ in the former, from which they derive

their not very well chosen appellation. So slight, indeed, is the difference between them in other essential points, that were we to set aside the form of the bill and the greater development of the web which unites the anterior toes of the Spoonbills, we should look in vain for any other characters of sufficient importance to establish a generic distinction between them.

The beak of the Spoonbills is proportionally somewhat longer even than that of the Storks; it is perfectly straight, flattened both above and below, broad, flexible, and covered at its base with a membranous cere. Towards the extremity it expands into an oval disk, of greater breadth than the remainder of the bill, and rounded at the point. The nostrils form two narrow oval fissures within the cere at the base of the upper mandible, which is slightly grooved on either side by a longitudinal furrow, and terminates in a trifling hook. On the inside the mandibles are channelled, the margins of the channel being raised, and surmounted by a row of sharp projecting denticulations. In the adult bird the cheeks are naked, and a tuft of long narrow feathers forms a crest on the back of the head. The tongue is exceedingly short, triangular, and pointed; the throat capable of being dilated into a pouch; the legs long and covered with large reticulated scales; the toes four in number, the three anterior united for a considerable distance by a web which is continued, in the shape of a fringe, to their very extremities, and the posterior resting upon the ground for nearly its whole length; the claws short, narrow, slightly curved, and pointed; and the second quill-feather the longest.

The White Spoonbill is the only certain species of the group that inhabits the Old Continent. In com-

mon with all the nearly related birds it is migratory in its habits, quitting the north of Europe, and more particularly Holland, which is its favourite summer resort, about November, and returning about April. In the winter it takes up its quarters in various parts of Africa, extending southwards even to the Cape of Good Hope. It is rarely met with in inland countries except on the banks of the larger rivers; but is by no means uncommon during the season on the coasts of the great extent of country which it embraces in its visits. In England it is now but an occasional visiter. Its size is less than that of the Wild Goose, its entire length from the extremity of the beak to the tip of the tail not exceeding two feet six or eight inches. Of this the bill alone measures six or seven inches, and its breadth at the widest part is not less than an inch and a half. The expanse of its wings is about four feet. The entire plumage is of a clear white, with the exception of a tawny yellowish spot on the breast of the adult, extending upwards on either side in the form of a narrow stripe, the two branches uniting on the back. The long narrow feathers which form the crest on the top of the head fall gracefully backwards. A pale yellow tinge distinguishes the circumference of the eyes and the throat, and is again visible at the extremity of the bill, the remainder of which is of a dull black, with a bluish shade in the lateral grooves. The colour of the legs and feet is perfectly black; and the irides are of a bright orange red. The females are smaller than the males, but differ in no other external character. In the young the quills of the wing-feathers are black, the parts which are without feathers are of a dirty white, and the crest and spot on the breast are entirely wanting.

The Spoonbills usually frequent wooded marshes

near the mouths of rivers, building in preference upon the taller trees, but where these are wanting taking up their abode among the bushes or even among the reeds. The females usually lay three or four whitish eggs. They associate together, but not in any considerable numbers, and feed upon the smaller fishes and their spawn, shell-fish, reptiles, and other aquatic or amphibious animals. The form and flexibility of their bills are well adapted for burrowing in the mud after their prey; and the tubercles which are placed on the inside of their mandibles serve both to retain the more slippery animals and to break down their shelly coverings. Their internal conformation, which is in nearly every respect similar to that of the Storks, is admirably suited to this kind of food. They have no proper voice, the lower larynx being destitute of the muscles by which sounds are produced, and their only means of vocal expression consist in the snapping of their mandibles, which they clatter with much precipitation when under the influence of anger or alarm. In captivity they are perfectly tame, living in peace and concord with the other inhabitants of the farm-yard, and rarely exhibiting any symptoms of wildness or desire of change. In common with the neighbouring groups they feed on all kinds of garbage.





THE CALIFORNIAN QUAIL.

ORTYX CALIFORNICA. STEPH.

THE necessity of subdividing so extensive a genus as the Tetrao of Linnæus, comprehending all the various species of Grouse, Partridges, Francolins, Quails, and Tinamous, was recognised even by the contemporaries of that great naturalist. Under the generic name of *Perdix*, Brisson separated from the group the Partridges, Francolins, and Quails; and later zoologists have thought it advisable to take advantage of the characters afforded by each of these tribes (characters so obvious as to have been marked even in their common names), to form them into distinct and natural genera. Another section, to which a generic rank has also been assigned, has still more lately been pointed out, and comprehends a group of birds peculiar to the New Continent, where they appear to be the repre-

representatives of the Quails of the Old World, from which they differ, however, in several striking particulars. To the last mentioned tribe belongs the bird figured at the head of the present article, one of the most elegant and least known of a very interesting family.

The Quails of America, the *Ortyx*es of modern systematists, called by M. Temminck and some of the later French writers *Colins*, are distinguished from the Quails and Partridges of Europe by the greater thickness, the comparative brevity, and the more elevated form, of their bills; and by the greater length of their tails, which are somewhat wedge-shaped and rounded at the extremity. Like the European Quails they are destitute of the tubercles or spurs which are observed on the legs of the male Partridges, and are so remarkably developed on those of the Francolins. Like them too they frequent thickets and bushes, building their nests on the ground, and migrate during the winter to more temperate regions. They appear to be exceedingly pugnacious in their habits, and as they always congregate in numerous flocks, their quarrelsome propensity has full scope for its indulgence.

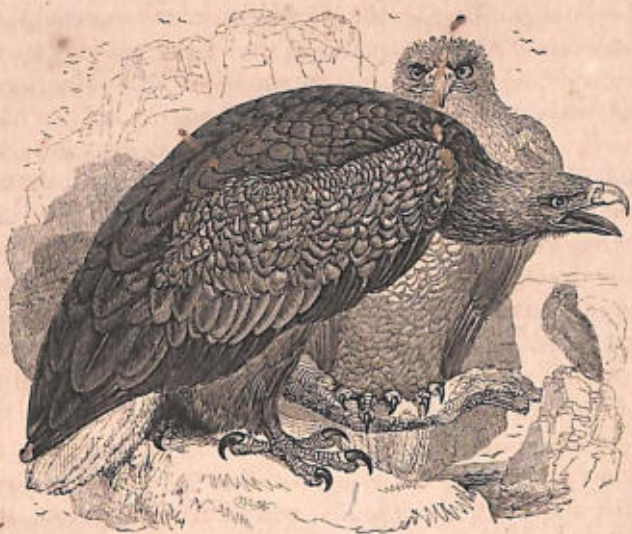
The general colour of the upper part of the body and wings in the Californian *Ortyx* is of a dusky brown, assuming a leaden or slaty tinge on the tail, and on the fore part of the breast, upon which it advances in the form of a broad band. The fore part of the head is of a mixed ash gray, and the hinder part blackish brown. From the latter rise five or six black feathers, an inch and a half in length in the male, the barbs of which gradually widen upwards, and are reflected backwards in such a manner that the edges of the two opposite sides nearly meet each other. This crest stands erect for about one half of its length, and the remainder is curved gracefully forwards over

the fore part of the head. The plumage of the back of the neck consists of numerous small triangular feathers of a slaty hue with a narrow black margin, and for the most part with a whitish tip. Between these and the throat, which is of a full black, passes a crescent-shaped stripe of whitish feathers, ascending from the front of the neck and terminating on each side beneath the eyes. A second and smaller stripe of the same hue passes on either side of the head from above the eyes obliquely backwards. The feathers of the under parts from the breast downwards are of a dull yellowish white with a tinge of brown, broad, and deeply margined with crescents of dusky black. The legs are covered as low as the knees with feathers of a rusty brown. On the sides of the body below the wings the feathers are rather long, and are each of them marked along the middle by a stripe of yellowish white. The bill and legs have an undecided dusky tinge. In size the bird is somewhat larger than the common European Quail, measuring nine or ten inches from the tip of the tail, which is long and rounded, to the extremity of the bill, and standing full eight inches in height to the top of the crest. The female differs chiefly in the smaller size of the feathers forming the crest, in the want of the whitish crescent which borders the throat of the male, in the browner colour of the throat itself, and in the generally fainter hue and less lively markings of her plumage throughout.

For the first notice of these beautiful birds we are indebted to the Editor of the Voyage of the unfortunate La Pérouse, who gave a figure of them in the Atlas to that work, merely mentioning in the text that they were plentiful in the low woods and plains of California, where they assembled in bands of two or three hundred, and became fat and well flavoured. Pre-

served skins were about the same time brought to England by Mr. Archibald Menzies, who accompanied Vancouver in his expedition round the world, and who returned to Europe rich in the natural productions of the western coast of America in particular. One of these, deposited in the British Museum, was described and figured by Dr. Shaw in his *Zoological Miscellany*, and again by Dr. Latham in the *Second Supplement to his General Synopsis*; but the bird was still very imperfectly known in this quarter of the globe until Captain Beechey brought over with him during the last year, on his return from his voyage of discovery, a number of living specimens. Unfortunately all the females died on the passage, and of the males, which were presented by that gentleman to the Society, one alone survives. Their manners seem to be identical with those of the Quails and Partridges, but they have a much more erect and graceful bearing. They are perfectly contented in captivity, and bore the change of climate well; it is therefore much to be regretted that the prospect of naturalizing a bird so neat in its form and markings, and so highly spoken of as an article of food, should have been frustrated for the present, although by unavoidable contingencies.





THE GREAT SEA-EAGLE.

HALIAËTUS ALBICILLA.

NEXT to the true Eagles, whose prey is taken on the land, and whose aerie is built upon the mountains, the group of which the present species is the type, comprehends the most powerful and the most destructive of the Raptorial Order. In common with them it forms part of a tribe distinguished from the rest of the Falconidæ by the absence of the tooth-like process of the beak which characterizes the Hawks and the Falcons; by the much greater length of that organ, its straight base, and terminal curvature, contrasted with the short beaks hooked from the very base which are common to most of the other tribes that constitute the family; by the comparative length of the quill-feathers,

the fourth being almost uniformly the most elongated of the series, and the first being extremely short; and by the equal development of those which compose the tail. Thus the actual existence of the Eagles as a division among the Falcons of Linnæus, which has been by some regarded as a mere conventional assumption grafted on the popular nomenclature, is established upon sound zoological principles.

The Sea-Eagles of M. Savigny form a less noble as well as a less typical group than the true Eagles, from which they recede considerably both in organization and habits. The ridge of their beak, instead of being somewhat angular, is convex and compressed; and their legs, instead of being plumed down to the very toes, are naked in their lower parts, the upper half of the tarsi alone being covered with short close-set feathers. The cere in which the nostrils are perforated is slightly hispid; the wings are long and powerful; the anterior surface of the tarsi is scutellated; the toes are free throughout their whole extent; the outer one is capable of taking a retroverted direction; and the claws are of unequal size, strongly curved, and furnished with a deep internal groove. They have all a greater or less tendency to change in a remarkable degree the colour of their plumage on the head and neck as they advance in age, evincing in this, as in several other respects, an approximation to certain South American groups, in which those parts are feathered in the young state and partially denuded in maturity, and through them to the Vultures, in which the head and neck are in all stages of their growth covered only with a silky down.

In the choice of their food the Sea-Eagles are far less scrupulous than their brethren of the land. Inhabiting most commonly the sea-coasts, or the banks of the larger rivers and inlets, they make their prey

chiefly of fishes and aquatic birds. These they usually carry off to devour at their leisure either on the rocks or in their nests. But occasionally, when all other resources fail, they fix themselves upon the dead carcases of animals which are thrown upon the shore, and their manner of feeding under such circumstances closely resembles the disgusting voracity of the Vultures. For hours and sometimes for days together they remain stationary upon the putrid carrion, and quit it only when it no longer affords the means of satiating the cravings of their appetite.

Much confusion has existed in the synonymy of the present bird, the difference of the colours of the plumage in the various stages of its growth, having misled authors so far as to induce them to record it under several distinct specific names. Three of these were almost universally admitted until about twenty years ago, when M. Frédéric Cuvier published in the Annals of the French Museum the result of his observations on the individuals confined in the Jardin des Plantes, which had convinced him of the propriety of uniting the *Falco ossifragus*, *albicaudus*, and *albicilla* of Gmelin under one common name. The differences which were formerly supposed to exist between these birds have been recognised by almost every subsequent writer as those of age alone. In its earlier stages its beak is of a bluish horn-colour; its head and neck deep brown; the plumage of its upper surface brownish black, with a mixture of whitish or ash-coloured spots on the back and tail. In this state it is the *Falco ossifragus* of systematic writers. As it advances in age, about the third or fourth year, the head and neck become of an ashy brown; the beak gradually loses its bluish tinge and changes to a pale yellow; the white spots on the back disappear; and the tail is of a uniform grayish

white: this is the *Falco albicaudus* of Gmelin, the Petit Pygargue of Buffon, and the Lesser White-tailed Eagle of Latham. When it has attained its fifth year the change may be regarded as complete: the head and neck have little of the brown tinge remaining; the back is throughout of a dusky brown intermixed with ashy gray; and the tail is perfectly white. It has now arrived at its mature state, in which it has been described and figured as the *Falco albicilla*, the Grand Pygargue, and the White-tailed or Cinereous Eagle. In all its stages the cere and naked parts of the legs are yellow; the under part of the body is of a lighter hue than the upper, and more thickly interspersed with pale cinereous spots; and the claws are completely black.

The Great Sea-Eagle is an inhabitant of nearly the whole of Europe and of Northern Asia. It sometimes builds its nests in the clefts of rocks, but more frequently on the summit of some lofty tree. The female lays two eggs, about the same size and shape as those of a goose. The young are fed with fish or flesh until they are able to quit the nest, when they sally forth with their parents in quest of their own prey, and speedily assume an independent mode of life.





THE WHITE-HEADED SEA-EAGLE.

HALIAËTUS LEUCOCEPHALUS.

IN the earlier stages of its growth there is little to distinguish this noble bird from the Great Sea-Eagle described in the preceding article. So obscure in fact are the characters that separate the two species at this period of their existence that M. Vieillot, carrying still farther the principle advanced by M. Frédéric Cuvier, and following the example of M. Daudin, has ventured, with a degree of inconsiderateness which could scarcely have been expected from so practised an ornithologist, to unite the White-headed Eagle to the list of synonyms which combine to form the common species. That such a union is founded upon insufficient data is proved by the gradual development in the bird now under consideration of a character which, after a certain age, at once distinguishes it from the remainder of

its tribe. This character consists in the pure whiteness of its head and neck, from whence it has derived the popular, but inappropriate, title of the Bald Eagle, by which it is most commonly known.

The young, according to Wilson, are at first covered with a thick whitish or cream-coloured cottony down; they gradually become of a gray colour as their plumage develops itself, and continue of a brown gray until the third year, when the white begins to make its appearance upon the head, neck, tail-coverts, and tail. These, by the end of the fourth year, are completely white, or at the most very slightly tinged with cream-colour. The eye is at first hazel, but gradually brightens into a brilliant straw-colour, as the plumage of the head becomes white. This account of the metamorphoses in colour of the White-headed Sea-Eagle, derived from the personal observations of the accurate author of the American Ornithology, has been in a great measure verified under our own inspection in the specimen now before us, which remained for several years in the possession of Mr. Brookes, before it was presented by him to the Society. During a considerable part of the time it was regarded as the Common Sea-Eagle; and it was not until its gradual change of plumage had at length rendered obvious its true character, that it was ascertained to be in reality a distinct species. The same error appears frequently to have existed with regard to it; and M. Temminck observes that the only mark of distinction that can be traced in it until it has assumed the adult colouring, consists in the somewhat greater length of its tail. He might, however, have added its smaller size, which is probably one-fourth less than that of the preceding bird, at the same age and under similar circumstances. From the observations which we have been enabled to make upon the subject, we

should be led to conclude that the period in which it attains its full growth and perfect colouring is, in this country at least and in captivity, two or three years longer than that stated by Wilson.

In its immature state, that is to say about the third year, the upper parts of the head and body exhibit a mixture of brown and dirty white, the separate feathers having a ground of the latter colour, and being deeply tipped, and broadly barred along the centre, with the former. The quill-feathers and primary wing-coverts are black, with their shafts of a pale brown; the secondary are considerably lighter; and the tail, which projects in a trifling degree beyond the extremities of the wings, is brown on the outer quills, and of a mixed white and brown on the inner. The under surface, as far backwards as the middle of the belly, is of a much lighter shade than the upper, being of a dull white with numerous broad streaks of pale brown. In the posterior part it is of a deep brown, the feathers being only slightly margined with white. A similar hue prevails on the upper parts of the legs, which are plumed somewhat below the knees. The beak is of a dusky brown; the cere and legs of a golden yellow; the iris somewhat lighter; and the talons deep blackish brown. The latter are long, strongly curved, of considerable power, and extremely sharp at the points.

The full grown bird measures upwards of three feet in length from beak to tail, and more than seven in the expanse of its wings. Its beak is changed to a bright yellow; and its head, a greater or less proportion of the neck (according as the bird is more or less advanced in age), and the entire tail, are become perfectly white. An analogous change, as we have before seen, takes place in the plumage of the preceding species; but

the head and neck of that bird always retain more or less of a brownish tinge, seldom changing fully into gray, and never turning completely white. These observations have been made upon numerous individuals, many of them placed for upwards of ten years under the eyes of various scientific observers: their accuracy may therefore be regarded as unquestionable. The remainder of the plumage in this state is of a deep brown, approaching to black, and strongly contrasted with the head and tail. The colour of the legs, feet, and talons remains nearly the same; but the iris generally continues to assume a lighter and a lighter hue. The eyes, it should be observed, are deeply sunk in the head, and instead of being placed in a line parallel with that of the cheeks, are directed forwards so as to form with them a considerable angle.

The White-headed Eagle is usually spoken of as inhabiting the northern parts both of the Old and New Continent; but it appears to be only a rare and occasional visitant of the former. It is probable that some of the varieties of the Common Sea-Eagle of this quarter of the globe have been frequently mistaken for it. Throughout nearly the whole of North America, on the contrary, where the European species seems to be unknown, it is met with in great abundance, as well on the sea-coast, as on the banks of the broad lakes and rapid rivers, from which the chief part of its sustenance is derived. It is generally regarded by the Anglo-Americans with peculiar respect as the chosen emblem of their native land. The great cataract of Niagara is mentioned as one of its favourite places of resort, not merely as a fishing station where it is enabled to satiate its hunger upon its most congenial food, but also in consequence of the vast quantity of

four-footed beasts, which unwarily venturing into the stream above, are borne away by the torrent and precipitated down those tremendous falls. The number of birds of prey of various kinds which assemble at the foot of the rocks to glut themselves upon the banquet thus provided for them is said to be incredibly great; but they are all compelled to give place to the Eagle when he deigns to feed on carrion, and the Crow and the Vulture submit without a struggle to the exercise of that tyranny which they know it would be in vain to resist. "We have ourselves," says Wilson, "seen the Bald Eagle, while seated on the dead carcase of a horse, keep a whole flock of Vultures at a respectful distance, until he had fully sated his own appetite." And he adds another instance, in which many thousands of Tree Squirrels having been drowned, in one of their migrations, in attempting to pass the Ohio, and having furnished for some length of time a rich banquet to the Vultures, the sudden appearance among them of a Bald Eagle at once put a stop to their festivities and drove them to a distance from their prey, of which the Eagle kept sole possession for several successive days.

So strong a propensity for carrion is unquestionably quite at variance with the received opinion that Eagles never make their attacks on any but living animals; but it should be recollected that the Sea-Eagles have an organization peculiarly fitted for feeding on fish, and are consequently better adapted for digesting putrescent and even putrid food than any other group of the tribe to which they belong. To such an extent is their disgusting voracity occasionally carried, that we are assured on the authority just quoted, that "in hard times, when food appears to be scarce, should he [the Bald Eagle] accidentally meet with one of these [Vultures], who has its craw crammed with carrion, he

attacks it fiercely in the air, the cowardly Vulture instantly disgorges, and the delicious contents are snatched up by the Eagle before they reach the ground." In fact it would appear that simple rapine, unless accompanied by the spoliation of another, is insufficient to satisfy the despotic temperament of this rapacious bird. His most common method of obtaining food, according to the concurrent testimony of American authors, consists in snatching from the Fish-Hawk, which appears to be a variety of the Balbusard or Osprey, the hard-earned morsel for which the latter has watched and toiled in vain. The manner in which he performs this cruel exploit is so admirably detailed in the excellent work to which we have had occasion so frequently to refer in the course of the present article, that it would be impossible to convey any thing like an adequate idea of the picture there sketched by the hand of one who was a perfect master of his subject, without extracting the entire passage.

"Elevated," says Wilson, "on the high dead limb of some gigantic tree that commands a wide view of the neighbouring shore and ocean, he seems calmly to contemplate the motions of the various feathered tribes that pursue their busy avocations below; the snow-white Gulls slowly winnowing the air; the busy *Tringa* coursing along the sands; trains of Ducks streaming over the surface; silent and watchful Cranes, intent and wading; clamorous Crows, and all the winged multitudes that subsist by the bounty of this vast liquid magazine of nature. High over all these hovers one whose action instantly arrests his attention. By his wide curvature of wing, and sudden suspension in the air, he knows him to be the Fish-Hawk, settling over some devoted victim of the deep. His eye kindles at the sight, and balancing himself with half-opened wings

on the branch, he watches the result. Down, rapid as an arrow from heaven, descends the distant object of his attention, the roar of its wings reaching the ear as it disappears in the deep, making the surges foam around ! At this moment the eager looks of the Eagle are all ardour ; and, levelling his neck for flight, he sees the Fish-Hawk once more emerge struggling with his prey, and mounting in the air with screams of exultation. These are the signal for our Hero, who, launching into the air, instantly gives chase, soon gains on the Fish-Hawk, each exerts his utmost to mount above the other, displaying in these rencontres the most elegant and sublime aerial evolutions. The uncumbered Eagle rapidly advances, and is just on the point of reaching his opponent, when with a sudden scream, probably of despair and honest execration, the latter drops his fish ; the Eagle, poising himself for a moment, as if to take a more certain aim, descends like a whirlwind, snatches it in his grasp, ere it reaches the water, and bears his ill gotten booty silently away to the woods."

Sometimes, however, the Fish-Hawks assemble in bands too numerous for him to encounter, and he is driven to hunt for himself. He then usually retires inland, and occasionally destroys great numbers of young pigs and lambs. At other times he contents himself with fowl ; and ducks, geese, and gulls fall victims to his insatiable appetite. His nest is commonly built on the top of a large tree, generally a pine or a cypress, and growing in the midst of a morass. It is formed of sticks, sods, hay, moss, and other similar materials ; and being repaired and added to year after year at length becomes a large black prominent mass, observable at a considerable distance. The

number of eggs laid by the female is generally two; and the young birds are tended by their parents with the greatest care. Fishes are sometimes carried to the nest in such numbers that their putrid remains lie scattered around the place, and taint the air to the distance of several hundred yards. The old birds continue to feed their offspring for a considerable time after the latter have become capable of quitting the nest.





THE BLACK SWAN.

CYGNUS ATRATUS.

WHEN the classical writers of antiquity spoke of the Black Swan as a proverbial rarity, so improbable as almost to be deemed impossible, little did they imagine that in these latter days a region would be discovered, nearly equal in extent to the Roman empire even at the proudest period of its greatness, in which their "rara avis" would be found in as great abundance as the common Wild Swan upon the lakes of Europe. Such, however, has been one of the least singular among the many strange and unexpected results of the discovery of the great southern continent of New Holland. Scarcely a traveller who has visited its shores omits to mention this remarkable bird. An early notice of its transmission to Europe occurs in a letter from Witsen to Dr. Martin Lister, printed in the twentieth volume of the Philosophical Transactions; and Valenty published in 1726 an account of two living specimens brought to Batavia. Cook, Vancouver, Phillip,

and White, mention it incidentally in their Voyages; and Labillardière, in his Narrative of the expedition of D'Entrecasteaux in search of La Pérouse, has given a more particular description, together with a tolerable figure. Another figure, of no great value, has also been given by Dr. Shaw in his Zoological Miscellany.

Since this period many living individuals have been brought to England, where they thrive equally well with the Emeus, the Kangaroos, and other Australian animals, insomuch that they can now scarcely be regarded as rarities even in this country. They are precisely similar in form and somewhat inferior in size to the Wild and Tame Swans of the Old World; but are perfectly black in every part of their plumage, with the exception of the primary and a few of the secondary quill-feathers, which are white. Their bill is of a bright red above, and is surmounted at the base in the male by a slight protuberance, which is wanting in the female. Towards its anterior part it is crossed by a whitish band. The under part of the bill is of a grayish white; and the legs and feet are of a dull ash-colour. In every other respect, except in the mode of convolution of its trachea, this bird so perfectly corresponds with its well known congeners, that it is only necessary to refer to the articles in which we shall hereafter describe those beautiful species for an account of the characters which are common to them all.

The Black Swans are found as well in Van Diemen's Land as in New South Wales and on the western coast of New Holland. They are generally seen in flocks of eight or nine together, floating on a lake; and when disturbed, flying off like wild geese in a direct line one after the other. They are said to be extremely shy, so as to render it difficult to approach within gunshot of them.



THE OSTRICH.

STRUTHIO CAMELUS. LINN.

UNEQUALLED in stature among birds, strikingly peculiar in its form, singular in its habits, and eagerly sought after as furnishing in its graceful plumes one of the most elegant among the countless vanities both of savage and civilized life, the Ostrich has always

excited a high degree of interest in the minds even of the most superficial observers. But far more strongly does this feeling prevail in that of the reflecting naturalist, who does not regard this gigantic bird as an isolated portion of the great system of nature, but perceives in it one of those remarkable links in the complicated chain of the creation, too often invisible to human scrutiny, but occasionally too obvious to be overlooked, which connect together the various classes of animated beings. With the outward form and the most essential parts of the internal structure of Birds, it combines in many of its organs so close a resemblance to the Ruminating Quadrupeds as to have received, from the earliest antiquity, an epithet indicative of that affinity which later investigations have only tended more satisfactorily to establish. The name of Camel-Bird, by which it was known, not only to the Greeks and Romans, but also to the nations of the East; the broad assertion of Aristotle that the Ostrich was partly Bird and partly Quadruped; and that of Pliny, that it might almost be said to belong to the class of Beasts; are but so many proofs of the popular recognition of a well authenticated zoological truth.

The Ostrich in fact is altogether destitute of the power of flight, its wings being reduced to so low a degree of development as to be quite incapable of sustaining its enormous bulk in the air. Its breast-bone is consequently flattened and uniform on its outer surface, like that of a Quadruped, offering no trace of the elevated central ridge so generally characteristic of Birds, and so conspicuously prominent in those which possess the faculty of supporting themselves long upon the wing. Its legs on the contrary are excessively powerful; and are put in action by muscles of extraordinary magnitude. This muscular power, together with the great length of its limbs, enables it to run with

incredible swiftness, and to distance with little exertion the fleetest Arabian horses. The total want of feathers on every part of these members, and their division into no more than two toes connected at the base by a membrane, a structure not unaptly compared to the elongated and divided hoof of the Camel, have always been considered striking points of resemblance between these animals : but there is another singularity in their external conformation which affords a still more remarkable coincidence. They are both furnished with callous protuberances on the chest and on the posterior part of the abdomen, on which they support themselves when at rest ; and they both lie down in the same manner, by first bending the knees, then applying the anterior callosity, and lastly the posterior, to the ground. Add to this that, equally patient of thirst, and endowed with stomachs somewhat similar in structure, they are both formed for inhabiting, to a certain extent, the same arid deserts, and it will readily be granted that the affinity between these animals is not so fanciful as might at first sight be imagined.

The family of Birds of which the Ostrich forms the leading type, is remarkable for the wide dispersion of its several members ; each of them vindicating as it were to itself a distinct portion of the surface of the earth. The Ostrich, which is spread over nearly the whole of Africa, is scarcely known beyond the limits of the Arabian deserts ; while the Cassowary occupies its place amid the luxuriant vegetation of the Indian Archipelago. The Emeu is confined to the great Australian Continent, and the Rhea to the southern extremity of the Western Hemisphere. And finally, returning homewards, we find the Bustard, the largest bird of this quarter of the globe, receding it is true in some particulars from the typical form, but still fairly to be

regarded as the representative of the family in Europe. Some species, however, belonging to the same group with this latter bird, extend themselves over a considerable portion both of Africa and Asia.

The principal external characters by which the birds above enumerated are connected together, consist in the absence of the hind-toe, of which not even a vestige remains; in the length and power of their legs, which are completely bare of feathers; in the shortness of their wings, and their uselessness as organs of flight; in the length of their necks; and in their strong, blunt, flattened bills. The plumes of the more typical among them are distinguished by the want of cohesion between their barbs, a cohesion which in other birds is manifestly subservient to the purposes of flight, and which would therefore have been superfluous in these, which never raise themselves above the surface of the ground. Their food is almost entirely vegetable, and consists of seeds and fruits, or, rarely, of eggs and worms. Between the crop, which is of enormous size, and the gizzard, which varies in thickness and power, several of them are furnished with an additional ventricle, analogous to the structure which prevails in Ruminating Quadrupeds. They occupy a station in some degree intermediate between the Rasorial Birds and the Waders, approaching the latter in many particulars of their outward form, but much more closely connected with the former in their internal structure, in their food, and in their habits.

Of the differential characters which give to the Ostrich the rank of a genus, the most important is founded on the structure of its feet, which have only two toes, both directed forwards and connected at their base by a strong membrane; the internal being considerably larger than the external, and being furnished

with a thick hoof-like claw, which is wanting in the latter. The legs are covered with a rugged skin, reticulated in such a manner as to present the appearance of large scales: they are completely naked throughout, even in the muscular part, which, like the under surface of the wings, is bare of feathers, and exhibits a flesh-coloured tinge. The wings are each of them armed with two plumeless shafts, resembling the quills of a Porcupine. Instead of quill-feathers they are ornamented with gracefully undulating plumes, and similar appendages terminate the tail. The long neck is covered on its upper half with a thin down, through which the colour of the skin is distinctly visible. The head is small in proportion to the magnitude of the bird, and is invested with the same kind of covering as the neck, except on its upper surface, which is bald and callous. The ears are naked on the outside and hairy within; the eyes are large and brilliant, and so prominently placed as to enable both to obtain a distinct view of the same object at the same time. They bear a remarkable similarity to the eyes of Mammiferous Quadrupeds, and have frequently been compared to those of man, which they also resemble in the breadth and mobility of their upper lids, and in the lashes by which these organs are fringed. The beak is short, straight, broad at the base, and rounded at the point, flattened from above downwards, extremely strong, and opening with a wide gape. The nostrils are seated near the base of the upper mandible, and are partly closed by a cartilaginous protuberance.

The African Ostrich is the only species to which the foregoing characters are applicable. It is generally from six to eight feet in height. The lower part of the neck of the male, and the whole of its body, are clothed with broad and short feathers of a deep black.

intermingled with a few others which are nearly white and are barely visible except when the plumage is ruffled. In the female the general colour of the feathers is of a grayish or ashy-brown slightly fringed with white. In both sexes the large plumes of the wings and tail are beautifully white. The bill is of the colour of horn, becoming blackish towards the point. The iris is deep hazel. On the head and neck the hairy down is clear white. In the young bird these parts, as well as the muscles of the legs, are covered like the rest of the body with ash-coloured feathers, which fall off after the first year and are not again produced.

The character of the Ostrich, like that of other granivorous birds, is extremely mild. It never makes use of its great muscular power to attack, and rarely even in its own defence. It generally has recourse to flight, as its most effectual security against danger; and were its intelligence equal to its velocity, this resource would seldom fail of success. The chase of these birds is accounted one of the most skilful and difficult exercises both for the Arab and his horse, requiring at once the most unwearied patience and the most reckless impetuosity. The former is absolutely necessary in order to keep them within sight and to watch their motions as they wheel round in a circle of greater or less extent, and the latter to seize the favourable opportunity of dashing down upon them in their course and disabling them, which is generally effected by means of a stick thrown with dexterity between their legs. A chase of this kind will frequently last from eight to ten hours. When taken they evince no ill humour, and after a time become in some degree docile, suffering themselves to be mounted and ridden like horses. M. Adanson, who had several times

witnessed this spectacle in Senegal, declares that even when mounted by two men, they outstripped in speed an excellent English horse. In running they always expand their wings, not, as has been erroneously imagined, to catch the wind in order to assist them in their flight, for they do it indifferently whether running with or against the wind, but in all probability to counterbalance their great height by the extension of these lateral appendages.

Their natural food consists entirely of vegetable substances, and more especially of seeds and the various kinds of grain, in pursuit of which they frequently commit the greatest devastations among the crops in cultivated countries. But so obtuse is the sense of taste in this bird that it swallows with the utmost indifference, sometimes even with greediness, whatever comes in its way, whether of animal or mineral origin, partly for the purpose, as it should seem, of distending its stomach, and partly also to assist, like the gravel in the crops of our common poultry, in the trituration of its food. Its fondness for the metals in particular was early remarked, and obtained for it the epithet of "the iron-eating Ostrich." Popular credulity even went so far as to assign to it the power of digesting these substances, and many are the allusions in our older writers to this fancied property. As an amusing illustration of the prevalence of this belief we may quote the following characteristic lines from "The Boke of Philip Sparow," written by Master John Skelton, a laurelled poet of the reign of King Henry the Eighth :

The Estridge that will eate
An horshowe so greate
In the steade of meat
Such fervent heat
His stomake doth freat.

We know not if the Ostriches of these days are given to the eating of horseshoes; but unquestionably they have a particular fancy for keys, nails, and other such easily disposed of articles. It would, however, be perfectly ridiculous to imagine that the stomach of this bird is capable of digesting metals and converting them into food, although it is undoubtedly true that after having lain in that organ for a length of time they become corroded by its juices. M. Cuvier found in the stomach of an individual that died in the Paris Menagerie nearly a pound weight of stones, bits of iron and copper, and pieces of money, worn down by constant attrition against each other as well as by the action of the stomach itself. The human stomach, we may add, is equally capable of a similar exertion, although not so frequently called upon to put it to the test. Many of our readers will no doubt recollect the case of an American sailor who died in one of the London hospitals in 1809, and who had swallowed in the ten previous years no fewer than thirty-five clasp-knives. Fragments of these, to the number of between thirty and forty, thirteen or fourteen of them being evidently blades, were found in his stomach after death. "Some of these," says Dr. Marcet in his account of the case, "were remarkably corroded and reduced in size, while others were comparatively in a tolerable state of preservation." More than one instance of a similar description has since been put on record.

Although the Ostriches live together in large herds, the received opinion among naturalists is that the males attach themselves to a single female. There is some difficulty in determining the number of eggs laid by the latter; some travellers estimating it as high as eighty, while others reduce it to ten. Of this latter opinion was Le Vaillant, whose authority is decidedly entitled to the highest respect on every subject connected with

the habits of birds, which he studied in a state of nature with the scrutinizing eye of a philosopher and the patient zeal of a scientific observer. He relates, however, a circumstance which once fell under his own observation, and which tends in some measure to reconcile these discordant statements, while at the same time it renders it questionable whether the Ostrich is not, occasionally at least, polygamous. Having disturbed a female from a nest containing thirty-eight eggs of unequal size, and having thirteen others scattered around it, he concealed himself at a short distance, and observed during the day no less than four females successively taking part in the maternal office. Towards the close of the evening a male also took his share of the duty; and Le Vaillant remarks that he has frequently had opportunities of verifying the fact that the male bird sits as well as the female. In this case it would appear probable that several females had deposited their eggs in one common nest. The extraordinary number of eggs said to have been sometimes found may also perhaps be accounted for by the fondness of the natives for these delicacies, which they abstract from the nest by means of a long stick, cautiously avoiding to introduce their hands, which they affirm would infallibly drive the bird to abandon the place. The Ostrich naturally continues laying in order to complete her usual number; and in this way forty or fifty eggs may actually have been obtained from a single female.

Within the torrid zone the eggs are merely laid in the warm sand, the female sometimes sitting upon them during the night; but in general the rays of the sun are sufficiently powerful to hatch them without any assistance on her part. She does not, however, as has been commonly stated, neglect her offspring, but watches over them with as much solicitude as any

other bird, hovering around the spot in which they are deposited, and if surprised in her occupation, making a short circuit, and constantly returning to the object of her care. This doubling kind of flight is regarded by the hunters as a certain sign of the vicinity of her eggs, as at all other times the Ostriches pursue, for a time at least, a direct and straightforward course. In the more temperate regions, and especially in the neighbourhood of the Cape, the Ostrich sits like other birds, always choosing the most retired and solitary places. Her nest consists merely of a pit of about three feet in diameter dug in the sand, which is thrown up around it so as to form an elevated margin. At some little distance are usually placed, each in a separate cavity in the sand, a number of rejected eggs, which are said to be intended to serve as nutriment for the young brood as soon as hatched; a most remarkable instance of foresight if truly stated, but not yet confirmed beyond the possibility of doubt.

The eggs are extremely hard, very weighty, and twenty or thirty times as large as those of our common hen. The colour of the shells is a dirty white, tinged with light yellow. These are frequently formed into cups; and are used in various ways as ornaments by the natives of the countries in which they are found. The eggs themselves form, according to Thunberg, an article of considerable commerce at the Cape, where they are sold to the vessels that touch there, the thickness of their shells rendering them preferable for a sea-voyage to those of any other bird. They are generally regarded as great luxuries; but on this point there is some difference of opinion, M. Sonnini affirming that, either from habit or from prejudice, he could not bring himself to consider them so good as the eggs to which he had been accustomed; while M. Cuvier rapturously

exclaims, that they are not merely to be regarded as delicacies, but are in fact "*ipsissima deliciae*;" an expressive but untranslatable phrase, which we can only render, in piebald English, the *ne plus ultra* of good eating. It is by no means improbable that, in the latter instance, the rarity of the dish conferred upon it a higher relish than its own intrinsic flavour would have warranted; as was undoubtedly the case when the dissolute Roman Emperor, in Rome's degenerate days, ordered the brains of six hundred Ostriches to be served up to his guests at a single supper.

The flesh of these birds was among the unclean meats forbidden to the Jews by the Mosaical law. It seems, however, to have been in especial favour with the Romans, for we read of its being frequently introduced at their tables. We are even told by Vopiscus that the pseudo-Emperor Firmus, equally celebrated for his feats at the anvil and at the trencher, devoured, in his own imperial person, an entire Ostrich at one sitting. It is to be hoped that the bird was not particularly old; for it is allowed on all hands, at least in the present day, that when it has reached a certain age it is both a tough and an unsavoury morsel. The young are nevertheless said to be eatable; and we may well imagine that the haunch of such a bird would furnish a tolerably substantial dish. The Arabs, it may be added, have adopted the Jewish prohibition, and regard the Ostrich as an unclean animal: but some of the barbarous tribes of the interior of Africa, like the *Struthiophagi* of old, still feed upon its flesh whenever they are fortunate enough to procure it.

The Ostriches in the Society's Collection would be truly a noble pair, were it not for an unnatural curve in the neck of the male, in consequence, it is said, of its having formerly swallowed something more than

usually bulky and hard of digestion. It was probably on account of this slight deformity that the female took upon herself, soon after their arrival in the Gardens, to tease and worry him in various ways, so that the poor bird was literally henpecked by his mate. This system of persecution was at length carried so far that it was found necessary to separate them, and the female has now the whole enclosure to herself. She is a remarkably fine bird, in excellent health and condition, and, when her neck is elevated to its utmost pitch, is fully eight feet in height. They were both formerly in the possession of the late Marchioness of Londonderry, on whose death they were presented to the Society by the Marquis of Lothian, in the spring of the present year.





THE GOLDEN PHEASANT.

PHASIANUS PICTUS. LINN.

THE genus *Phasianus*, restricted, in imitation of the older naturalists, to the true Pheasants, and excluding the domestic fowls which were united to it by Linnæus, is known by the following distinctive characters. The bill is of moderate size, arched and convex on its upper surface, and slightly depressed towards the point, having the nostrils placed laterally near its base, and partly closed by a membranous process. The cheeks are thinly clothed with minute velvety feathers; and the rest of the head as well as the entire throat is covered with plumage, the former being entirely destitute of the comb which is so conspicuous on that of the common fowl. The wings are short; and the three outer quill-feathers less elongated than the fourth and fifth. The tail is long, narrow, and arching, com-

posed of eighteen feathers, forming two vertical planes, and overlapping each other in regular gradation, the two middle ones being considerably longer than the rest. The legs are furnished with a conical spur; and the feet are divided into four toes, the three anterior of which are united at the base by a short membranous expansion.

Of these characters it is chiefly the want of the comb, the peculiar covering of the cheeks, and the remarkable form of the tail that distinguish the present group from the genus *Gallus*, comprehending the numerous species and varieties of domesticated fowls. From this hardy tribe the Pheasants differ still more in constitution and habits than in external characters, seldom breeding in captivity, unless under the most favourable circumstances, and manifesting an excessive sensibility to the impressions of a variable atmosphere, and the influence of a northern climate. The usual attitudes of the birds are moreover extremely different: the Cock elevating his head to the full stretch of his neck with a haughty and independent air, while the Pheasant projects it forwards in an almost horizontal position, scarcely raising it above the level of his body.

Of all the species of Pheasants which are met with in our preserves and in our aviaries, the Golden Pheasant is the rarest and the most beautiful. The male bird, when in perfect plumage, measures nearly three feet in length, of which the tail alone forms about two-thirds. The feathers of the fore part of the head are very long, silky, and of a bright yellow; and considerably overhang those of the hinder part, which are of a brilliant orange, marked with transverse black rays. These last are elongated and extended backwards over the sides of the neck, and may be raised or depressed at will. A few minute hairs are scattered over the

cheeks, which are of a livid complexion. The feathers of the back of the neck are tinged with a mixture of green and gold and bordered with black: those of the back and the upper tail-coverts are bright yellow, the latter terminating in a crimson border. Over the base of each wing is a broad patch of deep blue passing almost into violet; the wing-coverts and secondary quill-feathers offer various shades of chestnut and brown; and the primary quill-feathers are marked with reddish spots upon a brown ground. The tail-feathers are variegated with chestnut and black, the colours being disposed in oblique rays upon the lateral quills. Immediately above the base of the tail the feathers are of a beautiful scarlet. The throat is of a dusky brown; and all the rest of the under surface, including the neck, the breast, and the abdomen, is of a bright scarlet. The iris is bright yellow, as are also the bill and legs, but with a somewhat lighter tinge: the latter are furnished with moderate-sized spurs.

In the female, as is usual in this tribe of birds, the colours are infinitely less splendid than those of the male. The upper parts are of a rusty brown varying in intensity; the under surface is marked with spots of a deep brown on a lighter ground; the throat is nearly white; the wings are transversely barred with black; and the tail, which is considerably shorter than that of the male, is variegated like the wings.

These magnificent birds are natives of China; and it was warmly maintained by Buffon, in accordance with his theory of the degeneration of animals, that they were merely a variety of the Common Pheasant, which had assumed a more splendid plumage in consequence of the superior fineness of the climate in which they dwelt. Unfortunately for this hypothesis the Common Pheasant is also widely spread throughout the same

region, in which it preserves all the characters by which it is distinguished in Europe, and never produces in its wild state a mixed breed with its supposed variety. No naturalist since Buffon has imagined such a transformation possible. In our Menageries a mixed breed is sometimes obtained, but with the greatest difficulty, and the product is absolutely incapable of continuing the race. It requires indeed no small degree of care and attention to procure a breed from the Golden Pheasants themselves. Much of the difficulty, as well as much of the tenderness of constitution manifested by these birds, is attributed by M. Temminck to the close confinement in which they are usually kept, and to the very precautions which are taken to preserve them from the effects of cold. He advises that they should be gradually habituated, like the more common race, to the large pheasantries in which the latter are preserved, and doubts not that, as they multiplied under such circumstances, they would become more and more hardy, until at last they would be fully capable of supporting the cold of our northern winters. The experiment, he tells us, has already been made in Germany, where they have been kept at perfect liberty in an open pheasantry, in company with the common species, and suffered no greater inconvenience than the latter from the change of seasons. We anticipate an equally favourable result from the repetition, under the auspices of the Zoological Society, of this attempt to naturalize so brilliant an addition to our native game. Such an experiment could not have been made with any chance of success in the Gardens in the Regent's Park; but the farm in the neighbourhood of Kingston, of which the Society has lately become possessed, affords the fairest prospect of carrying this and many similar undertakings into complete effect.



THE SILVER PHEASANT.

PHASIANUS NYCTHEMERUS. LINN.

THE Silver Pheasant is a much more hardy species than the bird described in the preceding article. It is easily tamed, and may be reduced to a state of domestication almost equal to that of the common fowl, which it resembles more closely in its form and manners than any other species of the group to which it belongs. The total length of the male bird is about two feet eight inches. Its cheeks are clothed with an apparently naked skin of a bright red colour, advancing forwards above the eyes so as to form a kind of crest, and terminating in a pendulous fold on each side of the lower mandible. The top of the head is ornamented by a tuft of long black feathers, which fall down over the upper part of the back of the neck. On the sides of the head and neck, the entire surface of the back and wings, and the upper part of the tail, the plumage is of a bright

silvery white, traversed with the greatest regularity by an infinite number of finely pencilled black lines passing obliquely, in the form of chevrons, across the feathers. A striking contrast to this delicacy of tint is afforded by the uniform purplish black of the fore part of the neck, breast, and under surface of the body. The two long tail-feathers are perfectly white in their extreme half; the iris is of a brownish orange; the bill yellowish, but becoming dusky towards the point; the legs deep red; and the spurs long, sharp, and white. In the female the red of the cheeks is much less extensive; the top of the head has a kind of crest of a dusky brown; the neck, breast, and upper surface are of an earthy brown; the lower parts of a dingy white, with a mixture of brown, and crossed by blackish bands; the quill-feathers of the wings are nearly black; and the tail variegated with black, white, and brown.

This elegant species inhabits the north of China, whence it has been imported into Europe. It thrives even better in domestication than the Common Pheasant of our woods, and breeds with tolerable facility; so that it might in all probability be readily propagated in the open country. We believe that this has been in some instances attempted with success.





THE GALEATED CURASSOW.

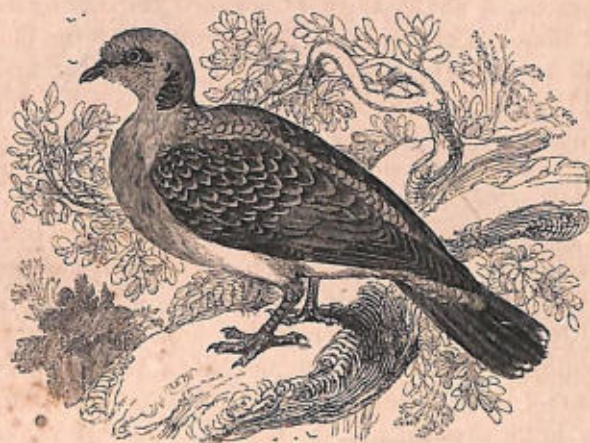
OURAX PAUXI. CUV.

THE birds of this genus bear a close resemblance to the genuine Curassows, not only in general form, but also in the details of their organization. The differences observable upon a close examination are, however, quite sufficient to justify their separation. In the present group the bill is shorter, deeper, and more compressed; a horny protuberance frequently rises from the upper mandible, with the base of which it is continuous; the nostrils are seated behind this protuberance, and are perpendicular in their direction; and the membranous cere which surrounds them is covered with short velvety feathers.

The Galeated Pauxi is in size about equal to the Crested Curassow, described at page 9 of the present work. Its head and neck are covered with short black velvety feathers; and all the rest of the plumage, with

the exception of the white abdomen and under tail-coverts, is of a brilliant black, exhibiting, in certain positions, a slight tinge of green. The tail-feathers are tipped with white. The legs are red; the claws yellow; and the iris brown. The bill is of a bright red; and the protuberance by which it is surmounted (which is rounded in the young birds, and pear-shaped with the narrow end directed forwards in the adult males), is of a livid slate-colour. This remarkable projection is more than two inches in length when fully developed; it is hard and bony externally, and internally cellular, the cells communicating with the cavity of the mouth. It is not visible until after the first moulting, when it begins to make its appearance in the form of a small tubercle, and attains a much larger size in the male than in the female. In other respects there is little difference between the sexes; and the young are only distinguished by a browner tinge. The windpipe descends for a considerable distance in front of the sternum, immediately beneath the skin, and makes no less than three distinct convolutions before passing into the cavity of the chest.

These birds are natives of Mexico, and live in large bands, perching upon the trees, but more commonly building their nests upon the ground. The females lead their young about in the same manner as the hen pheasant or the common hen. They subsist at first upon worms and insects; but as they grow older they add to these animal productions the fruits and seeds of vegetables. They are easily domesticated, even when taken adult; and appear to be equally capable of being acclimated in Europe with any of the other species. M. Temminck enumerates them among the birds which bred abundantly in the Menagerie of M. Ameshoff prior to the breaking out of the French revolution.



THE TURTLE DOVE.

COLUMBA TURTUR. LINN.

It seems to be now generally acknowledged that the Pigeons form part of the Rasorial or Gallinaceous Order, which they evidently connect by a direct series of affinities with the Perchers. They have been subdivided by Le Vaillant and Temminck into three distinct groups, dependent on differences in the size and strength of their bills and the proportional length of their legs; Mr. Swainson has added a fourth, characterized by the continuation of the plumage of the legs along the tarsi as far as the toes; and M. Vieillot a fifth, consisting for the present of a single species remarkable for its large size and the crest upon its head. The whole family, however, appears to require an accurate revision, with a view to a still more extensive subdivision of its numerous species.

The characters of the family are as follows: a short slender bill, straight at the base, slightly enlarged and sometimes more or less curved towards the tip of the upper mandible; nostrils covered by a cartilaginous scale, and situated towards the anterior part of a soft fleshy substance which surrounds the base of the bill in the manner of a cere; legs moderately robust, terminating in four toes, the three anterior of which are separated nearly to the base, having no intervening membrane except that which is derived from the margins themselves, while the fourth or posterior one is placed upon the same level with the rest; and a tail composed for the most part of twelve feathers.

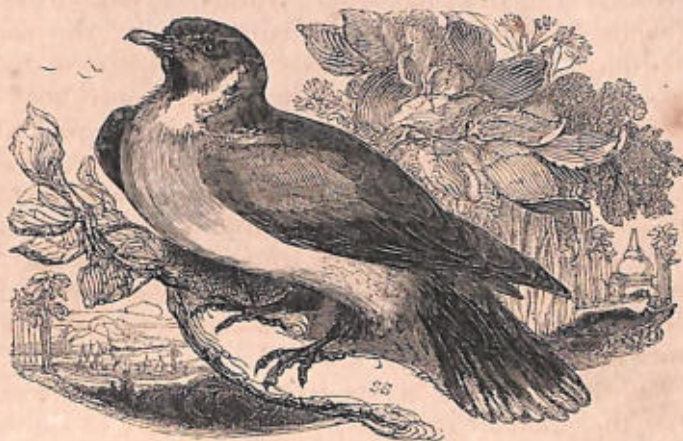
The birds thus characterized are natives of all the warmer and more temperate regions of the earth; and live almost entirely upon seeds and berries. They pair together with the strictest constancy, the male and female sharing between them their common nest and the care of the progeny which it contains. This nest is sometimes built on the higher branches of trees, but more commonly in thickets and copses, and occasionally even on the ground or in the clefts of rocks. The female lays twice or thrice a-year, and generally two eggs at a time, on which she sits alternately with the male, who takes her place for several hours during the day while she is absent in search of food. When the young are first hatched they are unfledged and blind, and consequently unable to provide for themselves. This task the parents fulfil, disgorging a portion of their half-digested food into the mouths of their nestlings, over whom they watch with the most unremitting attention. When the eggs are only two in number, they are said almost uniformly to produce a male and a female bird, which never separate, but attach themselves to each other for life.

That genus, or division of the family, which comprehends the Doves and Pigeons properly so called, is distinguished from the others by the slenderness and flexibility of the bill, accompanied by a slight enlargement towards its point; the comparative shortness of the legs; and the greater length of the wings. It may be further subdivided with reference to the equality of the quill-feathers composing the tail, or to their regular graduation in the form of an elongated cone. These birds usually take up their abode in the woods, building high upon the branches or in the hollow trunks of the loftier trees. They approach the Insectorial Order in their habit of perching both day and night; but bear a marked resemblance to the more typical of the Gallinaceous tribes in the nature of their food and their manner of taking it. Unlike most of the latter, however, they are eminently migratory, and generally pass the winter in more southern climates; the strength of their wings enabling them to accomplish in a very short space of time flights of almost incredible extent.

With the exception of the Domestic Pigeon and its innumerable varieties, the Turtle Dove is probably the best known of the group. It is also the most widely disseminated; spreading itself over all the countries of the Old Continent, with the exception of the most northern, from France and England on the west, to China on the east, and the Cape of Good Hope on the south. It generally arrives in England about the middle of May, and quits us towards the end of August or the beginning of September, as soon as its young are in a condition to accompany it in its migration to the south. It builds its nest in the most retired and solitary places, and generally in the neighbourhood of water. This nest is formed in the simplest manner of small branches entwined together so loosely as to leave openings between them through which the eggs may

be readily seen from beneath. Numerous pairs usually associate together, building their nests in the same situation, and flying abroad in a body in quest of food. They are generally observed to be extremely busy in the corn-fields after the reaping of the corn, and also among the peas, of which they are particularly fond. The peculiarly plaintive modulation of their voice, which however becomes disagreeable after a time from the continued recurrence of one dull unvaried sound, is familiar to the ears of all. They are easily tamed if taken in the nest, and become moderately familiar in captivity.

The Turtle Dove is about eleven inches in length from the point of the bill to the extremity of the tail, which is rounded and slightly graduated. The upper part of its head and neck is of an ashy gray; its back and tail-coverts brown; the upper wing-coverts of a dusky brown in the middle, with a broad reddish border; the smaller wing-coverts gray; and the quill-feathers dusky brown, with a narrow border of grayish white. The sides of the neck are marked by a patch of small black feathers with white points; the throat and breast are of a beautiful bright chocolate brown, rather paler towards the lower part and sides; and the remainder of the under surface of the body, as well as the legs, pure white. The quill-feathers of the tail are grayish brown above and dusky black beneath, all except the two intermediate ones ending in a white spot; the two lateral ones have also a band of white occupying their outer edge. The naked skin round the eye is of a light red; the iris pale orange; the bill brown with a tinge of blue; the legs and feet red; and the claws black. The plumage of the female is less lively in its colours; and that of the young birds, which want the black patches on the sides of the neck, is even still more dull.



THE JAMBOO PIGEON.

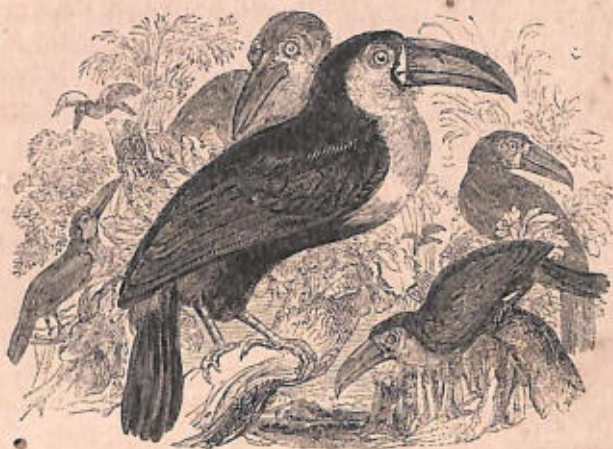
COLUMBA JAMBOS. LATH.

AMONG the numerous birds of this group which are remarkable for the brilliancy and variety of their colours, the Jamboo Pigeon deserves to be ranked as one of the most beautiful. There is, however, considerable difference between the sexes, the colours of the male being much more vivid than those of the female. The former has the upper part and sides of the head of a deep and brilliant red; and the whole upper surface of the body, the wings, and the tail, of a bright green. The throat is of a deep maroon approaching to black; and the rest of the under surface, with the exception of a large oval pink or rose-coloured spot upon the breast, white, with a tinge of drab on the abdomen and legs. The under tail-coverts are brown; and the quill-feathers of the tail of a dusky black beneath, with a patch of white at the tips. The naked part of the legs has the reddish hue which is common to almost the whole genus. The skin

round the eye is white, the irides reddish hazel, and the bill pale inclining to yellow. In the female the head is of a dull brownish green; the throat brown; the belly white; and the rest of the body, including the neck, chest, back, wings, and tail, of a beautiful bright green. The length of the body is from nine to ten inches.

This elegant bird is a native of Java and Sumatra, where it inhabits the woods of the interior, and lives chiefly on the berries of a species of *Ardisia*. It was first observed in the latter locality by Mr. Marsden, who described it, in his *History of Sumatra*, under the name of Pooni-Jambo; an appellation which it is said to derive from the similarity in colour between the upper part of its head and the flower of the Jambo, one of the most highly esteemed of Indian fruits. On his authority it was adopted by Latham, Gmelin, and other zoologists. But it was not by any means clearly known to science until both the male and female birds were figured in M. Temminck's magnificent work on the Pigeons, containing splendidly coloured representations of no less than sixty-three species of the genus from the pencil of the celebrated Madame Knip. The colouring, however, of this species, which was probably taken from stuffed specimens, is defective as regards the throat, eyelids, and bill.





THE ARIEL TOUCAN.

RAMPHASTOS ARIEL. VIG.

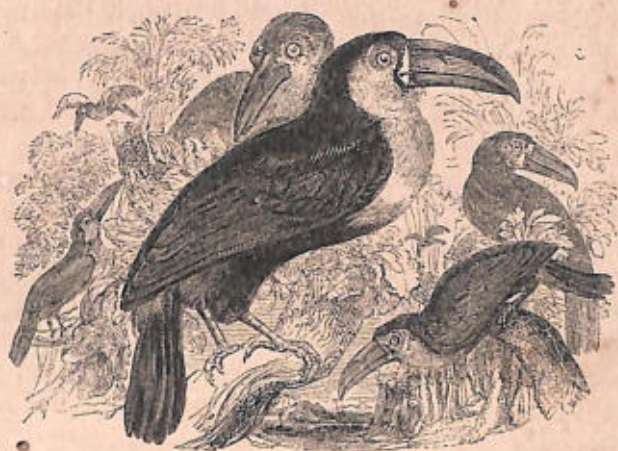
WE have here a fine example of a family of birds remarkable for the singularity of their forms and the brilliancy of their plumage. By the structure of their toes, which are partially zygodactyle (the intermediate ones being turned forwards, and the two lateral ones most commonly taking the opposite direction), they evince a close affinity to the typical families of the Scansorial tribe of Perchers, with which they have usually been associated. But the enormous size of their bills, as well as some peculiarities in their habits, also connect them with the Hornbills, and indicate the point of contact between the two great tribes of which these families respectively form part.

The essential character of the Toucans consists in their bill, which is generally as deep at its base as the head itself, and of even greater breadth. It is uniformly of considerable length, in some species equalling that of

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the whole body, convex and gently arched above, and notched along its margin, which is extremely thin, by a series of irregular crenulated teeth. Although of so large a size it is exceedingly light, being composed entirely of thin cellular plates of bone covered on the outside by a horny coating. A second equally remarkable peculiarity occurs in the structure of the tongue, which is of a firm cartilaginous texture, narrow, elongated, and furnished on either side with a continued row of fine slender processes, closely approximated to each other, directed forwards, becoming longer towards the tip, and giving to the entire organ the appearance of a well barbed feather. In addition to these characters, the wings are short and slightly concave, with the third and fourth quill-feathers longest; the tail is composed of ten feathers; and the anterior toes are united by a membrane extending beyond their middle.

The genus was subdivided by Buffon, and many modern ornithologists have followed his example, into Toucans and Araçaris. In the former the predominant hue of the plumage is black, the bill is larger and more delicate in its structure, and the tail-feathers are all of nearly equal length. In the latter, the *Pteroglossi* of Illiger, the bill is smaller and of a more solid consistence, with a deeper and more regular dentation; the tail is graduated, and the predominant hue is green. The Araçaris are also, generally speaking, of smaller size than the Toucans.

For our knowledge of the habits of these birds in their native state we are chiefly indebted to M. D'Azara. They are all of them natives of the tropical regions of America; and subsist throughout the greater part of the year chiefly upon fruits. But they are also in a high degree carnivorous, and attack the smaller birds in their nests, driving them away from their eggs or from their young, which they afterwards devour at their

leisure. Even the eggs and young of the maccaws and other equally large birds are stated occasionally to fall victims to their propensity for preying on the progeny of their neighbours. These delicacies form their principal nutriment during the season in which they are to be procured; but when that is passed away, the Toucans return to their vegetable diet, and never attempt, it is said, to molest the older birds. Their flight is low and heavy, and generally in a straight horizontal line. They perch, in groups of eight or ten together, on the summits of the loftiest trees, and are seen, in almost constant motion, hopping from branch to branch with the greatest quickness. In flying, the point of their beak is directed forwards; and this position, together with its extreme lightness, prevents it from overbalancing their body. Their tongue, from its inflexibility, is quite useless as a means of guiding their food to its proper destination. It is for this reason that in feeding they first seize the morsel, whatever it may be, either with the sides or point of their bill, and then jerking it upwards in the air, let it fall at once into their widely distended throat. They build their nests in the hollows of trees, and lay but two eggs at a time.

The beautiful bird represented at the head of the present article was first described by Mr. Vigors, in the Zoological Journal, about four years ago, from the actual specimen now living in the Society's Collection, and then in his own possession. From the account there given the following particulars are in a great measure abstracted. The entire length is about eighteen inches, of which the bill forms more than three, and the tail upwards of seven. The whole upper surface, the abdomen, wings, and tail, are of a bright black; the throat, neck, and cheeks, of an orange-yellow, with a narrow straw-coloured border beneath; the naked skin

surrounding the eyes red; and a band of an inch in breadth across the chest, as also the upper and under tail-coverts, crimson. The bill is distinguished from the head by a narrow line of black, beyond which a triangular band of yellow, diminished nearly to a point above and gradually widening downwards into a breadth of nearly half an inch, occupies its base. The upper edge of the bill for about one-third of its length is of a pale blue; and all the remaining parts are deep black. The cutting edges are slightly and irregularly serrated. The irides are of a bright blue; the legs and feet bluish gray; and the claws black.

In the most nearly related species, the *Ramphastos Tucanus*, the throat and upper breast are of an orange-colour, inclining to white on the sides; a narrow pectoral band, together with the under tail-coverts, are yellow, inclining in some instances to red; while the upper tail-coverts are universally described as yellow. The bill too is said to be yellowish, with a black band near its base. With these obvious differences, and with the proof that they are not dependent upon age, the bird before us having retained its distinctive characters unchanged for a period of at least six years, it is impossible to do otherwise than to regard it as a distinct species from the Linnæan *Ramphastos Tucanus*. M. Desmarest has nevertheless thought fit, in a late volume of the *Dictionnaire des Sciences Naturelles*, to treat of it as the young of that bird; and has even gone so far as to quote Mr. Vigors' own authority for the fact. On what grounds this assertion is founded we cannot even conjecture, no such statement having been any where made by that gentleman, and his original opinion not merely remaining unchanged, but being strongly confirmed by the lapse of time and the permanence of the characters.

In an earlier number of the same Journal a highly

interesting account was given by Mr. Broderip of the manners of a nearly related species; and to these Mr. Vigors has added many curious details from the observation of his own bird. It is fed almost entirely upon vegetable diet, eggs being the only animal food which it is permitted to taste. These are generally mixed up with its ordinary food, which consists of bread, rice, potatoes, German paste, and similar substances. It delights in fruits of all kinds; while they can be procured fresh it feeds almost exclusively upon them, and even during the winter months exhibits great gratification in being offered pieces of apples, oranges, or preserved fruits of any description. These it generally holds for a short time at the extremity of its bill, touching them with apparent delight with its slender and feathered tongue, and then conveying them by a sudden upward jerk to its throat, where they are caught and instantly swallowed. But though its diet is thus almost exclusively vegetable, its natural propensity to preying upon animals is strongly conspicuous. It evinces the greatest excitement whenever any other bird or even a stuffed skin is placed near its cage, raising itself up, erecting its feathers, and uttering a hollow clattering sound, which seems to be the usual expression of delight in these birds, and is noticed by Mr. Broderip as a kind of triumphant exultation over their prey. At the same time the irides of its eyes expand, and it seems ready to dart upon its victim. When shown its own reflection in a glass it manifests an equal degree of excitement.

The manner in which the Toucans seize, destroy, pluck, and disjoint the smaller birds, so as to render them fit for being transferred into their stomachs, together with all the accompaniments of this curious operation, are minutely detailed in Mr. Broderip's communication. A goldfinch was introduced into the cage of the specimen which formed the subject of that gentle-

man's observations, and was immediately snatched by the Toucan with its bill. The poor little bird had only time to utter a short weak cry ; for, within a second, it was dead, killed by compression so powerful that the bowels were protruded after a very few squeezes of the Toucan's bill. As soon as the goldfinch was dead, the Toucan hopped with it still in its bill to another perch, and began to strip off the feathers. When it had plucked away most of them, it broke the bones of the wings and legs, taking the limbs in its bill, and giving at the same time a strong lateral wrench. It continued this work with great dexterity till it had almost reduced the bird to a shapeless mass ; ever and anon taking its prey from the perch in its bill, hopping from perch to perch, and making its peculiar hollow clattering noise, its bill and wings being at the same time affected by a vibratory motion. It first ate the viscera, and continued swallowing piece after piece, leaving the head, neck, and part of the back and sternum with their soft parts for the conclusion of its feast. It did not reject even the beak or legs of its prey, but swallowed the entire bird in the course of about a quarter of an hour, appearing during the whole time to experience great enjoyment. When its meal was completed, it cleansed its bill from the feathers by rubbing it against the perches and bars of its cage. Mr. Broderip adds, that he had more than once seen it return its food, some time after it had taken it, from its crop, and after masticating the morsel in its bill, again swallow it ; the whole operation, particularly the return of the food to the bill, bearing a strong resemblance to the analogous action in the ruminating animals. The food on which it was observed to be so employed, was a piece of beef, which had evidently been macerated for some time in its crop. While masticating, it made the same clattering noise as it had made over the remains of the goldfinch. Previously to

this operation, it had examined its feeding trough, in which there was nothing but bread, which it took up and rejected; so that it would appear to have been reduced from necessity to this mode of solacing its palate with animal food. The usual food of the individual on which these observations were made consisted of bread, boiled vegetables, eggs, and flesh; to which a little bird was afterwards added about every second or third day. It showed a decided preference for animal food, picking out every morsel of that description, and not resorting to the vegetable diet till all of the former was exhausted. Its mode of roosting, and appearance when completely at rest, as observed by Mr. Broderip, bore a general similarity to the description given by Mr. Vigors, to whose account of the manners of his bird we now return.

When in its cage, it is peculiarly gentle and tractable, suffers itself to be played with, and feeds from the hand; but is wild and timid out of it. In general it is active and lively, and notwithstanding the disproportionate size of its bill, its appearance is not only graceful, but its motions, as it glides from perch to perch, are light and sylphlike; so much so as to have suggested the specific name which has been applied to it. It keeps itself in beautiful plumage, immersing itself daily in cold water with apparent pleasure even in the severest weather. When moderately free from interruption, its habits are singularly regular. At the approach of dusk it finishes its last meal for the day, takes a few turns round the perches of its cage, and then settles on the highest of them. The moment it alights on the perch, its head is drawn in between its shoulders and its tail turned vertically over its back. In this posture it generally continues for about two hours, between sleeping and waking, its eyes for the most part closed, but opening on the slightest interruption. At such

times it allows itself to be handled, and will even take any favourite food that is offered to it, without altering its position further than by a gentle turn of the head. It will also suffer its tail to be replaced in its natural downward posture, but immediately returns it, as if by a spring, to the vertical position. At the end of about two hours it begins gradually to turn its bill over its right shoulder, and to nestle it among the feathers of its back, sometimes concealing it completely within the plumage, at other times leaving a slight portion of its upper edge exposed. At the same time it droops the feathers of its wings and those of the thigh-coverts so as to encompass the legs and feet; and thus nearly assuming the appearance of an oval ball of feathers, secures itself against all exposure to cold. In the colder weather, however, when placed in a room with a fire, the unusual light seems to interfere with its general habits: it does not go to rest so early or so regularly as at other times; and it sometimes even feeds at a late hour.





THE SCARLET IBIS.

IBIS RUBRA. LACÉP.

THAT a bird so highly celebrated in mythological history as the Ibis of ancient Egypt, incessantly represented on the early monuments of the country which it still inhabits, and transmitted to us in almost infinite numbers in the shape of mummies from a remote antiquity, should have been widely mistaken by every modern writer until within the last fifty years, is indeed matter of astonishment; but such is really the fact. Belon, an excellent ornithologist, who visited Egypt about the middle of the sixteenth century, imagined that the Stork was the true Ibis of the ancients: Pocock maintained that the latter was a species of Crane: and De Maillet conjectured that under the name of Ibis were generically comprehended all those birds which are instrumental in removing the noxious reptiles that swarm in the

inundated lands. Perrault first introduced the erroneous notion that the Ibis of antiquity was a species of Tantalus, in which he was followed implicitly by naturalists throughout the whole of the last century. Brisson, Buffon, Linnæus, and Latham, all united to give it currency; and the Tantalus Ibis of the two latter authors was universally regarded as the sacred bird.

Our adventurous countryman Bruce was the first to throw a doubt upon the authenticity of this determination, and to point out the identity between the figures represented on the ancient monuments, the mummies preserved in the Egyptian tombs, and a living bird common on the banks of the Nile and known to the Arabs by the name of Abou Hannes. But it was not until after the return of the French expedition from Egypt that the question was definitively settled by a careful anatomical comparison of the ancient mummies and recent specimens then brought home by Geoffroy-Saint-Hilaire and Savigny. From the examination of these materials M. Cuvier was enabled to verify Bruce's assertion, and to restore to science a bird which, after having formed for centuries the object of a nation's adoration, had fallen into oblivion, and was wholly unknown to modern naturalists. At the same time he pointed out those distinctive characters on which M. Lacépède founded the genus Ibis, formally established by M. Cuvier himself in the first edition of his *Règne Animal*.

Although the bird which we have now to describe is a native of the New World it has not been considered by ornithologists as requiring to be generically distinguished from the Ibis of the ancients. With that and with other species, distributed equally over the Old Continent and in America, it forms part of a group among the Ardeidæ characterized by a long and slender

bill, nearly square at its base, where it is of less breadth than the head, almost straight for about one half of its length, and having the remaining part gradually curved downwards, blunt at its point and without any notch; nostrils situated near the base of the bill at the commencement of a groove which is continued along each side of its upper surface as far as to its point; the head, and sometimes the neck, devoid of feathers to an extent varying in the different races; wings of moderate length; tarsi slender; and toes webbed at the base, the hinder one placed somewhat above the level of the others but being of sufficient length to rest upon the earth. In many of these characters we observe a considerable deviation from those of the Storks and other typical examples of the family with which the Ibis is associated, and a marked approach to the Curlews, occupying a station on the confines of the neighbouring family of Scolopacidæ.

The Scarlet Ibis, in its adult plumage, is one of the most splendid among birds. When fully grown it measures from twenty to twenty-four inches in height. The colour of its plumage is, as its name imports, entirely scarlet, with the exception of the tips of the quill-feathers of its wings, which are black. The naked part of its cheeks, its bill, legs, and feet, are of a pale reddish brown. Its legs are covered with large scales. When first hatched, the young are covered with a blackish down, which soon changes to an ash-colour, and at length becomes nearly white. This change occurs about the period at which they begin to fly; after the second moulting they assume a tinge of red, which gradually becomes deeper and more distinct, appearing first on the back, and then spreading over the sides and under parts of the body. Its brilliancy increases as the bird advances in age. The Society's

specimen appears to be between two and three years old, the red colour having spread over nearly the whole of the body, but not having yet assumed its full intensity.

This beautiful species is a native of the tropical regions of America, and frequents the sea-shores and mouths of the larger rivers in large bands, feeding upon insects, shell-fish, and the smaller fish. It generally lies concealed during the heat of the day and in the night; and seeks its food only in the morning and evening. Its nest is built among the thickets, and is of the most simple construction. When taken young it is easily tamed, and submits to domestication without repining. According to De Laet it has been propagated in captivity; and M. Delaborde gives the history of an individual which he kept for upwards of two years, feeding it on bread, raw or cooked meat, and fish. It was fond of hunting in the ground for earth-worms, and followed in quest of this food the labours of the gardener. It would roost at night upon the highest perch of the poultry house, and fly abroad early in the morning, sometimes to a great distance from home.

Our climate is probably too changeable and too cold for so delicate a bird; otherwise it would form a splendid, and it is said a savoury, addition to our stock of domesticated fowls.





THE CHILIAN SEA-EAGLE.

HALIAEETUS AGUIA.

WITH the Sea-Eagles of Europe and of the northern parts of America, described and figured in a former part of the present work, are associated several other species of the Eagle tribe, whose essential characters are nearly similar, and whose natural habits may therefore be presumed to be the same. Of these three are Asiatic, three African, two or three natives of Australia and the Islands of the Polynasia, and two of South America; so that the group appears to be universally spread over all the grand divisions of the globe. The birds of which it is composed may be regarded as of almost equal utility in the economy of nature with the Vultures, between which and the true Eagles they hold an intermediate station. While the former are occupied

in purifying the land from the putrid carcasses of beasts, the latter are busied in the performance of the same important office on the coasts and on the borders of lakes. They add moreover to these services the removal of the still more offensive remains of the fishes thrown upon the shore, which the Vultures themselves, unless when hard pressed by hunger, would disdain to touch.

The beautiful species which we are about to describe measures about two feet in length from the point of the beak to the extremity of the tail, and from four to five in the expanse of its wings. No other living individual, except that which is now in the Society's collection, has, we believe, ever been seen in Europe; and even in cabinets the stuffed skin appears to be of considerable rarity. It was first made known to science by M. D'Azara, to whom we are indebted for the earliest descriptions of so many South American animals, as well as for the most authentic details with respect to their native habits. In the present instance he has unfortunately given us no such particulars; and as no other zoologist has seen the living bird in a state of nature, we can but judge from analogy that its manners are the same with those of the best known species of its genus. A figure taken from a preserved specimen has been lately published by M. Temminck in his splendid *Planches Coloriées*; and the description which accompanies it is the only original notice of the bird subsequent to that of M. D'Azara.

The latter author, or rather his French translator, names it *L'Aigle noirâtre et blanc*. He states that it is found, but not frequently, in Paraguay, and that it is generally seen in pairs. The feathers of the head, neck, and upper part of the body, are, according to his description, of a blackish blue, and, with the exception of those of the back, terminated by dirty white. The tail is blackish, with small whitish spots scattered over

its surface; the upper wing-coverts ash-coloured, with blackish stems and transverse lines of the same; and the larger coverts, as well as the quill-feathers, of a deeper ash, variegated with narrow black bands. The whole under surface is beautifully white, with transverse blackish lines on the under tail-coverts and larger wing-coverts alone; the smaller wing-coverts having no other part but their stems of this sombre tinge. The naked part of the leg is of a light yellow, with large flat scales both before and behind; the cere is pale yellow; the beak black at its point and blue at the base; and the iris of a very light hazel.

To this description M. Temminck adds that the tarsi are naked on the greater part of their anterior surface, but plumed towards the joint of the knee, while they are entirely naked on the back and sides. He describes the head and upper parts as of a deep bluish ash or nearly slate-colour; the tail-feathers terminating in a small white spot; the sides of the neck and the breast of a light bluish ash-colour, more or less marbled with whitish, and with a small white spot at the extremity of each of the feathers. The upper parts of the sides, and all the under wing and tail-coverts, are white, marked by fine very distant rays of bluish ash-colour. All the rest of the under surface and the legs are pure white. The feathers of the throat are whitish, marked by ash-coloured stripes resulting from the sombre tinge of their stems; the wings are of a lighter ash-colour than the back; all the coverts, together with the quills, have numerous slate-coloured rays, and their stems have the same hue.

Such are the descriptions of D'Azara and Temminck, evidently taken from birds in different states of plumage, and both of them differing as much from the Society's specimen as from each other. The latter, which may

be regarded as fully adult, having been for nearly three years an inhabitant of the Garden, agrees very well in the general colour of the upper surface with the bird figured by the latter author. It was nearly of a uniform brown when it first arrived in England, but in its present state its head, neck, breast, and back, are of a grayish slate-colour, each of the feathers of the latter parts terminating in a small white tip. The upper part of the throat is considerably lighter than the rest. The upper wing-coverts are of the same colour as the back, but without the lighter tips; the intermediate are grayish with a stripe of slate-colour along the middle, and numerous rather broad transverse wavy bars of the same; the lower are similar in colour to the upper; as are also the quills themselves, with the addition of some faint transverse grayish bars, which are more visible at the base than towards the tips. The quill-feathers of the tail are of the same uniform slaty hue as the back, with dirty white tips beneath. On the whole of the under surface, from the breast backwards, and on the feathered part of the legs, the ground-colour is white, faintly barred by numerous transverse narrow wavy lines of a grayish brown. The legs and cere are of a light straw-colour; the beak light at the base and bluish black in the hook; the claws black; and the irides hazel. The nostrils are peculiar in their direction; instead of being transverse or directed obliquely backwards and downwards, as in the rest of the genus, they are nearly horizontal, the long diameter of their oval being parallel with the upper edge of the beak.

In addition to the habitat given by D'Azara, M. Temminck mentions Brazil, in certain parts of which, he says, these Eagles are more common, and where they are known by the name of *Aguia*. Our specimen came from Chili.



THE ALEXANDRINE PARRAKEET.

PALEORNIS ALEXANDRI. VIG.

The striking analogy borne by the Scansorial tribe of Birds, and more especially by the great family of Parrots, to the Monkeys among the Mammalia, has been repeatedly noticed, not only by professed zoologists, but even by common observers. This analogy does not, however, depend in so great a degree as has been generally imagined by the latter class on the imitative talents for which these tribes of animals have been celebrated from the earliest times; for in the one case it is the voice, and in the other the actions, of man that have been made the subjects of imitation. Its proofs should rather be sought in the characters, physical and moral, of the animals themselves, and in the peculiar mode of existence resulting therefrom; in the nature of their food; in the situations which they frequent; and in

the occupations which they pursue. From a comparison of these it will at once be seen that the typical family of Climbers among birds must necessarily occupy a corresponding station in the Class to which they belong, with that which is filled by those tribes of the Mammalia whose organization renders them peculiarly the inhabitants of trees.

One of the most important characters, as affecting their mode of life, is that which is derived from the structure of their feet. In the Monkeys these organs are essentially fitted for climbing from branch to branch and leaping from tree to tree, which they perform with an agility not to be surpassed; while their progression on the surface of the ground is generally awkward and constrained. In like manner the Parrots, or at least the far greater number among them, are incapable of treading the earth with ease, while the zygodactyle disposition of their toes and the strong curvature of their claws enable them to grasp, with a firmness unequalled among birds, the branches on which they perch, and consequently to climb with singular dexterity. In this operation they occasionally derive considerable assistance from their bills, by means of which they not unfrequently suspend themselves from the branches, or support themselves during their ascent or descent from one to another. This is peculiarly the case with the American groups; and the prehensile tails of many American Monkeys afford a similar support, enabling them to swing from branch to branch almost without the assistance of their hands.

Both Parrots and Monkeys derive the principal part of their subsistence from the trees which they inhabit, vegetable food being the most congenial to their organization, and fruits being generally preferred by them to every other kind of nutriment. Stone-fruits or nuts are

especially acceptable, and they display no little dexterity in stripping off the outer coverings to arrive at the kernels, of which they are excessively fond. They both attack the cultivated fruits of the plantation in numerous bands, and commit much wanton devastation in the progress of their pillage, frequently destroying ten times as much as they devour. In eating too the Parrot, like the Monkey, often carries its food to its mouth by means of its foot, which is thus made to serve the purpose of a hand. The tallest trees of the forest form their place of refuge, and on these both the one and the other assemble in considerable numbers, the noisy chattering and antic gestures of the Monkeys being fully equalled by the hoarse cries and affected postures of the Parrots. Their geographical distribution is also nearly the same, extending in both instances throughout the whole of the torrid zone and but little beyond its limits; and both tribes are possessed of a higher share of docility and intelligence than is found in any other family of the classes to which they respectively belong. When so many and such obvious coincidences occur between animals so apparently dissimilar, it is impossible not to recognise the existence of those analogies which unequivocally demonstrate a uniformity of system throughout every part of the great edifice of the creation.

There is something so peculiar in the manners, in the form, and in the colouring of the Parrots, that no one, however little conversant with the subject, hesitates in designating every one of them at the first glance by its family name. And yet notwithstanding the intimate union thus subsisting between the minor groups of the family, and its almost complete isolation as a whole, its technical characters can scarcely be expressed in too general terms. The essential points of external struc-

ture common to all the species may perhaps be reduced to two; the strong curvature of their rounded bills, and the uniformly zygodactyle character of their toes, the two middle ones being alone directed forwards, and their action being counterbalanced by the outer and the inner, which are constantly retroverted. To these characters may be added, as more or less generally applicable, the presence of a membranous cere enveloping the base of their mandibles, but sometimes scarcely visible upon the upper; the large size and fleshy consistence of their tongue; the strength and curvature of their claws; the general brevity of their legs, which are mostly covered in front with large reticulated scales; and the comparative shortness of their wings.

But even in the more essential of these characteristics the modifications are both numerous and striking. The bill for instance is subject to considerable variation in its comparative size, its proportional length, the degree of its curvature, and the form of its cutting edges. The tongue, which in most of the subdivisions is thick, fleshy, and of uniform structure throughout, in others terminates in a brush-like bundle of filaments, and in a third modification consists merely of a hollow gland, of a somewhat horny consistence, supported by a cylindrical exsertile and retractile pedicel. The tarsi too, which are in general short and thick, are in some instances so much elongated as to enable the birds in which this structure obtains to run upon the ground with a facility approaching to that of the Gallinaceous tribes. All these modifications are so evidently connected with essential differences in natural habits, as to point out at once the necessity of subdivision in this extensive family. In this subdivision material assistance is derived from the tail, which passes through every intermediate gradation between the short rounded form

which it assumes in the little Parrakeets, the *Psittaculæ* of Brisson and Kuhl, and the elongated form, with the two middle feathers still more remarkably lengthened, by which the bird illustrated in the present article and its congeners are distinguished. Other accessory characters are also obtained from the total or partial nakedness of the cheeks in some cases, and the presence of a crest in others. Many of the groups thus established are so striking as to have been indicated by trivial names in the languages of all the countries in which these birds are known.

In Mr. Vigors's arrangement of the Parrots, the group to which all the species known to the ancients appear to have belonged, and to which he has therefore assigned the name of *Palæornis*, is regarded as "nearly typical, if not entirely so, in that primary section, or subfamily, which is familiarly known to us by the title of Long-tailed Parrakeets." It is characterized by a bill of moderate thickness, much dilated and rounded above, with the lower mandible broad, short, and notched; wings of middling size, the three outermost pen-feathers nearly equal and longer than the rest, with the outer webs of the second, third, and fourth gradually dilated in the middle and narrowing towards the tips; the tail long and graduated, the two middle feathers far exceeding the others in length; the legs short and weak; and the claws rather slender and curved. The birds thus distinguished are the most elegant in form and the most graceful in their attitudes of the entire family to which they belong. They are also strongly marked by the peculiarity of their colouring, their bodies being uniformly of a brilliant emerald, their bills of a deep ruby, and their necks half encircled by a rose-coloured collar. Their native country is India, from whence the present species was originally brought

by Alexander in his celebrated expedition, and where it still continues to be found, occasionally in the Peninsula itself, but more commonly in the Island of Ceylon, the recorded habitat of the Alexandrine bird.

The distinctive characters of this beautiful species of Parrot consist in the broad black patch occupying the fore part of its throat, and extending laterally in two narrow processes on each side of the neck; in the black line extending from the base of the beak to the eyes; and more particularly in the deep purplish red patch at the base of its wings. Its bill is larger than that of the Rose-ringed Parrakeet, from which it scarcely differs except in this particular, in the somewhat greater breadth and deeper colouring of its rosy collar, and in the dark red marking of its shoulders which is wanting in the latter. The usual length of the male bird is from eighteen to twenty inches: the female is smaller, but does not, according to M. Le Vaillant, differ in colouring. In the Rose-ringed Parrakeet, on the contrary, the female resembles the young male in being destitute of the collar. The latter is not visible in either species until the third year.

The Alexandrine Parrakeet is of much rarer occurrence than several of the other species of the same group. In captivity it is not readily domesticated, but may be taught to speak with tolerable distinctness. Like most of the Parrots it is extremely noisy.



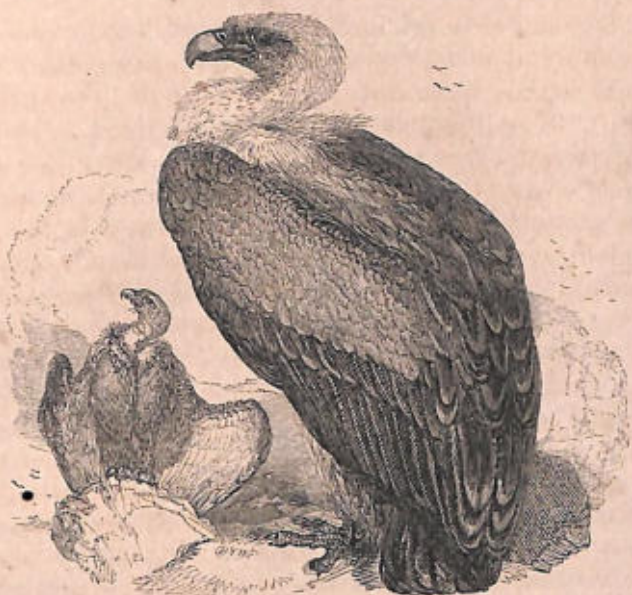
THE ROSE-RINGED PARRAKEET.

PALEORNIS TORQUATUS. VIG.

IN the preceding article we have already pointed out the principal differences subsisting between the species there described, which naturalists have concurred in regarding as the Alexandrine bird, and the Rose-ringed Parrakeet represented above. The latter is far more common than the former and appears to be dispersed over a much greater extent of territory, being found not only in India and as far eastward as Manilla, but also, if the reports of travellers are to be credited, throughout a large portion of Africa, and even on the coast of Senegal. It would seem indeed to be extremely abundant in this last locality, and to be from thence most frequently imported into Europe. It is consequently known in France by the name of the Perruche de Senegal.

To judge from the brief descriptions of the writers of antiquity, it would appear that the present species was then, as now, more frequently brought to Europe than any other of its group. The characters given by Pliny, Solinus, and Apuleius, among the naturalists, and the equally expressive phrases of Oppian and Ovid among the poets, make no allusion to any of those marks by which the Alexandrine Parrakeet is obviously distinguished: it is therefore probable that the Rose-ringed species was that with which they were most familiar, although the Alexandrine and one or two others must have been also occasionally introduced. That the species before us was extensively known, and held in high estimation on account of the brilliancy of its plumage, the docility of its manners, and its imitative powers of voice, is proved by innumerable passages in the classical writers, of Rome more especially, from the earliest times of the empire to a very late period of its annals. It seems also to have been the bird which was commonly known to our ancestors under the name of Parrot or of Popinjay, and is strikingly indicated by Skelton, in all its most essential characters, in his singular poem entitled "Speake Parrot," written in the reign of King Henry the Eighth. It is an easily domesticated species, and learns to talk with much fluency and distinctness.





THE GRIFFON VULTURE.

VULTUR FULVUS. BRISS.

THERE are few prejudices more deeply rooted in our nature than that which delights in investing the animal creation with the feelings and the passions of mankind. We speak of the generosity of the Lion and the meekness of the Lamb, the magnanimity of the Eagle and the simplicity of the Dove, as if the peculiar instincts manifested by each of these animals were the result of an impulse similar to that which actuates the human mind. But the truth is, that the qualities thus designated, in so far as they actually exist, are nothing more than the natural and necessary consequences of the animals' organization, specially fitted in each particular case for the performance of a special office, and con-

curing in the mass to the maintenance of that due equilibrium in the system of the universe on which its continued existence mainly depends.

The Vultures and the Eagles furnish a striking instance of the extent to which this prejudice has been carried. The latter, eminently qualified by their organization for seizing and carrying off a living prey, serve a useful purpose of nature by setting bounds to the multiplication of the smaller species both of quadrupeds and birds, which might otherwise become too numerous for the earth to support: while the former, disqualified by certain modifications in their structure for the performance of a similar task, are no less usefully employed in removing the putrefying carrion which but for them would infect the atmosphere with its unwholesome exhalations. Thus both are of equal importance in the economy of nature; and both are stimulated to the performance of the particular service for which they were created, by the impulse of that instinct which is the immediate result of their organic structure. Instead, however, of regarding them as alike the ministers of nature in the maintenance of her laws, man has chosen to fix upon the one a character for bravery and generosity, and to brand the other with the epithets of base, cowardly, and obscene. The Vultures, which are perhaps the most useful and certainly the most inoffensive, have thus been consigned to perpetual infamy; while the Eagles, in the true cant of that military romance which has ever borne so great a sway over the passions of mankind, have been exalted, in common with the warrior that desolates the world, into objects of admiration, and selected as the types and emblems of martial glory.

From these fanciful associations we turn to the realities of nature, and proceed to indicate the charac-

ters by which the family of Vultures are distinguished from all other Birds of Prey. They consist in the entire or partial denudation of the head and neck, the latter of which is much elongated; the lateral position of the nostrils in a generally broad and powerful bill, curved only at its point, and clothed at its base by an extended cere; the nakedness of the tarsi, which are covered only with small reticulated scales; and the strong thick talons, somewhat blunted at the points, but little curved, and scarcely, if at all, retractile. Of these characters the most obvious is the absence of feathers to a greater or less extent on the head and neck, a mark of distinction which, like all the rest, is closely connected with the habits of the birds. Thus it has been pointed out that in other groups a falling off or thinning of the feathers is the frequent result of feeding upon flesh especially when in a state of decay. The bareness of these parts in the Vultures enables them moreover to burrow in the putrid carcasses on which they prey without risk of soiling their plumage.

Their largely extended nostrils and the great internal development of these organs would seem to be of manifest use in guiding the Vultures to their prey, which they are generally believed to scent from an immense distance. It has, however, been lately maintained by a most acute observer of the habits of birds, Mr. Audubon, that this belief, which has been entertained from the earliest antiquity, is founded in error, and that the Vultures are directed to their prey by sight alone, the lofty pitch at which they fly and the surpassing excellence of their vision enabling them to detect it at an almost inconceivable distance. Several of the experiments brought forward by that gentleman in support of his hypothesis, appear at first sight almost decisive of the question; but we cannot consent to abandon the

received opinion, corroborated as it is to the fullest extent by the anatomical structure of the organs of smell, until repeated experiments shall have placed the fact beyond the possibility of doubt.

It is almost unnecessary to point out the great utility of the strong deep curved bill of most of the Vultures in tearing to pieces the carcasses on which they feed, and consigning them in large masses to their maws. The nakedness of their legs may be regarded as dependent on the same causes and serving the same purposes as that of their heads and necks. But the character which has the strongest influence on their economy must be sought for in the structure of their claws. While the Falcons are enabled by means of their strongly curved, sharp-pointed, and highly retractile talons, to seize their victims with an irresistible grasp and to convey them through the air, the Vultures are restricted by the obtuseness of those organs, their want of the necessary curvature, and the almost total absence of retractility, to the use of their beaks alone in the seizure of their prey, which they are quite incapable of transporting with them in their flight, and are consequently compelled to devour upon the spot. It is to this simple modification in structure that they are chiefly indebted for that propensity for preying upon carrion, which has obtained for them all the opprobrious epithets that stigmatize them throughout the world.

The Vulture family, which formed but a single genus in the Linnæan classification, has since been divided into several groups, some of which appear to us to be still capable, and deserving also, of further subdivision. We have already spoken of the South American group, of which the Condor furnishes the most conspicuous example; and we have now to turn our attention to

another section, almost equally typical in the family, the representatives of which are scattered over the three divisions of the Old Continent. It is in this section more particularly that we conceive a further separation of species both practicable and desirable. M. Savigny has already effected it to a certain extent by the establishment of two well marked genera for the reception of the two European species; and Mr. Vigors has pointed out the propriety of separating the Angola Vulture of Pennant from the rest of the group. To these three strongly marked forms we would add the bird which furnishes the subject of the next following article as the type of a fourth, with which we doubt not that the Pondicherry Vulture of Latham would form a natural association. Of the remaining species we will not venture to speak, not having yet enjoyed the opportunity of examining them in nature.

The essential characters of the entire section consist, in addition to all the characteristic marks of the family, in the almost total want of feathers on the head and neck; in the position of the eyes on a level with the general surface of the head; in the prominence of the crop, which is covered by a naked and highly extensible portion of skin; in the transverse position of the nostrils at the base of a strong beak not surmounted by a fleshy caruncle; in the exposure of their auditory openings, which have no elevated margin; in the great strength of their legs; the comparative weakness of their blunt and unretractile claws; and the shortness of their first quill-feather, which is of equal length with the sixth, the third and fourth being the longest of the series. To these may be added the usually great elongation of their necks; the fleshy consistence of their tongues; the prolongation of the middle toe, which is united to the outer by a membranous expansion at the

base, but quite distinct from the inner, the latter being the shortest of the three and about equal in length to the posterior or thumb; and the length of the wings, which extend when closed beyond the extremity of the tail. The wings are, however, rarely brought close to the body, even when the bird is completely at rest; and this circumstance, together with the somewhat crouching posture in which the Vultures are compelled, by their deficiency in the power of grasping, to sustain themselves, has been frequently adverted to as affording a striking contrast with the bold, upright, and collected bearing of the Eagles.

In subdividing the European Vultures, M. Savigny has characterized that which forms the subject of the present article by its naked transversely elongated and lunulate nostrils; its tongue fringed with sharp points; and its tail composed of fourteen feathers. Its head and neck are covered with a short, thick, white down, which is wanting only at the lower part in front corresponding with the situation of the crop, where the naked skin has a bluish tinge. A broad ruff of pure white feathers surrounds the lower part of the neck; and the rest of the plumage, in the adult bird, is of a grayish brown, with the exception of the quill-feathers of the wings and tail, which are of a dusky black. The under parts are somewhat lighter than the upper; the bill is of a livid colour with a tinge of blue; the iris of a bright orange; and the legs and feet grayish brown, the feathers of the inside of their upper part being pure white. In the female the colours appear to coincide exactly with those of the male; but the young birds are at first of a bright fawn, which is variegated, after the first and second changes of plumage, with patches of gray, and changes to the perfectly adult hue only after the close of the third year.

This noble species of Vulture, which is one of the largest birds of prey of the Old Continent, measuring from three feet and a half to four feet in length, and more than twice as much in the expanse of its wings, is found on the lofty mountain chains of Europe, Asia, and Africa. It is not uncommon during the summer in the Alps and Pyrenees, but is said to retreat in winter to the North of Africa, extending itself, according to Le Vaillant, to the Cape of Good Hope. M. Risso, however, informs us that it is stationary on the Alps in the vicinity of Nice. The Rock of Gibraltar, the Mountains of Silesia and the Tyrol, Greece, and Turkey, are also spoken of as its European habitats; Egypt is indicated by Savigny; the Mountains of Ghilan in the North of Persia by Hablizl; and other localities still farther East are given by other writers.

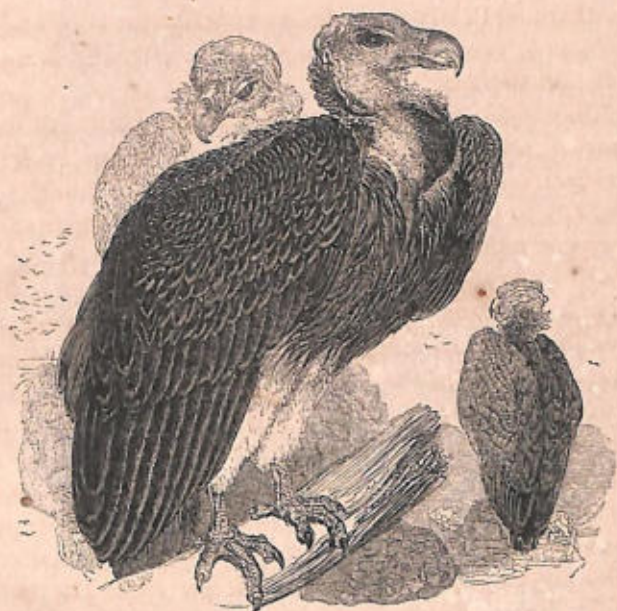
The nest of the Griffon Vulture is formed in the clefts of rocks. It lays from two to four eggs, which are of a grayish white, with numerous spots of a very light and diluted red. Like all the other birds of its tribe it feeds principally upon dead carcasses, to which it is frequently attracted in very considerable numbers. When it has once made a lodgment upon its prey, it rarely quits the banquet while a morsel of flesh remains, so that it is not uncommon to see it perched upon a putrefying corpse for several successive days. It never attempts to carry off a portion, even to satisfy its young, but feeds them by disgorging the half-digested morsel from its maw. Sometimes, but very rarely, it makes its prey of living victims; and even then of such only as are incapable of offering the smallest resistance; for in a contest for superiority it has not that advantage which is possessed by the Falcon tribes, of lacerating its enemy with its talons, and must therefore rely upon the force of its beak alone. It is only, however, when

no other mode of satiating its appetite presents itself, that it has recourse to the destruction of other animals for its subsistence.

After feeding it is seen fixed for hours in one unvaried posture, patiently waiting until the work of digestion is completed and the stimulus of hunger is renewed, to enable and to urge it to mount again into the upper regions of the air and fly abroad in quest of its necessary food. If violently disturbed after a full meal, it is incapable of flight until it has disgorged the contents of its stomach, lightened of which, and freed from their debilitating effects, it is immediately in a condition to soar to such a pitch as, in spite of its magnitude, to become invisible to human sight.

In captivity it appears to have no other desire than that of obtaining its regular supply of food. So long as that is afforded it, it manifests a perfect indifference to the circumstances in which it is placed. The individual figured has been for three years an inhabitant of the Garden, and was for many years previous in the possession of Joshua Brookes, Esq., by whom it was presented to the Society.





THE SOCIABLE VULTURE.

VULTUR AURICULARIS. DAUD.

WE have already intimated our opinion that the present bird will form the type of a new genus. Its characters are very remarkable. In the breadth and flatness of its head, and the depression of its eyes beneath the level of the general surface, it bears a distant resemblance to the Eagles; but the absolute nakedness of its head and of the greater part of its neck establishes its close affinity with the American group, of which the Condor and King of the Vultures are the well known types. It differs, however, from these birds most essentially by the absence of the caruncle which in them surmounts the fore part of the head and base of the beak, and by the substitution of a lateral folding of the skin into a kind of membranous expansion, partly enve-

loping the large open ears, and descending for several inches along each side of the neck. A no less important distinction exists in the nostrils, which instead of forming, as in the Condor, longitudinal fissures, are short, oval, and directed downwards. The beak is of great strength, remarkably deep, and powerfully curved at the point; the legs short and thick; the toes, especially the posterior one, somewhat elongated; and the claws thick, strong, blunted at the points, and very slightly curved.

The discriminating characters of the genus will consequently be found in the flatness of the head above; the sunken position of the eyes; the absolute nakedness of the head and upper part of the neck; the absence of a fleshy process on the top of the head; the existence of a longitudinal fold of skin on either side of the neck; the oval form and transverse direction of the nostrils; the uncommon thickness of the beak; and the elongation of the posterior toe to the extent of that of the European Vulture. On the principles of subdivision that have been adopted in the Vulture family, it is impossible not to consider these peculiarities as at least equal in importance to those that distinguish most of the other groups. We should therefore not hesitate for a moment to give a name to that which must of necessity obtain one hereafter, were we able to fill up this sketch by an enumeration of the accessory characters to be derived from the number and comparative length of the quill-feathers of the tail and wings, the structure of the tongue, and other more or less important modifications of form. As, however, it would be extremely difficult to ascertain these facts in the living bird, and we have no other means of arriving at them, we willingly postpone the formation of the genus until an opportunity shall occur of completing its differential characters.

There is also another reason why we ought not to be over hasty in the establishment of this generic subdivision. There exists in India a second species, the Pondicherry Vulture of Latham, which, to judge from the figures and descriptions that have been given of it, is very closely allied to that which we have now before us. Of this Indian species we have no knowledge, except from the miserable plate and meagre description of Sonnerat, and the spirited representations of Daudin and Temminck; the former in the *Annales du Muséum*, and the latter in his magnificent *Planches Coloriées*. From these we are led to believe that, although clearly belonging to the group of which we have just defined the leading characters, the Pondicherry Vulture has the membranous fold of the neck much less extensively developed, and thus evinces an approximation to the Californian Vulture of Shaw, from which it appears to differ generically in little else than in this particular and in the form and direction of its nostrils. We trust that an opportunity of examining this remarkable bird, and some other eastern species which are still very imperfectly known, may ere long be afforded us; for without such an examination, it will be impossible to form a just estimate of the value of the characters on which our subdivisions have been founded, and of the extent to which they ought to be carried.

The Sociable Vulture is a bird of extreme rarity. It was first described by Le Vaillant in his *Travels in the Interior of Africa* under the name of *Oricou*, fancifully derived from the folding of the skin around its ears and along its neck. A more detailed account of it was afterwards furnished by the same distinguished ornithologist in his *Oiseaux d'Afrique*, where a full-grown male is very accurately figured. We do not find that it has since been observed by any zoologist; for all the accounts of it with which we have met are copied from

Le Vaillant. Daudin first adopted it in his Ornithology as the *Vultur auricularis*, and was followed by Latham and other systematic writers. In the first volume of the *Annales du Muséum* he has instituted a comparison between it and the Pondicherry Vulture; but this is almost wholly founded on Le Vaillant's figure and descriptions, the only original materials which he appears to have seen consisting of a head and neck in Le Vaillant's collection. His own figure is, as it purports to be, a representation of the Indian species, and not of the African, for which M. Lesson has erroneously quoted it in the article *Vautour* of the *Dictionnaire des Sciences Naturelles*. We have every reason to believe that the Society's bird is the first specimen, either dead or alive, that has been brought to Europe.

In size this gigantic bird is fully equal to the Condor, the larger specimens measuring, according to Le Vaillant, upwards of ten feet in the expanse of their wings. The head and greater part of the neck are of the colour of raw flesh, and exhibit in their adult state no appearance of down or feathers, but only a few scarcely perceptible scattered hairs. The throat is covered with blackish hairs, and the lower part of the neck behind with a kind of ruff of crisped and curling feathers of the same colour, within which the bird withdraws its head while in a state of repose, especially after feeding; an attitude which is common to most of the Vultures. The folds on its neck take their origin behind the ears, surround the upper parts of these organs, and then pass downwards, for several inches; they are somewhat irregular in their outline, and measure nearly an inch in breadth at their widest part. All the feathers of the body, wings, and tail are of a nearly uniform blackish brown, somewhat lighter on the under than on the upper surface, and on the margins than in the middle. Those of the breast, belly, and sides beneath

are long, narrow, and pointed, and project from the body in such a manner as to exhibit the thick down, of an almost pure white, with which it is every where closely covered. On the sides of the neck at its lower and interior part this down extends beyond the feathers and marks the boundary of the crop, which, as in all the Vultures, is remarkably prominent. The legs again are principally covered with a similar down, which on them assumes a brownish tinge. The beak is horn-coloured, with a shade of yellow at its base; the legs and feet brownish; the claws light brown; and the iris chestnut. Le Vaillant informs us that the young bird when first hatched is covered only with a whitish down; at the period when it quits the nest its plumage is of a light brown, and all the feathers are bordered by a reddish tinge. Those of the chest and abdomen are not elongated as in the adult state; and the head and neck are entirely covered by a fine close down, through which the ears are scarcely visible.

As Le Vaillant is the only writer who has observed these birds in their native state, our account of their manners must necessarily be derived from his excellent work, which contains more detailed and authentic information relative to the habits of birds than any other publication with which we are acquainted, excepting only Wilson's admirable American Ornithology. We shall therefore make no apology for abstracting his history of the present species, with which he has combined many particulars equally applicable to the whole family. Like all the other Vultures, he says, this is a bird of the mountains, the sheltered retreats formed by their caves and fissures constituting its proper habitation. In them it passes the night, and reposes, after it has sated its appetite, during the day. At sun-rise large bands are seen perched on the rocks at the entry of their abodes, and sometimes a continued chain of

mountains exhibits them dispersed throughout the greater part of its extent. Their tails are always worn down by friction against the stones between which they thrust themselves, or on which they perch; while the Eagles, seldom walking and frequently perching upon trees, preserve theirs more entire. Those of the Vultures are moreover injured by the soil of the plains, inasmuch as they cannot raise themselves into the air at once, but only after running several paces forwards and by a forced contraction of the limbs. The flight of the Vultures is nevertheless no less powerful and lofty; they raise themselves to a prodigious height and disappear entirely from the sight.

It is scarcely to be conceived how these birds which often cannot be distinguished in the air, can themselves perceive what is going on on the surface of the earth, discover the animals on which they feed and fall upon them the moment they are overtaken by death. When a hunter kills a large animal which he cannot immediately remove, if he abandon it for an instant, he finds on his return a band of Vultures where a quarter of an hour before not one was to be seen. Our author gives the particulars of several adventures of this kind that had befallen himself; and offers an explanation of the manner in which the Vultures are enabled to detect their prey, strictly in accordance with the theory of Mr. Audubon, to which we have before adverted. We quote this explanation at length, without, however, adopting the hypothesis which it involves.

“Desirous of observing,” he says, “how so great a number of Vultures could congregate together in so short a space of time, I concealed myself one day in a thicket, after having killed a large gazelle, which I left upon the spot. In an instant a number of ravens made their appearance, fluttering about the animal, and making a great croaking. In less than half a quarter

of an hour these birds were reinforced by the arrival of kites and buzzards; and immediately afterwards I perceived, on raising my head, a flight of birds at a prodigious height, wheeling round and round in their descent. These I soon recognised to be Vultures, which seemed, if I may so express myself, to escape from a cavern in the sky. The first comers fell immediately upon the gazelle, but I did not allow them time to tear it in pieces. I left my concealment, and they betook themselves slowly and heavily to flight, rejoining their comrades, whose numbers continued to increase. They seemed almost to precipitate themselves from the clouds to share the spoil, but my presence caused them speedily to disappear. Thus it is then that the Vultures are called upon to participate in their prey: the first carnivorous birds that discover a carcass rouse the others which may happen to be in the environs by their cries and by their motions. If the nearest Vulture does not spy his prey from the lofty region of the air in which he swims by means of his wide-spread wings, he perceives at least the subaltern and more terrestrial birds of prey preparing to take possession of it; but perhaps he has himself a sufficient power of vision to enable him to discover it. He descends hastily and with a wheeling flight, and his fall directs the other Vultures who witness his evolutions, and who no doubt have their instinct sharpened with regard to every thing that concerns their food. A concourse of carnivorous birds speedily takes place in the neighbourhood of the carcass, sufficient to attract the Vultures of the whole district, nearly in the same manner as the disturbance created by a number of men running along the streets of a crowded town attracts the whole population to follow in their train."

The present species is not met with in the vicinity of the Cape; but is very common in the interior, especi-

ally in the country of the Namaquas. It builds its nest in the fissures of the rocks, and the female lays two or rarely three eggs. During the time of incubation the male keeps watch at the entrance of the cavern, and thus renders their retreat easy of detection; but on the other hand it is always very difficult of access. The interior offers a most disgusting spectacle, and is infected by an insupportable stench. Le Vaillant had eaten of their eggs, which, to use his own expression, are good enough to be made use of. As they live in formidable bands, a single mountain sometimes conceals as many nests as there are cavities fit for their reception. They appear to agree together exceedingly well, for two or three nests are sometimes seen placed side by side in the same cavern.

The Society's specimen was brought from the Cape of Good Hope in the summer of 1829, and presented by the Hon. J. T. Leslie Melville. It is an adult bird, of large dimensions, and appears, like most of the birds of prey, to bear its captivity extremely well.





THE PEREGRINE FALCON.

FALCO PEREGRINUS. LINN.

THE Falcon family comprehends all the Diurnal Birds of Prey that are not included under the denomination of Vultures, with the solitary exception of the Secretary, which appears to constitute the type of a separate division. Their principal distinguishing characters are found in the extension of the common plumage over the whole of the head and neck; the prominence of their brows, giving to the eyes the appearance of being sunk deeply in the head; and the extreme acuteness, powerful curvature, and obvious retractility of their strong and elongated talons. They have also for the most part a beak of considerable power, always hooked at the point, and covered by an apparent cere at the base; roundish or oval nostrils, generally placed obliquely near the base of the beak and within the limits of the

cere; and a membranous expansion between the base of the outer and middle toes, precluding to a certain extent that power of retroverting the outer toe which characterizes the Nocturnal groups of the Rapacious Order. In the system of analogies they bear, as has frequently been remarked, the same relationship to the Cats as is borne by the Vultures to the Dogs; but the retractility of their talons, which furnishes one of the strongest organic proofs of the justice of this comparison, is of a somewhat different kind, consisting, not in the withdrawing them entirely within a fold of the skin, but in elevating and bending them backwards over the last phalanges of the toes. In both cases, however, the effect is one and the same, that of preventing their sharp points and edges from being worn down by the constant attrition to which they would otherwise be exposed, and which would speedily incapacitate them for the important services they are intended to perform.

It is to the destructive powers of their talons that the Falcon tribes are indebted for their instinctive propensity to make their prey of living victims; and to the firmness of their grasp that they owe an almost equally characteristic trait, the habit of conveying their prey through the air. But there is so much diversity in the mode in which these operations are carried into effect, dependent upon such striking modifications in various parts of their organic structure, as to indicate clearly the necessity of subdividing to a very considerable extent this numerous family, which in the Linnæan system formed only a single genus. Much has of late years been effected by different authors, and in particular by MM. Savigny, Vieillot, and Cuvier, towards the attainment of this desirable end; but the most complete and systematic view of the whole family that has yet been

given is contained in Mr. Vigors' Essay on the groups of the Falconidæ, published in the first volume of the Zoological Journal. He has there shown that the Falconidæ naturally form five strongly marked and well defined tribes or stirpes, of which the Eagles, the Hawks, the true Falcons, the Buzzards, and the Kites, are respectively the types. He has likewise pointed out the genera into which these tribes may be resolved, indicating the species that belong to each of them; and has distinctly traced the continued chain of affinities by which they are connected to each other, at the same time that he has placed their distinctive characters in a clear and discriminating light.

Our present business is with the true Falcons, which, together with the Hawks, constitute the typical or normal subdivision of the family. These two tribes are together characterized by the shortness of their beaks, the curvature of which commences from the very base; and the more or less apparent dentation of their upper mandibles: their prey is usually taken in the air. The true Falcons are distinguished from the Hawks by the length of their wings, the points of which reach the extremity of the tail; and by the second quill-feather being the longest of the series, while in the Hawks it is the fourth that is elongated beyond the rest. The wings of the Falcons are consequently not only longer, but more pointed than those of the Hawks; and they are thus enabled to raise themselves to a much more lofty pitch in their flight. But the length of their quill-feathers, as M. Cuvier remarks, diminishes their vertical power, and renders the flight of the birds, when the air is still, very oblique, constraining them, if they are desirous of rising in a straight line, to fly against the wind. Their great powers of wing, the rapidity of their flight, their docility, and their courage, or rather

their superior voracity, brought them for a considerable period into general use for the pursuit and capture of other birds, and thus gave rise to the Art of Falconry. But the invention of fire-arms has long superseded the necessity for their employment, and this art, notwithstanding a few occasional attempts to revive it, has now sunk into almost total oblivion.

The generic group to which modern ornithologists have restricted the name of *Falco*, is especially characterized by the strong tooth-like process of the upper mandible, which is received in a corresponding notch in the lower. The tarsi are short, strong, and reticulated anteriorly; and the first and second quill-feathers of the wings are deeply notched on the inner side near their extremities. Their nostrils are uniformly rounded, and have a tubercular elevation in the centre; their eyes are deeply immersed; their tongues fleshy, channelled, and bifid at the point; and their claws nearly equal, and extremely sharp both at the points and edges. Thus restricted the Falcons still form a numerous group, M. Vieillot reckoning no fewer than nineteen species, and M. Cuvier a yet greater number.

Of these the best known and the most remarkable is the Peregrine Falcon, so called from its periodical migrations. It is only, however, of late years that its characters have been well understood, several other species having been formerly confounded with it; while mere varieties of age, sex, and climate were regarded as distinct species. For the complete elucidation of its history, of the changes which it undergoes, and of the varieties to which it is subject, we are principally indebted to M. Bechstein, a practical ornithologist of unwearied perseverance, and to Mr. Wilson of Edinburgh, who published a few years ago, in the Memoirs of the Wernerian Society, an excellent paper on the

doubtful and disputed species of this intricate tribe of birds.

It is not surprising that different ages of this bird should have been regarded as distinct species by those who had no opportunity of watching the progress of its growth. At every successive change the plumage undergoes a fresh modification, not in colour alone, but even in the distribution of the markings. It is only at the third or fourth moulting that it assumes any thing like permanence of character; and even after that time it gradually becomes lighter as the bird advances in age. In the first year it is generally of a light brown on the upper parts, with an ash-coloured tinge on the middle of the feathers. Its head and neck are whitish, with a tinge of red and numerous dark brown spots; its throat and under parts dirty white, with longitudinal spots of brown; its iris brown; its cere bluish horn-colour; and its legs yellow. As it advances in age the upper parts become grayish brown, with lighter transverse bands; and the longitudinal markings of the under surface are converted into transverse bars. This conversion takes place in a gradual manner, and affords a certain means of distinguishing the young from the adult bird, not only in the present species, but throughout the whole of the Hawk and Falcon tribes. At the same time there is developed in the Peregrine Falcon a character which is not very distinct in the young bird, and is somewhat more faintly marked in the female than in the male, but which may be regarded as one of the best diagnostics of the species. It consists in a broad black streak passing downwards obliquely over the cheeks from the inner angle of each eye, and giving to the bird a very peculiar expression of countenance. When perfectly full grown the beak is lead-coloured with a darker tip; the cere has a greenish tinge; and

the irides are yellow. The upper parts of the head and neck are bluish black; the back has a lighter tinge of lead-colour, crossed by scarcely perceptible blackish bars; and the black whiskers are strongly developed. The quill-feathers of the wings and tail are of a dusky black; the latter crossed by numerous ash-coloured bars, and yellowish white at the tip. This last character is, according to M. Savigny, uniformly indicative of the species in all its stages. All the under parts are white; a series of transverse brownish bars commence on the lower part of the breast and extend to the tail; the upper part of the breast is marked by a few longitudinal streaks; but the throat is entirely free.

Such are the more usual modifications of colour in the Peregrine Falcon, of which Mr. Wilson enumerates no less than ten varieties, dependent chiefly upon age, sex, and country. It is found, more or less abundantly, throughout the whole of Europe, principally in the mountain districts, in North and probably South America, and in New Holland, dwelling in the clefts of the rocks, especially such as are exposed to the mid-day sun. It breeds upon the cliffs in several parts of England, but appears to be more common in Scotland. During the winter, as Sir John Sebright informs us, numbers of them take up their abode on Westminster Abbey, and on other churches in the metropolis, and make great havoc among the tame pigeons. Their food consists principally of small birds, especially of the Gallinaceous Order, but they scruple not to attack the larger species, and sometimes give battle even to the Kite. They rarely take their prey upon the ground, like the more ignoble birds of the Order to which they belong; but pounce upon it from aloft in a directly perpendicular descent as it flies through the air, bear it downwards by the united impulse of the strength and

rapidity of their attack, and striking their talons into its flesh, carry it off in triumph to the place of their retreat. Like most predatory animals, they are stimulated to action by the pressure of hunger alone, and remain inactive and almost motionless while the process of digestion is going on, and until the renewed cravings of their appetite stimulate them to further exertion.

In different stages of its growth the Peregrine Falcon has been known by various English names. Its proper appellation among the falconers is the Slight Falcon, the term Falcon Gentle being equally applicable to all the species when rendered manageable. The young bird of the year is called an Eyess, not, as has been imagined, from the German *ey*, an egg, but from the French *niais*, which has the same signification as *eyess*, most of the terms of falconry having been adopted from the French. Several other instances occur in our language in which the initial *n* has detached itself from the substantive and become permanently attached to the indefinite article. In the immature state this Falcon is also called a Red Hawk, from the prevailing colour of its plumage. When full grown and in a wild state it is called a Haggard or Passage Falcon. The male is called a Tiercel or Tersel, to distinguish it from the female, which among birds of prey is most commonly one-third larger than the male. Many of these terms are equally applicable to the other species used in Hawking, and are only employed by the professors of that art, which is now fast going to decay. The following passage from Sir J. Sebright's *Observations on Hawking*, published in 1826, will best illustrate its present condition.

“The village of *Falconswaerd*, near *Bois le Duc* in Holland, has for many years furnished falconers to the rest of Europe. I have known many falconers in

England, and in the service of different persons on the continent; but I never met with one of them who was not a native of Falconsward. It has been the practice with these sober and industrious men to stay with their employers during the season for hawking, and to pass the remainder of the year with their families at home. John Pells, now in the service of my friend John Dawson Downes, Esq. of Old Gunton Hill, Suffolk, and who also manages the Heron Hawks, kept by subscription in Norfolk, is (I believe) the only efficient falconer by profession now remaining; all the others whom I remember are either dead or worn out, and there has been no inducement to younger men to follow the employment of their forefathers."

Under these circumstances it would be superfluous, did it even come within the scope of this publication, to enter into any details on the Art of Falconry. To those, however, who feel an interest in learning by what means so wild and apparently so unmanageable a bird has been tamed and rendered subservient to man, we would recommend a perusal of Sir J. Sebright's Treatise just mentioned; of the articles on Falconry in the two French Encyclopædias; and of an excellent and philosophical Essay on the Flight of Birds of Prey, published by M. Huber of Geneva, in the year 1784. •





THE LITTLE FALCON.

FALCO SPARVERIUS. LINN.

THE genus *Falco*, even when limited as in the preceding article, will still admit of farther subdivision. Thus the present bird forms part of a natural section in which the wings are not elongated to the same extent as in the more strictly typical species, and the toes are shorter and less strongly tuberculate. The species referable to this division, (of which the European Kestrel may be regarded as the type,) are also, generally speaking, of smaller stature; they are unable to mount in the air with equal rapidity, or to descend upon their prey with the same irresistible impetus; and they consequently take it more frequently upon the ground or the perch. Mice, reptiles, and even insects form a considerable part of their food. In most other important particulars, such as the relative dimensions of their quill-feathers, the strength and curvature of their talons, and the

strong tothing of their bills, they correspond with the normal species of the group with which they are associated.

The Little Falcon is smaller even than the Kestrel, the adult female measuring only eleven inches in length, and about twenty-three in the expansion of her wings. Her head is of a bluish ash-colour, with a rufous patch on its upper part. A black band passes from each eye downwards towards the throat, two spots of the same colour occur upon each side of the head, and another upon the back of the neck; these are all placed upon a white ground, which extends over the cheeks, the throat, and the sides of the neck. All the upper parts are of a deep reddish brown, transversely striped with narrow black bars; the quill-feathers are blackish brown, spotted on the inner webs with rusty white. The under parts are yellowish white, marked with longitudinal streaks of brown on the breast and abdomen. The two outer feathers of the tail are white on their outer webs; and have a white margin to the inner, extending to about an inch from their tips, and marked by two black spots. The rest of the tail-feathers are of the same colour with the back for about two-thirds of their length, and are then crossed by a broad black band, beyond which they are tipped with white. The cere and legs are of a bright yellow; the bill bluish with a black tip; the iris dusky; and the claws black. The male is, as usual in the tribe, somewhat smaller; those parts which in the female are white, have in it a rufous tinge; the brown streaks of the under surface are converted into black; and the wing-coverts and tips of the secondary quill-feathers are slate-coloured. Its colours are in general deeper and more decided than those of the female. In some individuals the breast is of a plain rufous white without spots.

These birds are spread over the whole extent of the American continent and the neighbouring islands. In the United States, according to Wilson, they are constant residents, but are most abundant to the northward of Maryland. Many writers have spoken of them as inhabiting the West India islands and especially Hispaniola, whence the species has been commonly known by the name of the Saint Domingo Hawk. Mr. W. S. MacLeay has lately sent home specimens from Cuba; Cayenne is given as its habitat by Brisson and Buffon; Paraguay by D'Azara; and the Straits of Magellan by Captain King. In the United States it usually builds in a hollow tree, and generally at a considerable distance from the ground; but in the south it is said to be more sociable, and D'Azara asserts that it will even take up its abode in churches and other old buildings. It lays from two to four or five eggs; and the young when hatched are fed with small birds, grasshoppers, and mice, the usual food of the parent birds.

Its flight, as Wilson describes it, is somewhat irregular. Occasionally it suspends itself in the air, hovering over a particular spot for a minute or two, and then shoots off in a different direction from that which it had previously taken. When it alights it closes its wings with such rapidity that they seem instantly to disappear, and sits perched in an almost perpendicular position, sometimes for an hour at a time, frequently jerking its tail and reconnoitring the ground below. Suddenly it darts off into a thicket, almost as if at random; but always with a particular, and generally a fatal, aim. It is besides constantly on the watch for snakes, lizards, mice, and even grasshoppers, which form, in the season when they are abundant, no small portion of its food. It is not, however, without some delicacy of taste, if we may trust to an anecdote

related by Wilson, on what he considered respectable authority. His informant stated that he had observed one of these birds dash down upon the ground and seize a mouse, which he carried to a fence-post, where, after examining it for some time, he left it; but soon after pounced upon another, which he instantly carried off to his nest. Curious to ascertain the reason of this proceeding, the observer went and picked up the first mouse, and found it covered with vermin and greatly emaciated, to which circumstances he attributed the neglect it had experienced.

The note of this bird is so exactly imitated by the Blue Jay as to deceive even those acquainted with them both; and, whether through fear or fascination, the Falcon no sooner makes his appearance in their neighbourhood, than the Jays swarm around him, and commence insulting him with their imitative cries. In return for this, as might naturally be expected, they fall frequent victims to his appetite.





THE BLUE AND YELLOW MACCAW.

MACROCERCUS ARARAUNA. VIEILL.

In describing the Red and Blue Maccaw, at page 13 of the present volume, we gave a brief indication of the characters by which the Maccaws are distinguished from the rest of the Parrots. The present species exhibits all these characteristic marks as completely as any of the group, of which it is one of the most conspicuous examples. In size it is somewhat inferior to the species formerly described, the male bird measuring little more than two feet and a half in total length when fully grown and in fine condition. Its colours are remarkably distinct. All the upper parts, from the forehead to the extremity of the tail, including the sides of the head and the upper surface of the wings, are of a bright blue, with a slight tinge of green; the under

parts, from the breast downwards, are of a light orange yellow; and the throat is of a dusky black, with a faint greenish shade. The blue of the fore part of the head has a more decided tinge of green. The naked cheeks have their white suffused with a slight roseate blush, and are marked by three or sometimes more transverse lines of minute blackish feathers. In the female the colours are still more vivid, and the tail is also somewhat longer in proportion; but the relative size of the bird is a trifle less.

Like all the other species of the group, the Blue and Yellow Maccaw is a native of the tropical regions of America; and to judge from the numbers imported into Europe, it must be extremely abundant. Although it inhabits the same localities with the species formerly described, it is said never to mingle with them, but on the contrary to be at open war with them whenever they chance to meet. The natives who are accustomed to their notes say, that it is easy to distinguish them by their articulation, the Arra of the Blue and Yellow Maccaw being pronounced with less distinctness than that of the other species. They seem perfectly at their ease in domestication, and have frequently bred in France; but we know not that the same success has attended the rearing of them in this country.





THE HYACINTHINE MACCAW.

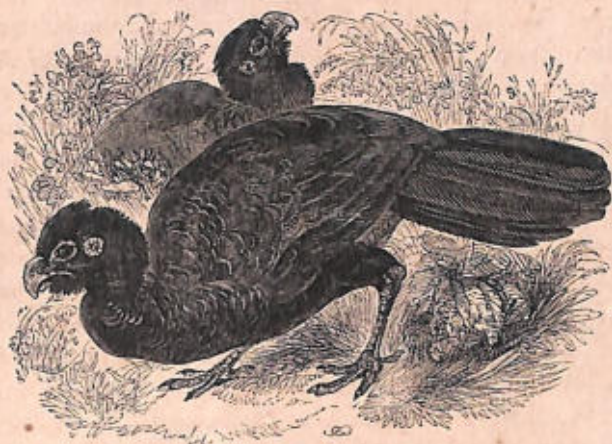
MACROCERCUS HYACINTHINUS. VIEILL.

THIS species, first described by Latham, and afterwards figured by Shaw in the Leverian Museum and in his Zoological Miscellany, is one of the rarest of the magnificent group to which it belongs. It would seem that Le Vaillant was unable to procure a specimen, for it is not figured in his splendid work on the family; nor does any author of the present century appear to have observed it, with the exception of M. Spix. In a former work, the Tower Menagerie, misled, as we now conceive, by the authority of the last-named zoologist, and by the unusually fine condition of the bird which we had then before us, we were induced to regard the individual there figured as a distinct species. But subsequent observation has led us to abandon this opinion; and to consider the differences there pointed out as

dependent only upon a more advanced age and a finer state of plumage. The brilliancy and depth of the colouring vary considerably in all the individuals that we have seen; the curvature of the bill and claws seems to go on increasing with the growth of the bird; and the tooth of the upper jaw, with its corresponding notch in the lower, may possibly undergo a gradual obliteration from the effects of long-continued attrition.

This beautiful species appears to form the passage between the true Maccaws, in which the whole of the cheeks is bare of the common plumage, and the Peruche-Aras of Le Vaillant, the genus *Psittacara* of Mr. Vigors, in which the cheeks are entirely feathered, with the exception of a circumscribed space encircling the eyes. In the Hyacinthine Maccaw the cheeks are only partially feathered, naked spaces being left round each of the eyes, and also at the junction of the upper and lower mandibles, the latter passing round beneath the chin. The uniform colour of the whole bird is a hyacinthine blue, of greater or less intensity in different individuals, and deeper upon the quill-feathers of the wings and tail. The naked spaces round the orbits and at the base of the bill are of a brilliant yellow; and the bill, legs, and claws are nearly jet black.





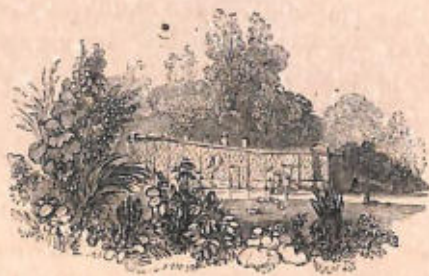
THE RASOR-BILLED CURASSOW.

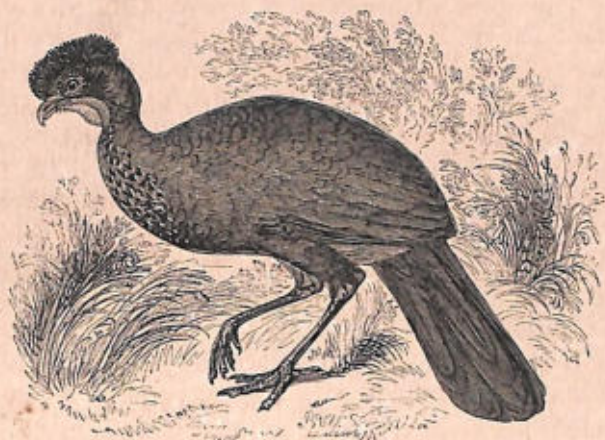
OURAX MITU. CUV.

VERY few specimens of this bird, either living or dead, have been brought to Europe. It was first described and figured by Marcgrave, under its Brazilian name of Mutu, and after him by Jonston and Willughby. Later naturalists, from Brisson to Gmelin, never having seen the bird, regarded it as a mere variety of the Crested Curassow. M. Temminck, who was the first to point out that it belonged to a different genus, speaks, in his *Histoire Naturelle des Gallinacés*, of an individual formerly confined in a Menagerie near the Hague as the only living specimen that he had ever seen in Holland. Several skins have since been procured from Brazil by Count Hoffmannsegg, and M. Temminck has given a good representation of the species in his splendid *Planches Coloriées*.

The Razor-billed Curassow is an unquestionable species of M. Cuvier's genus *Ourax*, the characters of which are given at page 65. Its most distinctive character consists in the form of the horny process that surmounts its bill, which rises above the level of the head, is flattened on the sides, runs anteriorly into a sharp edge, spreads out at the base where it is continuous with the bill, and is like it of a bright red. The whole of the upper parts, the fore part of the neck, the breast, and the legs, are black with a violet or purple gloss. The tail is of the same colour for the greater part of its length, but terminates in a white band; and the extreme part of the belly is of a chestnut brown. Above the base of the bill, which is covered with short velvety feathers concealing the nostrils, is a tuft of straight feathers; the iris is dusky, and the naked legs are reddish brown. In the young bird the horny process of the bill is smaller, and less intensely red.

It has not yet been attempted to naturalize the present species in this quarter of the globe; but its flesh, according to Marcgrave, in whatever mode prepared, but especially when roasted, yields to that of no bird, either of Europe or America. He adds that it is domesticated and cultivated by the gentry of Brazil, on account both of its dignity and elegance.





THE GUAN.

PENELOPE CRISTATA. GMEL.

OF the same family with the Curassows, and closely allied to those birds both in structure and general appearance, the present group is nevertheless distinguished by several remarkable peculiarities. The bill is much shallower, its transverse diameter exceeding its depth, somewhat elongated, and naked at the base; the nostrils are placed about the middle of the bill, and are not at all concealed by the advancement of the feathers of the head as in the genus *Ourax*; a naked space surrounds the eyes; the skin of the throat is destitute of feathers, and capable of considerable distension; the claws are strong, curved, and pointed; and the hinder toe is articulated on the same level with the anterior ones, and consequently applies its whole length to the surface of the ground. As in the other genera

of the family, the bill is convex above and curved at the point; the legs are of moderate length and without spurs; the wings short, with the sixth quill-feather longest; and the tail flat, rounded at the extremity, and formed of twelve broad feathers.

M. Spix has latterly added very considerably to the difficulties that previously existed in distinguishing the species of this interesting group, by the publication, in his *Brazilian Birds*, of a series of figures representing apparently very slight modifications of the common form, but to each of which he has affixed a peculiar specific name. We believe that most of them will be found on further examination to be referable to the present species, which, from its long domestication in the poultry yards of South America, must necessarily be subject to very extensive variations. It is the largest bird of the genus that has yet been discovered, measuring when fully grown about thirty inches in total length, of which the tail constitutes thirteen or fourteen. The whole upper surface of the body is of a dusky black or bronze colour with a gloss of green, which becomes olive in certain positions with regard to light. The feathers of the back of the head are long, and form a thickly tufted crest, capable of being raised or depressed at pleasure. A black stripe passes backwards from the under part of the bill, and encircles the ear. The fore part of the neck and breast are spotted with white, each of the feathers being surrounded by a white border; as is also the case on the belly and legs, which have somewhat of a reddish tinge. The latter colour also prevails on the lower part of the back and under tail-coverts. The naked cheeks, extending from the bill to the eyes, are of a purplish violet; the iris reddish brown; the bill blackish; and the legs red. From the naked part of the throat, which is of a bright

scarlet, depends a more or less considerable fold of the skin, of the same colour, which is either elongated or entirely retracted in conformity with the state of excitement or inaction of the bird. Even after death it possesses considerable elasticity, and may then be drawn out or made to disappear at will.

The principal external difference in the female consists in a decided tinge of red over the whole plumage, especially on the under parts.

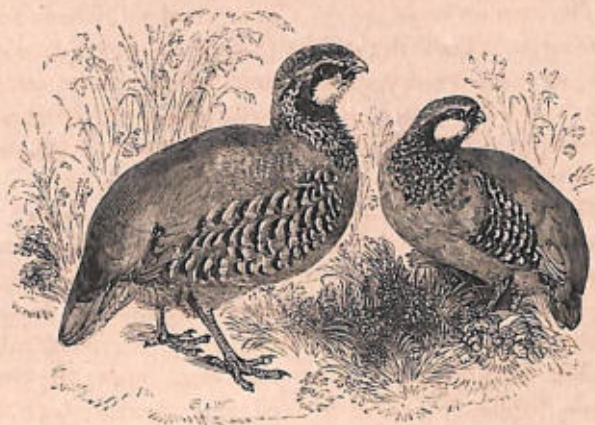
Like most of the birds of this family, the Guan is remarkable for the circuitous course of its wind-pipe before entering the cavity of the chest. It has also some peculiarities in the structure of its upper larynx, which are well described by M. Temminck in his *Natural History of Gallinaceous Birds*, published at Amsterdam in 1815.

The manners of the Guan have little to distinguish them from those of the Curassows. Although to all appearance equally capable of domestication, they have not yet been introduced into Europe in equal numbers with the latter birds, nor has the same success attended the attempts to propagate them in this quarter of the globe. We are told, however, by M. Temminck, that the proprietor of a Menagerie in the neighbourhood of Utrecht had bred them for several years; and there can be little doubt that with proper care and attention these birds might be added to the stock of our domesticated fowls. They are spoken of as furnishing an excellent dish for the table. In a wild state they inhabit Guiana and Brazil, and perhaps extend still further to the north. Their food consists principally of seeds and fruits, which they search for and eat upon the ground; but the greater part of their existence is passed upon the trees, on the tops of which they perch, and in which they build their nests. They are not

often found in large bands, but generally pair together with the strictest constancy. The females lay from two to five eggs. Their flight, like that of most gallinaceous birds, in consequence of the shortness of their wings, is low and heavy; and in the performance of this action they derive much assistance from their tail, the feathers of which may be expanded in the shape of a fan.

All the birds of this genus appear to be known in Brazil by the name of Jacu, pronounced Yacou, derived according to Marcgrave from their note. This, as might be expected from the conformation of their trachea, is extremely loud, insomuch that when a considerable number are collected near the same spot, the very woods, to use the expression of the scientific traveller just quoted, reecho with their clamorous cries.





THE RED-LEGGED PARTRIDGE.

PERDIX RUBRA. BRISS.

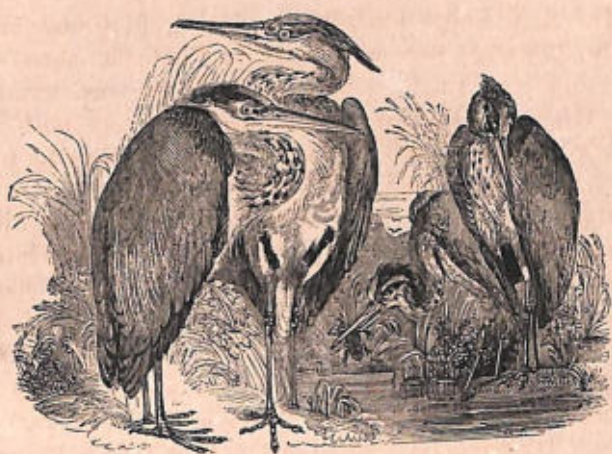
THE genus *Perdix*, limited to those birds which are popularly designated Partridges, differs from the other subdivisions of the Linnæan genus *Tetrao* in the slenderness of the bill; the nakedness of the legs, which in the adult male are armed only with a short blunt tubercle; the rounded form of wing, resulting from the abbreviation of the first three quill-feathers; and the comparative shortness of the tail. In the present species, which is half as large again as the Common English Partridge, the general colour of the upper surface is reddish brown; the breast of a bluish ash colour; the under parts reddish; the throat pure white, bordered by a deep black band, which passes upwards as far as the eyes; and the bill and legs red. The plumage of the sides is marked with some regularity by a series of transverse crescent-shaped bars of black, white, and chestnut, which give the bird a very striking

appearance, and at once distinguish it from the common species.

The Red-legged Partridge is plentiful in France and Italy, but does not inhabit Switzerland, Germany, or Holland. In England it has frequently been termed the Guernsey Partridge, from its being met with in that island, from which it is supposed occasionally, but very rarely, to extend its flight to the southern coast of Britain. Of late years it has been introduced with great success into many of our preserves, and the birds that escape from these will probably at no very distant period render it a frequent native of our southern counties. Wherever it obtains ground, it drives the common species out of the preserves, and threatens in time, like the Norway rat, to exterminate the aboriginal race. It prefers hilly situations, and nests in fields and copses, like the common species, but is by no means of so sociable a disposition; for, although it forms large coveys, the individuals composing them neither keep so close together, nor take flight at the same moment. The female lays from fifteen to eighteen eggs of a dirty white, with scattered reddish spots.

In captivity this species is more readily tamed than the common. Its flesh is lighter coloured and generally held in higher estimation.





THE COMMON HERON.

ARDEA CINEREA. LINN.

IN the genus *Ardea*, now limited to the Herons and Bitterns, the bill is considerably longer than the head, sharp at the point, straight or very slightly curved, compressed laterally, cleft to the very base, and frequently armed at the edges with sharp denticulations; the upper mandible is marked on either side by a longitudinal groove, in which the linear nostrils are perforated near the base of the bill; from the bill to the eyes extends a space destitute of feathers; the tarsi are long and covered with large scales; the legs naked for some distance above the knee-joints; the toes long and slender, the outer one united to the middle by a membranous expansion, and the posterior attached so low down as to allow of its resting its whole length upon the ground; the anterior claws of moderate length,

slightly curved and pointed, with a denticulated dilatation on the inner side of that of the middle toe; the posterior claw very long, arched, and pointed; and the wings long, with the first quill-feather shorter than the two succeeding ones, which are the longest of the series.

Thus restricted, the genus is still extremely numerous; for M. Vieillot states it to be composed of no fewer than eighty species. These are distributed by M. Cuvier into six sections or subdivisions, among which the true Herons are principally distinguished by the great length of their legs and neck, the long pendent plumes of the lower part of the neck, and the perfectly straight direction of the bill.

The Common Heron is, as its name implies, one of the most frequent and best known species of the group. It is about three feet four inches in length, measuring from the end of the anterior toes to the extremity of the bill; from the bill to the tail it measures nearly three feet, of which the tail forms about eight inches; and the expanse of its wings exceeds five feet. It does not, however, weigh more than three pounds and a half, and its buoyancy in flight is consequently very considerable. The general colour of the whole upper surface of the bird is an ashy gray with somewhat of a bluish tinge. This is deeper on the back of the head, which is likewise ornamented with a dependent crest of narrow blackish feathers, three inches or more in length, overshadowing the back of the neck. The upper part and sides of the neck are of a light gray, running into the pure ash-colour of the back, and the latter passing into a deeper shade of ashy gray upon the tail. The wing-coverts are nearly of the same colour, with a slight tinge of reddish; and the quill-feathers black with a bluish gloss. On the under parts

the ground-colour of the plumage is a pure white, marked on the fore part of the neck and breast with large longitudinal black drops. The abdomen, upper part of the throat, and legs, are pure white. The naked space between the bill and eyes is of a grayish yellow; the iris is yellow; the bill bluish above and yellow beneath; the legs, which are bare of feathers for two or three inches above the knees, are somewhat flesh-coloured in their upper part and grayish brown below; and the claws black. The middle toe, with the addition of its claw, does not measure more than four inches; and is consequently much shorter than the tarsus, which exceeds six inches in length. Beneath the anterior half of the bill, which is about five inches long, the skin is capable of considerable distension. There is little difference in the colours of the female; but the young bird has no crest on the head, and its back and wings are of a darker gray.

The Herons may be regarded as birds of passage, but their stay or departure seems every where to be regulated by their means of procuring food. They are nowhere very abundant, although they are met with in almost every part of the northern and temperate regions of the Old Continent, and perhaps also in the New. In Europe they migrate as far northward as Drontheim, and are found even in Russia and Poland, but they are most common in England, France, and Holland.

They build their nests in numerous companies, on lofty trees and more especially oaks, in the immediate neighbourhood of streams and marshes. The nest is of large dimensions, constructed externally of twigs, dry herbs, and reeds, and lined internally with feathers and wool. In this the female deposits her eggs, three or four in number, about the size of those of the common hen, but more elongated, and of a greenish brown colour

without spots. The male does not share in the task of incubation; but flies abroad in search of food, while the female tends her charge at home. They are particularly fond of the society of Ravens, but the latter often carry off their eggs; and the Falcons, Weasels, and Martens, are dangerous enemies to their young. When the young are hatched, both parents assist in providing them with food until they are able to fly, and bring them abundance of fish for their support. But as soon as they become capable of a continued flight, they are driven from the nest, and proceed each in a separate direction to seek its own subsistence wherever it may be most plentifully procured.

The old birds quit their nests about the middle of August, and wander from stream to stream and from lake to lake, forming themselves into gradually increasing bands as the colder season approaches. Towards the beginning of September they are often met with in companies of from twenty to thirty in a spot; but as soon as the frost sets in, they begin their migration to the southward, taking their flight by moonlight, like the Cranes, but not with the same order and regularity. They return about the latter end of March, when the severity of the season is no longer to be dreaded. Some few, however, remain throughout the winter, especially when the weather is variable, and are occasionally seen, in company with the Wild Ducks, at the commencement of a sudden thaw. They usually disappear with the return of frost.

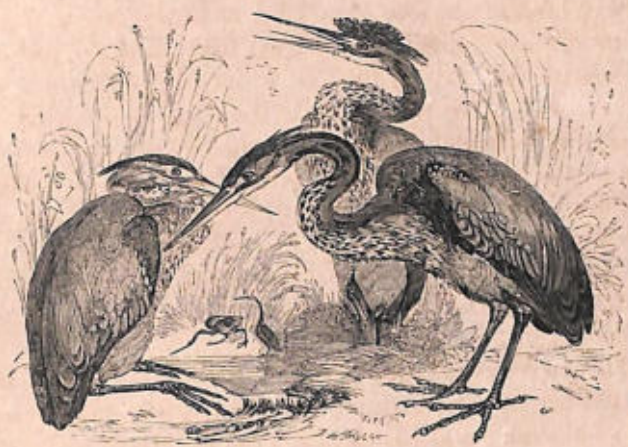
Their food consists principally, like that of most of the birds of the Wading Order, of fresh-water fishes, but more particularly of the young fry of carp and trout. In pursuit of these they wade gently into the water, where the fish abound, and stand in it up to their knees, (or rather to their knee, for they rest

only on one foot,) with their heads drawn in by the folding of their long necks upon the breast, quietly watching the approach of their prey. It has been remarked, not merely by the vulgar, but by observers deserving of implicit confidence, that the fish generally swarm around them in sufficient number to afford them a plentiful supply; and this has been commonly accounted for on the supposition that their legs communicate a peculiar odour to the water which entices the fish to their destruction. But M. Bechstein, who vouches for the fact as one which he had seen innumerable times, suspects that the source of attraction is in the excrements of the bird, which it lets fall into the water, and which the fish, as is proved by experiment, devour with the utmost avidity. The time of fishing is usually before sunrise or after sunset. They generally swallow their prey entire, and many stories are current of eels escaping alive through their intestines, and being a second time devoured by the voracious birds. Besides fishes, frogs form a considerable portion of their food; and in winter they are frequently compelled to content themselves with snails and worms, or, according to M. de Salerne, even with the duck-weed that floats upon the stagnant waters. At such times they occasionally become so emaciated as to appear to consist of little else than feathers and bones.

Hérons are taken in various ways. Sometimes they are shot while fishing, or sweeping leisurely along the banks; but they are so shy that the sportsman can rarely get within gunshot of them. Occasionally a living fish is attached to a hook at the end of a line, and left to swim in the waters which they are known to frequent; and they are thus caught as it were by angling. When falconry was in fashion, hawking at the Heron was regarded as the most noble of its

branches ; the powerful wings of the Heron, unequalled by any bird of its size, enabling it to mount in the air to an almost incredible height, and thus to put the powers of the Falcon to their proof. For this purpose it was customary to establish the Herons in a proper situation, to which they were attached by precautions taken for providing them with necessaries. These heronries, as they were called, have now become extremely rare ; but one of them may still be seen, as we are informed by Sir John Sebright, in the greatest perfection, at Didlington in Norfolk, the seat of Colonel Wilson.

The Heron, when taken young, readily becomes habituated to captivity ; but the old birds generally refuse all sustenance, and perish of inanition. In former days, when it was necessary to procure such for the training of the hawks, it was usual, according to Sir J. Sebright, "to cram them with food, and to tie a piece of mat round their necks to prevent them from throwing it up again." Sometimes, however, the old birds have been known to become tame and even domesticated ; and the same distinguished authority to whom we have just referred, mentions an instance that occurred within his own knowledge, in which, after recourse had been had to the operation of cramming and tying down the food, the bird "became so tame as to follow its master on the wing to the distance of some miles, to come into the house when called, and to take food from the hand."



THE AFRICAN HERON.

ARDEA PURPUREA. LINN.

THIS species of Heron is rather smaller than the last, but bears a general resemblance to it in form and marking. In the present the back of the head is of a bright black; the crest, two of the feathers of which are remarkably long, has a slight gloss of green on a black ground; a black band extends on either side from the base of the bill to the back of the head; the upper half of the back of the neck, and the whole of its sides are of a rusty red, marked with three black stripes, the one passing from the back of the head along the middle line, and the two others from the angle of the bill downwards on either side. On the back and tail the prevailing colour is deep ashy gray with somewhat of an olive tinge; the wing-coverts are occasionally tinged with red; the long narrow feathers of the shoulders and sides of the back are reddish-

purple; the quill-feathers of the wings in part of an ashy blue, and in part blackish with a shade of olive; and those of the tail ash-coloured above and bluish beneath. The whole of the under parts have more or less of a reddish tinge; the fore part of the neck and breast have a shade of yellow, and elongated black and purplish spots; and the hinder part of the breast and abdomen are of a purplish brown on the sides and black in the middle, with a few purplish brown spots. The bill is longer, slenderer, and more pointed than in the common species, greenish brown above and yellowish beneath; the naked parts of the cheeks yellowish; the iris orange; and the legs dusky greenish brown. In length the middle toe and tarsus are nearly equal, each measuring something more than five inches.

The African Heron, as it is called, seems to have little to do with Africa. It is most common in Siberia and on the coasts of the Caspian and the Black Sea, and is not unfrequent in Italy, Switzerland, and some parts of Germany. In France it is seldom met with, and very few authentic instances are recorded of its occurrence in England. Its manners appear to be nearly identical with those of the Common Heron, with the exception that it is said to attach itself more particularly to mountainous countries.





THE GOLDEN EAGLE.

AQUILA CHRYSÆTOS. SAV.

A HEAD remarkably flattened above, plumed, as well as the neck, on every part; eyes deeply sunk beneath the level of the cheeks; a thick powerful beak, straight at its base, somewhat angular above, and strongly hooked at the point; nostrils of a short oval or almost circular form, surrounded by a slightly hispid cere; wings as long as the tail, with the third and fourth quill-feathers the longest; legs of great strength, clothed with feathers to the very base; toes robust, of moderate length, the outer united to the middle by a membranous expansion of sufficient extent to prevent its retroversion; and strong, sharp, powerfully curved, retractile and grasping talons, channelled on their under surface;

are the combined characters that distinguish the true Eagles from the Vultures, Falcons, and other birds of prey, as well as from their more immediate affinities in the tribe to which they belong. Among the latter the birds in question are at once recognised as being the only long-winged Eagles whose legs are plumed completely down to the toes.

In the genus *Aquila*, as thus limited by M. Savigny, are comprehended some of the largest and most destructive species of the Raptorial Order. Inhabiting the most mountainous districts, and building their aerie either in clefts of the rocks or on the summits of the trees, they sweep the country round in search of the living animals on which they prey. Strictly monogamous in their amours, each nest is occupied by a single couple and their mutual progeny; and, except during the time of incubation, the male and female constantly pursue their game in company, so that they are almost always seen flying in pairs. Their flight is swift and powerful; they mount to an exceedingly lofty pitch, from which they descend upon their victim with overwhelming rapidity, and bear it off in their talons, if it be not too heavy, to their nest. In their attacks they frequently select such animals as are capable of making some resistance; not, however, as has been absurdly stated, from any principle of magnanimity, but solely because their love of rapine impels them to grasp at the larger in preference to the smaller prey. Their sight is extremely piercing, but on the other hand their smell is reduced to a very low degree of development. When the female is sitting the male provides her with sufficient food; and after the young are hatched both parents share in the task of their education. As soon, however, as the young become capable of seeking their

own subsistence, they are driven from the nest, and compelled to choose a distant spot for their retreat; for so jealous are the Eagles of the undivided sovereignty of the districts they inhabit, that they will not suffer even their own progeny to hunt within the circle of their domains.

The birds of this genus, like most of the other birds of prey, change their plumage to such an extent as they advance in age, that their various stages of growth have been repeatedly described as distinct species. Thus the Golden Eagle occurs in the compilations of Gmelin and other naturalists of the same stamp under no fewer than four, or even five, different denominations. Some uncertainty still prevails with respect to the Ring-tail Eagle of Pennant, which M. Cuvier continues to enumerate as a substantive species, but which M. Temminck asserts to be nothing more than the young of the Golden Eagle in its first or second year. Following the decision of Montagu and most of the older writers, Mr. Wilson has expressed himself, in a paper published in the Wernerian Transactions, in favour of M. Cuvier's view of the subject; but we rely too confidently on the authority of M. Temminck, confirmed by that of Mr. Selby, not to adopt the conclusions at which these gentlemen have arrived from actual observation, in preference to the more or less theoretical ideas on which the opposite opinion is founded. The Society's Menagerie contains at the present moment individuals in both states of plumage; and we shall therefore in all probability in the course of a few years have an opportunity of verifying the fact by our own observations.

The cut at the head of the present article represents the European Golden Eagle in its fully adult plumage. In this state it is almost wholly coloured of a dusky

brown, with an intermixture of lighter brown on the edges of the feathers, and particularly on the shoulders. The feathers appear to be for the most part white at the base, or accompanied by a fine white down, so that when they are ruffled the brown colour of the surface appears to be mixed or mottled with white. The quill-feathers of the wings are rather darker than the rest of the plumage; and the insides of the legs and the tarsal feathers are of a lighter brown. The entire tail is of a uniform brownish black, varied only by occasional transverse narrow wavy bars of gray, which appear to become more and more obsolete as the bird advances in age. It would also appear that the whole plumage gradually assumes, in the older individuals, a lighter shade of brown. The cere and toes are of a dull yellow; the beak bluish horn-colour, darker towards the tip; the irides hazel; and the claws deep black.

When full grown the Golden Eagle measures about three feet in length, and upwards of seven in the expanse of its wings. The latter when closed very nearly reach the extremity of the tail, which is strikingly rounded in its outline by the regular abbreviation of the feathers on either side. The beak is less deeply divided than in the Imperial Eagle, the separation of the mandibles not extending farther backwards, according to M. Temminck, than the anterior angle, or rather, according to our own observations, than the middle, of the eye. The beak is large, powerful, and deeply curved; the eyes are remarkably bright and piercing; and the toes are furnished beneath with several large callous tubercles, increasing in size towards the extremity, so as to protect the talons, which are extremely acute and much elongated. Of these the inner and posterior are by far the longest, and the latter some-

times attains an extent of three or four inches measured along its curve. In its attitudes the bird is generally considered peculiarly majestic, its powerful grasp enabling it to perch itself in a bold upright posture, with its wings closely pressed to its sides, its neck elevated to the plane of its back, and its breast thrown boldly forwards.

The Golden Eagles build on all the mountain chains of Europe, Asia Minor, Tartary, Siberia, and the North of Africa, and in the Northern regions of America. In Europe they are most abundant in Russia, Sweden, Scotland, the Tyrolese and Swiss Alps, and the Pyrenees. Their nest forms a solid platform, of several feet in width, built of sticks and branches of trees, interlaced with smaller twigs, and covered with layers of reeds or heath. The female seldom lays more than two or three eggs, of a dirty white spotted with red. Their food consists almost solely of living victims; and foxes, lambs, fawns, and birds of various kinds, form their most usual prey. It has been said that they sometimes carry off infants; and Anderson asserts that in Iceland they have been known even to seize upon children of four or five years old: but there seems to be great exaggeration, or rather much of positive invention, in all the stories of this description with which we have met. They sometimes attain a very great age. Klein mentions one that died at Vienna in 1719, after having been confined there for upwards of a century. It is possible, however, that in this instance the naturalist may have been deceived by the keeper of the Menagerie, for it appears to be the general practice in such cases to continue to each succeeding animal of a species all the honours of its predecessor, and thus to perpetuate its existence through many generations. Still

there can be no question that in captivity these birds live for a very considerable time. When supplied with sufficient food they appear to have all that is requisite to their existence, and live perfectly contented with their lot.

In former times the Golden Eagle was occasionally employed in falconry; but the indocility of its disposition, added to the fatigue of carrying so large a bird upon the fist, rendered it by no means a favourite among the adepts in that noble art. It is said, however, that it still continues to be trained for this purpose in certain districts of Persia and Hindoostan; and that the Kirghees, who inhabit the north-eastern shores of the Caspian Sea, avail themselves of its services in the chase of deer with considerable advantage.





THE RING-TAILED EAGLE.

AQUILA CHRYSÆTOS, JUN.

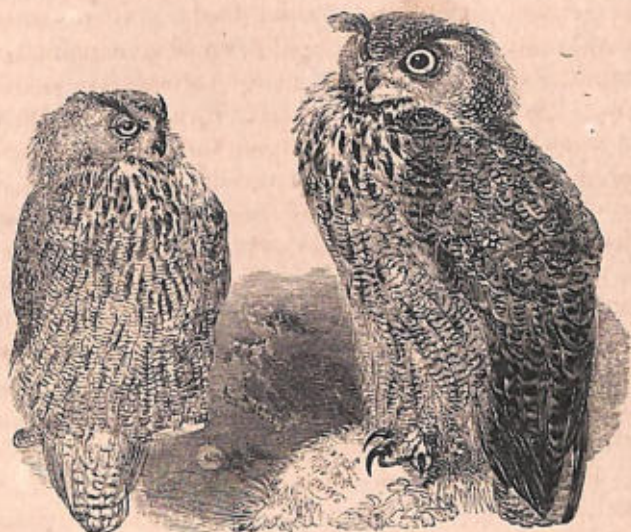
WE have been induced to devote a separate cut to the illustration of the Ring-tailed Eagle, or that which is now generally believed to be the young of the Golden Eagle, in consequence of the differences observable between the Society's specimen and some of the best accredited descriptions of the bird. M. Temminck describes it as having the plumage of a rusty brown or light reddish colour uniformly spread over the whole body, and becoming deeper as it advances in age; and M. Vieillot as dull brown with rusty spots in the younger individuals, and blackish in the adult state. From both these descriptions it would appear that the plumage of the young bird is considerably lighter than that of the full-grown individual; a fact which if true would be

directly the reverse of that which is observed in almost every others pecies of Raptorial Birds. All of these, and especially the Eagles, exhibit an obvious tendency to assume a lighter plumage as they advance in years.

It is true that the white band of the tail, which in the youngest individuals occupies full three-fourths of that member, is gradually effaced by the extension of the dusky or blackish brown of its tip, and remains afterwards only in the shape of a few irregular indistinct wavy bands; but in the Society's specimen the general colour, far from being lighter in the young bird, is of a deep brown approaching to black, the head and back of the neck being alone of a lighter brown. That this bird is extremely young is proved by the extent of the white band on its tail, which reaches nearly to the tip, and by the grayish white of the inner sides of the legs. In these respects alone, in its darker plumage, and its somewhat more dusky iris, does it differ from the birds of the preceding article.

The specimen figured was brought from Hudson's Bay in the autumn of 1829, and was presented by the Hudson's Bay Company to the Society. It affords an interesting point of comparison with the Golden Eagles previously confined in the Menagerie.





THE GREAT EAGLE-OWL.

BUBO MAXIMUS. GER.

ONE of the most striking examples of the prevalence of vulgar prejudice over common sense and daily experience is afforded by the contemptuous antipathy in which the Owls, the most useful to man of all the Birds of Prey, are almost universally held by those who derive the greatest advantage from their peculiar instincts. The singularity of their appearance, the loneliness of their habitations, the moping melancholy of their manners, their nocturnal habits, the still silence of their motions, and the grating harshness of their cries, combine to render them objects of dislike and terror to the timid and superstitious, who see in them something of an unearthly character, and regard them as birds of evil omen. But the commonest observation

teaches us that they are in reality the best and most efficient protectors of our corn-fields and granaries from the devastating pillage of the swarms of mice and other small rodents, which but for them would increase to the most mischievous extent. By their wholesale destruction of these petty but dangerous enemies, the Owls earn an unquestionable title to be regarded as among the most active of the friends of man; a title which only one or two among them occasionally forfeit by their aggressions on his defenceless poultry.

These birds are separated from all the rest of the Raptorial Order by external characters as remarkable as their habits. In the system of Linnæus they constituted but a single genus, which has now, like the majority of the groups formed or adopted by that great master of natural science, been converted into a family, and subdivided into several minor sections, each distinguished by its own generic appellation. The entire family are characterized by the comparatively large size and globular form of their head; the magnitude of their eyes, which are directed forwards, surrounded by a broad disc of slender feathers, and furnished with pupils dilatable to a very great extent and capable of powerful contraction; the curvature of their beak from its very base, and the almost complete immersion of that organ in the straight bristly feathers that clothe the soft and spongy cere; the extent of their gape; the shortness and thickness of their neck; the versatility of the outer toe, which is equally capable of being directed forwards or backwards; the extreme retractility, strong curvature, and acuteness of their talons; and the great apparent bulk of their bodies, in consequence of the thickness of the puffy plumage with which they are invested in every part. Their powers of flight are not great; for although their wings are

generally of considerable length, the muscles by which they are put in motion are but little developed, and are not supported by bony processes of proportional strength. The feathers also are too soft, flexible, and downy, to allow of their wings being put into powerful action; they consequently fly for the most part near the ground, and produce not the slightest noise as they glide slowly and cautiously along.

In all these characters we may trace an admirable adaptation of the means employed to the end in view. The peculiarities of their eyes and plumage evidently fit the Owls in an especial degree for seeking their food by night and on the surface of the ground. Dazzled by the splendour of the sun, the rays of which would penetrate too copiously through their immense pupils, they naturally withdraw during the day into dark and solitary places, where they sit perched and almost motionless awaiting the approach of dusk. Their imperturbable gravity in this situation has somehow or other obtained for them the enviable privilege of being selected as the emblems of wisdom; but their assumed wisdom, like the cunning of the Fox, depends more upon the defect of their visual faculties, than on any superior intellectual capacity. If disturbed in their retreats, they are totally incapable of seeking safety in a prompt and open flight, but shuffle backwards and forwards from place to place in an embarrassed and uncertain manner, or remain fixed to one spot, ruffling their plumage, assuming a variety of grotesque attitudes, closing and re-opening the nictitating membranes of their eyes with ludicrous effect, and uttering a sharp hissing sound expressive of their uneasiness, or clattering with their beaks. At such times the smaller birds, blackbirds, thrushes, red-breasts, and jays, which seem to be aware of their incapacity to defend themselves and

teaches us that they are in reality the best and most efficient protectors of our corn-fields and granaries from the devastating pillage of the swarms of mice and other small rodents, which but for them would increase to the most mischievous extent. By their wholesale destruction of these petty but dangerous enemies, the Owls earn an unquestionable title to be regarded as among the most active of the friends of man; a title which only one or two among them occasionally forfeit by their aggressions on his defenceless poultry.

These birds are separated from all the rest of the Raptorial Order by external characters as remarkable as their habits. In the system of Linnæus they constituted but a single genus, which has now, like the majority of the groups formed or adopted by that great master of natural science, been converted into a family, and subdivided into several minor sections, each distinguished by its own generic appellation. The entire family are characterized by the comparatively large size and globular form of their head; the magnitude of their eyes, which are directed forwards, surrounded by a broad disc of slender feathers, and furnished with pupils dilatable to a very great extent and capable of powerful contraction; the curvature of their beak from its very base, and the almost complete immersion of that organ in the straight bristly feathers that clothe the soft and spongy cere; the extent of their gape; the shortness and thickness of their neck; the versatility of the outer toe, which is equally capable of being directed forwards or backwards; the extreme retractility, strong curvature, and acuteness of their talons; and the great apparent bulk of their bodies, in consequence of the thickness of the puffy plumage with which they are invested in every part. Their powers of flight are not great; for although their wings are

generally of considerable length, the muscles by which they are put in motion are but little developed, and are not supported by bony processes of proportional strength. The feathers also are too soft, flexible, and downy, to allow of their wings being put into powerful action; they consequently fly for the most part near the ground, and produce not the slightest noise as they glide slowly and cautiously along.

In all these characters we may trace an admirable adaptation of the means employed to the end in view. The peculiarities of their eyes and plumage evidently fit the Owls in an especial degree for seeking their food by night and on the surface of the ground. Dazzled by the splendour of the sun, the rays of which would penetrate too copiously through their immense pupils, they naturally withdraw during the day into dark and solitary places, where they sit perched and almost motionless awaiting the approach of dusk. Their imperturbable gravity in this situation has somehow or other obtained for them the enviable privilege of being selected as the emblems of wisdom; but their assumed wisdom, like the cunning of the Fox, depends more upon the defect of their visual faculties, than on any superior intellectual capacity. If disturbed in their retreats, they are totally incapable of seeking safety in a prompt and open flight, but shuffle backwards and forwards from place to place in an embarrassed and uncertain manner, or remain fixed to one spot, ruffling their plumage, assuming a variety of grotesque attitudes, closing and re-opening the nictitating membranes of their eyes with ludicrous effect, and uttering a sharp hissing sound expressive of their uneasiness, or clattering with their beaks. At such times the smaller birds, blackbirds, thrushes, red-breasts, and jays, which seem to be aware of their incapacity to defend themselves and

feel an instinctive antipathy towards them, attack them on every side with impunity, and amuse themselves with heaping all kinds of insult upon their devoted heads. So strong is the incentive to these wanton outrages, that birdcatchers are in the habit of employing an Owl to attract the lesser birds into their nets, and sometimes even find an imitation of its cry sufficient to produce the same effect.

But this impunity lasts no longer than the full light of day. As soon as the sun has sunk beneath the horizon, the tormentors either quit the object of their attack, or fall victims to his renovated powers. Beneath the influence of the twilight, from which his large open pupil receives sufficient rays to guide him in his search, he sallies forth in quest of his prey, and aided by the capacious volume of his ears and of the auditory cavities with which they communicate, seldom fails to detect the slightest rustling among the leaves of the trees or beneath the herbage on the surface of the ground, while his own motions are so light and noiseless as to give no warning of his approach. In this manner the birds retiring to their nests, and the smaller quadrupeds seeking their subterraneous burrows, fall easy victims to his attack. When their size admits of their being swallowed entire, he crushes them by a few efforts of his bill into a mass, which the amplitude of his throat enables him to pass at once into his stomach, and thus to lose as little as possible of the short time that is allowed him for procuring his food. Like most other Predaceous Birds, he afterwards rejects the bones, skin, and feathers or hairs, formed into a ball. His powerful talons enable him to carry off his prey when disturbed, or if it should be too large to be swallowed entire, to a place of safety.

Of the numerous genera into which the Owls are

now subdivided, that of which the present species forms the type, the *Bubo* of M. Cuvier, is one of the most strikingly characterized. Its bill is strongly inclined from the very base; its nostrils are large, oblique, and concealed; its auditory openings oval, of moderate size, extending about half across the cranium, and covered by the outer discs, which are of small comparative extent; its head is surmounted on either side by a tuft of long feathers, in the position and somewhat in the shape of the horns of Ruminating Quadrupeds; and its legs and toes are feathered down to the very claws. Only three, or at the utmost four, species of this group are known to exist, and that which is figured at the head of the present article is the largest and most remarkable. It is nearly two feet in length from the beak to the tail, and measures no less than five in the expanse of its wings. The head and upper parts are variegated with a mixture of blackish brown and reddish fawn-colour, the long plumes on the head being nearly black, the stiff feathers of the base of the beak whitish with black tips, and those of the face varied with black, reddish, and gray. The throat is nearly white, and the ground-colour of the breast and abdomen fawn-colour, with numerous broad black longitudinal blotches, and slight narrow transverse brownish bars. This transverse marking, but with the brown bands still narrower, extends to the inferior tail-coverts and the feathers of the legs. The beak and claws are black, and the iris of a bright orange.

The Great Eagle-Owl is a native of great part of Europe, and is said to extend eastwards as far as Kamtschatka, and to be found even at the Cape of Good Hope. It appears to be most abundant in Russia, Germany, and Switzerland, but is rarely seen in France or England, and never, according to M. Temminck, in

Holland. Mr. Mill met with it in Orkney. It inhabits clefts of the rocks, or deserted buildings in the mountains, and rarely descends into the plains. It preys most in the dusk, but occasionally flies abroad in the daylight and during the night, and feeds not only on mice, rats, and moles, but even on young rabbits, leverets, and young fawns. When other food is not to be procured it attacks snakes, lizards, and frogs. Its nest is about three feet in diameter, composed of branches held together by means of roots and twigs, and lined internally with leaves. The female lays two or three eggs of a dull white as large as a hen's. The young are exceedingly voracious, and the parents bring home to them a vast quantity of prey.

In captivity these Owls feed on all kinds of flesh, and do not even reject fish. Like many other Birds of Prey they require but little drink. Their cry during the night, especially when hungry, is extremely harsh and disagreeable.





THE VIRGINIAN EAGLE-OWL.

BUBO VIRGINIANUS. Cuv.

THE Virginian, or, as it might with greater propriety be termed, the American Eagle-Owl, is spread over the whole of the western hemisphere from Hudson's Bay to the Straits of Magellan. In the United States, where it is very common, it is said by Wilson to be a constant resident, taking up its abode in the dark solitude of deep swamps covered with a growth of gigantic timber, and building in the forks or hollows of the trees. Its nest is similar to that of the foregoing species, and the female lays once a-year four eggs of a pure white, almost globular, and nearly as large as those of a hen. It is never seen abroad during the day, unless when disturbed, but preys in the twilight upon young rabbits, squirrels, mice, partridges, and small birds of various kinds, and sometimes even ventures

into the precincts of the farm-yard, and carries off the chickens from their roost. The celebrated American ornithologist draws a startling picture of the effect of its nocturnal cries upon the lonely traveller benighted in the forest or the wilderness, and roused from his slumbers by a sudden shout sufficient to alarm a whole garrison, or treated with a solo resembling the half-suppressed screams of a person in the act of suffocation from throttling.

This species is but little inferior in size to that last described, of which Buffon and Pennant regarded it as a mere variety. It differs, however, in many essential particulars. The whole upper surface exhibits a mixture of dusky black, white, and tawny; the throat is pure white, circumscribed by a brownish band; the rest of the under parts are marked by innumerable narrow transverse dusky bars, on a reddish ground-colour thinly interspersed with white; the legs and toes are light brown; the tail barred with six or seven transverse blackish bands; the face brownish, bounded on either side by a broad black band; the tufts on the head three inches in length, variegated with black and brown; the eyes bright yellow; and the beak and claws black. In the female, as in that of the preceding species, the white of the throat is less pure, and the colours in general have a more sombre cast.





THE KING OF THE VULTURES.

SARCORAMPHUS PAPA. DUM.

THIS is unquestionably the most elegant, although among the smaller species of the Vulture family. Its strong beak, longitudinal nostrils, fleshy comb, bare neck, robust legs, and short hinder toe, determine its position in the genus *Sarcoramphus* along with the Condor, figured at the commencement of this volume, and the Californian Vulture. The only other American Vultures, the Turkey Buzzard, and a second closely allied species, form a distinct genus nearly related to this, but differing essentially in several important points. It is no doubt in comparison with the two last-mentioned birds that the present has obtained, in the language of all the native tribes to which it is known, the appel-

lation of King of the Vultures; for it is far inferior, both in size and strength, to the gigantic species which are generically associated with it.

When fully grown the King of the Vultures measures about two feet and a half in total length, and more than twice as much in the expanse of its wings. The hues of its plumage are bright, sharply circumscribed, and strongly contrasting with each other. Round the base of the neck passes a broad ruff of soft downy feathers of a deep ashy gray; the whole under surface is white, with an occasional tinge of flesh-colour; the back and tail-coverts are of a bright fawn, which becomes lighter and lighter as the bird advances in age; and the quill-feathers of the wings and tail, together with the larger coverts of the former, are glossy black. The naked skin of the head and neck is tinged with various bright and lively colours, and forms several remarkable folds and projections. At the base of the beak, which is reddish with a shade of black, the fleshy cere, of a bright orange-colour, is prolonged above and between the nostrils into an elongated comb, of about an inch and a half in length, rather lax in its texture, and falling towards either side of the beak indiscriminately, when the head is held in an upright position. A scarlet circle surrounds the eye, the iris of which is almost colourless; and the remainder of the side of the head is purplish black. The back of the head is covered by a patch of short blackish down; and behind the eye on either side are several broad and deep wrinkles of the skin giving origin to a thick and prominent fold which extends obliquely downwards along the whole of the neck. This fold is of a reddish brown mingled with blue, and is traversed by numerous lines of minute black hairs. From the upper part of the neck, which is of a bright red, the colour gradually becomes less intense,

and fades into orange and yellow as it descends towards the lower part. The legs and claws are generally of a dusky black; but sometimes the former are reddish, and sometimes, as in our specimen, of a dirty yellowish white.

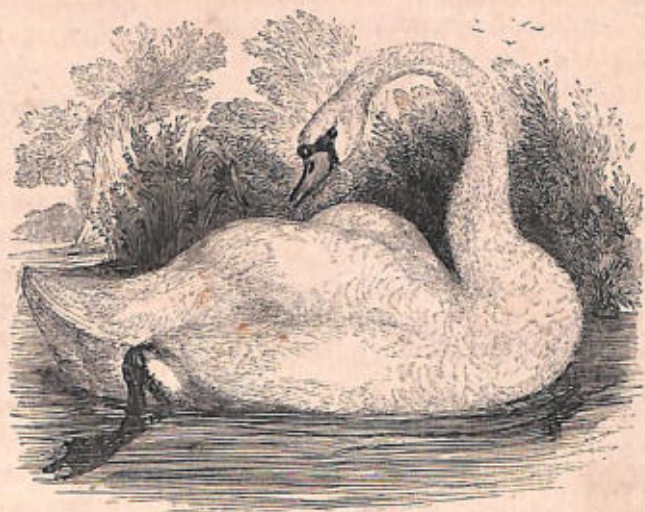
The young bird of the year, according to M. D'Azara, is entirely of a deep bluish tint, excepting the abdomen and lateral tail-coverts, which are white. In the second year it assumes a dusky hue, marked by long white spots. Up to this period, the greater part of the head and neck is blackish violet. In the third year it assumes its adult colouring, with the exception of a few black feathers among the upper wing-coverts.

The range of this fine species of Vulture is rather extensive. M. Bonaparte enumerates it among the birds of the United States, and we believe that it is occasionally met with in Florida, which is probably its northern limit. Towards the south, M. D'Azara describes it as common in Paraguay, but says that it does not pass the thirty-second degree of latitude. In the intermediate countries it would seem to be extremely abundant. Many travellers mention it as congregating in large flocks in various parts of Mexico, where it appears to have been first noticed by Navarrete, and was soon after described by Hernandez under the native name of Cozcaquauhtli. Its more usual name, however, in that country, seems to be Tzopilotl, literally King of the Vultures. In Guiana it bears, according to Sonnini, a title exactly synonymous; and in Paraguay, according to D'Azara, that of Iriburubicha, signifying the same thing. This uniformity of appellation is evidently derived from the universality of the belief that the other Vultures pay a particular respect to this species, abandoning their prey to it, whenever it makes its appearance among them. But such a cession, as D'Azara

justly remarks, implies neither respect nor consideration; but is the natural effect of its superiority in size and strength.

Like the other Vultures these birds perform a most important office in the economy of nature, by the removal of dead and putrefying carrion. Their sight is wide and piercing, their sense of smell highly developed, and their strength of wing sufficient to enable them to reach an extremely high pitch and to continue their flight for hours together. They endure the pangs of hunger with extraordinary patience; and never attack the smallest bird or the most feeble quadruped while it has life. In walking their gait is slow and heavy, and their body is maintained in a horizontal position. When about to mount into the air they are compelled to take several leaps before they can accomplish their purpose, and quit the ground with some little difficulty. The odour of their flesh is precisely the same with that of the carrion on which they feed, and even their skins retain it for many years. Contrary to the habits of their family in general, they perch on the tallest trees, living solitary or in pairs, building their nests, as it is said, in the hollows of the trunks, and laying only two eggs. They are little inclined to become familiar with man, but on the contrary avoid his habitations, and betake themselves every where to the interior and unfrequented parts of the country. In a deficiency of carrion they feed upon snakes and lizards, and during the summer subsist in a great measure upon the putrid fish of the lakes that are dried up by the parching heat of the sun.

The Society's specimen, an adult bird in remarkably fine plumage, was sent from Venezuela by Admiral Fleming.



THE TAME SWAN.

CYGNUS OLOR.

THE extensive family of Swimming Birds to which these noble ornaments of our rivers and lakes belong are at once characterized by their straight broad bills, clothed with a continuation of the common epidermis instead of the usual horny covering, and armed at the edges with a regular series of laminated teeth. Their wings are of moderate length; their legs short; and their feet divided into four toes, the three anterior united throughout by a palmated expansion, and the posterior perfectly distinct from the rest. They are for the most part inhabitants of fresh water rather than of the sea; and subsist more upon vegetable than animal substances.

In the Linnean system of classification the great majority of these birds were referred to a single genus,

under the generic name of *Anas*, derived originally from the Common Duck, and extended from it to the whole of its tribe. But the vast number of species thus brought together, and the consequent difficulty of determining any unknown bird that might be referable to the group, long since suggested the expediency of its dismemberment, and the formation of smaller and more manageable subdivisions. Many naturalists, from Ray down to the present time, have attempted, with more or less success, to simplify by these means the study of the most interesting family among our Waterfowl; but several of the divisions that have been established among them rest upon such apparently trivial characters, that we are by no means prepared to adopt them in their fullest extent. There are some, however, such as the Swans, the Geese, and the Ducks, so strikingly distinguished, as to have been separated, in popular nomenclature, from the earliest times; and this separation being confirmed by tangible characters, we cannot hesitate to consider it as founded upon just and sufficient principles.

Of the characters by which the Swans are distinguished from the rest of the family, the most remarkable are the extreme length of their necks; the oval shape of their nostrils, which are placed about the middle of their bill; the nakedness of their cheeks; the equal breadth of their bills throughout; the great depth of that organ at the base, where the vertical considerably exceeds the transverse diameter; and the position of their legs behind the centre of gravity. They are by far the largest species of the family; and there are very few birds that exceed them in magnitude. They live almost constantly upon the water, preferring the larger streams and open lakes; and feed chiefly upon aquatic plants, the roots of which they are enabled to reach by

means of their long necks, for they rarely if ever plunge the whole of their bodies beneath the surface. They also devour frogs and insects, and occasionally, it is said, even fishes; but this last assertion is contradicted by almost every observer who has attended particularly to their habits, and seems quite at variance with the fact that the fish-ponds to which they are sometimes confined do not appear to suffer the smallest diminution in the number of their inhabitants from the presence of these inoffensive birds. We are moreover informed by Mr. Yarrell that he has never found in the stomachs of any of the numerous individuals dissected by him the least vestige of such a diet. In their habits they are as peaceable as they are majestic in form, elegant in attitude, graceful in their motions, and, in the two species that are most commonly known to us, unsullied in the purity of their white and glossy plumage.

Of these species that which is known, improperly with reference to a large proportion of the individuals that compose it, as the Tame Swan, is probably the most common, being found in a state of domestication throughout the greater part of the northern hemisphere. In a wild state it is met with in almost every country of Europe, especially towards the east, and is particularly abundant in Siberia. Its distinguishing characters are found chiefly in its bill, which is throughout of an orange red, with the exception of the edges of the mandibles, the slight hook at the extremity, the nostrils, and the naked spaces extending from the base towards the eyes, all of which are black. A large protuberance, also of a deep black, surmounts the base of the bill; the iris is brown; and the legs black, with a tinge of red. All the plumage, without exception, in the adult bird, is of the purest white. In length the full grown

male measures upwards of five feet, and more than eight in the expanse of its wings, which reach, when closed, along two-thirds of the tail. Its weight is usually about twenty pounds, but it sometimes attains five and twenty or even thirty; and those which inhabit the southern coast of the Caspian are said to reach a still more enormous size. The female is rather smaller than the male; her bill is surmounted by a smaller protuberance; and her neck is somewhat more slender. When first hatched the young are of a dusky gray, with lead-coloured bill and legs; in the second year their plumage becomes lighter, and their bill and legs assume a yellowish tinge; in the third year they put on the adult plumage and colouring of the naked parts.

The wild birds of this species, like most of the Waterfowl, are migratory in their habits. In the temperate regions of Europe they begin to absent themselves in October, and return towards the end of March to the quarters which they occupied in the preceding year. But when the winter is not particularly severe, they frequently remain through it, seeking for shelter among the dams and sluices of the rivers, and returning to their former quarters at the breaking of the frost. To protect the tame birds from the severity of the season, it is usual to drive them into the same houses with the Ducks and Geese; but in such strict confinement they entirely lose their spirits, become melancholy and diseased, and are constantly making attempts to escape. It is much better, whenever it is possible, both with them and with the commoner species of Waterfowl, to leave them at liberty upon a piece of water, which, if their number is at all considerable, they will always keep open by their continual motion, without any risk of freezing their feet. Swans kept in this manner

during the winter are generally in much better condition at the return of spring than those which have been confined to the house.

The females choose for their nesting-place the least frequented situations on the banks of the rivers or lakes which they inhabit, and build their nests in the rudest manner of twigs and reeds, lined with a comfortable coating of their breast feathers. They lay six or eight grayish eggs, and sit for five weeks, generally in April and May. As soon as the young birds are hatched, they are carried by both parents to the water, and for two or three weeks afterwards are borne upon their backs, or placed for shelter and warmth beneath their wings. The attentions of the parent birds are continued until the next pairing season, when the old males drive the young from their society, and compel them to shift for themselves. To prevent the tame ones from flying away, it is necessary every year to clip their quill-feathers; and this mutilation seems to deprive them not only of the power, but also of the desire, to regain their liberty. They accustom themselves with ease to the society of man, and seem even to become attached to him, probably in consequence of the kindness with which they are every where treated, and the peculiar privileges which they enjoy at his hands. Besides their natural food, consisting of plants, insects, snails, and similar productions, they eagerly devour bread and all kinds of grain, and in winter are chiefly kept upon these substances and the same kind of provender that is given to Ducks and Geese.

Although naturally one of the most gentle and inoffensive of birds, the large size and great muscular power of the Swan render it a formidable enemy when driven to extremity, and compelled to act on the defensive. In such a case it is said to give battle to the Eagle,

and frequently even to repel his attack, forcing him to seek his safety in flight. It never attempts to molest any of the smaller Waterfowl that inhabit its domains; but in the season of its amours it will not suffer a rival to approach its retreat without a sanguinary struggle, in which one or other is generally destroyed. It is said to attain a very great age, thirty years being commonly spoken of as the term of its existence. It is even asserted that in Alkmar, a town in the north of Holland, there died, in the year 1672, a Swan belonging to the municipality, which bore on its collar the date of 1573, and must consequently have been a century old; and several other instances of a similar nature have been related by authors. We must confess, however, that we entertain strong doubts of the authenticity of such statements, founded merely on popular tradition and unsupported by any positive evidence.





THE WILD SWAN.

CYGNUS FERUS. BRISS.

LIKE the preceding species, the Wild Swan, or, as it is not unfrequently termed, the Hooper, is a native of nearly the whole northern hemisphere. In the Old World it passes northwards as far as Iceland and Kamtschatka, skirting the borders of the Arctic Circle, but rarely entering within its limits. Those which inhabit Europe generally pass the winter in its more southern regions, and even extend their flight to Egypt and Barbary; while the Asiatic birds seem rarely to pass much farther south than the shores of the Caspian and Black Seas. In America the range of their migrations is bounded by Hudson's Bay on the north, and Louisiana and the Carolinas on the south. They are extremely abundant in the northern parts of the New Continent and in Siberia; and in many districts of

Russia they take the place of that which is improperly termed the Tame species, submitting themselves with equal readiness to the process of domestication.

The external differences between these two Swans are not at first sight very obvious; but, trivial as they appear, they are uniform and constant. The bill of the present species is entirely destitute of protuberance at its base, and its colours are in a great degree reversed, the black occupying the point and nearly the whole of the bill, its base alone and the spaces extending from it beneath the eyes being of a bright yellow. The legs are black or dusky; the iris brown; and the entire plumage, as in the other species, pure white, but with an occasional tinge of yellowish gray. The young pass through similar gradations of colour with those of the Tame Swan, and arrive, like them, at their perfect plumage about the third or fourth year.

Slight as are these outward differences, they are fully sufficient for the detection of the species; and the separation founded upon them receives ample confirmation from anatomical characters of the highest importance. Not to speak of the difference in the number of their ribs, which are twelve in the Wild Swan and eleven only in the Tame, their tracheæ or windpipes afford unquestionable evidence of their distinctness. This organ, which, in the Tame Swan, passes directly from the neck into the cavity of the chest without forming any previous convolution, enters in the Wild species an appropriate cavity in the keel of the breast-bone, within which it passes to a considerable depth, then returns upwards, and is again inflected over the edge of the sternum before plunging into the chest. Ray was the first to point out this marked distinction between the two birds, which had previously been regarded as doubtful species. It was neglected, how-

ever, by later naturalists, and even Buffon and Linnæus were inclined to consider them as mere varieties; but in these days, when the importance of anatomical characters is fully recognised, they are universally allowed to be distinct.

So essential indeed is this character that we have no hesitation in admitting a third species, lately described by Mr. Yarrell, as equally distinct from the Hooper and the Tame Swan, although inhabiting the same localities as the former and apparently by no means of unfrequent occurrence. This bird, which had been entirely overlooked by all systematic ornithologists, is about one third less than the common Wild Swan; but its trachea, of smaller comparative calibre, passes still more deeply into the cavity of the sternum, at the extremity of which, quitting the keel, it takes a horizontal direction, and occupies the posterior flattened portion of the bone. The bronchi or subdivisions of the windpipe are less than half the length of the same parts in the common Hooper. Outwardly the differences between the two birds are even less strongly marked than those which distinguish the Wild and Tame Swans from each other; consisting principally in the deep orange colour of the base of the bill, which is confined to a more limited space than the yellow on the same part in the Hooper, and does not advance upon the sides; and in the number of the quill-feathers of the tail, which are eighteen in the new species and twenty in the old. To this fine addition to our list of native birds Mr. Yarrell has applied the name of Bewick's Swan, in commemoration of an artist whose labours have done more to render the study of ornithology popular in this country than the works of any writer that could be named.

It is proper also to mention that we are indebted to

Mr. Yarrell for the knowledge of another important modification in the form of trachea, which occurs in the Black Swan of New Holland, described and figured at page 45. In that species the organ in question is of an intermediate form between the Tame Swan and the Hooper, describing a curve of considerable extent, but not passing into any cavity in the sternum previously to entering that of the chest.

Aldrovandus, who was the first to observe the striking inflections of the windpipe in the Wild Swan, but without being aware of the difference in that respect between it and the Tame, regarded this peculiar structure as a confirmation of the old opinion, that the Swan possessed a melodious voice with which, on the approach of death, it performed its own funeral dirge. This story, as far as regards the harmony of its voice, has frequently been revived; but those who have had the best opportunities of hearing the monotonous sounds which the Wild Swans actually produce, are universally agreed in discrediting it as an altogether imaginary fable. We have ourselves frequently listened to them in the Gardens of the Society on fine evenings in the summer time, and could not but agree with Hearne in regarding the noise which they made as "not very unlike that of a French horn, but entirely divested of every note that constitutes melody." M. de Bomare compares it, with equal felicity, to the sound of two small children's trumpets, and declares that if any modern writer pretends that the Swan has a melodious voice, he deserves to be compared with the blind man of Cheselden, who had no other idea of the colour of scarlet than that which was suggested by the sound of a trumpet.

In habits the Wild Swan bears a close resemblance to the Tame. It flies with so much rapidity, especially

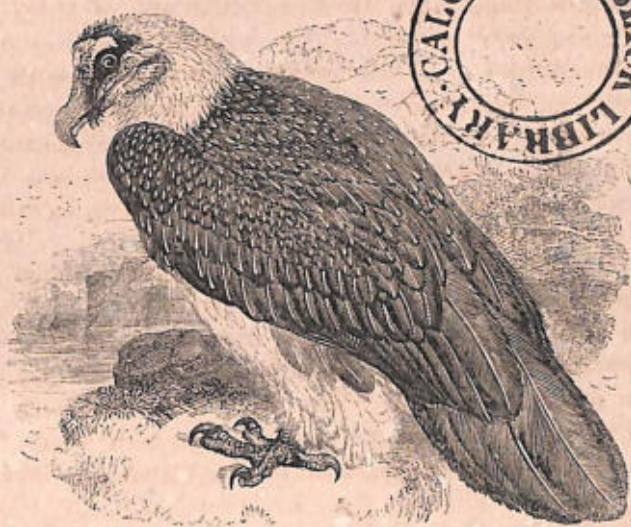
when sailing before the wind, that the difficulty of shooting it is extremely great. Hearne asserts that it is "frequently necessary to take sight ten or twelve feet before their bills;" and adds that "in a brisk gale, they cannot fly at a less rate than a hundred miles an hour, but when flying across the wind or against it, they make but a slow progress, and are then a noble shot." They are much sought after in those countries where they are abundant, for their flesh, their quill-feathers, and their down. The former, according to the author just quoted, "is excellent eating, and, when roasted, is equal in flavour to young heifer beef, and the cygnets are very delicate." It is possible that in this instance the keen appetite of the sportsman may have imparted a relish to his game which it did not intrinsically possess. In Europe it is little sought after, and although cygnets are occasionally served upon the tables of the great, the rarity of the dish may be supposed to add not a little to its actual flavour, which to the taste of beef joins somewhat of that which is common to Ducks and most of our Waterfowl.

The Wild Swans arrive in Hudson's Bay as early as March, preceding all the other species of Waterfowl. While the rivers remain frozen, they frequent the falls and rapids, where they are often shot by the Indians in large numbers. They are also pursued by the natives in the moulting time, which takes place in July and August; but it is extremely difficult to catch them, as they run with great swiftness on the surface of the water. In Iceland and Kamtschatka they are hunted at this time with dogs and horses, and frequently distance the latter, but are eventually pulled down by the dogs, which seize them by the neck and overbalance them. The female usually builds her nest on an island in the centre of a lake, and lays from five to seven

eggs, "so big," says Hearne, "that one of them is sufficient for a moderate man, without bread or any other addition." They are of a dirty white with a shade of olive green. As in the Tame species, the battles between the males are frequent and obstinately contested, sometimes lasting for a whole day, and not uncommonly terminating in the death of one or other of the combatants.

This species, as we have before observed, submits to captivity with as good a grace as the other; but it is not quite so ornamental in one particular. Instead of assuming the elegant curve, which constitutes one of the greatest beauties of the Tame Swan, its neck is more habitually stretched upwards in such a manner as to give it the appearance of great disproportionate length.





THE BEARDED VULTURE.

GYPÆTUS BARBATUS. STORR.

ALTHOUGH there exist numerous instances in which the links that connect the larger groups of animals cannot be distinguished, in the present state of our knowledge, by the most acute zoologists, there are many among these links too obvious to have escaped even the most superficial observation. Thus the bird which we are now about to describe was recognised, even in the earliest times, as forming the passage between the Vultures and the Eagles, with each of which it has since been by turns arranged. Aristotle and Ælian, who mention it under the name of Phene, and Pliny, who converts this designation into that of *Ossifraga*, (in which he is followed by Aldrovandus and other writers of the sixteenth and seventeenth centuries), refer

it to the Accipitrine tribes, but distinctly indicate its near affinity to the Vultures. On the other hand the common people, of all ages and countries in which it has been known, from a close observation of its manners seem uniformly to have associated it with the latter; and Linnæus adopted this classification, which has since been generally followed.

In the subsequent dismemberment of the Vulture family this bird took the lead, having been first separated by Storr, a naturalist of great ability, to whom we owe much useful information collected during a Journey to the Alps, and a sketch of an arrangement of the Mammalia which may even now be consulted with advantage. To the genus thus separated he gave the name of *Gypaëtus*, literally Vulture-Eagle, an appellation peculiarly appropriate to its position in nature. M. Savigny, however, in his classical work on the Birds of Egypt and Syria, has attempted to restore the Greek designation of Phene, and thus to sink the name of *Gypaëtus* into a synonym; and in this he has been followed by M. Vieillot and others of his countrymen. But this seeming revival of an ancient name, however desirable it might have been had the genus been originally established under it, is in reality an innovation that cannot be suffered to pass current; and the term adopted by Storr, the founder of the genus, being not only free from all objection but also strikingly appropriate, must, on every principle of nomenclature, be considered as the true generic name.

But it is not with M. Savigny as with many who arrogate to themselves the title of zoologists. His merits do not consist in the appropriation of the labours of others, by the mere alteration of a generic name, or the subdivision of a well-known group for the petty gratification of being quoted as the author of a doubtful

genus. Whatever may be the subject which he undertakes to illustrate, his labours are at all times distinguished by the extent of his researches, the accuracy of his observations, and the originality of his views. In the present instance, besides establishing beyond all question the classical synonymy of the species, and carefully elucidating its modern history, he has given a detailed account of its characters far superior to any that had previously been published; so that the genus may be said in some sort to have undergone a new creation at his hands. He gives the following as its distinctive marks.

The beak is extremely hard, elongated, compressed, very convex and strongly rounded on its upper edge, and furnished with a thin cere, clothed with numerous hairs, which are thick, rigid, closely pressed to the surface, and directed forwards; the nostrils are oval, oblique, and entirely concealed beneath the hairs; the sides of the lower mandible at its base are covered with similar hairs, and its angle is furnished with a pencil of small feathers, or slenderer bristles, either simple or branched, which hang down on either side in the form of a beard; the tongue is destitute of sharp prickles; the mouth broad and opening as far backwards as beneath the eyes; the legs short, very thick, and feathered down to the toes; and the talons moderately sharp, those of the inner and posterior toes being by far the largest and the most strongly curved. To these characters we may add that the head is flattened above and, as well as the neck, entirely clothed with feathers; the crop has but little prominence, and its place is marked by a patch of down; the eyes are slightly sunk below the level of the cheeks; the ears entirely concealed beneath the plumage; the outer toes partially versatile; the first quill-feather of the wings nearly

equal to the second and third, which are the longest; and the tail-feathers twelve in number.

In its attitudes this bird resembles the Eagles more than the Vultures, its confident and upright bearing strongly contrasting with the crouching and suspicious postures of the latter. Like these, however, it generally retains its wings in a state of half-expansion when at rest, and its neck more or less retracted within its shoulders. Its food, as we shall presently see, is more frequently sought in a living prey than on a putrefying carcass; and for this reason it is not often found, like the Vultures, assembling in considerable troops. The increased curvature of its talons also contributes to the same object, by enabling it to carry off its prey, whether living or dead. A careful comparison of their characters, or what is far better, of the animals themselves, as they exist side by side in the Menagerie, will show how nearly this bird holds the middle station between the two large groups to which it is almost equally related.

Several nominal species were created by the naturalists of the close of the last century, which appear now, by common consent, to have been merged into one, the Bearded Vulture of ornithologists, or Læmmergeyer of the Swiss and German Alps. Its range extends to most of the principal mountain-chains of the Old Continent, as it is found, with more or less frequency, but never in great abundance, in the Pyrenees, the Alps from Piedmont to Dalmatia, the Mountains of Ghilan and Siberia, and those of Egypt and Abyssinia; occupying every where the loftiest and most inaccessible cliffs, and frequently committing dreadful ravages in the neighbouring plains. In size it is the largest of European Birds of Prey, measuring when fully grown upwards of four feet from beak to tail, and in the expanse of its wings no less than nine or ten. M. Fortis

indeed asserts that he had seen an individual in Dalmatia, the expanded wings of which measured twelve feet; and the breadth of another, killed in the French expedition to Egypt, and measured in the presence of MM. Monge and Berthollet, is said by M. Larrey to have exceeded fourteen Parisian, or upwards of fifteen English, feet. In the first of these instances there is probably little exaggeration; but with respect to the last, we cannot help suspecting the existence of an accidental error in the hasty note on which the statement is founded. M. Savigny, on the other hand, relying implicitly on the information furnished by his colleagues, regards the bird seen by them as the type of a new species, to which he gives the appropriate epithet of *giganteus*. The male is smaller than the female, but not, as is usual among the *Falconidæ*, to the extent of a third of her size.

The general colour of the upper part of this remarkable bird is a dull brown with a mixture of gray; its wings and tail are of a grayish ash colour; the upper part of its head is of a dirty white; a black band extends backwards from the base of the beak across the eye, and joins a narrower stripe of the same that passes upwards to unite with its fellow on the back of the head; and the neck, breast, and under parts are white with a shade of reddish brown or orange, which is deeper on the breast and throat, and gradually becomes less distinct on the abdomen and legs. For the first two years, the young birds are distinguished by the dusky brown of their head and neck; the mottled gray of their under surfaces, the large white spots, or spots of a lighter shade, scattered over their back and wings; and the dusky black of their quill-feathers. Their iris is at first brown, and their toes of a livid colour; but as they advance in age the former becomes

of a bright red, and the latter assume a leaden hue. At all times the beak, which attains a length of four inches, is of an ashy gray with a flesh-coloured tinge; and the bristles at its base are deep black, as are also the talons.

In its habits this bird combines the audacity and cruelty of the Eagles with the appetite for carrion that distinguishes the Vultures. It seizes by preference on living victims, chiefly quadrupeds, and especially those which are incapable of making an effectual resistance, such as rabbits, hares, sheep, and lambs, or even young goats and calves; and thus proves an extremely dangerous neighbour to the peaceful flocks which graze on the declivities of the mountains inhabited by it, or in the intervening valleys. Sometimes, when rendered desperate by a long fast, it is said to attack the chamois or even man himself, choosing for the scene of its exploits the brink of a precipice, and descending upon its victim with such an irresistible impetus as to precipitate him headlong into the abyss below. But such bold attempts as this, although spoken of by many writers, are foreign to its usual habits, and may rather be regarded as traditions handed down from generation to generation, than as common or every-day occurrences. In the same manner it is probable that the stories current in the Alps, of children carried off by Vultures to be devoured, are rather the expression of a natural dread of what might happen, than relations of actual events. We are not aware of any authentic testimony in proof of the fact, which may therefore be classed with the transatlantic narratives of the same description with reference to the Condor. There is, however, this difference, that in the one case the structure of the talons renders possible that which in the other is an absolute and physical impossibility.

It is from the character in which it is best known to them, as the spoiler of the fold, that this bird has received from the natives of the German Alps its title of *Lämmergeyer*, the Lamb Vulture. But although this is its food of choice, it feeds also upon carrion; and as when in pursuit of a living prey it emulates the Eagles by soaring alone or in company only with its mate, so in its attack upon an unburied carcass it imitates the Vultures by congregating in bands upon the spoil. In such circumstances it does not usually descend from aloft, but sweeps slowly along the ground towards its expected banquet. Bruce relates, in his *Abyssinian Travels*, a remarkable instance, illustrative at once of its boldness and voracity. His servants were preparing for dinner on the summit of a lofty mountain, when a Bearded Vulture, attracted by the smell of the goat's flesh which they were cooking, slowly made his advances towards the party, and at length fairly seated himself within the ring which they had formed. The affrighted natives started up and ran for their lances and shields; and the bird, after an ineffectual attempt to extract a portion of their meal from the boiling water, seized a large piece in each of his talons from a platter that stood by, and carried them off slowly along the ground as he came. After an interval of a few minutes the Vulture returned for a second freight, but was shot by the traveller before it could carry its purpose into effect. The manner of its flight in this instance, as well as in many others, may be taken as an indication that this species does not usually make its prey of birds, which it is said rarely if ever to attack.

Bruce remarks that on taking hold of this bird he was not a little surprised to find his hands covered with a yellow powder, which appeared to be produced from the breast feathers; while those of the back and wings

threw off a similar dust, excepting that on them it was brown. He imagined that this powder was contained in the tubes of the feathers, from which it was emitted upon pressure; and that it was a peculiar provision of nature to enable the birds of those alpine regions to withstand the rigours of the climate. It is more probable, however, that this appearance, which has not been noticed by any other writer, was merely the result of the change of plumage which the Vulture had just undergone; the powder in question being in reality nothing more than the original pellicle of the feathers separating from them in minute particles, as is usual when they have attained their perfect growth.

In captivity the manners of the Bearded Vulture are the same as those of others of its tribe. The individual now in the Gardens is an adult bird in fine condition. It was formerly confined in the Tower, and was figured in "The Tower Menagerie;" but, as was there mentioned, it had not then attained its perfect plumage.





THE ROSE-CRESTED COCKATOO.

PLYCTOLOPHUS ROSACEUS. VIEILL.

In the depth of their bills, the strength and curvature of the upper mandible, and the disproportionate shortness and thickness of the lower, the Cockatoos vie with the more gorgeous Maccaws, which they also emulate in size, habits, and behaviour. The naked space on their cheeks is, however, reduced to a small circle surrounding each of the eyes; and their tail is short, and perfectly square at the extremity. Their most remarkable character consists in a tuft of elongated feathers, rising from the back of the head, and capable of being raised or depressed at pleasure. By this crest they are at once distinguished from all the other groups of the Parrot family, with the exception of a New Holland genus lately characterized by Mr. Vigors and Dr. Horsfield, and differing from the other Cockatoos in the

greater elevation and comparative shortness of its bill, the increased dilatation of its lower mandible, and several other characters of inferior moment. In the latter group the ground colour of nearly all the species is black, while in the Common Cockatoos it is almost uniformly white.

The species of this genus naturally arrange themselves in two subdivisions, in the one of which the crest assumes a rounded form and falls backwards over the neck, while in the other it is lengthened into a point, folded together, and curved upwards. The Rose-crested species belongs to the first subdivision. Its length is sixteen or eighteen inches; and its plumage white with an occasional tinge of rose. The crest is formed of feathers for the most part of a bright orange-red beneath, and the inferior wing and tail-coverts have a shade of yellow. The bill is bluish-black, and the legs are of a leaden gray.

The Rose-crested Cockatoo is a native of Sumatra and the Moluccas. It is said to be less intelligent than the rest of the group, and is particularly fond of making a noise and assuming a variety of antic postures.





THE GREATER SULPHUR-CRESTED COCKATOO.

PLYCTOLOPHUS GALERITUS. VIEILL.

As an example of the second subdivision of the genus *Plyctolophus*, or that in which the feathers of the crest are folded on themselves, curved upwards, and elongated into a sharp point, we select the species figured above. We are not aware that any other representation of this bird has yet been given, except that contained in White's Journal of a Voyage to New South Wales, in which it was first brought under the notice of zoologists. The ground of its plumage is purely white, with a tinge of light yellow or brimstone colour on the crest, the inner barbs of the wing and lateral tail-feathers, and the inferior tail-coverts. The iris is dusky brown, and the bill and legs grayish black. In size the bird is somewhat less than the species last described, but the

longer feathers of the crest measure as much as seven inches in length.

The following particulars relative to the habits of these birds are derived from information communicated to Mr. Vigors and Dr. Horsfield by Mr. Caley, who travelled for many years in the pursuit of scientific objects in New Holland, and brought with him from that country an extensive collection of birds, which are now in the possession of the Linnean Society. These Cockatoos are met with in large flocks on the banks of several rivers of New South Wales, but are shy and not easily approached. They make their nests in the rotten limbs of trees, of nothing more than the vegetable mould formed by the decayed parts of the bough; and lay no more than two eggs at a time, which are white and without spots. The situation of these nests is readily discovered by the conspicuous heaps that lie upon the ground beneath some adjoining tree, from which the old birds cut a quantity of small branches when their young are nearly fledged, strip off their bark, and dividing it into shreds deposit it in heaps upon the ground. Their breeding-places appear to be local, and the flesh of the young is said to be good eating.





THE CRESTED PARTRIDGE.

CRYPTONYX CRISTATUS VIG.

It would be difficult to find a stronger proof of the mischievous consequences of relying, in the classification of birds, upon artificial characters to the neglect of natural affinities, than that which is furnished by the history of the remarkable species figured above. In the fourth volume of the Zoological Journal Mr. Vigors has recently detailed the leading facts of this history, and illustrated them with reference to their bearing upon the natural system.

Originally figured and described by Sonnerat under its native name of Rouloul, the male of this species (which differs from the female in colour and in the presence of a crest on the back of the head) was referred by Dr. Latham, in his General Synopsis, to the Pigeons, while the female was placed among the

Partridges. So violent a dissociation of the sexes of the same bird could not possibly have occurred had the learned author been guided throughout by general principles, or even had he paid due attention to a minute but important character, peculiar to these birds and their immediate affinities, and indubitably closely connected with their habits and mode of life. This peculiarity consists in the absence of the claw on the hinder toe, which is thus rendered even less available than in many other groups of the Gallinaceous Order. But the sagacity of our venerable ornithologist was not long at fault, and in the Supplement to his work he removed the male into its true position with the female, having in the mean time satisfied himself of their specific identity by the examination both of dead and living specimens.

Almost the only point of resemblance between this species and the Pigeons consists in the crest on the head of the male, by means of which it might be supposed to exhibit an analogical relation to the Great Crowned Pigeon of the Indian Archipelago. With the Partridges, however, its affinity is extremely close, for there is little to distinguish them except the striking peculiarity just mentioned. Sonnerat, and after him Sparrman, were inclined to consider the Rouloul as a species of Pheasant, between which and the Partridges it unquestionably forms one of the connecting links. Subsequently, in the *Encyclopédie Méthodique*, the Abbé Bonnaterre raised it to the rank of a genus, under the name of *Rollulus*, for which M. Temminck has substituted that of *Cryptonyx*, and M. Vieillot of *Liponyx*, both derived from its principal character. The name given by Bonnaterre seems to have been abandoned, and that of M. Temminck to have been adopted, by general consent.

With the Rouloul thus formed into a genus, M. Temminck associated the *Perdix Cambaiensis*, characterized by Dr. Latham as having a similar conformation of the hinder toe; and a third species was subsequently added in the *Tetrao ocellatus* of Sir Stamford Raffles' Catalogue of the Birds of Sumatra. From the collection of the same distinguished naturalist and patron of science, munificently presented by him to the Zoological Society, Mr. Vigors has since described two additional species, making the whole number now known amount to five. The paper in which this important addition was made appears however to have been unknown to M. Cuvier at the time when the first volume of the new edition of the *Règne Animal* passed through the press; for in that work only one species is described as well known to science, and a second is indicated in a note as "black, and without crest or papillæ round the eyes." This, which was brought from Malacca by M. Dussumier, is in all probability the *Cryptonyx niger* of Mr. Vigors.

The technical characters of the genus are as follow. The bill is rather short, thickish, and somewhat compressed, with the upper mandible deflected at the point; the nostrils are naked, placed near the base of the bill, longitudinal, and partly closed by a membrane; the wings short and rounded, with the first quill-feather short, the second and third gradually increasing in length, and the fourth, fifth, and sixth, equal and longer than the rest; the legs moderately strong; the hinder toe in some species entirely destitute of claw, and in the others furnished with a horny tubercle occupying its place; and the tail short and rounded.

In the species now under consideration, which is typical of the genus, the hinder claw being entirely wanting, the male is distinguished by the violet black of the sides of the head, neck, breast, and abdomen; the brown of the wing-coverts and quill-feathers of the

wings, passing into chestnut streaked with black on the outer barbs of the latter; the deep green of the back; the black of the quill-feathers of the tail; and the white of the top of the head. Its forehead is ornamented with six long bristles; and the back of its head with a crest of slender partially barbed reddish chestnut feathers, about two inches in length. The naked skin surrounding the eyes is red; the iris orange; the bill black; the legs yellow; and the claws brown. The female is somewhat smaller in size, and wants the occipital crest. On the head, back of the neck, and throat, she is of a brownish ash-colour; the fore part of her neck, her back, breast, and sides, are of a beautiful bright green; her wings of a lighter chestnut than those of the male; and her tail black with a gloss of green. She measures ten or eleven inches in total length.

The Rouloul appears to be very abundant in Sumatra, where it is said to confine itself to the larger forests, and never to make its appearance in the plains. It is extremely shy and mistrustful. The individual figured, a female, lived for more than twelve months in the Society's Menagerie. A representation of the male bird, from a stuffed specimen in the Museum, is given below.





THE EMEU.

DROMAIUS NOVE-HOLLANDIE. VIEILL.

In the vocabulary of the early Portuguese navigators the name of Emeu was applied to a gigantic bird of the Ostrich family, inhabiting the Peninsula of Malacca and the great chain of islands to the south and east. This denomination has, however, been long superseded by that of Cassowary, derived from its native Malayan appellation. On the other hand the bird now before us was named by naturalists, on its first discovery, the New Holland Cassowary, to indicate its close affinity to the Asiatic species. But the colonists of New South

Wales having adopted for the Australian bird the name of Emeu, now no longer otherwise appropriated, and naturalists in general having of late years sanctioned this transfer of an abandoned title, there can be no objection to its retention, and no risk of any future confusion in the synonymy arising from the change.

We have already given, while treating of its type, the distinctive characters of the Ostrich family: it only remains therefore in this place to point out those peculiarities by which the present bird, like the Ostrich of Africa, has been thought worthy to constitute, of itself alone, a separate genus. Subdividing the Ostriches according to the greater or less developement of their wings, M. Cuvier forms two genera: the one, containing the African and the South American species, in which those organs, although incapable of flight, are still sufficiently plumed to afford by their expansion assistance in running; the other, embracing the Asiatic and the Australian, in which the wings are totally useless even for this latter purpose. M. Temminck, on the other hand, giving more importance to the structure of the bill and toes, separates first the African Ostrich, as having only two toes; then the Cassowary, as having its internal toe armed with a much more powerful claw, and its bill compressed laterally instead of depressed from above downwards; and leaves the Emeu and the Rhea to form a genus, in which he himself admits the existence of two distinct sections. Lastly, M. Vieillot severs this forced union of two species, perhaps the least nearly related of the whole family, and adds to the number of genera already formed a fourth for the reception of the New Holland bird.

The characters of this genus, which may now be regarded as firmly established, are as follow. It has a straight bill, very much depressed towards the sides,

slightly keeled along its middle, and rounded at the point; large nostrils, covered by a membrane and opening above on the middle of the bill; a head unsurmounted by a bony crest, and covered with feathers up to a certain age; a naked throat without wattles; powerful legs of considerable length, fleshy and feathered down to the joint, naked and reticulated below it; three toes directed forwards, the two lateral ones equal in length, and the posterior wholly wanting; the claws of all the toes nearly equal; and no true quill-feathers either to the wings or tail. It is consequently distinguished from the African Ostrich by the number of its toes; from it and the Rhea by the trifling development of its wings, and the total want of plumage to the wings and tail; and from the Cassowary by the absence of crest, wattles, and quills, the depression of its bill, the position of its nostrils, and the equality of its claws.

In size and bulk the Emeu is exceeded by the African Ostrich alone. It is stated by travellers to attain a height of more than seven feet, and its average measurement in captivity may be estimated at between five and six. In form it closely resembles the Ostrich, but is lower on the legs, shorter in the neck, and of a more thickset and clumsy make. At a distance its feathers have more of the appearance of hair than of plumage, their barbs being all loose and separate. As in the other Ostriches they take their origin by pairs from the same shaft. Their general colour is a dull brown mottled with dirty gray, the latter prevailing more particularly on the under surface of the bird. On the head and neck they become gradually shorter, assume still more completely the appearance of hairs, and are so thinly scattered over the fore part of the throat and around the ears, that the skin, which is of a purplish

hue, is distinctly visible. This appearance is most remarkable in the older birds, in which these parts are left nearly bare. The wings are so extremely small as to be quite invisible when applied to the surface of the body. They are clothed with feathers exactly similar to those of the back, which, it should be observed, divide as it were from a middle line, and fall gracefully over on either side. The colour of the bill and legs is of a dusky black; and that of the iris dull brown.

There appears to be but little difference in colour between the two sexes; but the young on first quitting the shell have a much more elegant livery. A brood of these has lately been hatched at the Society's Garden, in which the ground colour is grayish white, marked with two longitudinal broad black stripes along the back, and two similar ones on either side, each subdivided by a narrow middle line of white. These stripes are continued along the neck without subdivision, and are broken on the head into irregular spots. Two other broken stripes pass down the fore part of the neck and breast, and terminate in a broad band passing on either side across the thighs. As in the fully grown bird the bill and legs are of a dusky hue.

These birds appear to be widely spread over the southern part of the continent of New Holland and the neighbouring islands; but we are not aware that they have been hitherto discovered in its tropical regions. They were formerly very abundant in the neighbourhood of Botany Bay and Port Jackson, but have been of late years compelled by the increasing numbers of the settlers to seek shelter in the interior. On the south coast they have been met with in great plenty, at Port Phillip by Captain Flinders, and at King George's Sound by the same officer and the naturalists of the expedition under D'Entrecasteaux. They seem

also to be extremely numerous in the adjacent islands, especially in Kangaroo Island, where they were found in the greatest abundance by both Flinders and Péron; and in King's Island, where the distinguished naturalist last named and his companions were fortunately enabled by the kindness of some English seal-hunters to subsist, chiefly upon Emeu's flesh, for several days while temporarily deserted by their captain. According to the late accounts from Swan River they have also been observed on that part of the west coast on which the new settlement is situated.

The Emeu was first described and figured, under the name of the New Holland Cassowary, in Governor Phillip's Voyage to Botany Bay, published in 1789. To this work Dr. Latham contributed very considerably in the ornithological department, and it is therefore probable that the description of this remarkable bird was furnished by him. The figure, taken from a drawing made on the spot by Lieutenant Watts, is extremely defective. In the ensuing year a second figure, taken from the same specimen as the former, but very different in appearance and equally inaccurate, was given in White's Voyage to New South Wales, the zoological part of which work appears to have been superintended by Dr. Shaw, whose Miscellany likewise contains a copy of the same figure. A much better representation, although somewhat too highly coloured, occurs in the Atlas to Péron's Voyage aux Terres Australes. We have searched in vain among the celebrated engravings from Maréchal's drawings, constituting the *Ménagerie du Muséum*, for the "superior figure" which M. Lesson assures us, in his *Manuel d'Ornithologie*, is there to be found. Indeed we know not by what means it could have gained a place in that collection, for no living specimen had then, or for several years afterwards, been seen in France.

In its manners the Emeu bears a close resemblance to the Ostrich, as might be expected from their near relationship. Its food appears to be wholly vegetable, consisting chiefly of fruits, roots, and herbage; and it is consequently, notwithstanding its great strength, perfectly inoffensive. The length of its legs, and the muscularity of its thighs, enable it to run with great swiftness; and, as it is exceedingly shy, it is not easily overtaken, or brought within gun-shot. Captain Currie, in Mr. Barron Field's *Memoirs on New South Wales*, states that it affords "excellent coursing, equalling, if not surpassing, the same sport with the hare in England." And Mr. Cunningham, in his amusing work entitled *Two Years in New South Wales*, gives a curious account of the manner in which it is usually coursed by the dogs. The latter gentleman states that dogs will seldom attack it, both on account of some peculiar odour in its flesh which they dislike, and because the injuries which it inflicts upon them by striking out with its feet are frequently very severe. "The settlers even assert," he says, "that they [the Emeus] will break the small bone of a man's leg by this sort of kick; which to avoid, the well-trained dogs run up abreast, and make a sudden spring at their neck, whereby they are quickly dispatched."

But although dogs in general may be reluctant to attack the Emeu, this is by no means the case with those which are specially trained for the purpose. M. Péron assures us that the English seal-fishers on King's Island in Bass's Strait had with them dogs which were taught to go alone into the woods in quest of Kangaroos and Emeus, and rarely failed to destroy several of these animals every day. When the chase was at an end, they returned to their masters' dwelling, made known by signs the success of their expedition, and conducted the hunters to the spot where the quarry was deposited.

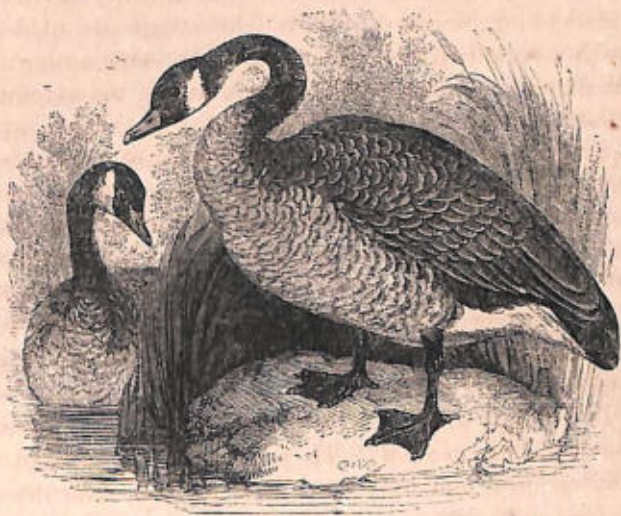
It was thus that these adventurous traders were enabled to supply themselves with provisions, even while they devoted nearly the whole of their time to the commercial pursuits in which they were engaged. This statement, M. Péron assures us, does not depend on the mere assertions of the fishermen themselves, for he had himself witnessed the fact. From his account of the dogs it does not appear whether they were of the native Australian breed, figured among the Quadrupeds of the present work. It is more probable that they were English Hounds; and the name of one of them, Spot, adds some confirmation to this conjecture, for we are not aware that the pure New Holland Dog has ever been found spotted. In either case the account may be quoted as a surprising instance of animal docility, which would be only the more striking if exhibited by the less sagacious breed.

If we are to credit the report of the same author, the flesh of the Emeu is "truly exquisite, and intermediate, as it were, between that of a turkey and a sucking-pig." But some allowance must be made for the circumstances in which he first partook of it, when he and his companions, abandoned by their captain, and without any means of procuring subsistence, had no other prospect than that of perishing by starvation, until relieved by the generosity of the fishermen. The English colonists do not appear to have quite so high an opinion of its merits; they compare it to beef, which it resembles, according to Mr. Cunningham, "both in appearance and taste, and is good and sweet eating: nothing indeed can be more delicate than the flesh of the young ones." "There is but little," he says, "fit for culinary use upon any part of the Emeu except the hind-quarters, which are of such dimensions that the shouldering of the two hind-legs homewards for a mile distance, once proved

to me as tiresome a task as I ever recollect to have encountered in the colony." Their eggs are held in much estimation, and, according to the same authority, the natives almost live upon them during the hatching season. They are as large as those of an Ostrich, with equally thick shells coloured of a beautiful dark green, and are usually six or seven in number; but we have no information as to the manner in which the wild birds form their nest. It probably consists, like that of other Ostriches, of a mere cavity scooped in the earth. They seem to pair together with tolerable constancy, and the male bird, as in some other monogamous races, sits and hatches the young.

In captivity the Emeus are perfectly tame, and speedily become domesticated. They are easily acclimated in this country, and have been bred without difficulty in various collections; in those, for instance, of his late Majesty at Windsor, and of the Marquis of Hertford at Ragley, from the former of which the old birds now in the Society's Menagerie were obtained.





THE CANADIAN GOOSE.

ANSER CANADENSIS. RAY.

In the genus *Anser* the neck is not so much elongated as in the typical Swans, but considerably more so than in the other species of the family; the head is entirely covered with feathers; the bill is as short or shorter than the head, deeper than broad at its base, and narrowed towards its extremity; the nostrils, placed about the middle of the bill, are large, elliptical, and longitudinal; the wings are long, with the first and second quill-feathers longest; the legs are of greater comparative length than in the Ducks, and placed so far forwards as to be beneath the centre of gravity; and the hinder toe is never furnished with a membranous fringe. The birds of which this group is composed are popularly known by the name of Geese, and are usually

intermediate in size between the typical Swans and the Common Duck. They are all migratory in their habits, harmless in their pursuits, easily capable of domestication, and valuable both for their flesh and for their feathers.

The Canadian Goose, which we have selected for illustration as a well marked and interesting species of the group, is somewhat larger than our common domesticated breed. It is also slenderer in its make and especially in its neck, which consequently approaches more nearly to that of the Swans. The entire length of the bird is about three feet, and the expanse of its wings rather more than five. The back and wing-coverts are of a dull brown, with a whitish tip to each of the feathers; the quill-feathers of the wings and tail black; the sides pale ashy brown; and the upper part of the head and neck black, with a broad patch of white spreading from the throat on either side over the lower part of the cheeks. By this latter character, which is extremely obvious, this species may at all times be readily distinguished. Its bill is black; its iris dark hazel; and its legs and feet grayish-black or lead-coloured. There is little or no distinction in plumage between the two sexes.

As the habits of this handsome Goose have been observed with more than usual care, and are essentially the same with those of the other species, some little detail on the present occasion may obviate the necessity of recurring to the subject at any future time. Our authorities in this instance will be principally Hearne and Wilson; the one from necessity, and the other from choice, peculiarly attentive observers of the manners of the feathered tribes. Placed in circumstances that compelled him to rely for subsistence mainly and for many years on the produce of the chase, the former

naturally acquired an extensive acquaintance with the manners of the animals by which he was surrounded. The latter, impelled by an enthusiastic admiration of nature, devoted all the energies of an active mind to the study of the birds of his adopted country, not merely in the cabinet or the menagerie alone, but in the fields, the forest, and the wilderness; and thus accumulated such a store of information on their native and unrestricted habits as could only have been acquired by the most zealous and unwearied perseverance. On such observers we rely with implicit confidence. Unfortunately they are not always to be found; and we then prefer passing lightly over the history of a species to the risk of misleading the reader by the repetition of false or exaggerated statements, which are too often the result of ignorant credulity or of an overheated imagination.

Although commonly known by the name of Canada Geese, these birds are by no means confined to that country, but extend their migrations from the lowest latitudes of the United States to the highest parallels that have yet been visited in the northern regions of America. Throughout the whole of this vast extent of territory they are familiarly known, as the harbingers of spring when passing to the north, and the presage of approaching winter on their return. In the United States it is the popular belief that their journeys are bounded by the great chain of lakes, in the islands of which they are supposed to breed; but even on the shores of Hudson's Bay they are still found to be proceeding northwards, and they rarely nest further south than 60°. Captain Phipps mentions having seen Wild Geese at Spitzbergen, in more than 80° of latitude; and Wilson deems it "highly probable that they extend their migrations under the very pole itself, amid the

silent desolation of unknown countries, shut out since creation from the prying eye of man by everlasting and insuperable barriers of ice." It is not unlikely that this somewhat flighty passage suggested to a late high-flying projector the possibility of reaching that long-desired goal in a balloon drawn by Wild Geese trained for the purpose.

The passage of the Geese to the north commences with the breaking up of the ice, their first appearance in Canada and on the shores of Hudson's Bay varying with the forwardness of the spring, from the middle of April to the latter end of May. Their flight is heavy and laborious, but moderately swift, in a straight line when their number is but few, but more frequently in two lines meeting in a point in front. The van is said to be always led by an old gander, in whose wake the others instinctively follow. But should his sagacity fail in discovering the land-marks by which they usually steer, as sometimes happens in foggy weather, the whole flock appear in the greatest distress, and fly about in an irregular manner, making a great clamour. In their flights they cross indiscriminately over land or water, differing in this respect from several other Geese, which prefer making a circuit by water to traversing the land. They also pass far inland, instead of confining their course to the neighbourhood of the sea.

So important is the arrival of the Geese to the inhabitants of these northern regions, that the month in which they first make their appearance is termed by the Indians, as we are informed by Pennant, the Goose Moon. In fact not only the Indians, but the English settlers also, depend greatly upon these birds for their subsistence, and many thousands of them are annually killed, a large proportion of which are salted and barrelled for winter consumption. Many too that are killed

on their return, after the commencement of the frost, are suffered to freeze, and are thus kept as fresh provision for several months. Others, either taken young or wounded, are frequently detained in captivity during the winter. They seldom breed in so low a latitude as Churchill River; but Hearne states that he has occasionally met with their eggs in that neighbourhood. The females rarely lay more than four eggs, but the whole number is generally hatched. They are said usually to select an island in preference to the mainland, for the performance of the maternal office in greater safety.

As soon as the first frosts give notice of the return of the cold season, the Geese commence their flight to the south, and arrive on the coast of New Jersey early in October. Here many of them remain during the winter, frequenting the shallow bogs and marshy islands, feeding on the tender green leaves of a marine plant called the sea-cabbage, and on the roots of sedge, which they are frequently observed in the act of tearing up, and making occasional excursions to the beach for gravel. They swim well, and dive to a great distance; but except in very calm weather rarely sleep upon the water, their roosting-place being mostly in the marshes.

In all their migrations they are marked out for destruction by the hand of man; but the swiftness of their flight and the height to which they soar renders it necessary to resort to stratagem in order to decoy them within gunshot. Pennant gives a very interesting account of the manner in which the Indians lie in wait for them on their arrival, and estimates the number that a good shot may kill on a favourable day as high as two hundred. Some idea may be formed from this of the prodigious numbers that are annually destroyed. In spring they are exceedingly fond of society, and

readily fly to the imitation of their call, when they fall an easy prey. At their moulting time also, which happens about August, they are taken with great ease; and the birds thus procured, together with their young, are frequently domesticated. In captivity they readily pair with the Common Gray Goose, and the offspring are said to be larger than either. But on the approach of spring these domesticated birds are always observed to become restless and uneasy, frequently looking up into the air, making attempts to fly away, and hailing every flock of Wild Geese that passes over their heads. As this salute is usually returned by the flock, who fly towards the well-known sound, the Tame Geese are commonly made use of as decoys to seduce the wild ones to their destruction.

The Canadian Goose has been for many years an inhabitant of this country, but chiefly as an ornament to our ponds and lakes. We are not aware that it has hitherto been bred for the table, or for the other economical purposes to which it is applicable, although there can be no doubt that it is equally valuable in these respects with the common species. The limited number of its young would, however, be a strong objection to its introduction as a substitute for the latter. It is unquestionably a much more ornamental species, and seems to accustom itself readily to the climate. Our cultivated variety is, as might naturally be expected, considerably larger than those which are met with in the wild state, of which the specimens in the Garden are examples.



THE SPUR-WINGED GOOSE.

ANSER GAMBENSIS. RAY.

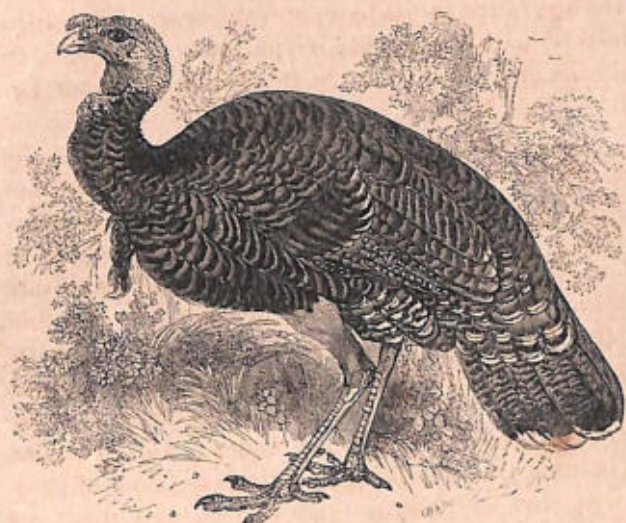
ANOTHER species of the same group, long since introduced into this country, but of much less frequent occurrence than the last, is the Gambo or Spur-winged Goose of Ray, Willughby, and Latham, a native of northern, and more particularly of western, Africa. This bird, which is not very well figured in Dr. Latham's Synopsis, agrees with the Canadian Goose in some of those characters which connect the Geese with the Swans, but is much more robust in make and more anserine in general appearance. Its size and proportions are nearly those of the Common Goose; its legs long and placed beneath the middle of the body; and its neck of moderate length and proportionate thickness. At the base of the bill, which is broad and flat, it has a tubercle like that of the Tame Swan, increasing in size

with the age of the individual ; and the bend of its wings is furnished with a large blunt spur, which appears to be occasionally doubled. On this latter character Dr. Leach founded his genus *Plectropterus*.

The Spur-winged Goose was confounded by Willughby, and afterwards by Buffon, with a variety of the Egyptian Goose, equally distinguished by the presence of a spur upon the wing, but differing considerably in the form of its bill, and in its colours. In the former the entire bill and the tubercle at its base are of a dull red ; the sides of the head are white ; the upper parts of the body black, with a metallic brilliancy ; a patch of white, mottled with black spots, occupies the base of each of the wings ; and the under parts are white, sometimes marked with indistinct zig-zag lines of gray. The legs have an obscure tinge of red ; and the spurs of the wings are horn-coloured ; but the latter are visible only when the wings are expanded, being concealed at all other times beneath the plumage.

The rarity of this species in our collections, notwithstanding its early introduction into this country, proves that it is extremely difficult to acclimate in the north of Europe. The Society's specimen, which is in remarkably fine plumage, has been for more than twelve months an inhabitant of the Garden.





THE WILD TURKEY.

MELEAGRIS GALLO-PAVO. LINN.

It is a singular fact that the origin of this, the most important addition to our domestic poultry that has been made in modern times, should have been involved in such obscurity, as to remain for more than two centuries, out of the three that the bird has been known to us, doubtful and undetermined. The breed seems indeed to have been introduced into Europe with so little ostentation, and to have spread with so much rapidity, that within twenty or thirty years of its first appearance, it was regarded by men of the highest name in science, not as a novel importation from the western world, but as a species well known to the ancients, and originally derived from Africa or the East. With a degree of pertinacity scarcely to be credited, Belon, Aldrovandus, Gessner, and most of the writers

of the sixteenth and seventeenth centuries, persisted in considering it as the *Meleagris* of the ancients, with the minute descriptions of which, in Athenæus and other classic authors, it has scarcely any traits in common; while they failed to recognise in those descriptions any resemblance to the Guinea-fowl, coinciding with them even in the most trivial particulars. The French Academicians first pointed the attention of naturalists to this circumstance, and the justice of their observations is now universally admitted. Daines Barrington was the last writer of any note who denied the American origin of the Turkey, and he seems to have been actuated more by a love of paradox than by any conviction of the truth of his theory. Since the publication of his *Miscellanies*, in 1781, the knowledge that has been obtained of the existence of large flocks of Turkeys, perfectly wild, clothed in their natural plumage, and displaying their native habits, spread over a large portion of North America, together with the certainty of their non-existence in a similar state in any other part of the globe, have been admitted on all hands to be decisive of the question.

All researches have hitherto failed to discover by whom, or at what precise period, the Turkey was first brought to Europe. It may reasonably be concluded that the Spaniards are entitled to the credit of its introduction, and that it was brought by them from Mexico, where it is known to be indigenous. This conjecture is confirmed by Oviedo, whose *Natural History of the Indies* contains the earliest description extant of the bird, and whose acquaintance with the animal productions of the newly discovered countries was surprisingly extensive. He speaks of it as a kind of Peacock, found in New Spain, of which numbers had been transported to the islands and the Spanish Main,

and domesticated in the houses of the Christian inhabitants. His description is exceedingly accurate, and proves that before the year 1526, when his work was published at Toledo, the Turkey was already reduced to a state of domestication. Mexico, it should be observed, was first discovered by Grijalva in 1518. Gomarra and Hernandez soon afterwards described the bird in question among the natural productions of that country, the latter distinguishing the tame birds from the wild.

The Turkey, thus domesticated by the Spaniards, seems to have found its way to England almost immediately. This fact may be readily accounted for by the extensive intercourse subsisting between the two great maritime nations at that early period; but it is somewhat singular that no traces of its transmission from Spain should remain either in the name of the bird or in popular tradition. On the other hand it is barely possible that it may have been brought directly from America to England by Chabot, who made such extensive discoveries on the coast of the newly found continent. According to a popular rhyme, quoted by Baker in his Chronicle,

Turkeys, carps, hoppes, piccarel, and beer,
Came into England all in one year,

which remarkable year is said to have been about the 15th of King Henry the Eighth, or 1524. Barnaby Googe, an old writer on Husbandry, who published in 1614, speaking of "those outlandish birds called Ginny-Cocks and Turkey-Cocks," says that "before the yeare of our Lord 1530 they were not seene with us;" but in this he merely translates from Heresbach, a German author whose treatise forms the basis of his work. A

more positive authority is Hakluyt, who in certain instructions given by him to a friend at Constantinople, bearing date in 1582, mentions, among other valuable things introduced into England from foreign parts, "Turky-Cocks and hennes" as having been brought in "about fifty years past." We may therefore fairly conclude that they became known in this country about the year 1530. Why they were denominated Turkeys, an appellation which bears no resemblance to their name in any other language, we have no probable grounds even for conjecture. Willughby supposes the name to be derived from a notion that they were brought from Turkey. Such an erroneous opinion may possibly have arisen from that confusion which appears to have at first existed between them and the Guinea-fowls, the latter being probably commonly obtained from the Levant, and being also in the sixteenth century exceedingly rare in England.

The Turkey, on the contrary, speedily became a common inhabitant of our poultry-yards and a standing dish at all festivals. So early as the year 1541, we find it mentioned in a constitution of Archbishop Cranmer, published in Leland's *Collectanea*, by which it was ordered that of such large fowls as Cranes, Swans, and Turkey-Cocks, "there should be but one in a dish." The serjeants-at-law, created in 1555, provided, according to Dugdale in his *Origines Juridiciales*, for their inauguration dinner, among other delicacies, two Turkeys and four Turkey-chicks, which, as they were rated at only four shillings each, while Swans and Cranes were charged ten shillings, and Capons half-a-crown, could not have been esteemed very great rarities. Indeed they had become so plentiful in 1573 that honest Tusser, in his *Five Hundreth Points of Good Husbandry*, enumerates them among the usual Christmas

fare at a farmer's table, and speaks of them as "ill neighbors" both to "peason" and to hops.

A Frenchman named Pierre Gilles has the credit of having first described the Turkey in this quarter of the globe, in his additions to a Latin translation of *Ælian*, published by him in 1535. His description is so true to nature, as to have been almost wholly relied on by every subsequent writer down to Willughby. He speaks of it as a bird that he had seen; and he had not then been further from his native country than Venice; and states it to have been brought from the New World. That Turkeys were known in France at this period is further proved by a passage in Champier's *Treatise de Re Cibaria*, published in 1560, and said to have been written thirty years before. This author also speaks of them as having been brought but a few years back from the newly discovered Indian islands. From this time forward their origin seems to have been entirely forgotten, and for the next two centuries we meet with little else in the writings of ornithologists concerning them, than an accumulation of citations from the ancients, which bear no manner of relation to them. In the year 1566 a present of twelve Turkeys was thought not unworthy of being offered by the municipality of Amiens to their king; at whose marriage, in 1570, Anderson states, in his *History of Commerce*, but we know not on what authority, they were first eaten in France. Heresbach, as we have before seen, asserts that they were introduced into Germany about 1530; and a sumptuary law made at Venice in 1557, quoted by Zanoni, particularizes the tables at which they were permitted to be served.

So ungrateful are mankind for the most important benefits, that not even a traditionary vestige remains of the men by whom, or the country from whence, this

most useful bird was introduced into any European state. Little therefore is gained from its early history beyond the mere proof of the rapidity with which the process of domestication may sometimes be effected. Of the means employed we are wholly ignorant. A knowledge of them could not fail to be interesting to those engaged in similar pursuits, as the Turkey is a bird which it requires considerable attention, even in the present day, and after long acclimating, to breed successfully. It is time, however, that we should turn from this inquiry to the more immediate object of the present article, the natural history of the bird in its wild state. Our principal materials for this purpose will be derived from an excellent memoir by M. Charles Lucien Bonaparte, in his Continuation of Wilson's American Ornithology.

The essential generic characters of the Turkey, according to M. Temminck, are comprised in the following particulars. Its bill is short, strong, with the upper mandible curved, convex, and vaulted, covered at the base by a naked skin, and surmounted by a lax caruncle; its nostrils lateral, within the cere, and half closed by an overarching membrane; its head and neck covered with papillæ; its throat furnished with a lax membrane; its tail composed of eighteen feathers, capable of being elevated so as to form a semicircle; its legs provided with an obtuse spur, and terminating in four toes, the anterior three of which are united at the base by a membrane; and its wings short, with the first three quills regularly graduated, and less elongated than the fourth, which is the longest of the whole series. In establishing this genus Linnæus, although fully aware of the American origin of the bird, adopted from the earlier writers the classical name of Meleagris, which it has ever since retained, and which, however

improperly applied, it would now be worse than useless to attempt to change. The only true species of the genus known until within the last ten years was the Common Turkey; but in the year 1820 M. Cuvier added a second from the Bay of Honduras, the brilliancy of whose plumage excels that of the wild individuals of the common species, as much as the latter surpass the tame inhabitants of our farm-yards.

Those who have seen only the domesticated bird, can form but a faint idea of its beauty in a state of nature. When fully grown the male Wild Turkey measures nearly four feet in length, and more than five in the expanse of its wings. Its head, which is very small in proportion to its body, is covered with a naked bluish skin, which is continued over the upper half of its neck. On this skin are placed a number of wart-like elevations, red on the upper portion and whitish below, interspersed with a few scattered blackish hairs. On the under part of the neck the skin is flaccid and membranous, and extends downwards in the shape of large wattles. From the base of the bill at its junction with the forehead rises a wrinkled conical fleshy protuberance, with a pencil of hairs at the tip. This protuberance, when the bird is at rest, does not exceed an inch and a half in length, but on any excitement becomes elongated to such an extent as to cover the bill entirely and to depend below it for several inches. The lower part of the neck, at its junction with the breast, is ornamented by a singular tuft of black rigid hairs, separating themselves from the feathers, and reaching as much as nine inches in length. The feathers of the body are long and truncated, and generally speaking may each be subdivided into four parts. Their base is formed by a light fuliginous down, which is followed by a dusky portion. This again is succeeded by a broad

shining metallic band, changing to copper-colour or bronze, to violet or purple, according to the incidence of the light; while the tip is formed by a narrow black velvety band, which last is wanting on the neck and breast. From this disposition of the colours results a most beautiful changeable metallic gloss over the whole body of the bird, which is, however, less marked on the lower part of the back and tail-coverts.

The wings, which scarcely extend beyond the base of the tail, are concave and rounded. They are furnished with twenty-eight quill-feathers; the primaries are plain blackish banded with white, while the secondaries have the relative extent of these markings so reversed that they may be described as white banded with blackish, and tinged, especially towards the back, with brownish yellow. The tail measures more than fifteen inches in length, is rounded at the extremity, and consists of eighteen broad feathers, which, when expanded and elevated, assume the form of a fan. It is brown mottled with black, and crossed by numerous narrow undulating lines of the same. Near the tip is a broad black band, then follows a short mottled portion, and lastly a broad dingy yellowish band. The feet are robust, have blunt spurs about an inch in length, and are of a red colour, with blackish margins to the scales, and claws of the same dusky hue. The bill is reddish and horn-coloured at the tip; and the irides are dark brown.

The female is considerably smaller, not exceeding three feet and a quarter in length. Her bill and legs are less robust, the latter without any rudiment of a spur; and her irides similar to those of the male. Her head and neck are less denuded, being covered by short decomposed feathers of a dirty gray. Those of the back of the neck have brownish tips, producing a longitudinal band on that part. The caruncle on the forehead is

short and incapable of elongation; and the fasciculus on the breast is not always present. The prevailing tinge of the plumage is dusky gray, each feather having a metallic band, less brilliant than that of the male, then a blackish band, and a grayish terminal fringe. On the feathers of the neck and under surface the black band is for the most part obliterated. All the parts, without exception, are duller than those of the male; less white exists on the primary wing-feathers, and the secondaries are entirely destitute of bands. The tail is similar in colour to that of the male.

Until the naked membrane acquires its tinge of red, it is not easy to distinguish between the two sexes; but on the approach of the first winter, the young males show a rudiment of the tuft of hairs upon the breast, consisting at first of a mere tubercle; in the second year the tuft is about three inches long; and in the third the bird attains its adult form, although it certainly continues to increase in size and beauty for several years. Females have their full size and colouring at the end of four years; they then possess the pectoral fascicle, four or five inches in length, but much thinner than in the male. This appendage is more frequently observed, and is acquired at an earlier period of life, in the wild than in the domestic female.

The Wild Turkey has been found native from the north-western territory of the United States, to the Isthmus of Panama. Towards the north, Canada appears to be the limit of its range; but from this country, as well as from the more densely peopled parts of the American Union, where it was once extremely abundant, it is gradually disappearing before the encroachments of the lord of the creation. To the west, the Rocky Mountains seem to form a barrier that it has never passed, if indeed it has reached them; but the

wooded districts of the western states are still plentifully supplied with this valuable game, which there forms an important part of the subsistence of the hunter and the traveller. In the north-eastern states it is now become extremely rare, although it is still occasionally found in the mountainous parts of New Jersey and Pennsylvania; while in the south, Florida, Georgia, and the Carolinas, where three centuries ago it was most plentiful, have still a small supply.

Many wonderful stories have been told of the immense size which this bird attains; and Turkeys of sixty pounds and upwards in weight are spoken of as not uncommon. The author of the article in the Continuation of Wilson's Ornithology, on the contrary, states the weight of a hen to average about nine pounds, and that of a male bird fifteen or twenty. He adds, however, that males of thirty pounds are not very rare, and that he has ascertained the existence of some weighing forty. Beyond this he is not disposed to go, and he considers those relations in which a greater weight is mentioned as fabulous. He quotes Mr. Audubon's authority for having shot barren hens, in strawberry time, weighing thirteen pounds, and for having seen a male in the Louisville market that weighed thirty-six, and had a pectoral tuft of more than a foot in length. The specimen figured by M. Bonaparte weighed twenty-two pounds, and was killed during the lean season. It will thus be seen how much the domesticated bird has degenerated both in size and beauty, notwithstanding all the care that has been lavished upon its education.

The Wild Turkeys do not confine themselves to any particular kind of food. They eat maize, all sorts of berries, fruit, grass, and beetles; and even tadpoles, young frogs, and lizards, are occasionally found in their crops. Where the pecan-nut is plentiful, they prefer it

to any other kind of nutriment ; but their more general predilection is in favour of the acorn, on which they rapidly fatten. When an unusually profuse crop of acorns is produced in a particular section of the country which they inhabit, great numbers of Turkeys are enticed from their ordinary haunts in the surrounding districts. About the beginning of October, while the mast still remains on the trees, they assemble in flocks and direct their course to the rich bottom lands ; and so constant is their appearance that the season of this irruption is known to the Indians by the name of the Turkey month. At this time the males, which are usually termed Gobblers, associate in parties numbering from ten to a hundred ; while the females either move about singly with their young, then nearly two-thirds grown, or in company with other females, and their families form troops of seventy or eighty individuals. The object of this arrangement is to avoid coming in contact with the old males, who, whenever opportunity offers, attack and destroy the young by repeated blows upon the skull. They travel, however, in the same direction, and on foot, unless when diverted by circumstances from their usual course.

When they arrive at a river they select the highest eminences on its bank, and there remain for a day or more, the males gobbling obstreperously and strutting with more than usual importance, while the females and even the young assume somewhat of the pompous air of the males. The attitudes and note of the domestic Turkey when excited, must be sufficiently familiar to our readers to render superfluous any more particular description of this curious display. At length, when fully recruited and animated for the task, they mount all together to the tops of the highest trees, and at a signal from the leader wing their way towards the

opposite shore. The old and fat birds cross without difficulty, even if the river should be a mile in breadth; but many of the young, especially if the banks are steep, fall into and perish in the stream. When the main body has reached the other side, they ramble about for some time, without any apparent unanimity of purpose; and in this forlorn state many of them fall victims to the hunters, although at the season when they are least valuable. On their arrival in the land of abundance, they disperse themselves in small flocks, composed of individuals of all ages and of both sexes intermingled, and devour the mast as they advance. After these long journeys, which are generally concluded about the middle of November, they become so familiar as to venture even into the farm-yards in search of food; and great numbers are killed by the inhabitants, who preserve them in a frozen state, in order to transport them to a distant market.

In this way they pass the autumn and a part of the winter. Early in March the females separate themselves from and shun the males; they roost apart, but at no great distance, so that when the female utters a call, every male within hearing responds, rolling note after note in the most rapid succession. Where the Turkeys are numerous, the woods from one end to the other, sometimes for hundreds of miles, resound with this remarkable voice of wooing, which is continued for about an hour before sun-rise. They then silently descend from their perches, and the males begin to strut about for the purpose of winning the admiration of their mates. While thus occupied they occasionally halt to look out for the female, and then resume their strutting and puffing, moving with as much rapidity as the nature of their gait will permit. During this ceremonious approach the males often encounter each other,

and desperate battles ensue, when the conflict is only terminated by the flight or death of the vanquished. After pairing, the male and female are mated for the season; but the number of females in the society is not strictly limited to one. The hens follow their favourite and roost in his immediate neighbourhood, if not on the same tree, until they begin to lay, when they change their mode of life, in order to preserve their eggs from the destructive passions of the male. At this time the sexes again separate. The males cease to gobble and no longer court the caresses of the females, but conceal themselves in secluded parts of the forest, and rather than leave their hiding places, suffer themselves to be approached within a short distance, when they seek safety in their speed of foot. At this season, however, they are of no value to the hunters, being meagre and covered with vermin.

About the middle of April, when the weather is dry, the female selects a proper place to deposit her eggs, secure from the encroachment of water, and, as far as possible, concealed from the watchful eye of the crow, the most destructive enemy of the unhatched brood. The nest is composed only of a few dried leaves, placed on the ground, either on a dry ridge, in the fallen top of a dead leafy tree, under a thicket, or by the side of a log. In this receptacle the eggs, which are whitish spotted with reddish brown, like those of the domestic bird, are deposited, sometimes to the number of twenty, but more usually from nine to fifteen. The female always approaches her nest with great caution, and conceals it so artfully with dry leaves that it is extremely difficult to discover it during her absence. When laying or sitting she is not readily driven from her post, which she seldom quits on account of its having been discovered by man; but should a snake or any other animal

opposite shore. The old and fat birds cross without difficulty, even if the river should be a mile in breadth; but many of the young, especially if the banks are steep, fall into and perish in the stream. When the main body has reached the other side, they ramble about for some time, without any apparent unanimity of purpose; and in this forlorn state many of them fall victims to the hunters, although at the season when they are least valuable. On their arrival in the land of abundance, they disperse themselves in small flocks, composed of individuals of all ages and of both sexes intermingled, and devour the mast as they advance. After these long journeys, which are generally concluded about the middle of November, they become so familiar as to venture even into the farm-yards in search of food; and great numbers are killed by the inhabitants, who preserve them in a frozen state, in order to transport them to a distant market.

In this way they pass the autumn and a part of the winter. Early in March the females separate themselves from and shun the males; they roost apart, but at no great distance, so that when the female utters a call, every male within hearing responds, rolling note after note in the most rapid succession. Where the Turkeys are numerous, the woods from one end to the other, sometimes for hundreds of miles, resound with this remarkable voice of wooing, which is continued for about an hour before sun-rise. They then silently descend from their perches, and the males begin to strut about for the purpose of winning the admiration of their mates. While thus occupied they occasionally halt to look out for the female, and then resume their strutting and puffing, moving with as much rapidity as the nature of their gait will permit. During this ceremonious approach the males often encounter each other,

and desperate battles ensue, when the conflict is only terminated by the flight or death of the vanquished. After pairing, the male and female are mated for the season; but the number of females in the society is not strictly limited to one. The hens follow their favourite and roost in his immediate neighbourhood, if not on the same tree, until they begin to lay, when they change their mode of life, in order to preserve their eggs from the destructive passions of the male. At this time the sexes again separate. The males cease to gobble and no longer court the caresses of the females, but conceal themselves in secluded parts of the forest, and rather than leave their hiding places, suffer themselves to be approached within a short distance, when they seek safety in their speed of foot. At this season, however, they are of no value to the hunters, being meagre and covered with vermin.

About the middle of April, when the weather is dry, the female selects a proper place to deposit her eggs, secure from the encroachment of water, and, as far as possible, concealed from the watchful eye of the crow, the most destructive enemy of the unhatched brood. The nest is composed only of a few dried leaves, placed on the ground, either on a dry ridge, in the fallen top of a dead leafy tree, under a thicket, or by the side of a log. In this receptacle the eggs, which are whitish spotted with reddish brown, like those of the domestic bird, are deposited, sometimes to the number of twenty, but more usually from nine to fifteen. The female always approaches her nest with great caution, and conceals it so artfully with dry leaves that it is extremely difficult to discover it during her absence. When laying or sitting she is not readily driven from her post, which she seldom quits on account of its having been discovered by man; but should a snake or any other animal

suck one of the eggs, she abandons them altogether. Several females sometimes associate, deposit their eggs in the same nest, and rear their broods together. In such cases the nest is constantly guarded by one of the party, so that no crow, raven, or even polecat, dare approach it. When the eggs are near hatching, the mother will not forsake them while life remains.

On first quitting the shell the young are covered only with a soft, delicate, hairy down, which affords them no protection against humidity. Hence after very rainy seasons Wild Turkeys are always scarce, because when completely wetted the young rarely survive. At the expiration of about a fortnight they quit the ground, on which they had previously reposed at night under the female, and follow her to some low large branch of a tree, where they nestle under her broadly curved wings. The time then approaches in which they seek the open ground during the day, in search of strawberries, and afterwards of dewberries, blackberries, and grasshoppers. After this the young birds grow rapidly, and by the month of August, when several broods flock together and are led by their mothers to the forest, they are quite able to secure themselves from the attacks of wolves, foxes, lynxes, and even pumas, by rising quickly from the ground, and reaching with ease the upper limbs of the tallest trees. These animals, especially the lynxes, together with the larger birds of prey, the hawks, the eagles, and the owls, are among their most deadly enemies. Man too destroys vast numbers of them; but to obtain them he is generally compelled to employ cunning, for their speed of foot is so great as to render it useless to attempt to course or run them down. The various ways in which they are betrayed are minutely described in the excellent work from which the foregoing details of their habits are abstracted.

In that work M. Bonaparte claims credit for having given the first representation of the Wild Turkey; and justly so, for the figures introduced into a landscape in the account of De Laudonnière's Voyage to Florida, in De Bry's Collection, and that published by Brickell in his Natural History of North Carolina, cannot with certainty be referred to the native bird. They are besides too imperfect to be considered as characteristic representations of the species. Much about the same time with M. Bonaparte's figure appeared another, in M. Vieillot's Galerie des Oiseaux, taken from a specimen in the Paris Museum. Magnificent figures, the full size of life, of both sexes and their young, have since been given by Mr. Audubon in his grand work on the Birds of America. It is somewhat singular that so noble a bird, and in America at least by no means a rare one, should have remained unfigured until within five years of the present time; all the plates in European works being manifestly derived from domestic specimens. Our own figure is taken from a young male, in imperfect plumage, brought from America by Mr. Audubon. Another specimen, in very brilliant plumage, but perhaps not purely wild, forms part of the Society's Museum.

It is unnecessary to enter into any particulars regarding the habits and manners of the Turkey in its domesticated state, since they must be perfectly familiar to every reader. There is, however, in America, an intermediate breed, half wild and half tame, whose peculiarities are not without interest. Generally speaking, the domestic Turkey of that quarter of the globe, although allowed to roam at large in the woods and open fields, is in no respect superior to that of the European poultry-yard. But a crossing often occurs in countries where both the wild and tame birds are

plentiful, between the male of the former and the female of the latter; and this mixture, which is well known to improve the breed, is eagerly promoted by the proprietors. Its produce is much esteemed by epicures, as uniting the tenderness and high condition of the one with the wild and savoury flavour of the other. M. Bonaparte relates that a gentleman in West Chester County, New York, once procured a young female Wild Turkey, in order to try the experiment of crossing the breed; but by some accident it did not succeed, and in the ensuing spring the female disappeared. She returned, however, in the autumn, followed by a large brood, and remained on the farm till the renewal of spring, when she again disappeared, but again came back in autumn with a second brood. This course she repeated for several successive years. When the eggs of the Wild Turkey are hatched under a domesticated female, the young still preserve a portion of their uncivilized nature, roosting apart from the tame birds, and in other respects showing the force of hereditary disposition. These are often used as decoy-birds to those in a state of nature. It is remarked that the Wild Turkey will thrive more, and keep in better condition, than the tame, on the same quantity of food.





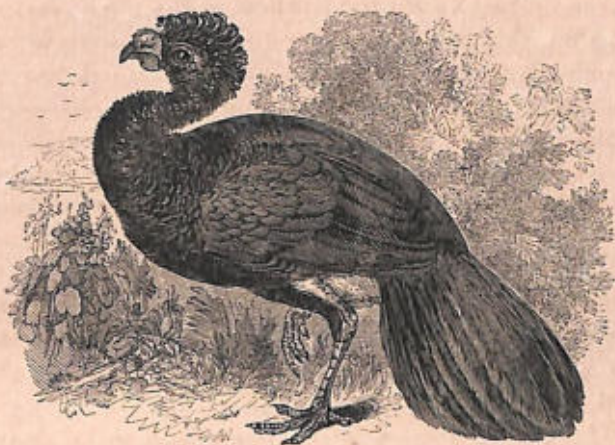
THE RED CURASSOW.

CRAX RUBRA. LINN.

THE Red Curassow is rather larger than the Common or Crested species, measuring when fully grown nearly three feet in total length. Its crest is closely tufted, the feathers of which it is composed being curled towards the tips, and the longest measuring as much as four inches when extended in a straight line. They are black at the base and tips, and white in the middle. Those of the forehead, sides of the head, and upper part of the neck are white with black tips. The rest of the body is entirely of a deep chestnut brown, lighter below than above, and with the shafts of the feathers dusky. The cere, which is without knob, is of a dull black; the bill and legs horn-coloured or ashy gray; and the iris dark brown. In the young bird the plumage is much more elegantly varied. The feathers of the

crest are short and straight during the first year, and have a mixture of reddish brown; the head and neck have more black; all the feathers of the upper surface, including the tail, are marked by broad transverse bars of reddish white margined with black; and the tail terminates in a white band. After the first change the crest begins to curl, and the transverse bands are reduced in number; the second nearly removes them altogether, and the bird assumes its adult plumage. This is the regular progress of the genuine species; but there exist great and permanent differences in the colours of the numerous hybrids bred between this and the other Curassows. In these cases the plumage of the progeny is frequently much more beautiful than that of either of its parent types.

The Red Curassow is commonly said to be derived only from Peru; but if M. Temminck's quotation of synonyms be correct, as we have reason to believe, its range is equally extensive with that of the other species. It appears to be the Coxolilti or Country Pheasant of Hernandez, and consequently to be found as far north as Mexico. Like the other Curassows it readily accustoms itself to the climate of England; and there is every probability that it might with no great difficulty be induced to breed in our farm-yards. M. Temminck assures us that its flesh is white, very succulent, and exquisitely flavoured. He had eaten of it at the table of M. Ameshoff, in whose menagerie it formerly bred as freely as any of our domestic poultry.



THE RED-KNOBBED CURASSOW.

CRAX YARRELLII.

ALTHOUGH we have seen but a single individual of this breed in the adult state and bearing the characteristic marks of the species, we have little hesitation in regarding it as distinct from all the Curassows that have hitherto been brought to Europe. Its distinguishing characters, it is true, are not very remarkable, but they are perfectly obvious to the eye; they are taken from the modifications of an organ which seems in the present family to afford the best distinctive marks, and they are quite as decided as those which have been employed to characterize the other allowed species of the group. A knowledge of the internal organization, and particularly of the structure of the trachea is, however, still wanting to determine this point with certainty; for it is possible that the long domestication of some of

these birds may have given rise to partial changes in their outward form. But the internal conformation is rarely affected by such circumstances, and the form of the windpipe differs so remarkably in all the species of Curassows that have yet been examined, that we should anticipate from an inspection of that organ a complete confirmation, or a decided contradiction, of our present opinion. In the mean time we may be permitted to add, that we scarcely entertain a doubt that the former would be the result.

The handsome adult specimen on which we have founded our belief has been for nearly three years an inhabitant of the Society's Garden. At the period of its introduction it was probably about the same age as the oldest of three individuals now in the Menagerie of the Tower. It is nearly equal in size to the Crested Curassow, and consequently somewhat inferior to the Globose species; but exactly agrees with both those birds in the colouring of its plumage, which is entirely of a deep glossy black, with the exception of the under surface of the body behind the legs, and the posterior part of the legs themselves, where the feathers are pure white. Its crest too is in all respects similar to that of the more common birds. But its cere, instead of being yellow, as in those species, is deep crimson, surmounted by an elevated prominence much inferior in size to that of the Globose Curassow, and enlarged beneath, on either side of the lower mandible, by a peculiar gibbous projection, which is not met with in any other species. The space too between the eyes and the base of the bill is occupied by a line of feathers, leaving the naked skin surrounding the eyes of the same deep black with the plumage of the head, from which it is hardly to be distinguished.

Like the young individuals at the Tower, the Society's

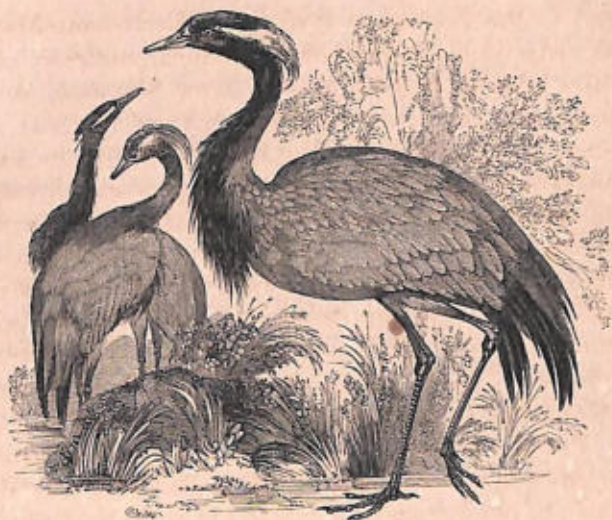
specimen when first obtained exhibited but a very trifling prominence of the cere above, and no appearance of its projecting processes beneath. These, and more especially the latter, have since gradually increased to their present size, giving, as they enlarged, to the bill at its base the appearance of becoming continually thicker and more substantial. Previously to their enlargement there was little to distinguish the bird from the young of the Globose Curassow, except the red colour of its bill, which was then less intense than at present. One of the Tower specimens, which is smaller than the rest, and may be either still younger or perhaps a female, has the under parts, which are white in the adult male, of a light brown.

This bird appears to be nearly allied to that described by M. Temminck under the name of *Crax carunculata* from a single stuffed specimen sent to Lisbon from Brazil. In his figure of the head, however, the upper mandible is deeper than in our specimen, and it entirely wants the knob-like elevation. On the other hand the enlargement of the cere on either side beneath the lower mandible appears to be nearly similar; but in the living bird it bears no resemblance to a wattle, and consequently the name of "barbillon" assigned to this part, and that of "carunculata" given to M. Temminck's species, are totally inapplicable to ours. For this reason we have given to the latter bird, which we must consider as distinct, a new, an appropriate, and we trust a permanent, name. Its propriety will be at once recognised by those who are familiar with Mr. Yarrell's extensive and valuable researches into the structure of the organs of voice of birds in general, which have embraced a striking example of this particular group.

We believe that the fine specimen figured at the head of this article was brought to England and pre-

sented to the Zoological Society by Lieutenant Maw, R. N., who, in his Journal of a Passage from the Pacific to the Atlantic descending the River Marañon, mentions having shot, near the upper part of that river, a species of Curassow "with a red globular fleshy substance above its beak, and two similar ones underneath." This description can apply to no other known species than the one before us. He states the native Peruvian names of these birds to be Peury, a vernacular synonym which, as far as we are aware, had not previously been recorded. At a subsequent period of his travels he procured, at Egas, within the Brazilian frontier, three different kinds of Curassow, one of which, again called the Peury of Peru, was in all probability the same bird. He gives, however, no further particulars of its habits; which, to judge from its behaviour in captivity, must be nearly the same with those of the better known species of the group.





THE DEMOISELLE, OR NUMIDIAN CRANE.

ANTHROPOIDES VIRGO. VIEILL.

THE name of *Anthropoides*, conferred upon this genus by its founder M. Vieillot, owes its origin to a mistaken reading of a passage in Athenæus, which the French Academicians of the seventeenth century improperly applied to the bird before us. They regarded the resemblance to man implied by this epithet as a convincing proof that the *Otus* of the Greeks was a synonym of the bird which they were themselves describing under the name of *Demoiselle*, from a fancied coincidence between its graceful but somewhat affected attitudes and the manners of a young and polished female. It is difficult, however, to conceive how these learned men, with M. Perrault at their head, could have stumbled on so gross a misapprehension; for the passages cited by them from Greek and Roman authors prove

beyond all question that the Scops and Otus of the former, and the Asio of the latter, were in truth nothing else than Owls, and had consequently no connexion with the Numidian Crane.

M. Savigny, on the other hand, refers the latter bird to the *Crex* of Aristotle and other classical authors; but we must confess that we entertain considerable doubt of the accuracy of this opinion also. The scattered notices of the ancient *Crex* appear to us by far too scanty and indefinite to admit of their positive appropriation; and they combine moreover several traits which are quite irreconcilable with the identity of the two animals. With the exception of this distinguished naturalist, almost all the modern authors who have spoken of the *Demoiselle* have merely copied Buffon, who, with singular inconsistency, at the same time that he corrects the error of synonymy into which the Academicians had fallen, adopts all their quotations founded upon this very mistake. The truth is that the real history of the bird cannot be traced with certainty beyond the period of M. Perrault's *Memoirs*, in which it was for the first time described under the fanciful denomination which it has ever since retained.

In the Linnean classification the two remarkable species of which M. Vieillot formed the genus *Anthropoides*, constituted a distinct section of the genus *Ardea*, characterized by their short bills and the crest upon their heads. Modern systematists place them in the family of *Gruidæ*, in an intermediate station between the Trumpeters and Cranes. They are characterized, according to M. Vieillot, as follows. Their bill is scarcely longer than the head, compressed on the sides, entire at the point, thick, convex, and furrowed above; their nostrils are seated in the furrows of the bill, and are concave, elliptical, and open, but partly concealed

posteriorly by a membrane; their tongue is fleshy, broad, and pointed; their head either entirely feathered or naked only on the temples; their legs long, naked, and reticulated; the two outer toes united at the base by a membrane, while the inner remains free; the nails short and rather obtuse; the wings long, with the first four quill-feathers longest, and the secondary of greater length than the primary; and the tail formed of twelve quills. It must, however, be confessed that the union of the two birds by these characters is somewhat forced; and that the points of distinction between them, as regards the nature of their crests, the covering of the cheeks and temples, that of the fore part of the throat, the comparative length of their secondary wing-feathers, and their general appearance, are sufficient to justify their separation. Indeed the discovery of a second species, closely allied to the Demoiselle in all these particulars, described by Mr. Vigors in the Zoological Journal as the Stanley Crane, seems to determine the existence of that form as a distinct type, and to render it still more necessary to isolate the Crowned Crane under a new generic name.

The elegant species to which the French Academicians have given the name of Demoiselle is remarkable for the graceful symmetry of its form, the tasteful disposition of its plumage, and the agreeable contrast of its lighter and darker shades of colour. In an upright position it measures, when fully grown, about three feet six inches to the top of the head; and its length from the point of the bill to the tip of the tail is about three feet. Of these measurements the neck and legs form a very considerable proportion. A patch of light gray occupies the whole of the upper surface of the head, the sides of which, together with the neck, including the long slender pointed feathers which depend from

its lower part over the breast, are of a uniform, but not very intense, shade of black. Every part of the head and neck is fully plumed. Behind each eye there passes off in a backward direction a tuft of pure white feathers, three or four inches in length. These crests, as they are improperly termed, are extremely light and flexible, and have their barbs so loose as to float in graceful undulations on the slightest motion of the bird. The rest of the plumage, with the exception of the outer halves of the quill-feathers of the wings and tail, is of a uniform slaty gray. The secondary quill-feathers are considerably longer than the primary, and when the wings are folded form on either side of the body a tuft of dependent plumes, curving downwards towards their extremities. All the quill-feathers have their outer halves of a dusky black. The bill is yellowish or flesh-coloured; the iris reddish brown; and the legs and claws approaching to black.

Like most of the birds of the Wading Order, the Numidian Crane is migratory in its habits; but it never reaches a high northern latitude, and the environs of Constantinople are the only part of Europe which it is said to visit. It is affirmed, but we know not on what authority, to have been observed as far east as Lake Baikal. The southern coasts of the Black Sea and the Caspian seem, however, to be its proper Asiatic limits. In Africa, which is truly its native country, it extends along the whole of the Mediterranean and western coasts from Egypt to Guinea, but is most abundant in the neighbourhood of Tripoli, and throughout the tract of country which constituted the Numidia of the ancients. It arrives in Egypt in considerable numbers at the period of the inundation of the Nile; and makes its appearance about Constantinople in the month of October, being then probably on its passage from the Black

Sea towards the south. It is also stated to have been met with in the interior of South Africa, in the neighbourhood of the Cape.

Although, in common with the rest of its tribe, it prefers marshy situations, and feeds occasionally upon fishes, insects, and mollusca, a vegetable diet is more congenial to its structure and habits. Its stomach is a true muscular gizzard, like that of the Common Fowl, and, as in most granivorous birds, contains a quantity of gravel, evidently swallowed for the purpose of assisting in the trituration of the hard substances on which it generally subsists. It consequently prefers seeds and other vegetable productions to every other kind of food. The convolutions of its trachea are less extensive than those of the Common Crane, and its note is therefore weaker and less sonorous, although somewhat sharper.

The gracefulness of its figure and the elegance of its deportment have always rendered this bird an object of peculiar attraction; but few living specimens have been brought to this country, and they have been almost equally rare in France. Towards the close of the seventeenth century the menagerie at Versailles contained six individuals which bred there; and one of the young produced in that establishment lived for four and twenty years. This fact is sufficient to prove that it would not be difficult to acclimate them in the latitude of Paris, and judging from the thriving appearance of the Society's specimens, there can be no reason to doubt that the same experiment might be tried with success in England also. They are extremely gentle and good-tempered, and speedily become familiarized with captivity and contented with their condition. It has been remarked that they seem to take pleasure in being noticed and admired, and exhibit themselves on such occasions with a kind of ostentation, making use of

gestures which have been construed into bows and courtesies, and jumping about in a kind of artificial dance. To this somewhat overstrained comparison Buffon adds that they are so fond of display as to prefer the pleasure of exhibiting themselves even to that of eating, and to follow those who are on the point of quitting them for the purpose as it were of soliciting another glance of admiration. For our own parts we must confess that we have never observed, in any of the specimens that we have seen, those symptoms of affectation which may perhaps be obvious to a more lively fancy. Their manners appear to us to differ but little in this respect from those of others of their tribe, the only material distinction consisting in the gracefulness with which they execute motions that in others are not unfrequently awkward and even ludicrous.

The Society's specimens formed part of a valuable present, which arrived at the beginning of the summer, from Hanmer Warrington, Esq. the British Consul at Tripoli.





THE CROWNED CRANE.

BALEARICA PAVONINA. FIG.

THE Crowned Crane differs in the most striking manner from the bird described in the preceding article. In size it is considerably larger; and although perhaps less graceful in its form and attitudes, it displays a much higher degree of elegance in the varied colours of its plumage. In this point of view if the dress of the Demoiselle be compared to the tasteful simplicity of a village maiden, that of the Crowned Crane bears as strong an analogy to the artful combinations of fashionable skill.

This beautiful bird measures when fully grown about four feet in total height. Its plumage is of a bluish slate colour on the neck, and on both surfaces of the body; the quill-feathers of the tail and the primaries

of the wings are of a beautiful black; the secondaries, which extend beyond the base of the tail, of a bright and glossy brown; and the wing-coverts pure white. The cheeks and temples are entirely naked, and are coloured of a bright rosy red, which sometimes overspreads the whole of the naked surface, and sometimes is confined to a portion of it, the remainder in this latter case becoming perfectly colourless and of a dull white. Beneath the upper part of the throat a similar naked space is gradually developed, which terminates in a dependent fold of the skin, like the wattle of a turkey, but more uniform on its surface and of a brilliant red. As this prolongation is not always met with, it has been considered by some writers as a mark of sex; but of the two birds examined by the French Academicians the one possessed it and the other not, and yet both were females. It may therefore with greater probability be considered as the result of age. The fore part of the head is covered by a close tuft of short, smooth, even, velvety feathers of a deep black; and behind these rises a very remarkable crest, consisting of a large number of flat yellowish filaments, each twisted spirally on itself, fringed along its edges with a series of black-pointed hairs, and terminating in a blackish pencil. These filaments are of nearly uniform length, and measure four or five inches from base to tip. They take their origin from a roundish space on the back of the head, and expand equally at their extremities into a circle of considerably larger diameter than the head itself. The bill, legs, and feet, are of a dusky black; and the iris is remarkable for being almost destitute of colour. As in most of the birds of this family, the feathers of the lower part of the neck are long, narrow, and gracefully dependent over the breast.

The Crowned Crane is a native of Guinea and the

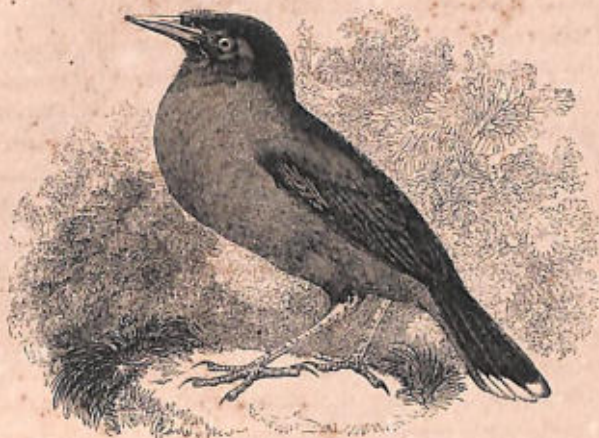
neighbouring countries; it is also found at Cape Verd. Aldrovandus supposed this bird to have been indicated by Pliny, but it is doubtful whether the ancients were acquainted with the species. It is more reasonable to conclude that it first became known in Europe towards the end of the fifteenth century, when the Portuguese extended their discoveries along the western coast of Africa. Since that time it seems to have been not unfrequently brought to this quarter of the globe. The description given by Aldrovandus was taken from living specimens in the possession of Cardinal Sforza, and Ray mentions having seen the bird in the royal aviary in St. James's Park. The French Academicians were, however, the first to examine its structure with minuteness, and their account of it is still the best that has been given. They applied to it the name of Oiseau Royal, from the supposed resemblance of its crest to a regal crown. Brisson, adopting the opinion that it was the Balearic Crane of the ancients, named it *Balearica*; and this must consequently, notwithstanding some awkwardness in the construction, be adopted as its generic appellation. It has since been well figured by Edwards, Buffon, and others; and forms at the present day an attractive object in most of our menageries.

In a wild state it is natural to conclude that the Crowned Crane is a migratory species; but we know little of its habits except in captivity. Like the other Cranes it frequents swampy places, and subsists partly upon fishes, worms, and insects, and partly on vegetable substances. At Cape Verd, we are told, it approaches so nearly to a state of domestication as to come of its own accord into the poultry yards and feed along with the tame birds confined in them. It perches in the open air to take its rest, and walks with a slow and somewhat stately gait; but, with its wings expanded

and assisted by the wind, it scuds along with great rapidity. Its flight too is lofty, and capable of being continued for a very considerable time.

In captivity it is perfectly quiet and peaceable, readily becomes familiarized with man, and seems even solicitous for his company. When at rest it usually stands, like the other Cranes, upon one leg, with its long neck bent inwards, and its body supported in an almost horizontal position. But if disturbed in its repose, it lengthens out its neck, brings that, together with its body, into an almost vertical line, and assumes a bold and imposing attitude. Its proper note bears a considerable resemblance to that of the Crane, and is compared by Buffon to the hoarse sound of a trumpet. It has also another note resembling the clucking of a hen, but louder and more disagreeable. Grain of all kinds, but particularly rice, forms its usual food in a state of captivity, and it is especially delighted by the occasional addition of a few living fishes. It is fond of bathing itself, and does not seem to be much affected by the rigours of our northern climate, requiring only to be kept moderately warm during the night and in the colder season of the year.





THE CHINESE STARLING.

PASTOR CRISTATELLUS. TEMM.

ON a superficial view of the groups composing the Insectorial or Perching Order, which comprehends so large a proportion of the feathered tribes, their general resemblance appears by no means so striking as in the other leading subdivisions of the class. The great diversity of their habits, especially as regards their food, is connected with corresponding varieties in the structure of the organs subservient to nutrition; and the bill in particular, which forms the most important feature in the physiognomy of birds, runs through an almost endless series of variations. In one very numerous subdivision, the Tenuirostres of M. Cuvier, in which it is destined to penetrate the long tubular flowers in quest of honey, it is lengthened and attenuated; while in another, the Fissirostres, where its

office is simply to entrap the insects that float along the air, it is excessively broad and short. An intermediate structure occurs in a third series, the *Dentirostres*, in which the bill is somewhat elongated, and furnished with a notch on either side of the upper mandible near the point, by which provision those birds are enabled to capture not only the insects which form their more usual prey, but also not unfrequently the smaller birds. The bill becomes still more elongated, but with increased strength and without denticulation, in the *Conirostres*, whose food is generally of a mixed nature, partly animal and partly vegetable. Among the birds of this subdivision it attains its maximum of development; but still retains a high degree of power in the remaining section of the order, the *Scansores*, which, like the last, feed partly upon seeds and partly upon insects, and even occasionally upon eggs and birds, and in which various modifications of bill are connected together by a peculiar arrangement of the toes. Thus the *Perchers* exhibit almost every possible gradation between the bills of the *Hummingbirds* and those of the *Hornbills*, the smallest and slenderest on the one hand, and on the other the largest and most apparently disproportioned, that are met with among birds.

But with all these diversities in the form of their bills and in the nature of their food, the *Insectorial* birds possess one character in common, of paramount importance, inasmuch as it is that by which their mode of life and their station among the works of the creation are chiefly determined. The character to which we allude is that which gives name to the order, the faculty, *par excellence*, of perching upon trees. Other birds, it is true, possess the same power to a certain extent; but in none of them is it carried to so high a

degree of perfection, or has it equal influence on their general habits. It is not merely by habitually perching upon trees that the Insessorial birds proclaim that such is their proper station in nature. They, almost without exception, build their nests among the branches or in the hollow trunks; and a very large proportion of them subsist entirely upon buds and fruits, or upon the insects which they capture in the fissures of the bark. The feet of all, (with one or two trifling exceptions, which but confirm the general rule,) are specially fitted for such a mode of existence; while those of one extensive tribe absolutely incapacitate them for any other habitation.

The fact that each of the Orders of Birds has its peculiar station on the surface of the globe, and that there exists a perfect analogy between these several stations and the series of their natural affinities, has been illustrated by Mr. Vigors in the happiest manner. A brief digression, with the view of affording some idea of this remarkable coincidence, may perhaps not be unacceptable here. It matters not where we begin, but we may as well commence with the Birds of Prey, which soar to the highest pitch in the atmosphere, while the typical species take their prey upon the wing. Their station is manifestly the air. By means of the Owls and the Goat-suckers, we pass to the Insessorial Order, whose station among the land birds, as we have just seen, is upon the trees; intermediate, as it were, between the air and the earth. On the surface of the latter beyond all doubt is the domain of the Gallinaeous tribes, which nest and feed upon it, and have their legs peculiarly fitted for walking, while their wings are but ill adapted for flight. They are connected to the Perchers by the intervention of the Pigeons, and to the

Waders by means of the long and bare-legged Ostriches, which lead through the Cranes to the more strictly typical birds of the Wading Order. The half amphibious station of the latter, whose home is among the fens and marshes, obviously connects the land birds with those which are purely aquatic by affinities of location, as completely as they are connected, through the medium of the same order, by affinities of structure. And lastly the Swimming Birds are united, by means of some of the truly oceanic tribes which feed exclusively upon the wing, with the Raptorial Order, whose typical station we have already found to be the air. Thus the air, the trees, the land, the marshes, and the water, are each peopled by their own peculiar order; and the Raptorial, the Perching, the Gallinaceous, the Wading, and the Swimming Birds, respectively occupy a separate station on the surface of the globe.

To return, however, from this digression. The bird which we are now about to describe belongs to that typical tribe or subdivision of the Insectorial Order which is characterized by the strength and conical form of the bill, and the almost total want of denticulation at its point. In this extensive tribe, the family of Sturnidæ, popularly known by means of the Common Starling (which may be regarded as its type), is distinguished by its straight and more or less compressed bill, the ridge of which passes back over the forehead, while its opening is generally broken by an angle near the base. All the groups which compose the family are migratory in their habits, assemble in large flocks, and live upon seeds or insects, laying waste the cultivated fields in pursuit of the former, and rendering essential service to the cattle by destroying such of the latter as infest their hides or fleeces.

They are natives of every quarter of the globe, become tolerably familiar in captivity, have great imitative powers, and are remarkably docile.

The characters of the genus *Pastor* consist in an elongated conical bill, compressed on the sides, and very slightly arched, with a trifling notch in the upper mandible towards the point, and a strongly marked angle in the commissure near the base; the nostrils oval and lateral, partly closed by a membrane clothed with slender feathers; a naked space round the eyes; the first quill-feather very short; and the second, third, and fourth, the longest of the series. It is strictly confined to the Old World, and is most abundant in Africa and the East; but one of its species frequently visits Europe, and sometimes makes its way even into Britain.

The present species, which is found abundantly in Java and China, is considered by M. Cuvier as scarcely a variety of the *Pastor tristis*, the Martin of the *Planches Enluminées*. In that extensive collection of figures it occurs under the name of *Merle Huppé de la Chine*, and is also represented in Edwards' *Birds* under that of Chinese Starling or Blackbird. The prevailing colour of the bird is black with a slightly grayish gloss, varied only by a small white patch spreading over the lower halves of the quill-feathers of the wings, and a second occupying the extremities of the lateral quills of the tail. A slight crest of longer feathers, capable of being raised at pleasure, occupies the fore part of the head. The iris is of a bright straw-colour; the bill and spaces surrounding the eyes light yellow; and the legs of a somewhat deeper shade. The bird measures eight or nine inches in total length, and its wings when closed reach to about the middle of the tail.

Little attention has been paid to the habits of these birds in a state of nature, but it is probable that they are identical with those of the species with which M. Cuvier has united them. Few birds have been more celebrated than the latter as the subjects of experiments in agriculture; their propensity to the wholesale destruction of insects having led to their introduction into the Isle of Bourbon for the express purpose of protecting the colony against the flights of locusts by which it had previously been devastated; a service which they were found to perform with the greatest success. In captivity the present species is extremely tractable, and readily learns to imitate words and other sounds, and even to whistle a variety of tunes. For this purpose it is very commonly kept in cages by the Chinese, who feed it upon rice and insects.





THE VAZA PARRAKEET.

PLATYCERCUS VASA. VIG.

THE group of Parrots to which this rare and interesting species belongs was first distinguished by Mr. Vigors about five years ago, while engaged in his examination of the extensive collection of Australian birds deposited in the Museum of the Linnean Society. Most of its typical species are natives of New Holland, but a few are scattered over the islands of the Pacific Ocean, and the present bird, a native of Madagascar, and perhaps also of South Africa, serves geographically as well as naturally to connect them with the even-tailed Parrots of the African continent. On the other hand they are united, as Mr. Vigors has pointed out, by means of the Pacific species with strikingly graduated tails, to the Indian group typically represented by the Alexandrine Parrakeet. Their more immediate station seems to be

between the Parrakeet-Maccaws, or genus *Psittacara*, and the Ground-Parrots of New Holland, long since formed into a genus by Illiger under the name of *Pezoporus*.

In the form of its bill this genus evinces an approximation to the Maccaws, having the upper mandible almost equally short and even more broadly dilated, but less strongly curved and elongated at the tip, while the lower is more than usually abbreviated and deeply notched. It differs likewise from the other long-tailed Parrakeets in the breadth, depression, and more or less rounded termination of its tail; in the shortening of the first quill-feather of the wings, giving to those organs also a rounded form; and in having all its primary quill-feathers, with the exception of the first, deeply and abruptly notched on their outer webs near the middle. An approach to this latter structure, but in a less degree, is met with only in the more typical Ground-Parrots, with which the present group is moreover connected by the length of its legs and the slight curvature of its claws. These two genera, so intimately united by their geographical position, chiefly differ in the dilated tail of the one compared with its wedge-shaped termination in the other; in the claws being somewhat more curved in *Platycercus* than in *Pezoporus*; and in the more obvious notching of the lower mandible in the former than in the latter group.

The present bird, which appears to be most nearly related to the Grand Vaza of Le Vaillant, has been shown by Mr. Vigors, in a notice of the identical specimen now before us, published in the third volume of the *Zoological Journal*, to be a true species of his genus *Platycercus*. But he has not ventured, in the absence of sufficient materials, to decide whether or not it is specifically identical with the Petit Vaza of the same

author, which seems to differ in little else than its smaller size, some partial variations in the gloss resulting from the incidence of light upon different parts, and the less horny appearance of the bill; characters of little importance and such as may fairly be supposed to arise from difference in age, sex, climate, or season. In some respects the Society's bird appears to be intermediate between the two. Its length is about eighteen inches, while that of the Grand Vaza is stated by Le Vaillant to be twenty-one, and that of the Petit Vaza thirteen or fourteen. Its native country is unquestionably Madagascar, whence it was sent by Mr. Telfair; and this agrees with the habitat assigned to the last-named bird, the other supposed species being stated to inhabit South Africa. But its hues assimilate most closely with those of the larger bird. Like it the Society's specimen has its plumage entirely of a sooty black, with a lighter shade of grayish slate passing over it when held in a strong light; its tail, broad and even at the extremity, is as long as the body; its wings, when closed, do not reach above a third part of the length of its tail; and its large bill, together with the cere at its base, are of a dusky horn-colour. The narrow naked spaces surrounding the eyes are white; the irides dusky; and the legs and claws black.

In a smaller specimen, which has lately been added to the Society's Collection, the circle round the eye is less distinctly marked, and has a dusky tinge; the cere is almost black; and the bill is of a very pale flesh-colour, dusky only at the tip and on the edges. This may be the Petit Vaza of M. Le Vaillant; but if so, our doubts of the specific distinction between the two birds would be increased, and we should entertain a strong belief of their identity.

In its manners the original bird possessed by the Society closely resembles the Australian species of the same group. "Its light and active manners," says Mr. Vigors, "originating from superior powers of foot and tarsi, totally distinct from the embarrassed gait and feebleness of limb that characterize the typical Parrots, immediately call to mind the Ground-Parrakeets of New Holland. It is gentle and tractable, although somewhat timid. It seems much pleased by attention being paid to it; and is fond of being handled, particularly about the head. At such times it plays with the hand which caresses it, without any injury from its bill." Unlike Le Vaillant's *Petit Vaza*, it seems little inclined to mimic the noises that it may chance to hear; and Mr. Vigors states that he has heard no sound from it, unless once or twice a loud and somewhat discordant shriek, which it uttered when apparently in more than usually high spirits.





THE SNOWY OWL.

NOCTUA NYCTEA.

THE name of *Noctua*, restored by M. Savigny to the Little Owl, and extended by M. Cuvier to all the nearly related species, is perhaps objectionable as a generic appellation on account of its having been long since applied by Linnæus to designate a genus of Moths. The propriety of its application to the species in question is, however, too evident to admit of any hesitation in adopting it. These species are principally distinguished from the other Owls by the absence of tufts on their head; the small size of their ears; and the diminished extent of the disks of feathers surrounding their eyes.

One of the most remarkable species of this group is the Snowy Owl. It derives its name from the snowy whiteness of its plumage, which is only interrupted on

the head and neck by a few minute dots of dull brown, and on the rest of the body by regular transverse semi-lunar streaks of the same colour, but narrower and lighter on the under than on the upper surface. These streaks do not extend to the legs, which are covered down to the claws by long, thick, shaggy, hair-like feathers. The whole of the plumage is extremely soft, close, and thick, affording a most effectual protection against the severities of weather to which this bird is constantly exposed in the Arctic regions which it inhabits. Even the beak is almost entirely buried in the disks of the eyes, which advance internally to a much greater extent than on the outer side. The head is remarkably small, compared with that of the other species of Owls; the iris of a bright golden yellow; the tail short, scarcely extending beyond the wings; and the bill and claws strongly curved and of a deep black. In the female the spots and bars are darker and more numerous, and never disappear to so great an extent as in the male, which sometimes in advanced age becomes almost purely white. The full-grown female, which is rather larger than the male, measures two feet in length, and more than five in the expanse of its wings; and is consequently by far the largest Owl without tufts of feathers upon its head, with which we are acquainted. Its weight, however, according to Hearne, seldom exceeds from three to four pounds.

The Snowy Owl is a native of the most northern regions of both Continents, passing southwards in the Old as far as the latitude of Astracan, and in the New to that of Pennsylvania, or more rarely even to the borders of Florida. It is very seldom, however, met with in Europe to the south of Sweden; while in America it appears to be most frequent in the latitude of Hudson's Bay. Bechstein mentions one or two

instances of its appearance in the neighbourhood of Leipzig and of Dresden; and it has obtained a place in our own Fauna as an inhabitant of the islands of Orkney and Shetland, where it was first detected by Mr. Edmonstone about eighteen or twenty years ago. It seems probable, from that gentleman's observations, that it is stationary in the last-mentioned locality throughout the year; but Wilson believes it to be only an occasional visitant in the United States, except perhaps in some of the more northern and inland parts, where it may remain during the summer to breed.

The comparative length of wing and strength of the quill-feathers in this beautiful Owl enable it to fly with much more swiftness, and to remain suspended in the air for a much greater length of time than any other bird of the family. It flies abroad also in the daytime, as well as in the twilight; and in all these particulars, as well as in the nature of its food, evinces a striking approach to some of the more strictly diurnal Birds of Prey. It feeds almost indiscriminately on birds, quadrupeds, fishes, and even carrion; and is stated by Hearne to be extremely troublesome to the hunter, whom it will follow for a whole day, perching itself on the highest trees, and skimming down, when a bird has been shot, with such rapidity as to carry off the prize before the sportsman can get within reach of it. "They are," he adds, "so great a hindrance to those employed on the hunting service, that the same premium is given for one of their heads as for that of a hawk."

Wilson describes this bird as being particularly fond of frequenting the shores and banks of shallow rivers, sailing slowly over the surface, or sitting on a rock a little raised above the water, watching for fish, which it seizes with a sudden and instantaneous stroke of the foot, seldom missing its aim. It is capable of swallow-

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ing entire animals of considerable size, such as grouse and partridges, young hares and rabbits. Mr. Bullock mentions an instance that came within his knowledge in which a wounded individual disgorged a young rabbit whole. According to Hearne, the female makes her nest upon the ground, and generally lays from three to four eggs, but seldom hatches more than two. The young are unable to fly before September; and the parents never migrate in search of a more temperate climate, but brave the coldest winters, even on the barren grounds, far from any shelter that might be derived from the woods. In such situations they perch on high rocks and stones, watching for their prey, their snowy plumage rendering them almost undistinguishable. Their voice is so dismal that, as Pennant observes, it adds horror even to a Greenland winter.

The Society's specimen exhibits somewhat of its natural manners even in its captivity. It never perches itself, like the other Owls, in concealment at the back of its cage, but is constantly seen resting upon the ground, and advanced towards the front, regardless of the open light of day.





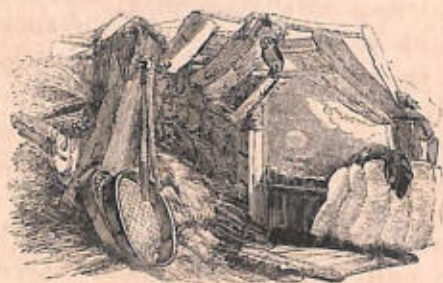
THE BARN OWL.

STRIX FLAMMEA. LINN.

THE species of Owls for which M. Savigny has retained the generic name of *Strix*, form a striking contrast to those which compose his genus *Noctua*, in the great extent of their wide and open ears, and the enlarged radius of their orbital disks. They are destitute of tufts of feathers upon the upper part of the head; their ears are furnished in front with a broad membranous operculum; their beak, instead of being curved from the very base as in all other Owls, is elongated and becomes arched only towards the point; and their legs are covered with slender decomposed feathers, degenerating into hairs upon the surface of the toes. The singular mask formed by the straight rigid feathers that surround their eyes, which embraces as it were their entire physiognomy, renders them the most extra-

vagantly singular in appearance of the extraordinary tribe to which they belong.

It will easily be understood that the Barn Owl, the most common of the few species that compose this group, and perhaps the most extensively and abundantly dispersed of the whole family, is not introduced here on account of its rarity, but simply in contrast with the bird figured at the head of the preceding article. For this reason we shall abstain from giving any description of a species so commonly known, and pass in silence over habits with which every one is more or less familiar. Its services in protecting the barn and the corn-rick from the ravages of the smaller quadrupeds cannot be too highly appreciated. On their account it merits a better fate than that which is commonly reserved for it when taken captive by the rustic crew.





THE HARPY EAGLE.

HARPYIA DESTRUCTOR. CUV.

THIS noble bird, the most magnificent of the Eagle tribe, is distinguished from the other Eagles by the shortness of its wings, the extreme robustness of its legs, and the more than ordinary curvature of its beak and talons. Its upper mandible is remarkably thick at the base, from whence it is continued for some distance in a straight line, but suddenly curves downwards with a strong arch towards the point, which is extremely sharp; the lower mandible is straight, short, and obtuse; the nostrils are transverse and oval; the wings do not reach when closed beyond the middle of the tail, which is rounded at the extremity; the legs are only partially feathered on the upper part of their anterior surface, the remaining portion being naked and reticu-

lated; and the talons are excessively powerful, the internal and the posterior in particular attaining an almost disproportionate length. In some of these characters, as for instance the nakedness of the legs, the Harpy approaches the Sea-Eagles; but it differs from them in many essential points, and in none more remarkably than in the shortness of its wings, and the robustness of its legs and talons; the former character rendering it, like the short-winged Hawks, more adapted for preying near the surface of the ground on gallinaeous birds and on quadrupeds, and the latter enabling it to carry off a prey of much greater magnitude to its solitary retreat.

It is difficult, in the present state of our knowledge with respect to the short-winged Eagles of South America, to determine how many of them belong to this striking group, to which the generic name of *Harpyia* has been given by M. Cuvier. With the genus subsequently proposed by M. Spix under the same name, the Harpy Eagle has little in common: its strongly marked characters preclude the possibility of its being for a moment confounded with the birds described by him as Harpies, which are as much inferior in size as they are comparatively deficient in power of beak and talons, and have moreover their far weaker tarsi totally covered with feathers. The bird before us is the only one that we can with certainty refer to the *Harpyia* of M. Cuvier, for the Crowned Eagle of D'Azara, and one or two other species doubtfully mentioned by M. Vieillot, are yet too imperfectly known to admit of their being definitively placed. It is better therefore to restrict it for the present to the one species which forms its type, and which has now become familiar to British zoologists through the specimen exhibited in the Garden of the Society. So imperfect have been most of the

descriptions of this bird, and so great was its rarity, that almost every specimen of it that occurred down to the close of the last century was regarded as the type of a new species, and named accordingly. This abuse of nomenclature has caused much confusion in the synonymy, which we shall endeavour to rectify in the course of the present article.

The characters of the Harpy in its adult state are so simple as to excite our surprise that such mistakes should have occurred with respect to it. Its usual length from beak to tail is three feet and a half, or even more. The entire head is covered with a thick soft downy plumage of a light slaty gray. From its back part arises a crest composed of numerous broad feathers, increasing in length towards the middle line of the head, and thus assuming a rounded form, of a dull black, with the exception of a slight margin of gray on the tips of the longer feathers, and a more extensive tinge of the same colour on those of the sides. This crest is slightly raised above the level of the feathers of the back of the neck when the bird is quiet, but is capable of being elevated at right angles with them upon any sudden excitement. In this state, to an observer placed in front of the bird, the middle feathers of the crest are rarely visible, on account of their being inserted much lower down than the lateral ones; while the latter converging on either side form as it were two lax ear-like processes, which combine with the general looseness of the plumage to give to the physiognomy of the Harpy no little resemblance to that of some of the Owls. Below the crest the whole of the back and wings, together with a broad collar encircling the fore part of the neck, is black without gloss or reflection, each of the feathers of the back terminating in a narrow transverse somewhat lighter streak. The under

surface from the breast backwards is pure white; and the plumage of the legs is marked on the same ground with transverse blackish bars. The tail is crossed by four transverse black bands, of about equal breadth with the four alternating whitish or ash-coloured spaces; its tip is of a light ash-colour. The beak and claws are black, and the legs dull yellow. These characters are taken from the Society's specimen, which has lived in this country for upwards of seven years, and of the mature age of which there can consequently be no doubt.

There is, however, considerable difference in the colours of the immature bird. A specimen in the Paris Museum, which M. Vieillot suspects to be a young female undergoing a change of plumage, has the upper parts mottled with brown gray and whitish, and the cheeks, occiput, throat, and under part light gray, with a few black feathers on the front of the neck, and some large irregular black spots on each side of the shafts of the tail-feathers beneath, placed on a light ash-coloured ground. This description exactly agrees with the figure of the *Falco imperialis* given in Dr. Shaw's Zoology, and copied in all probability from a plate in Sonnini's edition of Buffon, to which work we have it not in our power to refer. M. Temminck also describes the young, in its passage to the adult plumage, as having the back and wings grayish fawn-colour irregularly marbled and spotted with black; the collar of an ashy fawn, more or less spotted with black; the bars that cross the legs fewer in number and more irregular; all the lower parts of a whitish fawn-colour mixed with darker spots; the upper surface of the tail ash-coloured, and marked with small blackish spots, the places of the future bands being marked by patches of black, which increase in size at each successive change of plumage; and its

under surface whitish, dotted with fawn. A living specimen, now in the Menagerie of the Tower, appears to be still farther advanced towards the adult state. In it the collar, crest, back, and wing-coverts, are almost uniformly gray; the quill-feathers of the wings are black; the under surface of the body is dirty white; and each of the tail-feathers is marked beneath by four large black patches crossing its shaft and occupying about half its width.

We now turn our attention to the synonymy.

M. Temminck, the latest writer on this magnificent bird, positively denies its identity with the Vultur Harpyia of Linnæus, and the Crowned Eagle (Vultur coronatus) of Jacquin, on the singular ground that those names indicate a smaller bird with longer and more slender legs. Now Linnæus, who borrowed his original description of the Harpy from Hernandez, asserts on the authority of that writer that it is equal in size to a common ram; and Jacquin states his bird to have measured full two feet and a half in height in its natural sitting posture, and almost two inches in the diameter of its legs. It is impossible to read the descriptions of Hernandez and Jacquin, making in the case of the former some little allowance for exaggeration, without feeling a conviction that they both refer to the bird now under consideration. That of the latter author in particular is admirably characteristic. Linnæus originally founded his species on the indication given by Hernandez: in the tenth edition of his System he suggested a comparison between it and a bird seen by a friend, probably a pupil, in the Royal Menagerie at Madrid, which there is every reason to believe, from the description given, to have been just. It was only in the twelfth edition of his immortal work that he introduced a slight confusion by adding to the citation from Hernandez, to the account furnished

by his friend, and to some particulars extracted from Jacquin's then unpublished description of his supposed species, a synonym from Maregrave which can alone justify M. Temminck's criticism. We restore without hesitation both these synonyms of Linnæus and Jacquin, excluding only from the twelfth edition of the *Systema Naturæ* the references to Maregrave and his copyists. With the *Vultur Harpyia* of Linnæus and the *Vultur coronatus* of Jacquin, are necessarily included among the synonyms of the Harpy Eagle the *Falco Harpyia* and the *Falco Jacquini* of Gmelin, by whom the trivial name assigned by Jacquin to his bird was changed on account of its introduction into a genus in which that appellation was preoccupied.

In the year 1778, Mr. Dillon observed in the Menagerie of Buen Retiro at Madrid, a species of Eagle, which he imagined to be "an undescribed bird not taken notice of by Linnæus." This bird, which he figures in his Travels through Spain, under the name of the Crested Falcon, is evidently of the same species with the Harpy, although the representation is rudely executed, and in some respects, as for example the length of the beak, grossly caricatured. We might almost be tempted to suspect that the specimen seen by him was identical with that described by Linnæus from the same menagerie twenty years before, were it not that the latter bird is expressly called Mexican, while that of Mr. Dillon is stated to have come from the Caraccas. For this reason Dr. Latham introduced it into his Synopsis under the name of the Caracca Falcon. Gmelin, quoting from Latham, soon after latinized its former name into *Falco cristatus*, and this may therefore be added to the synonyms of our bird, of which Mr. Dillon's was the first published figure.

The next original describer of the Harpy Eagle was

Mauduyt, who also regarded his specimens as non-descript, and gave them the name of Grand Aigle de la Guiane, from the country whence they were obtained. To these birds, which formed part of the collection of the Paris Museum, Daudin, in his Ornithology published in 1800, applied the scientific appellation of *Falco Destructor*; and the names given by these two writers have been generally adopted on the continent of Europe as the only ones certainly applicable to the species. M. Sonnini seems doubtful whether or not to regard the two specimens described by him as distinct species, and names the one Aigle Destructeur, and the other Grand Aigle de la Guiane; but there seems no sufficient reason for their separation. Dr. Shaw's *Falco imperialis* is founded on this indication of Sonnini. In all probability the Crested Eagle of Stedman's Expedition to Surinam, spoken of as a very strong and fierce bird, belongs to the same species. Figures of the Harpy are likewise given by M. Cuvier in his *Règne Animal*; by M. Vieillot in the second edition of the *Nouveau Dictionnaire d'Histoire Naturelle*; in the *Dictionnaire des Sciences Naturelles*; and by M. Temminck in his *Planches Coloriées*. Those of the two last-named works are strikingly characteristic. That of the *Dictionnaire* exhibits the crest-feathers equally and stiffly elevated round the back part of the head, a state in which we have never seen them in our bird, and which, on account of their laxity, and the lower position of the middle ones, we doubt their power to assume. It is right, however, to remark that the crest is stated by Linnæus and other authors to possess this power of elevation round the head in form of a crown, an ornament alluded to in the Spanish name of the bird, *Aguila coronada*, and in the trivial appellation, *coronatus*, affixed to the species by Jacquin.

We believe that we have now restored to this bird all the original synonyms which unquestionably belong to it. The original descriptions of Hernandez, Linnæus, Jacquin, Mauduyt, Daudin, and Sonnini; and the figures of Dillon, Shaw, Cuvier, Vieillot, and Temminck, are such as to leave no doubt upon our minds of the accuracy of the references to those authors. We have purposely abstained from mentioning others which have been occasionally quoted, but which either do not appear to us to be satisfactorily determined, or are evidently founded on mistake. Of the former class the Ouyra-Ouassou of Lery, or Royal Bird of Prey of Brasil, may serve as an example; of the latter, the Calquin and Tharu of Molina. Leaving out of consideration these doubtful, or worse than doubtful, synonyms, we are compelled to restrict the species within narrower geographical limits than those which are usually assigned to it; for we have no certain proof of its extending much beyond the equator to the south. From Hernandez and Linnæus we learn that it is found in Mexico, where it has recently been met with, we believe by Mr. Bullock. Jacquin's specimen was obtained in the mountainous country in the neighbourhood of the river Magdalena in New Grenada. The specimen seen by Mr. Dillon in the Royal Menagerie at Madrid, as we have before mentioned, was brought from Caraccas; and Sonnini discovered the species in Guiana, where, however, he states it to be rare. It seems indeed to be no where abundant; a fortunate circumstance when we consider its tremendous powers of destruction.

The Harpy is so bold, according to Hernandez, that it does not scruple to attack the most ferocious beasts and even man himself; but this attribute is probably as much exaggerated as its docility when he adds that it may be tamed and trained to hawk as readily as the

rest of the accipitrine tribe. He states also that it is quarrelsome, sullen, and fierce, and preys not merely upon birds, but upon hares and other similar animals. Linnæus adds to this account, probably on the report of the keepers of the Spanish Menagerie, that it is capable of splitting a man's skull with a single blow of its beak. Mauduyt states that he had been informed by travellers that it commonly feeds upon the two species of sloth which are found in the forests of Guiana, and carries off in its talons fawns and other young quadrupeds. These details are confirmed by Sonnini, who describes it as living perfectly solitary in the depth and darkness of the thickest forests, where of course it is seldom disturbed by the prying eye of curiosity. He himself observed it perched on a lofty tree on the banks of the Orapu, where it seemed altogether motionless, and uttered no cry. His shot having only broken its wing, he fastened it by one leg to his boat, in which position it remained for several days, displaying no symptoms of mischievousness, but constantly refusing all kinds of food. This was the specimen called by him *Aigle Destructeur*. Of the *Grand Aigle de la Guiane* he met with only three individuals in the course of his journeys in the interior, and was the first to make them known in the colony, where they had never been seen before.

These scattered notices comprise all that is known of its history in a state of nature. In captivity there is little to distinguish its manners from those of the other birds of its tribe. An individual taken from the nest, in the possession of the elder Jacquin, became so tame as to suffer its head to be handled and scratched; but unfortunately this specimen was found dead on its passage to Europe, having fallen a victim, as was supposed, to the vengeance of the sailors, whose monkeys it had

destroyed. These animals in their gambols unconsciously approached too near its cage, and were seized by its powerful talons; it devoured them with almost all their bones, but not without skinning them, an operation which it uniformly performed previously to consigning them to its maw.

The Society's bird, as stated in the List of the Animals in the Garden, "was obtained in 1822, before it had attained its mature plumage, by Robert Hesketh, Esq., his Majesty's Consul at Maranham, near the mouth of the River Amazon; and was given by him to Captain Edward Sabine, R. A., by whom it was brought to England in the spring of 1823, and presented to the Horticultural Society, in whose Garden at Chiswick it has since lived." In the autumn of 1829 it was transferred to the Menagerie of the Zoological Society, of which it now forms one of the most striking features. It is said in the List that "it is considered very rare in the part of South America from which it was brought;" and we may add that this is the most southern locality in which we have any authentic testimony of its having been found. The specimen is in the finest plumage, and seems perfectly familiarized with captivity.





THE JAVANESE PEA-FOWL.

PAVO JAVANICUS. HORSE.

WE are indebted to Asia for the most magnificent as well as the most useful of our gallinaceous birds. All the different species of fowls from which our domestic breeds originally sprung, together with the Pheasants and Peacocks that ornament our aviaries and museums, have been procured from the eastern parts of that continent, where they still exist in a state of nature, displaying their gorgeous plumage to the rays of a tropical sun. Of these birds the Pea-fowl are beyond all question the most highly favoured, in the graceful dignity of their form, the varied splendour of their plumage, the

tasteful disposition of their colours, and their means of displaying all these beauties to the greatest possible advantage.

Two species only of this group are yet known. Of these one has long been familiar to this quarter of the globe, having been introduced into Greece before the time of Pericles, and spread from thence throughout Europe. The other may be regarded as quite a recent acquisition. It was first made known by Aldrovandus from two drawings which formed part of a collection sent to the Pope by the Emperor of Japan; but for more than two centuries afterwards nothing additional was learned respecting it. About the commencement of the present century Dr. Shaw gave, in his *Zoological Miscellany*, a figure taken from an Indian drawing sent home by a friend; and in the year 1813 M. Temminck, in the second volume of his *Histoire Naturelle des Gallinacés*, published a sketch of the head, with a description, taken by Le Vaillant from a living individual seen by him at the Cape of Good Hope, whither it had been sent from Macao. It was subsequently observed by Dr. Horsfield in Java, as well as by Sir Stamford Raffles in Sumatra; and several skins were transmitted to the French Museum from the latter locality by MM. Diard and Duvaucel. A figure of one of these is given in M. Vieillot's *Galerie des Oiseaux*. Two noble skins, one from the Rafflesian collection and the other presented by Mr. Cross, form part of the Society's Museum; and two living specimens from the Burmese territory, presented by Lord Holmesdale, are exhibited in its Menagerie. This rare and beautiful bird is the subject of the present article.

The principal distinguishing characters of the Peacocks as a genus consist in the peculiar crest upon their heads, and the excessive elongation of their tail-coverts

and tail-feathers, which are capable of being elevated and expanded, and in this position form one of the most beautiful objects in the creation. The bill is of moderate size, slightly curved, with open nostrils placed near its base; the head is almost wholly feathered; the legs are armed with strong conical spurs; the hind toe touches the ground only with its claw; and the wings are short and concave, the sixth quill-feather being the longest of the series. In the species now under consideration, the prevailing tints are blue and green, varying in intensity and mutually changing into each other according as the light falls more or less directly upon them. In size and proportions the two birds are nearly similar, but the crest of the present species is twice as long as that of the other, and the feathers of which it is composed are regularly barbed from the base upwards in the adult bird, and of equal breadth throughout. The head and crest are interchangeably blue and green. A naked space on the cheeks including the eyes and ears is coloured of a light yellow behind, and bluish green towards its fore part. The feathers of the neck and breast, which are broad, short, rounded, and imbricated like the scales of a fish, are at their base of the same brilliant hue as the head, and have a broad, lighter, somewhat metallic margin; those of the back have still more of the metallic lustre. The wing-coverts are of the general hue, with a deeper tinge of blue; the primary quill-feathers are light chestnut. The tail-feathers and their coverts are of a splendid metallic brown changing into green; their barbs are extremely long, loose, silky, and somewhat decomposed; and the latter are almost all terminated by similar ocellated spots to those which mark the tail of the common species, and of nearly the same size. As in it they are of a beautiful deep purple in the centre, which is about the size of a shilling; this is surrounded by a band of

green, becoming narrow behind, but widening in front, and filling up a kind of notch that occurs in the blue; then comes a broad brownish band; and lastly a narrow black ring, edged with chestnut, all beautifully metallic, or rather presenting the hues of various precious stones, when viewed in certain lights. The bill, which is of a grayish horn-colour, is rather longer and slenderer than in the common species; the iris is deep hazel; the legs are strong, naked, reticulated, and of a dusky black; and the spurs, which are extremely large on one of the specimens in the Museum, are of the same hue.

On the other specimen, in which the long coverts and the tail-feathers are not developed, the spurs are much shorter and less robust. It is probably a young male, and is altogether a much less splendid bird. The plumes of the crest are but little barbed at the base, and consequently appear club-shaped towards the tip; the back is dusky chestnut with lighter transverse waves; and the primary quill-feathers are similarly coloured, as are also the tail-coverts, but with the waves more conspicuous and almost white. Of the two specimens at the Gardens one nearly agrees with the bird last described, but is probably still younger, being less brilliant and not having yet attained its spurs; the other is a variety analogous to the pied individuals that sometimes occur in the common species.

Linnaeus, taking Aldrovandus for his guide, named this species *muticus*, from an erroneous idea that it was destitute of spurs; but this assumption being now proved to be unfounded, we have adopted Dr. Horsfield's name of *Javanicus*, which is prior to that of *spiciferus*, applied to it by M. Vieillot. We have no particulars of the habits of these birds in their native state; but there can be no doubt that they are identical with those of the other species, as there seems to be but little difference between their manners in captivity.



THE RING-NECKED PHEASANT.

PHASIANUS TORQUATUS. TEMM.

Two beautiful species of Pheasant, for which our aviaries have been indebted to China, have been already figured at pages 59 and 63; and we now add a representation of a third, long since introduced into Europe from the same country, but the specific distinction of which from the Common Pheasant naturalized in our woods has been doubted by those who have seen it only in a domesticated, or perhaps a hybrid, state. M. Temminck, however, assures us that the original Chinese bird is perfectly distinct, differing from the Common Pheasant in many essential particulars; although the near affinity of the two races has given rise to the propagation of a hybrid breed, in which the characters of both are blended.

According to the author just quoted, the size of the Ring-necked Pheasant is always less, the expanse of its wings smaller, and its tail shorter in comparison.

The upper part of its head is tawny with a gloss of green, two white dashes surmount the eyes, and the rest of the head and neck are of a deep and brilliant green with a violet reflection, except where the white collar that gives name to the species passes round the neck. The feathers of the back are black in the middle, surrounded by a zig-zag whitish band, and tipped by a black arrow-shaped spot; those of the shoulders are black at the base, marked in the centre by a whitish pupil surrounded by a black ring, and chestnut with somewhat of a purple gloss towards their tips. The tail-coverts are light green, with loose silky barbs; the breast of a brilliant reddish purple; the sides pale yellow; the under parts and thighs black with a gloss of violet; and the tail-feathers olive green in the middle with broad black transverse bands. In the female there is a narrow band of short black feathers beneath each eye, which distinguishes her from the Common Hen Pheasant, from which she differs besides in the want of the black spots upon the breast, and the greater intensity of the transverse black bars upon her tail. The eggs too differ in being of a light blue, with a tinge of green, and marked by numerous little spots of a deeper hue.

The Ring-necked Pheasant is said to inhabit in China the same forests with the western species, but never to mingle with it in a state of nature. It is, however, less abundant in the north, where the other is most common. The Society's specimens, from which our figures are taken, are perhaps not altogether free from a slight mixture of the common breed. One of the hens has in the course of the present year assumed a portion of the plumage which is usually characteristic of the male; a change which occurs in female birds, when they are incapacitated, by age or disease, from laying eggs.



THE MARABOU STORK.

CICONIA MARABOU. VIG.

THERE are three gigantic species of Stork, natives of Africa and Eastern Asia, which might with propriety be regarded as the types of a separate genus, easily distinguished from the rest by the absence of plumage on their head and neck, the presence at the lower part of the latter organ of a fleshy enlargement which frequently becomes deeply pendulous in front, and the much greater proportional magnitude of their bill. These birds have become known to naturalists only in the course of the last half century. Dr. Latham, in

his General Synopsis of Birds, first described the Adjutant of the British residents at Calcutta, or Argala of the natives, under the name of the Gigantic Crane. His knowledge of this bird was wholly derived from Ives's Voyage to India, published in 1773; but he added, as probably applicable to the same species, some particulars obtained from Smeathman respecting the habits of a bird seen by that traveller on the western coast of Africa. On these indications Gmelin founded his *Ardea dubia*, which Latham, feeling no doubts upon the subject, very properly changed, in his *Index Ornithologicus*, into *Ardea Argala*, retaining the Indian designation. He had previously figured the Indian bird, from a drawing in Lady Impey's Collection, and given some additional particulars of its habits, in the first Supplement to his Synopsis, published in 1787.

Mr. Marsden, in his *History of Sumatra*, makes mention of a bird, called by the natives of that island Boorong-Cambing or Boorong-Oolar, which was generally believed to be of the same species with the Adjutant of Bengal. Dr. Horsfield, however, in a paper published in the thirteenth volume of the *Linnean Transactions*, separates a Javanese bird, which is probably the same with the Sumatran, as a distinct species. Subsequently M. Temminck, in his *Planches Coloriées*, has shown that the African species differs in several essential particulars from that of the Continent of India, and still more remarkably from that of Java and the neighbouring islands. By his figures of the three species, all taken from living specimens, he has so clearly determined their characters that it is scarcely possible they should ever again be confounded. In one point, however, he has himself given rise to a different kind of confusion, that of their nomenclature. They all furnish, in more or less perfection, the beau-

tiful plumes, superior in estimation even to those of the Ostrich, known by the name of Marabous, from their appellation in Senegal. But those of the Indian species being far superior to the others, M. Temminck has thought fit to transfer to that bird the name of *Ciconia Marabou*, and to rob it of its native appellation *Argala*, which he has bestowed upon the African. The consequence of this perversion of their native names has been such as might have been expected. In the late edition of his *Règne Animal*, M. Cuvier quotes the *Ciconia Marabou* of Temminck, with the characters of the Indian bird, as a native of Senegal; while he states the *Ciconia Argala* of the same author, to which he attributes the characters of the African species, to be brought from India. Nothing could more strongly evince the necessity of restoring, as Mr. Vigors had previously done, in the Appendix to Major Denham's Travels in Africa, the name of *Argala* to the Indian, and that of *Marabou* to the African, species.

The following is an abstract of the differences between these two birds as pointed out by M. Temminck. The African Marabou is smaller than the Indian *Argala*, the former rarely exceeding five feet in height with its neck fully elongated, while the latter not uncommonly reaches six or even seven feet. In the *Argala* the bill is enlarged in the middle, the crest of the upper mandible and the edges of the lower forming a curved line from the base to the apex; in the Marabou, on the contrary, all these lines are perfectly straight, and the bill forms a regular cone. The nostrils of the Indian species are ovate, those of the African oblong; the pouch, as it is termed, at the bottom of the neck, is in the former so much elongated as frequently to hang down more than a foot, while in the latter it is considerably shorter. The iris of the

Argala is nearly of a pure white, that of the Marabou of a dull brown. In the plumage too of the adult birds there is a striking difference, that of the back and wings in the Argala being of a uniform dull black, while in the Marabou the black has a greenish tinge, except on the larger coverts and secondary quill-feathers of the wings, which are of a deeper black, and edged more or less broadly and distinctly, according to the age of the bird, with bands of pure white. These latter differences, however, are not to be observed in the young birds, which can only be distinguished by their forms, the plumage of both species in the immature state being generally of a dull brown with a mixture of ash-colour and dusky black above, and dirty white beneath.

The bill in both species is of a livid yellow, and, in common with the dusky head, is more or less spotted with black towards the base. The neck and pouch are pale flesh-coloured when the bird is at rest, but as it becomes excited, they gradually assume a deeper tinge of red. These parts are furnished with a few scattered brownish hairs, which are more numerous on the young, and in the earlier stages of its growth resemble down. The tail is black, and the under parts, including the under tail-coverts, which furnish the celebrated plumes, pure white. In the Argala these plumes are frequently of a grayish slate-colour, but a similar variation has not yet been observed in the African species. On the other hand, the white of the latter is by no means so beautifully clear and brilliant as that which has obtained for the finest Indian plumes the first place in the estimation of connoisseurs. The legs when clean are of a dull black, but in the living bird they are generally stained of a grayish white by the mixture of the white dust that is shaken off from the plumage with other excrementitious matter.

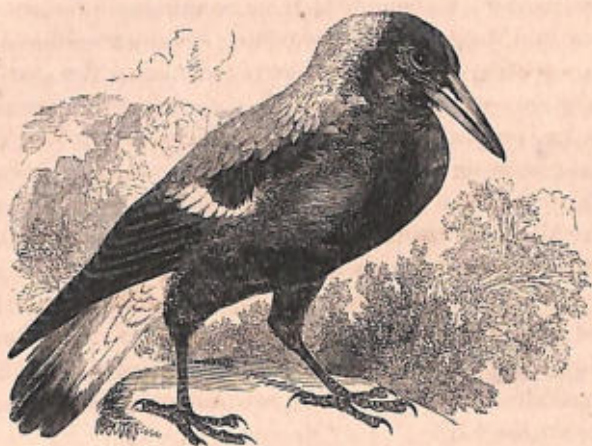
The Marabou Stork appears to inhabit nearly the whole of tropical Africa, extending southwards, according to M. Temminck, to the neighbourhood of the Cape of Good Hope, where, however, it is by no means common. M. Rüppel observed it on the banks of the Nile, Major Denham in the neighbourhood of the large towns of the interior, and Smeathman on the western coast. The plumes imported into Europe are brought chiefly from Senegal. In its habits this bird bears a close resemblance to the White Stork of Europe, but becomes still more familiar, and in consequence of its larger size renders more essential service in the removal of carrion, offal, and other nuisances. This important office, like the Adjutants of Calcutta, it shares with the Vultures; and both birds are universally privileged from all annoyance, in return for so meritorious an exertion of their natural propensities. They seem to be constantly attracted by the heaps of offensive substances collected in the villages and towns, which they devour without scruple and in immense quantities. The mode in which the Indian bird performs the functions of a scavenger has been repeatedly described by travellers; and Major Denham mentions his having frequently been a witness of the voracious and omnivorous habits of the African. Nothing seems to come amiss to its ravenous appetite, for when carrion is scarce it attacks reptiles, small birds, and even the lesser quadrupeds, which it usually swallows entire.

These birds are so peaceable in their manners, and so inclined to become familiar, that there is little difficulty in taming them. Dr. Latham gives an amusing account, derived from Smeathman, of the behaviour of a young individual which had been brought up in a state of domestication in the part of Africa where that traveller resided. This bird always took its place,

at dinner time, in the great hall, behind its master's chair, where it remained in expectation of its usual share in the meal. The servants had some difficulty in protecting the dishes from its attacks previously to the arrival of the guests: they carried switches for the purpose, but it would frequently watch its opportunity and snatch some favourite morsel before they were aware of it. In this way it had been known to swallow an entire boiled fowl at a single mouthful. It was permitted to fly at large about the island, and roosted very high among the silk-cotton-trees, from the tops of which, even at the distance of two or three miles, it would espy the servants carrying the dishes across the yard, and dash down among them as they entered the hall.

The attitudes of these birds are particularly curious, and frequently not a little ludicrous. At rest, they either stand upon one leg with the neck withdrawn and the bill brought forwards towards the breast, or sit upon the ground with one or both legs directed straight before them. But when excited they elongate their necks, and stand at their full height, menacing with their large bills, which are, however, too light to inflict any serious injury, even were the birds courageous enough to attempt it.





THE PIPING CROW.

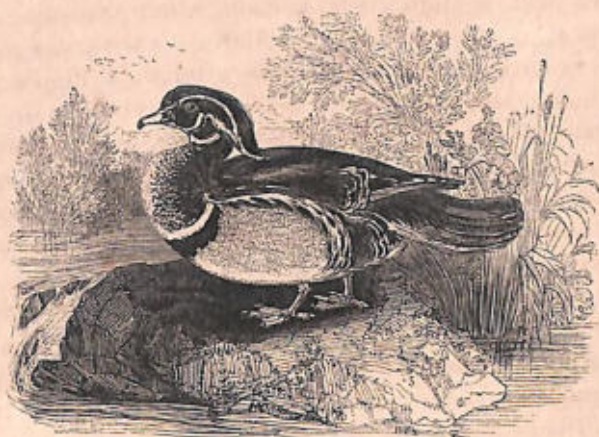
BARITA TIBICEN. CUV.

THE genus *Cracticus* of Vieillot is placed by M. Cuvier, under the name of *Barita*, in the family of Shrikes, to some groups of which it must be confessed that it bears a striking analogy. But it is so obviously connected by affinity with the Crows, that we cannot hesitate in adopting the arrangement of Mr. Vigors, which places it in the same family with the latter, and in immediate contact with them. Its essential characters consist in a long hard bill, of considerable strength, convex on its upper surface, slightly hooked at the tip, and having both its mandibles notched towards the extremity; lateral and longitudinal nostrils placed near the base of the bill; robust legs, with the outer toe attached to the middle one as far as the first joint, and the inner wholly free; an elongated hind toe; and strong curved claws.

The present species is about the size of our Common Crow, and has much the same general proportions. The neck behind, and a widening space extending over the shoulders and back, together with the bases of the wing-coverts, are white with a tinge of bluish ash-colour; the tail coverts both above and below, and about one-third of the tail itself at the base, purely white; and all the rest of the plumage deep black. The bill is bluish at the base and black at the tip; the iris reddish brown; and the legs and claws are dusky black.

This bird is a common inhabitant of New South Wales; but has only lately been figured for the first time in the Zoological Atlas to M. Freycinet's Voyage round the World. MM. Quoy and Gaimard, the naturalists of that expedition, state that they saw numbers of the species on the Blue Mountains, living in small troops. The individual figured by them was brought to France alive; it was very quiet, and suffered itself to be caressed without evincing any uneasiness. On board ship it was a source of great amusement, in consequence of the facility with which it mimicked the notes of other birds. In imitating the young cock in particular, the deception was complete; and it clucked and cackled like a hen. At Port Jackson it had been taught to whistle a variety of airs, which it had partly forgotten; but it readily recovered them, when prompted.

Mr. Caley's notes inform us, on native authority, that these birds build their nests in trees of sticks lined with grass, and have three young ones. In the morning they make a loud whistling noise high up in the trees. They do not appear to be migratory, and are found only in particular places.



THE SUMMER DUCK.

ANAS SPONSA. LINN.

ALTHOUGH it is not always easy to determine the precise limits of the divisions that have been attempted by various authors in the Linnean genus *Anas*, those of its species which are commonly known by the name of Ducks may for the most part be readily distinguished from the Geese and Swans by several striking characters. Thus their bills are broader at the base than deep, and of nearly equal breadth throughout, with the upper mandible hooked at the tip; their nostrils are placed nearer to the base and more on the upper surface; their cheeks are entirely covered with feathers; their necks are only of moderate length; their legs are short and placed behind the centre of gravity; and the first and second quill-feathers of their wings are the longest. The species thus characterized, amounting to

upwards of a hundred, and varying greatly in the details of their habits, seem to require and to be capable of still farther subdivision; and M. Cuvier has set an example in this respect, which has since been generally followed. For his primary divisions he employs the structure of the hinder toe, which in one set is perfectly simple, while in the other it is bordered by a web. In the former the head is generally smaller, the feet less expanded, the neck of greater length, the bill more equal, the wings longer, and the body less plump. They walk with greater facility; feed on water-plants and their seeds, as well as on fishes, reptiles, and insects; prefer fresh water; possess great powers of flight; and seldom dive unless pursued. The Domestic Duck with the species most nearly related to it, including the one figured at the head of the present article, make part of this division; in which they form a distinct group, characterized by their well-proportioned bill, without protuberance; their rounded nostrils; and the raised position or altered form of their outer tail-coverts.

The American Summer Duck, one of the most beautiful birds of its family, is considerably smaller than the domestic species, its total length being about nineteen inches, and the expanse of its wing less than two feet and a half. In the male, the upper part of the head is of a deep metallic green, with the feathers of the dependent crest terminating in a rich violet. A line of pure white passes in an elegant curve from the base of the upper mandible above the eye, and a second extends beneath and parallel to the first from immediately behind the eye. The cheeks and sides of the neck at its upper part are violet; and the entire front of the latter, with a collar round its lower part, and two processes like the horns of a crescent bounding the cheeks behind, white. The breast is deep brown,

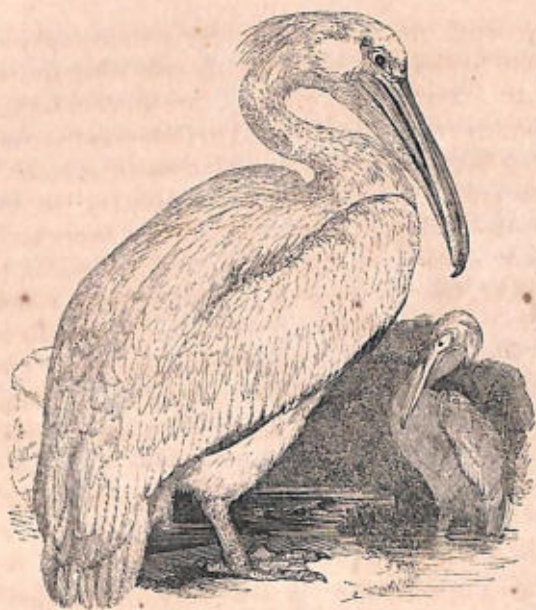
marked with triangular spots of white, which are very small anteriorly, but increase in size towards the abdomen, where they spread into the general white of that part. A broad white crescent, followed by another of deep black, bounds the posterior part of the breast on either side. The back and tail are dusky, with a metallic gloss of green; the primary quill-feathers of the wings dusky, with a kind of bloom of bluish violet; the secondaries greenish-blue tipped with white; and the wing-coverts violet-blue tipped with black. The sides of the body are marked by fine transverse undulating lines of black on a drab-coloured ground; immediately beneath the wings are placed a series of broad alternate crescent-shaped bands of black and white; and the lateral tail-coverts, which are loose and hair-like in their texture, exhibit a beautiful metallic gloss. The bill is red, with a black margin and a patch of black extending from between the nostrils nearly to the strongly hooked tip, which is also black; the iris orange red; and the legs and feet reddish yellow.

In the female the crown of the head is deep purple, with a bar of white behind the eye; the throat white; the neck and sides of the head of a deep drab; the breast dusky, with large triangular spots of white; and the back dark glossy brown, with varying shades of green and gold. In other respects her colours nearly resemble those of the male, except that she wants the fine pencilling of the sides, and the long floating hair-like coverts of the tail.

We learn from Wilson that this elegant species is familiarly known in every part of the United States from Florida to Lake Ontario; and it is equally abundant in Mexico and in many of the West India Islands. Its name of Summer Duck was given to it by the Anglo-Americans on account of its usually migrating

to the south during the winter; but in some of the southern states it is occasionally met with throughout the year. Its favourite haunts are the solitary, deep, and muddy creeks, ponds, and mill-dams of the interior, which it seldom quits to visit the sea-shore. In Pennsylvania the female generally begins to lay late in April or early in May, and instances have been known in which the nest was constructed of a few sticks laid in a fork of the branches of a tree. More commonly, however, the inside of a hollow trunk is selected for this purpose, from which circumstance the bird has sometimes been called the Wood Duck. The eggs, which are very numerous, for Wilson found thirteen in one nest, are exactly oval, smaller than those of a hen, with a finely grained surface, of the highest polish, and slightly yellowish. The female appears, from a curious history given by Wilson, to make her nest in the same spot, if undisturbed, for several successive years. This species is seldom seen in flocks of more than three or four, and most commonly in pairs or singly. Their food consists principally of acorns, the seeds of the wild oats, and insects; and their flesh is said to be inferior to that of the Blue-winged Teal, but they are nevertheless frequent in the markets of Philadelphia.

The Summer Duck is very easily tamed, and even becomes so familiar as to suffer its back to be stroked with the hand. Wilson was informed by a credible witness whom he names, that he had seen a whole yard swarming with Summer Ducks, tamed and completely domesticated, which bred as well, and were as familiar, as any other tame fowls. In Europe their great beauty has long procured them a place in fancy collections, of which they form a conspicuous ornament.



THE PELICAN.

PELECANUS ONOCROTALUS. LINN.

THE family of Swimming Birds to which the Pelicans give name is distinguished from all the other subdivisions of that order by the extension of the membrane connecting the three anterior toes in such a manner as to include the posterior also, which is thus brought forward as it were into the same series with the rest. The birds of this family consequently offer the most perfect examples of a completely webbed foot. They were all regarded by Ray as forming a single genus, from which Linnæus subsequently withdrew the Tropic-bird and the Anhinga, as the types of two new generic forms. Brisson and later naturalists have with great propriety carried still farther the principle of subdivision adopted by Linnæus; and the genus *Pelecanus* of the

latter has been dismembered into four parts, of which the Cormorant, the Pelican, the Gannet, and the Frigate-bird, each distinguished by essential modifications both of structure and habits, form the respective types.

In the true Pelicans the bill is of great length, broad in proportion, flattened from above downwards, and perfectly straight, with the exception of a slight hook at the middle point of the upper mandible; the edges of both mandibles are entire, being perfectly free from denticulations; and the lower is formed of two long slender flexible branches, united together only at the tip, and having the intermediate space occupied by a widely dilatable membranous pouch, which extends for some distance down the fore part of the neck. The middle part of the upper mandible forms a slight projection, bounded on either side by a narrow groove, in which, near the base of the bill, are situated the almost imperceptible nostrils; the eyes are surrounded by a naked space continuous with the base of the bill; the neck is rather long; the body large; the legs short, and naked above the knee; and the wings of moderate length, with the first quill-feathers the longest. The tongue is so short as to have been entirely overlooked by the earlier writers.

The White or Common Pelican is, as the first of these names implies, almost entirely white when in its adult state. The quill-feathers, however, which are scarcely visible when the wings are closed, are black; and the whole plumage, as the bird advances in age, exhibits a slight tinge of flesh-colour, which is sometimes mixed with a shade of light yellow. The bill is at this period of a dull lead-colour on the sides of the lower mandible and along the middle line of the upper, which is yellowish in the intermediate part and reddish at the edges, the hooked tip especially becoming of a bright red. The iris is deep brown; the naked part of

the cheeks flesh-coloured; the pouch of a light straw-colour; the legs and web dingy yellow, with somewhat of a leaden cast; and the claws black. On the greater part of the head and neck the plumage is nothing more than a short close even down, gradually passing into feathers, and forming on the back of the head a kind of tuft which falls downwards over the hinder part of the neck.

The young birds, a pair of which are now exhibited in the Society's Collection in the same enclosure with the old, have the feathers of their back and wings of a grayish brown with lighter margins, the quill-feathers dusky, those of the neck tinged with lead or ash-colour, and the under parts dirty white. The bill, pouch, and naked parts of the cheeks, are of a livid gray, spotted on the former with patches of a deeper hue, and the legs and feet are nearly of the same dull leaden tinge. Birds brought in this state from the eastern islands of Asia have been described by various authors as a distinct species.

When fully grown, the Common Pelican is almost the largest bird of its order, measuring from five to six feet from the extremity of its long bill to the tip of its rounded tail, and from ten to twelve in the expanse of its wings. The extent of these latter organs, together with the extreme lightness of the bony structure (which is capable of receiving a large quantity of air), enable the bird to soar to a very considerable height, and to remain long upon the wing. Its bill, frequently sixteen or eighteen inches in length, and two or even more in breadth, has but little strength; but the fish on which it preys are immediately consigned to its pouch, in which it speedily accumulates a sufficient store to serve it for a meal, and then retires to some neighbouring rock to satisfy its voracity, which is by no means trifling, from the contents of its wallet. This part is

so highly distensible as to be capable of containing from two to three gallons of water. It serves also as a reservoir for the food which the old birds bring home to their young, and which they disgorge into the throats of the latter by pressing the bill upon the breast; an action that has given rise to the fable of the Pelican feeding its young with its blood. In the same manner the males supply the wants of the females when sitting.

The White Pelicans nest in rocks on the shores of the sea, of large rivers, and of lakes, in almost every part of the Old World, excepting the most northern regions. Buffon gives a curious account of the manner in which they sometimes act in concert when in pursuit of their finny prey; and this fact is confirmed by some late observations of M. Roulin upon an American species. The latter adds that when a single Pelican is in search of food, it wheels round and round at the height of fifteen or twenty feet, and as soon as it perceives a fish, darts upon it from above with inconceivable rapidity, displacing the water around it for a considerable distance. Should it fail in its attack, which rarely happens, it rises again to repeat the same manœuvre.

In captivity the Pelicans, like most of the Swimming Birds, are perfectly contented, harmless, and familiar. Their flesh is said to be far from palatable.





THE SMALL CAPE EAGLE.

AQUILA VULTURINA. SMITH.

THIS fine little Eagle appears to have entirely escaped the notice of Le Vaillant, and of all the other writers on the Ornithology of the neighbourhood of the Cape of Good Hope. It is, however, as we learn from Dr. Smith, its first and hitherto sole describer, found throughout the whole of South Africa. M. Cuvier may possibly allude to it in the new edition of his Règne Animal, where he mentions in a note, as belonging to the group of genuine Eagles, *Le petit Aigle du Cap* (*Falco nævioides*, Cuv.) characterized by a mixture of brown, fawn-colour, and dusky black. But this slight indication, although containing nothing repugnant to the supposition of the identity of the two birds, is by no means sufficient to establish it. We are therefore compelled, more especially as we believe Dr. Smith's

name to have the advantage of priority of publication, to adopt the trivial name of *vulturina* in preference to the doubtful synonym of *nævioides*. The latter, it must be admitted, would be peculiarly applicable to the general appearance of our bird, which bears a striking resemblance to the *Aquila nævia*, the Rough-footed Eagle of Dr. Latham's General Synopsis. We may add that it has nothing in common with the *Falco vulturinus* of Daudin, founded on the Caffre of Le Vaillant, a bird as large as the Golden Eagle, with the whole of its plumage uniformly black, agreeing with the Sea-Eagles in the nakedness of its legs, and approaching the Vultures in the form of its beak and talons. From this latter peculiarity, which is strongly insisted on by Le Vaillant, Daudin derived its name. That of Dr. Smith's species seems on the contrary to bear no reference to such a resemblance, of which the bird itself is entirely destitute; but to have been given solely for the purpose of indicating the singular kind of partnership association stated by the author to exist between the Vultures and this apparently much more noble bird. Whether the same specific name should be suffered to exist in two groups so nearly allied as to be still regarded by many naturalists as forming part of the same genus, is a question which we must leave to the decision of those who are interested in its solution.

The Society's specimen, the only individual of the species that we have yet seen, was presented by the Hon. Mr. Melville in the summer of 1829. At that time it was stated to be in its first year, and it has since passed through two of the gradations towards its fully adult colouring. As we have not ourselves had an opportunity of observing it in its mature state, we copy Dr. Smith's description, handed to us, immediately after the arrival of the bird, on a printed slip,

evidently cut from some publication, probably a newspaper. We should conjecture that this might be the South African Commercial Advertiser, a journal in which many scientific papers have, we believe, been from time to time communicated to the inhabitants of Cape Town and the neighbouring settlements, but to which we regret that we have it not in our power to refer. The description, which Dr. Smith states to be taken from a female, is as follows. The reader will observe that the primary and secondary quill-feathers are twice described, and with some little discrepancy; for the reason above given, we cannot pretend to reconcile the apparent contradiction.

“Front, crown, neck, interscapulars, and back, pale tawny, with here and there brownish variegations; tail-coverts tawny or dirty white; shoulders varied tawny and dark brown; scapulars blackish brown, more or less distinctly tipped with reddish white; primary quill-feathers blackish brown, some of them edged on outer vanes with tawny red, and all tipped with reddish white; secondaries dark dirty brown narrowly edged and tipped with reddish white; primary quill-feathers black; secondaries blackish brown on their outer vanes, on the inner grayish variegated by many transverse dark bands; tips of all reddish tawny; tail rounded, brownish gray, and much mottled by partial indistinct dusky black transverse narrow bands; tips of feathers all tawny; under parts tawny with brown variegations, particularly numerous on the flanks and anterior part of the belly; thighs dark ferruginous; toes and cere yellow; claws dark horn-coloured; bill a livid blue towards cere, dark horn-coloured towards apex; eyes reddish brown. Length of bird about two feet four inches; feeds commonly upon carrion; and is generally found in company with Vultures throughout

the whole of South Africa. The young are of a uniform tawny chestnut colour, and without the brown variations observed on the old."

At the period of its arrival in the Society's Gardens, the bird had begun to exhibit a dusky colouring on the quill-feathers of the wings, which became in a few months of a dull black, the rest of the plumage still retaining its nearly uniform shade of brown. The change which took place during the succeeding year, and which appears to be still in progress at its close, has introduced a considerable portion of dusky black, spread in patches over the wing-coverts and sides of the neck; and the brown has become in some degree mottled with different shades on various parts of the body. The beak is at present of a deep black; as are also the claws, the two outermost of which are small and but slightly arched, while the innermost is much elongated and strongly curved. The gape of the mouth extends backwards to beneath the middle of the eyes, the irides of which are of a bright brown.

Of the habits of this bird in a state of nature, we know nothing more than is communicated by Dr. Smith in the foregoing extract; but we may perhaps be permitted to express a doubt of its feeding habitually upon carrion. In captivity it has, as might be expected from its structure, all the manners of a true Eagle.





THE WEDGE-TAILED EAGLE.

AQUILA FUCOSA. CUV.

THE Wedge-tailed Eagle may be regarded as the type of a distinct form in the important family to which it belongs, agreeing with the genuine Eagles of the Old World in most points of its general structure, and more particularly in its lengthened wings and feathered legs, but differing from them in the character from which it derives its name. This form is peculiar to the continent of New Holland, where it appears exclusively to occupy the place of the even-tailed species of the European and Asiatic group, none of which have hitherto been detected on any part of the Australian coast.

Two specimens of this rare species of Eagle were brought from New Holland by the naturalists of Bau-

din's expedition, and deposited in the Paris Museum. One of these was figured and characterized by M. Cuvier, in the original edition of his *Règne Animal*, under the name of *Aigle à Queue Etagée* corresponding with the English denomination which we have adopted. It seems to have been ticketed in the gallery of the Museum with the name of *Aquila fuscosa*, under which appellation it is mentioned in the Supplement to the *Dictionnaire des Sciences Naturelles*, in the English translation of M. Cuvier's work, where it is likewise figured, and in the new edition published by M. Cuvier himself. But this unmeaning term has probably crept in by mistake for *fuscosa*, into which M. Temminck has converted it, which Mr. Vigors has since adopted, and which we have retained as being at least capable of some explanation, although its applicability to the present species is far from obvious. M. Temminck's figure, given in an early number of the *Planches Coloriées*, appears also to have been taken from one of the specimens in the French Museum, the only other individual to which he refers, that contained in the Museum of the Netherlands, being described by him as differing very remarkably in its colours.

In the Society's specimen, probably an adult bird, the general colour is a deep dusky brown or dull black, with a rufous tinge on the head and back of the neck, which is also present, but in a less degree, on the breast. The wing-coverts are partially margined with white, but the anterior ones are bordered with light brown. The beak is black at the tip and horn-coloured at the base, the latter hue extending over the cere to the naked part of the face, which passes as far backwards as the eyes, and has a very slight tinge of red. The iris is light brown; the toes and short visible portion of the legs above are yellowish horn-coloured; and the talons black. The form, with the exception of

a somewhat slenderer make, and of the wedge-shaped termination of the tail (the middle feathers of which exceed the outermost by about four inches), is exactly that of the Golden Eagle of the European Alps; and the size not much inferior. The wings extend considerably beyond the middle of the tail. In all these particulars our bird very closely coincides with the Netherlands specimen, described by M. Temminck as being of a blackish soot-colour, with the back of the head and greater part of the neck isabella yellow spotted with brown, and dark brown edges to the wing-coverts. It agrees also with another bird which has not previously been suspected to belong to this species, the Mountain Eagle of Collins' Account of the English Colony in New South Wales, published in 1802, and containing therefore the earliest indication of the Wedge-tailed Eagle. In the figure there given the likeness is strikingly accurate in every particular, setting aside the wedge-shaped termination of the tail, which seems to have been overlooked. The size and form of the bird, together with its uniform sooty colour, excepting on the back of the head and margins of the wing-coverts, which are brown, are fully sufficient to determine its identity with the species now under consideration.

In M. Temminck's figure, which represents a bird regarded by him as a female, and which was probably also young, the colouring of the entire plumage is much brighter, being of a dusky brown, mixed on different parts with shades of a lighter brown; and having the throat dusky, the head and back of the neck of a bright brown, and the wings variegated by a mixture of lighter and deeper shades of brown. The tail too is marked beneath with indistinct bands on a fawn-coloured ground; and all its quills terminate in a narrow reddish border.

The habits of this fine bird can only be judged by analogy to be the same with those of the Mountain Eagles of the Old World, none of the travellers in New Holland, as far as we are aware, having paid any attention to the subject. Mr. Cunningham mentions that the Eagles in the neighbourhood of Port Jackson "prey upon the emews and other large birds, and also upon the young kangaroos." The individual figured by Collins was captured by Captain Waterhouse in an excursion to Broken Bay, and gave a proof of its strength by forcing its talons through a man's foot, while lying in the bottom of a boat with its legs tied together. During ten days that it remained in captivity it refused to be fed by any but one particular person. It was an object of wonder and fear among the natives, who could never be prevailed on to go near it. They asserted that it would carry off a middling-sized kangaroo. It was one morning found to have divided the strands of the rope by which it was fastened, and thus to have made its escape.

The bird now in the possession of the Zoological Society is, we believe, the first that has been brought to Europe in the living state. There is nothing in its manners to distinguish it remarkably from the other species of its tribe.





THE BRASILIAN CARACARA EAGLE.

POLYBORUS VULGARIS. VIEILL.

THIS handsome Bird of Prey forms the type of a new genus established by M. Vieillot, and regarded by him and most systematic writers as one of the connecting links between the Eagle and the Vulture tribes. Its resemblance to the latter depends chiefly on the partial nakedness of its head, the prominence of its crop, and the position of its eyes on a level, or nearly so, with the general surface. But it bears a much closer relation to the former in almost every other point of its general structure, as well as in its habits and mode of life; and for this reason we cannot hesitate in assigning it to the same tribe with the Eagles, admitting at the same time, with M. Temminck, that in some of its propensities it exhibits a curious analogy with the omnivorous tribes of Insectorial birds.

The essential characters of the genus *Polyborus* consist in a beak, somewhat elongated, compressed laterally, of considerable depth, strongly hooked at the tip of the upper mandible, and covered at its base by a hispid cere, the naked membrane of which is continued over the cheeks and surrounds the eyes; narrow elliptical nostrils placed somewhat obliquely near the upper edge of the beak; wings nearly equal to the tail in length, of a rounded form, with the third and fourth quill-feathers longest; rather long, naked, and reticulated legs; and claws of moderate length and curvature, but with little acuteness or power of grasping. From this combination of structure it results that the birds thus characterized, although very destructive in their habits, are incapable of a lofty flight, of taking their prey upon the wing, or of carrying it to a distant nest. They are more frequently seen walking, and walk better, than almost any other Birds of Prey; and have the advantage of a much more varied and extensive bill of fare than falls to the lot of the nobler species of their tribe. It is to this latter circumstance that M. Vieillot alludes in their generic appellation.

In the Brazilian Caracara the whole upper surface of the head is black, with the feathers slightly elongated backwards, and capable of being partially elevated in the shape of a pointed crest. The entire neck is of a light brownish gray, which also forms the ground colour on the breast and shoulders, but with the addition on these parts of numerous transverse wavy bars of a deeper brown. Nearly all the rest of the plumage is of a tolerably uniform shade of blackish brown, with the exception of the tail, which is at the base of a dirty white, with numerous narrow, transverse, undulated bands of a dusky hue, and in its terminal third black without any appearance of banding. The beak is horn-coloured at the tip and bluish at the base; the iris

hazel; the cere and naked cheeks of a dull red; the legs yellow; and the claws black. Such at least are the colours of the living specimen in the Society's Garden. Several changes, however, take place in the plumage of the bird as it advances in age, and these are well illustrated by an extensive series of specimens in the Museum in Bruton Street. So great in fact is the variation of colour in this species that scarcely any two descriptions of it correspond throughout, and the figures by which it has been illustrated differ from each other even more remarkably than the descriptions by which they are accompanied.

Marcgrave was the first to introduce into Europe the name of Caracara, the vulgar appellation of the bird in Brasil, derived from its hoarse and peculiar cry. But although M. Cuvier regards Marcgrave's Caracara as identical with our own, both the figure and description are so much at variance with the latter, that we feel ourselves compelled to adopt in preference the opinion of Professor Lichtenstein, founded upon the original drawing, that they belong to a totally different bird. We are consequently unable to trace the history of the true Caracara beyond the year 1784, when a figure and description were published at Vienna by the younger Jacquin, from his father's papers, under the name of *Falco Cheriway*. These we have no hesitation in referring to the present species, for in fact they approach more nearly to our own bird than any others that have yet been published. The principal differences between them consist in the markings on the breast and neck, which in the figure are more longitudinal than transverse; and in the very awkward foreshortening of the beak, which completely distorts its natural form. The former appears, from the specimens in the Society's Museum, to be one of the distinctive marks of the young bird.

A very complete description of the Caracara in its adult state, together with an ample account of its native habits, is given in M. D'Azara's work on the Birds of Paraguay. According to this author, the full-grown bird measures twenty-one inches and a half in length, and fifty in the expanse of its wings. Its colours are as we have just described them, except that the first six quill-feathers of the wings are white, marked with rays and spots of brown, and become blackish towards the point; the back is transversely rayed with brown and white, the latter predominating on its upper half, and *vice versâ*; the fore part of the neck and breast are traversed by dusky lines mixed with a larger proportion of white; the cere is of an orange hue; and the throat and sides of the head are almost white. This description very nearly coincides with that of M. Cuvier taken from specimens in the Paris Museum, and with the figure of one of these specimens given by M. Vieillot in his *Galerie des Oiseaux*. M. Spix, in his *Birds of Brasil*, has likewise given a figure of what he regards as the young of this species, which resembles M. Vieillot's in its form, except that the legs are longer and thicker, and the tips of the wings reach the extremity of the tail. In colour it is rather of a darker brown, approaching more nearly to our specimen; the throat is light brown instead of white; and the transverse waves of the breast and shoulders are replaced by longitudinal brown dashes upon a light ground. The cere and naked cheeks are in both of a bright yellow; indeed we have no where met with them of the same hue with those of the Society's living specimen, except in the description and figure of Jacquin. Prince Maximilian of Neuwied has also published, in his *Contributions to the Natural History of Brasil*, a description of the Caracara, with some additional particulars relative to its habits.

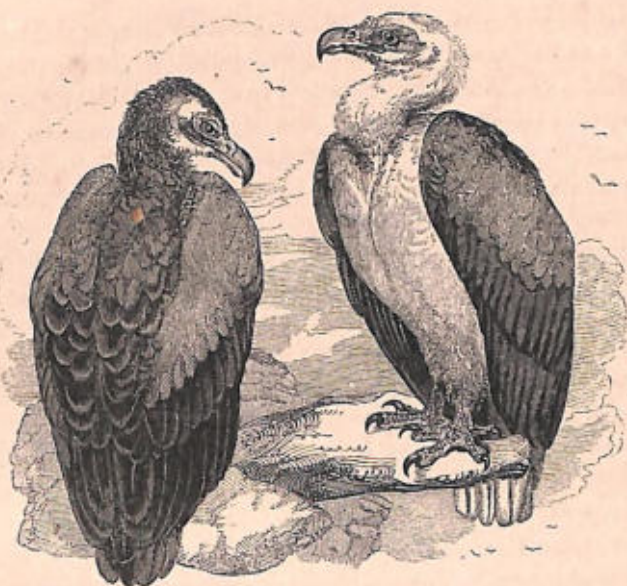
The range of this fine bird extends over a considerable part of South America. Jacquin's specimen was from the Island of Aruba, on the coast of Venezuela; and M. Cuvier states it to be the most common Bird of Prey in Brasil and Paraguay. In the former country, according to the Prince of Neuwied, it is most abundant in the south and east; M. Spix's specimens, on the contrary, were obtained from the more northern provinces. D'Azara speaks of it as less numerous on the Rio de la Plata than in Paraguay, where it is almost equal in number to all the other Birds of Prey put together. But this is by no means its southern limit, for it occurs in the list of animals collected by Captain King in the Straits of Magellan, published in the third volume of the Zoological Journal. It builds its nest, according to D'Azara, on the tops of trees, and in preference on those which are most infested with climbing shrubs. Where such are not to be found it selects a bushy thicket, in which it forms a spacious aerie of sticks and twining branches laid nearly flat, and lined with a thick layer of hair inartificially disposed. The female lays in August, September, or October, two eggs, much pointed at one extremity, and dotted and spotted with crimson on a ground of brownish red.

In its food the Caracara is by no means nice. It feeds, says D'Azara, on all the animals that are devoured by vultures, buzzards, hawks, falcons, and insectivorous birds; nothing comes amiss to it; it watches, seizes, and devours every thing. Carrion, toads, frogs; worms, snails, lizards, grubs, grasshoppers, winged ants, &c. form a part of its subsistence. It will also devour snakes and flies, and not only searches the hides of horned cattle for insects, but even turns up the ground in quest of worms. Two of M. Spix's specimens were shot in the act of extracting insects

from the hides of oxen. D'Azara states that it neglects the smaller birds, because it is unable to catch them; but this is denied by Prince Maximilian, who informs us that in the stomachs of those which he opened, he found the remains of small birds and insects, especially grasshoppers, which are extremely abundant in its favourite localities.

The Caracara lives either alone or in pairs; but sometimes four or five individuals unite to pursue a prey that a single one would be unable to master. In this manner D'Azara states that he has himself seen them hunt down red buzzards, herons, and other large birds; and it is generally believed that they contrive by the same means to destroy the American ostrich, young fawns, and lambs. Not content with the prey which they have themselves procured, they often feast upon that which has been taken by others. Thus, if a Caracara sees a Vulture devour a piece of flesh, it will pursue him and compel him to disgorge it. The sportsman too is not unfrequently foiled by the intervention of this bird, which will carry off his game before his eyes. It makes its advances, with as little shyness as the Vultures, to the very precincts of inhabited places, where, perched on the trees, on the house-tops, or stalking along upon the ground, it takes no pains to conceal itself. In fact no one troubles it, for its flesh is quite unfit to eat, and it is rarely that it makes itself obnoxious by an attack on the domestic poultry.

The Society's specimen became an inhabitant of the Garden in the course of the summer of 1830, and bears itself in captivity like others of the Eagle tribe, though it does not possess the sedate deportment of the more powerful among them.



THE VULTURINE CARACARA EAGLE?

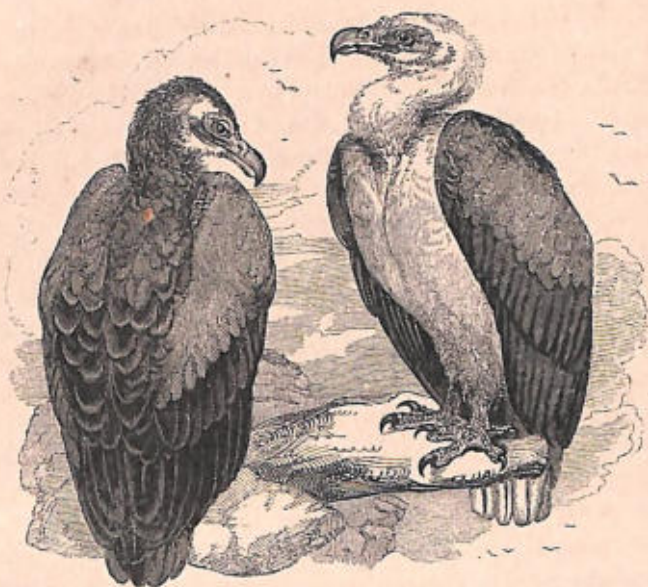
POLYBORUS? HYPOLEUCUS.

THE remarkable birds figured above furnish a second example of the series of intermediate forms, by means of which the continuity of affinity between the Eagle and Vulture families is placed beyond a doubt. They approach indeed much more nearly to the latter than the Brazilian Caracara, with which we have provisionally associated them. So striking is this approximation that they were actually sold to the Society under the name of Pharaoh's Chickens, the common designation of the Egyptian Vulture. From that bird, however, they differ in many essential particulars, the very distinct character of their beak being alone fully sufficient to remove any impression of similarity which might otherwise be produced by their coincidence in general

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appearance. In the latter respect, as well as in several of their technical characters, they are truly vulturine; while in many points of structure, in their air, and in their habits, they seem to approach more nearly to the Eagles, and especially to the genus *Morphnus* of M. Cuvier.

Although we have for the present referred these birds to the genus *Polyborus*, we are not by any means disposed to consider them as actually forming part of that group. We are rather inclined to believe that they will hereafter be found to be typical of another nearly allied subdivision, which, however, we do not conceive ourselves entitled to establish upon the mere inspection of the living birds. They present, as far as we have yet been able to examine them, the following generic characters. Their beak is deep, elongated, and nearly similar in form to that of the Caracara, but much more compressed or flattened at the sides; its upper surface is arched for the greater part of its length, the extreme point terminating considerably below the extremity of the lower mandible, which is embraced within it, and the opening being long, straight, and without dentation. The nostrils are placed transversely near the fore part of the naked cere, and are long-oval in their form; instead of being, as in the Caracara, removed to near the upper edge of the beak, sloping obliquely downwards and forwards, and having the appearance of an irregular slit. The naked space of the cheeks is less extensive, and less defined at its edges, but entirely surrounds the eyes, which are placed in both birds almost on a level with the general surface of the head. In the birds now under consideration the head is narrower and less flattened above, and the neck more elongated; both which circumstances, as well as the somewhat downy character of the feathers by which these parts are covered, tend to increase their resem-

blance to the Vulture tribes. The wings are long, reaching to or even beyond the extremity of the tail, and are rounded in their outline; but we cannot speak with certainty as to the relative length of their quill-feathers. The tail is even or slightly rounded; the rather long and slender legs are naked and reticulated from the joint downwards; the toes rather short; and the talons weak and but little curved, the inner and the posterior being alone capable of grasping with any degree of firmness.

The birds in the Society's Garden are the only specimens that we have seen of this interesting species, which appears to have remained up to the present period quite unknown to science. To judge from analogy they should be natives of South America, but in the absence of authentic information on the subject, and with our knowledge of the very extensive distribution of the long-winged species of the Raptorial Order, we will not venture to speak confidently as to the quarter from whence they were brought. When they first became inhabitants of the Menagerie, nearly two years ago, the plumage of both was nearly the same, but the change that has since taken place, more particularly in one of them, has proved that they were then in an immature state. From a note made in the summer of 1829 we find that the feathers of the head, neck, and under parts in both specimens were then tinged, like those of the back, of a brownish ash-colour; the upper wing-coverts pale brown; the lower brown; and the quill-feathers brownish-black. The beak was dark horn-coloured; the naked part of the cheeks, which was confined to a patch above and below the eye and behind the cere, had a tinge of flesh-colour; and the legs exhibited somewhat of a similar hue.

At present, however, the differences between the two

birds is very remarkable. That which is evidently the older, but probably only by a single year, has the feathers of the head, neck, and under parts, including the under tail-coverts, nearly of a pure white. The shoulders, part of the back, and a patch extending along the middle of each wing, are brownish ash-coloured; while the rest of the back, the wing-coverts, and the quill-feathers of the wings, are dusky brown, approaching to black. The tail, the extremity of which is just visible beyond the closed wings, is black at the base, with a broad band of white at the tip. The beak is of a uniform horn-colour, without any mixture of black; the cere grayish; the cheeks light flesh-coloured; the iris pale yellow; the legs dingy white; and the claws black. In the younger specimen, the naked cheeks remain less distinctly circumscribed; the bill and cere are more dusky, the former still retaining a darker band along its ridge; the iris is somewhat lighter; the general colour is of a dull ashy-brown, lighter on the back of the head and beneath, and showing some tendency to become whitish on these latter parts; and the quill-feathers are dusky brown. In this bird the wings exceed the tail in length by two or three inches. The gape of the mandibles is full two inches; their depth at the base more than three quarters of an inch; and the point of the upper descends for nearly half an inch beyond that of the lower. We should guess the entire length of the birds at from eighteen to twenty inches.

In manners these birds resemble the genuine Eagles, having the same upright attitude, subsisting entirely upon flesh, and refusing fish if offered to them.



THE WIDOW FINCH.

VIDUA PARADISEA. Cuv.

THE present bird affords a curious example of the manner in which tolerably expressive names are sometimes given to animals by mere accident. Edwards, the first modern writer by whom it was figured and described, states that he was informed by a gentleman lately arrived from Lisbon, that "the Portuguese call this bird the Widow, from its colour and long train." On this hint apparently Brisson constructed the French name of *Veuve* and the Latin name of *Vidua*, which have since been translated into all the languages of Europe, and now serve in their various modifications to designate this bird wherever it is known. The French naturalist had however overlooked the fact that Edwards had himself corrected his mistake, for such it was, in the Additions given at the end of his work, in the following terms. "In my description of this bird

I have said that it is called the Widow by the Portuguese, but I am since better informed that it is called the Whidah Bird, because it is brought frequently to Lisbon from the Kingdom of Whidah on the coast of Africa." Buffon, or rather Gueneau de Montbeillard, who wrote the ornithological part of his great work, attributes the error to the resemblance between the name of Whidah, or, as the Portuguese spell it, Juida, and the word which signifies widow in the language of the latter; but this term (*viuva*) is by no means so closely allied to it in sound as the English misnomer. Latham states by mistake that the name of Widow originated with Willughby, who only knew the bird by the description of Aldrovandus; but he rightly attributes the correction to Edwards, who appears from this history to have been also the unconscious author of the blunder.

The name thus accidentally given has now, however, been universally adopted both in popular and scientific language. In the latter the generic term of *Vidua* is applied by M. Cuvier to a well marked little group among the Finches, nearly related to the Linnets of our own climate, but differing from them in having two or more of the intermediate quill-feathers of the tail in the male birds lengthened in a very extraordinary degree. These elongated feathers were considered by Mauduyt and Montbeillard as tail-coverts; but M. Vieillot has satisfactorily shown that they form in reality a part of the tail itself. Although apparently placed above the other tail-feathers, they occupy the central station in the series, and are necessary to equalize the number of quills which the male birds exhibit in their summer dress, with those of the females, or of the males themselves in their winter plumage, when the intermediate feathers do not differ in any

respect from the rest. The number of tail-feathers is thus found to be twelve, as in the other Finches, and consists either of four long feathers and eight short ones, or when the number of long feathers is reduced to two, of ten equal feathers in addition. This latter circumstance would alone be sufficient to prove the justice of M. Vieillot's conclusion, which is now admitted by M. Cuvier, who formerly professed the contrary opinion. In one remarkable species, however, the twelve equal feathers of the tail appear to be independent of six elongated coverts by which it is shaded.

These birds have much of the manners, as they have, with the exception of the peculiar structure of their tails, all the organization, of the Linnets. In captivity, which they endure without much appearance of constraint, they are lively and active, jumping from perch to perch, and alternately raising and depressing their long tails with much vivacity. They are usually fed upon grain, with the occasional addition of green herbs; and are fond of bathing in the water which is placed in their cage. Twice a-year they are subject to changes of plumage, which alter the appearance of the male especially to such an extent, that it would be difficult to recognise in him the same bird. The long feathers, which are his peculiar attribute, fall off towards the end of autumn, and with the other changes that take place in his plumage, leave him little to distinguish him during the winter months from his plainer mate. But in spring he recovers his long feathers, his more brilliant hues, and his sharp but agreeable and varied note; the change being usually completed by the beginning of June. It is said that they live for twelve or fifteen years.

The male of the present species in his summer dress is throughout of a bright black, with the exception of the back of the neck which is half surrounded by a

broad lightish chestnut band; the breast, which is reddish brown; and the under parts, which are nearly white. It has four lengthened quills to the tail, the two longest of which measure nearly twelve inches, while the two shorter do not exceed eight, including a long, narrow, filamentous process by which they are terminated. During the winter, when it is destitute of the long tail-feathers, its head is variegated with black and white; its breast and back are of a dull orange covered with dusky spots; its quill-feathers are dark brown; and its under parts dirty white. The bill is dusky, the iris of a deep brown approaching to black, and the legs of a yellowish flesh-colour. The younger females differ but little in colour from the winter dress of the males, but after the third year they become of a dusky brown, which they preserve with little variation until they advance in years, when they assume more and more of the summer tinge of the male, but without his lengthened feathers.

The Widow-birds are natives of Africa, and are found in various parts of its western coast, from Senegal to Angola: it is said that they have also been brought from Mozambique. The present is more frequently seen in Europe than any of the other species of *Vidua*, but, as far as we are aware, it has not yet been bred in confinement.





THE WELCOME QUAIL.

ORTYX NEOXENUS. VIG.

THE rare species above figured belongs to the group of American Quails, characterized at page 29 under the generic name of *Ortyx*. From some observations, lately offered by Mr. Vigors before the Committee of Science and Correspondence of the Zoological Society, it appears that the number of species of this genus, which until within three years of the present time did not exceed four, or at the utmost five, (some of them very imperfectly known,) has partly by the researches of Mr. David Douglas, and partly by the additions made in various ways to the Society's collection, been increased to eleven. Of these no less than seven are contained either in the Museum or the Menagerie of the Society.

In size the present bird is smaller than the Californian Quail. Its crest is short, straight, directed backwards,

and composed of about half-a-dozen elongated feathers, of the same pale brown colour as the forehead in front of them. Round the eyes the brown becomes much paler, but assumes a rufous tinge as it passes backwards on either side of the head in two stripes extending from above and below the eye. Between these stripes, and on the lower and back part of the neck, a number of pale brown and somewhat pointed feathers alternate with broad black ones. The back is of a grizzled brown, with much darker patches; and this colouring extends to the tail, which is crossed by about eight wavy irregular lines of very pale brown. The wing-coverts are dark brown with light margins; and the quill-feathers dusky brown, some of them slightly marked on the edges with paler spots. The under surface of the body is dark brown, copiously marked with rounded spots, which are nearly of a pure white; they commence small on the neck, where they are somewhat dingy, and increase in size as they proceed backwards. The bill is black; the iris pale brown; and the claws horn-coloured.

From this description it will be seen that our birds differ in several particulars from the *Ortyx cristatus* and *Sonninii*; but it is possible, as Mr. Vigors has remarked, that they may be the females or young males of one or other of those species, which we have not had an opportunity of observing in nature.

The specimens in the collection having been purchased from a dealer, we cannot state with certainty from what locality they were brought; but as all the other species of the group are natives of America, there can be little doubt of their coming from the same quarter; and probably from the northern parts, as they have borne with ease the severity of two winters in company with the Californian species.



THE TIGER BITTERN.

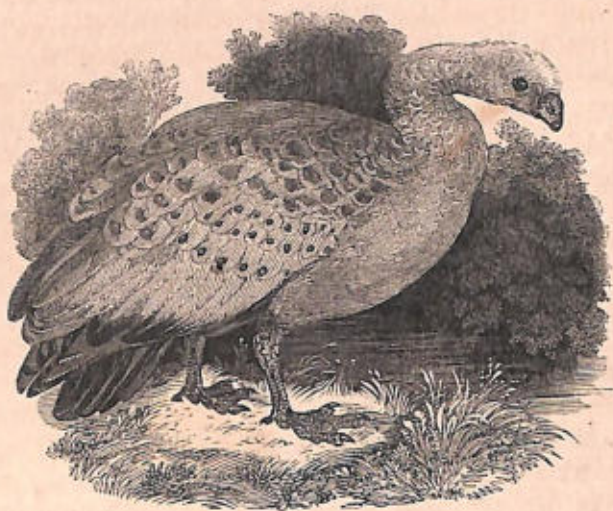
ARDEA TIGRINA. GMEL.

THE essential characters of the genus *Ardea*, given at page 137, are equally applicable to the present species, which belongs, however, to a different subdivision from the Common Heron there described. Its vulgar name of Tiger Bittern indicates its close affinity to the Common Bittern of Europe, with which it agrees in the comparative shortness of its neck and legs, the plumpness of its general make, and the dark ground-colour and still darker markings of its plumage. We cannot perceive in the appearance or manners of the living bird any grounds for regarding it, with M. Cuvier, as the type of a distinct subdivision of the genus; an opinion probably formed from the observation of badly stuffed specimens, or from the inspection of Buffon's figures of this and another nearly related bird, to both of which the artist has erroneously given the form and attitude of genuine Herons.

In size the Tiger Bittern nearly approaches its noisy European namesake, measuring about two feet and a half in length, when its neck is drawn out to its full extent. On the upper surface the ground colour of the plumage exhibits different shades of brown, transversely barred with black, the head and neck being somewhat paler in the ground, and the black markings assuming the form of spots rather than of bars. On the under surface the ground is still more pale, becoming almost white on the throat and abdomen, but crossed like the upper by numerous transverse dusky bars. The bill is of a dull greenish horn-colour; the iris light yellow; and the legs ashy gray.

The Tiger Bittern is a native of Guiana, where it makes its solitary dwelling in the savannahs, or during the dry season among the high grass, frequenting the banks of rivers, and watching the appearance of the frogs and other reptiles on which it feeds, awaiting its prey with the same melancholy air of abstraction which characterizes its European representative. It builds its nest upon the ground, and lays seven or eight roundish eggs. La Borde states that an individual kept in captivity in its native country was constantly on the watch for rats, which it caught with greater dexterity than a cat; but although it had been for two years domesticated, it always concealed itself in corners, and assumed a threatening air whenever it was approached.





THE NEW HOLLAND CEREOPSIS.

CEREOPSIS NOVE-HOLLANDIE. LATH.

IN the year 1802 Dr. Latham published, in the Second Supplement to his General Synopsis, the figure and description of a new bird, of which he had then seen only a solitary specimen. The characters of this individual appeared to our venerable ornithologist to require its location among the Waders, and to necessitate the establishment of a new genus for its reception. Impressed with the idea that the cere which covered the base of its bill was extended over the whole of its head and face, he gave it the generic name of *Cereopsis*, with a specific appellation indicative of its derivation from New Holland. Previously, however, to the republication of his General History of Birds, in 1824, he had seen a second specimen, which rendered it necessary for him to modify his former characters in several particulars, and induced him, although still classing it

with the Waders, to remove it to the end of that order, thus placing it in immediate apposition with the Swimming Birds, with some of which he could not fail to perceive that it evinced a manifest affinity.

On the authority of Dr. Latham, (for the bird itself was not for a long time known to exist in any other collection than that of the British Museum,) the ornithologists of the Continent continued to class the New Holland *Cereopsis* in the Wading Order, until M. Temminck figured it, about the year 1824, in his *Planches Coloriées*, observing that he placed it at the head of the Swimming Birds, with which its external form appeared to associate it. Another figure was soon after given by M. Vieillot, in his *Galerie des Oiseaux*, with the observation that he also had been induced to arrange it with the Swimming Birds, on account of the close affinity which its entire structure presented with that of the Geese. And subsequently M. Cuvier, who appears to have overlooked it entirely in the first edition of his *Règne Animal*, has, in the second edition of that work, arranged it close beside the Geese, as a simple subdivision of the genus *Anas*. There can be no doubt, from the observation of the living birds, that this is its proper place in nature. It has, however, a great affinity to the Wading Birds, which is shown by the nakedness of the legs above the joint and by the incomplete palmation of the feet, as well as by some particulars of its anatomy.

The characters which distinguish this bird from the Geese are not very important, but they are well marked and embrace striking modifications of various organs. They consist chiefly in the form of the bill, the naked part of which is extremely short, and forms a kind of broad truncated hook; in the very great breadth of the cere, which leaves but a small portion of the bill uncovered, and extends backwards to about half the distance

between the nostrils and the eyes; in the large open nostrils placed near the middle of the cere; in the somewhat greater length of the legs, which are more-over bare of feathers for some distance above the knees; in the mode of palmation of the anterior toes, the webs between which are so deeply cut out as to appear scarcely to reach beyond the half of their length; in the hinder toe not touching the ground even with its claw; in all the toes being more robust; and in the number of tail-feathers, which are sixteen in the *Cereopsis*, while they are only twelve in the Goose.

The New Holland *Cereopsis*, the only species of the group yet discovered, is about the same size as our Common Goose, which it nearly resembles in its general form, with the exception of the comparative length of the bill and legs. A broad patch on the top of the head is of a dull white; and the rest of the plumage of a dingy gray, deeper on the upper than on the under parts, having the extremity of each of the feathers of the back margined with a lighter band, and most of the wing-coverts and secondary quill-feathers marked with rounded dusky spots of from two to four lines in diameter. On the feathers of the back and shoulders the spots are much larger, assume an angular or semi-lunar form, and approach more nearly the general colour of the plumage. The quill-feathers both of the wings and tail are dusky black throughout the greater part of their extent. The naked extremity of the bill is black; the broadly expanded cere of a light straw or lemon colour; the irides light hazel; the naked part of the legs reddish orange; and the toes, together with their web and claws, and a streak passing for some little distance up the fore part of the leg, black.

It was in all probability a mutilation of the specimen first seen by Dr. Latham that induced him to refer this bird to the Wading Order; for in his original descrip-

tion the toes are said to be cloven, with the outer connected to the middle by a membrane at the base alone; and his figure scarcely exhibits even this slight connexion. In the same figure the black tip of the bill is made much too long, and is arched in a way that bears no resemblance to the bird itself; the whole head is represented as covered by a rough yellow skin, which exists in no specimen that we have seen; and the general colouring is much too dark. The learned author corrected, as we have before remarked, in his *General History of Birds*, some of the defects of his first description, but he still suffered a considerable portion to remain. The head is there said to be "covered, as far as the eyes, with a rough skin or cere," and is so represented in the amended copy of the plate; but the specimen in the British Museum referred to by no means justifies this assertion, for the cere or naked skin does not extend in it beyond the point which we have already indicated in our character of the genus. The toes are properly said to be "united by a membrane half way from the base," and a slight but very insufficient addition has been made to this part of the figure. But all the other errors of the original are retained in the amended copy, except that the general colouring being lighter is more consonant to truth, and allows the blackish spots upon the upper surface and wings to be more distinctly seen. Of the two figures that have since been published, M. Temminck's is decidedly the best, the only defect in it being the light yellow colouring of the legs, which, as is truly said in his description, should be of an orange hue. In his description it is farther said that a wrinkled yellowish skin covers the forehead, but this is borne out neither by the figure nor by the fact, and appears to have been inconsiderately adopted from Dr. Latham. M. Vieillot has fallen into the same

mistake, not only in his description but in his figure, which has also the same light yellow legs with that of *M. Temminck*. In other respects, were it not for the fading of the white used in the colouring, this is also a characteristic figure.

Such is the history of the genus *Cereopsis* as far as it has hitherto been investigated. But we have strong reasons for believing that the bird which forms its type has been unwittingly described by several ornithological writers under different names; and these names, if we are right in our opinion, must consequently be regarded in future merely as synonyms of the New Holland *Cereopsis*. *M. Labillardière*, in his account of the voyage of *D'Entrecasteaux*, which took place in 1792, mentions the occurrence, in *Espérance Bay* on the south coast of New Holland, of a new species of Swan, which he describes as rather smaller than the Wild Swan, of an ashy gray colour somewhat lighter beneath, with a blackish bill covered at the base by a tumid brimstone-coloured cere, and legs slightly tinged with red. This description agrees so well with our bird, that we cannot doubt of the identity of the *Cereopsis* with *M. Labillardière's* Swan. In the *Nouveau Dictionnaire d'Histoire Naturelle*, published by *Deterville* in 1803, *M. Vieillot* named this supposed species, in conformity with the description above given, *le Cygne cendré*; but in the second edition of that work, without quoting any new authority, and probably from mere hypothesis, he asserts that it is the young of the Black Swan of the same country, an idea too absurd to require refutation. It appears from *D'Entrecasteaux's* own account of his voyage, that the unfortunate *Riche*, another of the naturalists attached to the expedition, had described the same bird, which he calls a Goose, under the name of *Anas Terræ-Leeuwin*.

But the foregoing was not the only error which

M. Vieillot committed with regard to M. Labillardière's bird in consequence of the obscurity in which the true characters of the *Cereopsis* were then involved. A specimen, said to have been taken in Van Diemen's Land, was brought home by Labillardière, and deposited in the Paris Museum. On this individual, which he never suspected to be the same bird that he had previously designated le *Cygne cendré*, M. Vieillot founded a new species of Goose, the *Anser griseus*. It is impossible to read the description which he has given of this species, and not to recognise the *Cereopsis*. How he could afterwards figure, in his *Galerie des Oiseaux*, what we have every reason for believing the same bird, and in all probability the same individual specimen, under its true name of *Cereopsis*, without acknowledging his previous error, which certainly was of the most venial kind, it is not for us to conjecture. It is possible that he may in the interval have entirely forgotten his description of the Goose, for many of his works bear evident marks of haste and inattention. We have, however, thought it right to direct the attention of zoologists to this point, because, although the name of le *Cygne cendré* has never been adopted in our catalogues, that of *Anser griseus* still continues to be quoted without hesitation as a genuine and substantive species.

While the naturalists at home were thus puzzling themselves with respect to the location of this bird, the navigators who observed it in its native country seem for the most part to have regarded it as a species of Goose. Nearly all the voyagers who have visited the south coast of New Holland during the last thirty years mention a bird which we cannot doubt to be the present species, as extremely plentiful on various parts of that coast, and more especially in its neighbouring islands, from the Archipelago of the Recherche on the

west eastward to Bass's Strait. Swan Isles, in Banks's Strait, were so called by Captain Flinders, "because a European who belonged to the Sydney-cove [a vessel wrecked near that locality] had assured him that he had met with vast numbers of breeding swans upon them;" but Mr. Bass subsequently ascertained that these swans were more like geese, and were the same species that he had previously seen upon Preservation Island. He describes them, in the account of his voyage quoted by Collins, as "either a Brent or a Barnacle Goose, or between the two," with a long slender neck, a short head, a rounded crown, a short thick arched bill, partly covered by a pea-green membrane, and dove-coloured plumage set with black spots. Flinders, who accompanied Bass on this occasion, identifies the bird which he afterwards found at Lucky Bay and Goose Island, in the immediate vicinity of Espérance Bay, and which he justly regards as Labilardière's Swan, with that of Swan and Preservation Islands. It was found also in the latter locality by M. Bailly, one of Baudin's officers,* who in his relation inserted in Péron's *Voyage aux Terres Australes*, speaks of the Geese which frequent those islands as forming a distinct species, characterized by their nearly uniform brown colour, varied only by round spots of a deeper colour than the rest and of about a centimetre (rather more than the third part of an inch) in diameter. And lastly, according to the oral information given by Mrs. Lewin to Dr. Latham, the Cereopsis is found "in sufficient plenty in some parts of New Holland, and from its being so about Cape Barren, has obtained the name of Cape Barren Goose." Cape Barren Island, it should be observed, is one of the largest of Furneaux's group in Bass's Strait, of which Preservation Island is also one. With these concurrent testimonies, now for

the first time brought together, we think that there can be no question either of the identity of the species found at the different localities which we have enumerated, and so accurately described by the several writers whom we have quoted, or of its being the true *Cereopsis*.

M. Temminck states that we have as yet no positive information with regard to the manners, habits, and mode of feeding of the *Cereopsis*; but this assertion falls to the ground now that we have ascertained that the bird has been noticed by so many travellers. It is true that the limited opportunities that have occurred of observing it in a state of nature, have precluded the possibility of obtaining a complete history of its habits and mode of life; but the accounts furnished by various writers lead directly to the inference that it resembles the wild Geese of the northern hemisphere as closely in these particulars as in general conformation. We cannot state with certainty whether it is equally migratory; but Captain Flinders, who found it at one period of the year so abundant on Goose Island as fully to justify the appellation, adds that it was by no means so numerous at a different season, and this fact necessarily implies at least a partial change of locality.

In its manners it appears that it is by no means so shy as our northern Geese, a circumstance which probably depends on the little disturbance that it has hitherto met with in its native haunts. Labillardière tells us that many of those first seen by him suffered themselves to be taken with the hand, but the rest becoming apprized of their danger speedily took to flight. Considerable numbers were taken by the crew of Captain Flinders's vessel, both at Lucky Bay and Goose Island, by knocking them down with sticks, and some of them were secured alive. According to

M. Bailly those seen by him at Preservation Island evinced so little shyness, and suffered themselves to be approached so readily, that his boat's crew were enabled to procure without any trouble a sufficient quantity to victual them during their stay. The flesh of these Geese, as they are called, is described by Bass as being excellent; D'Entrecasteaux considered it much more delicate than that of the European Goose; and Flinders adds that on Preservation Island it formed the best repasts of his men. Mrs. Lewin simply states that it is well flavoured.

It would seem that this bird does not often leave the coast to visit the interior of the country, for M. Riche, who was lost by his companions for more than two days at Espérance Bay, never met with it in the course of his wanderings in search of them. M. Bailly states that on Preservation Island it takes up its abode on the grassy declivities; and Captain Flinders found it on Goose Island "amongst the grass and on the shore." It feeds, he says, upon grass, and rarely takes to the water. Its usual weight is from seven to ten pounds. According to Mr. Bass it has "a deep, hoarse, clanging, and though a short yet an inflected voice;" and to the accuracy of this observation we can ourselves bear testimony.

With regard to its domesticated habits little is known. Judging from Mrs. Lewin's communication to Dr. Latham, it would appear that it had at one time been introduced into the colony as a denizen of the farm-yard, for that lady stated "that with management it becomes very tame and familiar, so as to be domesticated with our common Goose." But its cultivation seems now to have been entirely abandoned, for we do not observe any notice of it in the numerous works treating of the colony that have been published of late

years, and MM. Quoy and Gaimard, the naturalists of a late French expedition which made a considerable stay at Port Jackson, expressly mention having seen a single "superb" specimen of this "very rare" bird feeding upon grass in the governor's garden.

The four living specimens in the Society's Garden, together with four others at present at the Farm or Kingston Hill, formed part of the extensive collection kept by his late Majesty in the Great Park at Windsor. They bred there as freely as the Emeus or any of the other animals of New Holland, and are all descended from one pair originally brought to this country. They are perfectly tame, and in their behaviour closely resemble geese, but show more disposition to become familiar. There can be little doubt that they exceed in number all the stuffed specimens that exist in public collections in Europe, the latter, so far as we are aware, being limited to one in the British, one in the Paris, and one in the Berlin, Museums.



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(ARRANGED ACCORDING TO THE SYNOPSIS AVIUM OF MR. VIGORS.)

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Mitu, <i>Cuv.</i>	129
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Yarrellii	227
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Order. GRALLATORES. *Illig.*Fam. GRUIDÆ. *Vig.*

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<i>purpurea, Linn.</i>	143
<i>tigrina, Gmel.</i>	313
<i>Platalea leucorodia, Linn.</i>	25
<i>Ciconia alba, Ray</i>	17
<i>nigra, Ray</i>	23
<i>Marabou, Vig.</i>	273
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Order. NATATORES. *Illig.*Fam. ANATIDÆ. *Leach.*

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Fam. PELECANIDÆ. *Leach.*

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FIG. 2.



