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[In the 27th cervical vertebra of *Plesiosaurus Manselii*, Mr. Hulke gives the measurements as :—

From front to back of centrum	2½ inches.
Width of centrum	4 „
Depth of centrum	3½ „

and in the pectoral region the distinctive proportions of width and depth become slightly more marked.

The more concave articular face of the centrum and less thickened peripheral margin of the Kimmeridge species confirm the specific distinction of the types.]

Pectoral vertebra.—The pectoral vertebra of *P. winspitensis* appears to measure—

From front to back of the centrum	1½ inch.
Width of centrum	2½ inches.
Depth of centrum	1¾ inch.

Thus the form of the articular surface of the centrum is broader from side to side than in the neck; it is also a little flatter. The neural spine is partly broken away; but, unless it be in a slightly greater development of the vertically elongated tubercle for the rib, there is nothing specially remarkable in the neural arch.

The specimens are still partly imbedded in the matrix, and the mass shows the impressions of portions of other vertebræ of the same individual. As a means of drawing attention to a locality which is likely to reward an explorer, I would record the species as *Plesiosaurus winspitensis*.

XXI.—*On the Condors and Humming-birds of the Equatorial Andes.* By JAMES ORTON, of Poughkeepsie, N. Y.*

THE condor has been singularly unfortunate in the hands of the curious and scientific. Fifty years have elapsed since the first specimen reached Europe; yet to-day the exaggerated stories of its size and strength are repeated in many of our text-books, and the very latest ornithological work leaves us in doubt as to its relation to the other vultures. No one credits the assertion of the old geographer Marco Polo, that the condor can lift an elephant from the ground high enough to kill it by the fall, nor the story of a traveller, so late as 1830, who declared that a condor of moderate size, just killed, was lying before him, a single quill-feather of which was twenty

* From a separate impression communicated by the Author.

good paces long! Yet the statement continues to be published that the ordinary expanse of a full-grown specimen is from twelve to twenty feet; whereas it is very doubtful if it ever exceeds, or even equals, twelve feet. A full-grown male from the most celebrated locality on the Andes, now in Vassar College, has a stretch of nine feet. Humboldt never found one to measure over nine feet; and the largest specimen seen by Darwin was eight and a half feet from tip to tip. An old male in the Zoological Gardens of London measures eleven feet. Von Tschudi says he found one with a spread of fourteen feet two inches; but he invalidates his testimony by the subsequent statement that the full-grown condor measures from twelve to thirteen feet.

The old names of *Vultur gryphus*, *V. magellanicus*, *Gypagus gryffus*, and *Zopilotes* are obsolete, and *Sarcoramphus gryphus* is universally adopted; but it is not yet settled that it is generically distinct from the other great vultures. Thus Sclater and Gurney put the condor alone in *Sarcoramphus*; while Gray and Strickland include the king vulture; and Vieillot and others add a third, the California vulture. The structure and habits of the condor, in our judgment, make it worthy to stand by itself. The king vulture belongs more especially to the plains; while the California species has straggling feathers on its head, builds nests in trees where it perches, and its time of incubation is only one month.

But a more important question, perhaps, is, whether there is but one species. Associated with the great condor is a smaller vulture, having brown or ash-coloured plumage instead of black and white, a beak wholly black instead of black at the base and white at the tip, and no caruncle. It inhabits the high altitudes, and is rather common. This was formerly thought to be a distinct species; but lately ornithologists have pronounced it the young of the *Sarcoramphus gryphus*. We wish this decision to be reconsidered; for there is some ground for the belief that the first impression is correct—that the “Condor pardo” (as the brown kind is called by the natives) is specifically distinct from the greater “Condor negro.” They are always spoken of as separate kinds at Quito, where certainly it would be known if one were the young of the other.

Mr. John Smith, an Englishman of intelligence and acute observation, and a resident of nearly twelve years on the slope of Antisana, where both kinds abound, said to us:—“I have heard it said that the brown condor is the young of the black. It cannot possibly be, for I have seen young condors with white beaks and a few white feathers in their wings. I have

also seen old condors with carbuncles on the head (which are said to come from age alone), and black beaks, and the body brown or ash-coloured all over." Bonaparte, in his 'American Ornithology,' gives a careful drawing of a young male, with a crest and with white patches on its wings—both features wanting in the brown. Lieutenant Gilliss declares, as the result of his observations on the Chilian Andes, that the brown kind is a different species. Further proof is wanted; but it is quite probable that another species must be added to the genus *Sarcoramphus*.

The ordinary habitat of the royal condor is between the altitudes of 10,000 and 16,000 feet. The largest seem to make their home around the volcano of Cayambi, which stands exactly on the equator. In the rainy season they frequently descend to the coast, where they may be seen roosting on trees; on the mountains they very rarely perch (for which their feet are poorly fitted), but stand on rocks. They are most commonly seen around vertical cliffs, where their nests are and where cattle are most likely to fall. Great numbers frequent Antisana, where there is a great cattle-estate. Flocks are never seen except around a large carcass. It is often seen singly, soaring at a great height in vast circles. Its flight is slow and majestic. Its head is constantly in motion as if in search of food below; its mouth is kept open and its tail spread. To rise from the ground, it must needs run for some distance, then it flaps its wings three or four times and ascends at a low angle till it reaches a considerable elevation, when it seems to make a few leisurely strokes, as if to ease its wings, after which it literally sails upon the air. In walking, the wings trail on the ground, and the head takes a crouching position. It has a very awkward, almost painful gait. From its inability to rise without running, a narrow pen is sufficient to imprison it. Though a carrion-bird, it breathes the purest air, spending much of its time soaring three miles above the sea. Humboldt saw one fly over Chimborazo. We have seen them sailing at least a thousand feet above the crater of Pichincha*.

Its gormandizing power has hardly been overstated. We have known a single condor, not of the largest size, to make away in one week with a calf, a sheep, and a dog. It prefers carrion, but will sometimes attack live sheep, deer, dogs, &c. The eye and tongue are favourite parts and first devoured, next the intestines. We never heard of one authenticated case of its carrying off children, nor of its attacking adults

* One of the peaks of Pichincha is called in the Inca language *cuntur guachana*, or "condor's nest."

except in defence of its eggs. Von Tschudi says it cannot carry, when flying, a weight of over ten pounds. In captivity, it will eat every thing except pork and cooked meat. When full-fed, it is exceedingly stupid and may be caught by the hand; but at other times it is a match for the stoutest man. It passes the greater part of the day sleeping, more often searching for prey morning and evening than at noon—very likely because objects are then more distinctly seen.

It is seldom shot (though it is not invulnerable as once thought), but is generally trapped or lassoed. Prescott, in his 'Conquest of Peru,' vol. i. p. 384, speaks of "the great bird of the Andes—the loathsome condor, who, sailing high above the clouds, followed with *doleful cries* in the track of the army." But the only noise it makes is a hiss like that of a goose. The usual tracheal muscles are wanting.

It lays two white eggs, three or four inches long, on an inaccessible ledge. It makes no nest proper, but places a few sticks round the eggs. By no amount of bribery could we tempt an Indian to search for condors' eggs; and Mr. Smith, who had hunted many years in the valley of Quito, was never able to get sight of an egg. Incubation occupies about seven weeks, ending April or May*. The young are scarcely covered with a dirty white down, and they are not able to fly till nearly two years. D'Orbigny says they take wing in about a month and a half after being hatched—a manifest error. They are as downy as goslings until they nearly equal in size a full-grown bird. Darwin was told they could not fly for a whole year. The white frill at the base of the neck and the white feathers in the wings do not appear until the second plumage, or until after the first general moulting, during which time they lie in the caves, and are fed by their elders for at least six months. Previously to this the frill is of a deep grey colour (Gilliss says, "light blue-black") and the wing-feathers brown.

The head, neck, and front of the breast are bare, indicative of its propensity to feed on carrion. The head is elongated, and much flattened above. The neck is of unusual size, and in the male the skin lies in folds. The nostrils are oval and longitudinal; but in the male they are not so much exposed as in the other sex, since the caruncle forms an arch over them. The olfactories, however, seem to be well developed. Yet the condor, though it has neither the smelling-powers of the dog (as proved by Darwin) nor the bright eye of the eagle, somehow distinguishes a carcass afar off. The colour of the eye

* In Patagonia, according to Darwin, much earlier, or about February.

is variously given—by Latham as nut-brown, by Cassell as purple, and by Bonaparte as olive-grey; but Gurney, in his 'Raptorial Birds in the Norwich Museum,' states it correctly as pale brown in the male, and carbuncle-red in the female—a singular difference between the sexes. In young birds the colour is dark brown, which changes with change of plumage. They are peculiarly elongated, not sunken in the head as the eagle's, and very far back, being an inch and a half behind the gape, while those of the eagle are directly over it. The bill is shorter and weaker than the eagle's, and the decurved tip of the upper mandible only one-third as long. The tongue is canaliculate, with serrated edges, which obviously assists in deglutition, as the head is never raised to swallow food. The caruncle and wattle are wanting in the female. The downy ruff is more prominent in the male, but in neither sex completes a circle. The primaries are black, the third and fourth being equal and longest—a feature wanting in the Old-World vultures. The secondaries are exteriorly edged with white. The tail is of twelve feathers, black and even. Legs feathered to the tarsus. Toes united by a small membrane; the middle one is excessively long; the third one comparatively undeveloped, by which the foot is rendered less prehensile than that of other Raptores. Claws blunt, as might be expected from its habit of standing on the rocks; nor are sharp talons wanted, as it seldom seizes living prey. The nail of the hind toe is more curved than the other three, but far less than the talons of the eagle. The female condor is smaller than the male—an unusual circumstance in this order, the feminine eagles and hawks being larger than their mates.

Our knowledge of the habits and economy of the Trochilidæ is very meagre. The relationship between the genera is not clear, and one species is no more typical than another. The only well-marked divisions we can discover are those adopted by Gould and Gray—the Phaëthornithinæ and Polytmînæ. The former, popularly called "hermits," are dull-coloured and frequent the dense forests. They are more numerous on the Amazon than the other group; and I know of no specimen from the Quito valley, or from any altitude above 10,000 feet. They usually build long purse-like nests of vegetable fibres, covered with lichens and lined with silk-cotton, and hung from the extremities of leaves over watercourses.

The Polytmînæ comprise the vast majority of the humming-birds, or nearly nine-tenths. They delight in sunshine; and the males generally are remarkable for their brilliant plumage.

The diversified slopes of the Andes are more favourable for their development than the uniform plains. Their head quarters seem to be in New Granada; but the precise distribution of the species is not so well known as it might be. Near the equator the species are nearly stationary; some, as the *Oreotrochilus*, are confined to particular volcanoes or an area of a few square miles. There is therefore greater need of determining the precise locality of a specimen; yet, in the best monograph on the Trochilidæ (Mr. Gould's), species are assigned to such indefinite regions as Ecuador, Peru, &c. But Ecuador ascends from the sea-coast to 20,000 feet, and is traversed by two Cordilleras and a plateau, making three very distinct districts,—the faunas of the west slope, the Quito valley, and the Napo country being, with less than half a dozen exceptions, entirely separate. Of the four hundred and thirty known species of hummers, twenty-seven are found in and around the valley of Quito, thirty-seven on the Pacific slope, and twenty on the oriental side of the Andes—making a total of eighty-four, or about one-fifth of the family, within the Republic of Ecuador. The paucity of hummers south of the equator, in comparison with the number on or just above the line, has been accounted for by the fact that the dry sterile plains of Peru and the barren pampas of La Plata are unsuited to insect, and therefore to humming-bird, life. This cannot be the whole reason; for there are myriads more of insects on the Lower Amazon than on the Andes, yet there are not fifteen species east of Egas, or the last 1500 miles. If the wanton destruction of humming-birds for mere decorative purposes continues for the next decade as it has during the last, several genera may become utterly extinct. This is evident when we consider that many a genus is represented by a single species, which species has a very circumscribed habitat, and multiplies slowly, producing but two eggs a year, and that at Nanegal, *e. g.*, a famous locality near Quito, it was possible ten years ago to shoot sixteen or eighteen per day, while now it is hard to get half a dozen.

Nidification is uniform at the same altitude and latitude. In the valley of Quito it occurs at about the close of the rainy season, or April. The nest is built in six days; but one egg is laid before the nest is finished. The usual height of the nest above the ground is six feet. Some, like that of our northern species, are cup-shaped and placed in the fork of a branch; others are hung like a hammock by threads or spiders' webs to trees or rocks; while the long-tailed *Lesbia* constructs a purse-shaped nest resembling those of the Phaëthornithinæ on the Amazon. Like the "hermit" hummers

of the lowlands, the purple-eared (*Petasophora iolata*) alone of the Quito species hangs its nest over a stream of water. As to the materials of the nest, I have noticed a fact which I cannot explain: our northern hummer glues lichens all over the outside; so do a number of species in Brazil, Guiana, &c.; but in the valley of Quito, moss is invariably used, not a particle of lichen have we seen on any nest, though lichens abound*. Mr. Gould mentions a nest which, being heavier on one side than the other, was weighted with a small stone to preserve the equilibrium. A few hummers, as the *Glaucis* of the lowlands, lay but a single egg; but the usual number is two; and they are always of a pinkish hue when freshly laid. The spotted egg of a species on the Upper Amazon, noticed by Edwards, has not been seen by other observers. The time of incubation at Quito is twelve days, varying a day more or less, according to the weather. There is but one brood a year, as with *T. colubris*, in our Northern States; but in our Southern States, and in Brazil, there are generally two. Drapiez says, "sometimes four broods;" but we conjecture that this is a mistake.

No inessorial bird seeks its food at so great an elevation as the *Oreotrochilus* †. This has been seen clinging to the volcanic cliffs of Chimborazo; but no other hummer has been observed to alight on the ground, for which, in fact, their sharp, hooked nails are ill fitted. Of the sixteen genera represented in the valley of Quito, the average length of the bill is three-fourths of an inch; and the most numerous plants are the Compositæ, Scrophulariaceæ, and Labiatæ. The curved-billed *Eutoxeres* is usually seen around the fuchsias or the scales of the palms, seeking for spiders. The *Oreotrochilus* feeds its young by bringing them flowers of the myrtle; then throwing them away, it goes for more. As Bates has said, hummers "do not proceed in that methodical manner which bees follow, taking the flowers *seriatim*, but skip about from one part of the tree to another in the most capricious way." No other vertebrate has a tubular tongue, an organ adapted for gathering both insects and honey ‡. No other family of birds contains so many species; nor has any other group such

* A similar variation is seen in the nests of the chimney-swallows: our species (*Chaetura pelagica*) builds of twigs glued together with saliva; while its Quito representative (*C. rutilla*) builds of mud and moss.

† We have seen flies on Pichincha at the height of nearly 16,000 feet.

‡ Dr. Crisp contends that the bifid portion of the tongue is not hollow, but is composed of solid cartilaginous material. The same anatomist also asserts, in opposition to the opinion of Professor Owen, that the bones of the hummer, like those of the swallow, do not contain air.

varied forms of bill: compare the short bill of the *Ramphomicon*, one-third of an inch, and the six-inch bill of the *Docimastes*—the bill of the *Eutoxeres*, bent down into a semi-circle, and that of the *Avocettula*, turning upwards. To an unequal splendour of plumage (resembling laminæ of topaz and emerald) Nature has not added the gift of song. Their ordinary cry is a shrill *chirik*, uttered by the males in their petty quarrels. The “warbles” ascribed to the *Mellisuga* and *Oreotrochilus* need to be heard again to be credited.

XXII.—*Descriptions of two new Species pertaining to the Avifauna of Australia.* By JOHN GOULD, F.R.S. &c.

HAVING lately received from my friend F. G. Waterhouse, Esq., by permission of the Directors of the South-Australian Institute at Adelaide, a small collection of birds for identification, I find among them two previously unknown, descriptions of which I hasten to communicate to the scientific world. The first is of especial interest, inasmuch as it is a second species of the genus *Xerophila*, of which only one was previously known; and the second is an additional member of that elegant group of little Terns the *Sternula*.

Xerophila pectoralis, Gould.

Face and throat white, passing into greyish white on the ear-coverts; crown and nape hair-brown mottled with blackish brown, the darker tint occupying the centre of each feather; back chestnut-brown, becoming much darker and richer on the rump; upper tail-coverts hair-brown; two central tail-feathers hair-brown, with lighter edges; the five lateral feathers on each side black tipped with white; across the chest a well-defined band of cinnamon-brown; under surface white, with a mark of chestnut down the centre of each of the flank-feathers; wings dark brown, the secondaries broadly margined with dull buff; under tail-coverts buffy white; bill and feet black.

Total length $3\frac{7}{8}$ inches; bill $\frac{5}{8}$, wing $2\frac{1}{4}$, tail $1\frac{5}{8}$, tarsi $\frac{5}{8}$.

Hab. Port Augusta, South Australia.

Remark. This highly curious form reminds one of *Ephthianura*, but is distinguished from it by the bill being almost as thick as that of a finch.

Sternula placens, Gould.

Adult male. Bill yellow, with the apical third of both mandibles black, as sharply defined as if they had been dipped in