

A POPULAR ACCOUNT OF THE MAMMALS OF BORNEO.

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(Plates XI-XIX).

To write a popular work on Natural History is to earn the toleration of the more scientifically minded whilst to write for them alone is to be labelled "highbrow" by those who would have appreciated it in a more simple form: to write for both will not satisfy either but there is one point here to which neither should object—namely the illustrations. They are taken of captive animals and though they have not the same appeal as wild life photographs will go some way to familiarize residents in Borneo with the Mammals they are likely to meet.

I should here say that the pictures were taken by Mr. C. Jee Koo, for many years Taxidermist to the Sarawak Museum, the trouble and extreme care he has taken being reflected in the excellence of his results.

The visitor to the East not unnaturally hopes to compare what mammals he may see with those of Europe but obtains little satisfaction in this respect. The Anteater and the Sea Cow are unfamiliar to him and he is not likely to encounter any of the Whales which occasionally turn up, though Porpoises and Dolphins are fairly common.

The Deer, a representative of the Indian Sambhur, is a heavy beast of the woodlands with horns seldom exceeding 20 ins in length; the Barking Deer is superficially like a Roebuck and the Mouse Deer have no European counterpart—they resemble a Rabbit or a Hare in their size, colour and white tail but have short ears and long thin, hooved legs. Wild Pigs abound but unlike the European form are particularly noted for their very bristly faces, from which they get the name "Bearded Pig" the native domestic pig which is not the wild one tamed, is much shorter in the face and leg, often with white "stockings" Water Buffaloes occur in some places, in many cases certainly the descendants of domestic ones run wild; there occurs a small Wild Ox, the "Temadau," a relative of the Javanese "Banting" and Burmese "Tsaine," ever so much smaller of course than the "Seladang" or the Indian "Gaur." The Rhinoceros is perhaps the smallest of its kind, practically never encountered in Sarawak by a European, and the only living Elephants are found in N. Borneo, almost certainly the descendants of a herd let loose, it is said, by the Sultan of Sulu; fossil Elephant teeth have however been recorded in Sarawak. Tapirs in spite of statements to the contrary do not occur in Borneo.

Of Carnivores there are no Tigers or Panthers, the largest cat being a beautiful Clouded Leopard which in Borneo neither troubles Man nor his possessions; quite a number of prettily marked medium size cats occur but on the whole are rather rarely taken. Civet Cats abound, notable for the sharp-pointed face, long tail, unsheathed claws and comparatively small size, which does not make them formidable opponents. A Bear is quite common, rather small and black with a white or yellow marking on the throat. Otters are numerous, not unlike European ones whilst there is a Badger, a Marten and a Stoat each but little resembling their European counterpart and perhaps more rarely encountered. There are no Foxes, Jackals or Wild Dogs in Borneo.

Rabbits and Hares are missing but the usual Porcupine is well to the fore. Squirrels abound both in species and individuals, from some as large as a Rabbit, down to minute little forms no bigger than Mice, including a number which glide from tree to tree. Rats and Mice are common here as everywhere, many of them peculiar to the country.

Insectivores, if one excludes the Tree Shrews as probably lowly Primates, are not characteristic of Borneo, in fact except for a few small and rare Ground-Shrews the only notable Insectivore is the Gymnura or Moon Rat, a beast which has a good deal of affinity with Hedgehogs if one makes allowance for its white, spineless fur and long, scaly tail. The Flying Lemur has drifted into a Sub-Order of its own. Bats are incredibly numerous both in individuals and species, from minute forms up to the huge Flying Foxes spanning some four feet or more.

Of the Primates I have already mentioned the Tree Shrews, perhaps more numerous in species in this country than anywhere else; in fact Primates are so well represented in Borneo that the veteran naturalist A. H. Everett was formerly deputed to seek here for that mythical being, the "Missing Link," in which it was supposed Man and Apes had their common origin. The Slow Loris is the only Lemur found, a small, round, tailless animal with large eyes, the little buff-coloured Tarsier—that strange looking animal with rounded head, enormous eyes and curiously elongated fingers and toes—having been pronounced more of a Monkey than a Lemur. Borneo is rich in Monkeys: besides two Macaques there are five or six Lotongs or Langurs and a large, strange looking, buff-coloured Monkey, the male having a protruberant nose two to three inches long. Of the Apes, the Gibbon is of course common and the Orang Utan, that large red-haired monstrosity so often human in appearance and actions, is quite plentiful in restricted localities.

All Mammals are not distributed evenly throughout Sarawak, some are local, some live in swamps, some on plains, some in secondary growth, some in old jungle and a few on mountain tops so that a consideration of the flora and topography of the country is necessary before a clear understanding can be reached.

To all intents and purposes Sarawak is covered in forest of some sort from end to end, clearings are negligible from a faunistic point of view and we lack even those occasional "lalang" grass covered plains rather characteristic of parts of N. Borneo. Large clearings are made annually by felling and burning the timber but the rice crop is hardly gathered before a secondary growth springs up. There are a few large settlements and a number of small ones with permanent but comparatively inextensive clearings and in widely scattered parts of the country rice planting in open wet fields is carried on to a relatively small scale; it is evident that clearings are so often transitory and always comparatively small that few Mammals, except some Rats, specialize in or become characteristic of such areas.

The deltas of all large rivers and the banks of their lower reaches as far as the tide is effective are covered variously in Mangrove or in "Pedada" trees or in "Nipah" palms, their roots washed by silt and mud quite uninhabited by any Mammals save a few Wild Pigs. In the trees Monkeys swarm, Kras* and to a less extent Broks,* Long Nosed Monkeys, grey and black "Lotong" Monkeys and even Gibbons occur, together with occasional colonies of "Flying Foxes;" all these are also found of course in old jungle and elsewhere and though the "Kra" is typical of a Mangrove, Pedada or Nipah Swamp perhaps the Long Nose Monkey is the only one peculiar to this type of Forest. Part of the coast from Igan to Bintulu is low and the ground very swampy, clothed to some extent in Sago Palms interspersed with various other swamp trees; Mammals are not noticeable here though Deer, Pigs and Bears occur and there are always a few Monkeys and Squirrels strayed into this area: the Long Nosed Monkey is absent from this region which one would have thought eminently suitable to it.

The second growth that springs up in clearings, whether made naturally or artificially, is the next type of vegetation; in the former case it is found chiefly near the sea-shore or on the site of a very occasional forest-fire, in the latter case in old "padi" farms. Huge areas of old jungle have been and still are felled by natives for rice-planting so that in comparatively thickly populated areas such as the Saribas and Kapit one may see for days practically nothing but secondary jungle and this is so to a less extent in some other parts of the country. This secondary type of growth varies a good deal but is mostly rather dense, consisting of sappy, pithy, soft-stemmed shrubs, harder wood only appearing later: it is about seven years before the aborigine thinks fit to fell and burn it to provide enough ash to make the ground fruitful again. Secondary growth is perhaps the densest kind of forest and the field of view is usually limited to only a few yards; owing to the slender nature of the branches arboreal forms though often found

* Macacus Monkeys.

SUB-ORDER PERISSODACTYLA.

In spite of the rather fearsome looking name this sub-order is remarkable for containing Ungulate mammals with an uneven number of Toes and includes the Horses, Rhinos and Tapirs.

Family Equidae.

There are of course no feral horses in Borneo but Ponies of varying degrees of wildness are a prominent feature in some places, though beyond that they occur in many parts of the Archipelago their real origin appears to be uncertain. There are however two main stocks from which domestic horses have sprung, a Northern Mongolian and a Southern Arabian race, the skull of the former showing no trace of the depression corresponding to the pre-orbital tear pits (as found in Deer), the skull of the latter showing some such trace in a varying degree according to its interbreeding: more remarkable still, a slight depression in the skull of the Bornean pony indicates an infusion of Arab blood at some time in its ancestry, a conclusion also supported by the shape of its molar teeth.

Family Tapiridae.

The appearance of the Tapir is familiar to most people from pictures but whilst found in Malaya and Sumatra it is altogether absent from Borneo; another species is found in S. America and fossils have been found in France and Germany, and even in Suffolk.

In spite of repeated statements to the contrary, there has so far been no authentic record of a Bornean Tapir and though natives sometimes assert their presence their stories have so far never held water; a Sadong Malay described in correct detail to Everett the appearance of a Tapir he had killed in Dutch Borneo but the teeth he produced in evidence were those of a Rhinoceros.

Borneo is too well known for such an animal as a Tapir to have so far escaped notice though popular prejudice, both here and at home, is rather in favour of it; older natural histories usually included Borneo in its range and, stimulated by certain N. Bornean stamps, one fully expects to find them on first arriving in the country.

Family Rhinocerotidae.

Judging by the number of fossil forms throughout the world this must have been at one time a large and most successful Family; at present there are but two African and three Asiatic surviving species, one of the last occurring in Borneo.

The Indian form is an immense beast, the Javan one smaller, rather hairy and with one or sometimes no horn, the Sumatran and Bornean one being the smallest and most hairy of all, as well as possessing two horns. All three are distinguished from their African cousins by the presence of incisor teeth in the lower jaw and particularly in the "armour plating" effect caused by folds in the skin, one fold in the neck region, a very marked shoulder crease and a smaller one before the hind leg.

Our Rhinoceros resembles more than anything an enormous pig about 4 ft. high and 8 ft. long, usually quite black but sometimes greyish as in the Javan species and with a lot of stiffish hairs standing out, sometimes all over it but forming tufts on the ears and tail; the skin is very thick, as much as half an inch in some parts and with three well marked folds in neck, shoulder and hind quarters. This Rhinoceros always has two horns and occurs in Sumatra, Malaya, Burma, Assam and Siam and is not to be confused with the single horned Javan Rhinoceros of Java, Sumatra and Malaya; in some females of the latter the horn is I believe occasionally absent but the Sumatran Rhinoceros may be at once distinguished from the Javan one by having only one pair of lower incisor teeth instead of two pairs, a point worth bearing in mind as it is still a little uncertain if both do not occur in Borneo.

Rhinoceros (Ceratorhinus) sumatranus Raffl.

THE SUMATRAN RHINOCEROS. Malay: *Badak*; Iban: *Schimar*; Murut: *Tembaiungan*; Tagal: *Camansur*; Dusun: *Tampak*.

The Rhinoceros in Borneo is the smallest of all in size and is by no means a prepossessing animal, though as I shall have occasion to mention later it is one of the most popular among the natives. It is usually a solitary, wary and inoffensive beast, though several have at times been recorded together; owing to persecution it has become most retiring and if it suspects men on its trail may leave the neighbourhood for another as much as two or three days distant. It much prefers to run rather than fight though from all accounts can put up a good show when wounded and cornered, curiously enough rushing upon its enemies open mouthed and attempting to bite with its sharp chisel-like incisor teeth rather than using its horn.

It is a browser, feeding on twigs and leaves, knocking down small saplings, making a great noise about its feeding and leaving a broad path of broken trees and trampled undergrowth; it is not particular about what sort of country it inhabits, being found from the tops of mountains down on to the plains though as these are more likely inhabited and cultivated it is much less often found there. They are said to be fond of a muddy bath by the river side and I have seen the tracks where they and many pigs wallowed in the hollows of a mountain ridge.

It is hard to give any exact localities but they occur in the mountainous region in the Lawas interior, various places in the far interior of the Baram and Rejang Rivers, occasionally straying as far down as the Ulus of Mukah and Oya but is not found on the left bank of the Rejang or down into Sariibas and Sarawak proper. In fact it is a most unsatisfactory animal to look for, there is no very certain locality but it is sure to be a long way from houses so that it requires some trouble to get in its neighbourhood and it may be several days on short rations if one is to follow the animal up to a finish.

Rhinoceros horn is greatly valued by the Chinese for making medicine and commands an immense price; the longest horn in the Museum measures I think 19 ins. but though they are not usually as long as this a dead Rhinoceros may be converted into as much as \$2—300. In fact since Dayaks and others no longer take heads and there is a certain amount of safety in penetrating the interior, parties of them in the off-season when their padi farms don't require attention move away for a few months and combine pleasure with profit in Rhinoceros hunting. In many parts frequented by the Rhinoceros there are no settled houses or villages but small bands of natives such as Punans and Ukits roam about living on what they shoot, cultivating no crops, making no permanent houses and of course fully aware of the value of a Rhinoceros. Now there can at the moment be no fear of Rhinoceros becoming scarce for as many as 36 trophies were brought into Belaga in two years not so long ago and I have met men who have claimed to have shot over 30 in the course of their life time, but it must be evident that such a slow breeding animal cannot stand destruction for long at this rate so that the matter will one day have to be attended to. The wandering Punan or Ukit, armed with a blow-pipe and inhabiting the same country as the Rhino has surely every right to shoot if he wants to as his forefathers used to do and anyway it would be impossible to control him in this as it is in many other matters; the Dayak out for a holiday and to make some money as well is probably the chief destroyer, for he owns a breech loading twelve bore with buckshot and is thus much better equipped, though a recent Order which I shall refer to later has deprived him of much of this advantage.

Reserves so successfully made in other countries are impossible to enforce here owing to the remoteness of the animal's haunts, the presence of these wandering tribes and it must be admitted to the inconstant nature of the Rhino itself. In India I believe female Rhinoceros are preserved but it would be just as difficult for a native to follow the rule here as it now is for him to keep within the present Order that no Rhino with a horn of less than 4 ins. may be shot: they are preserved altogether in N. Borneo but it would be a more popular move here, no less effective, to suppress the demand for its horn among the Chinese. Fortunately the Rhinoceros has been helped indirectly in another way for it seems to have been evident that breech loading 12 bores were becoming more numerous in the country than was consistent with safety and in future only muzzle loading guns are to be sold,* the inferiority of the weapon and difficulty of obtaining powder will be in the Rhino's favour, whilst the present cheap American 12 bores cannot be expected to last very long.

There are a few odd points of interest about the animal; it is said to always deposit its excrement in the same spot and natives by patiently watching its "jamban" sometimes shoot a specimen;

* This has most unfortunately not come into force.

other natives deny this and aver that having deposited its excrement in a stream it turns round and eats the stupefied fish that come to the surface. The male organ is most peculiar as it has an indication of the cross-bar or "palang," as artificially inserted by such tribes as the Kayans, Kenyahs and some Dayaks. Rhinoceros are said to snore loudly when asleep and thus sometimes betray themselves to hunters.

Fossil teeth have been recorded from Sarawak from a depth of as much as 60 ft. at Paku in Upper Sarawak, where the animal is of course now unknown alive; it is amusing to recall that the teeth were assigned to *R. sondaicus* and the bones associated with them to the present species, *R. sumatrensis*.

SUB-ORDER ARTIODACTYLA.

(The Even Toed Ungulates).

This is at present the most successful Ungulate group and is distributed all over the world, including all the Cattle, Antelopes, Deer, Pigs and remaining Ruminants.

Group I

Family Suidae.

The Pigs (with the Hippopotamus who hardly concerns us here) are distinguished from the rest of the Artiodactyla by the cusps of their molar teeth, which retain a more or less primitive, conical or pyramidal shape (known as "Bunodont") whilst the cusps of the molars of Sheep, Deer and Oxen are modified into crescentic ridges (known as "Selenodont").

Pigs reach their maximum development in Africa and the East though of course extending into Europe, most of them remarkable for one or more warty protruberances on the face. The origin of domestic Pigs has never been settled though it is more than probable that some "wild" Pigs are strays, which may perhaps account for some of the unexpected "species" that turn up in Borneo and elsewhere.

Sus barbatus barbatus Mull.

THE BEARDED PIG. Malay: *Babi Utan*; Dayak: *Jani*; Tagal: *Ulak*; Murut: *Basing* (?); Dusun: *Bakass*; *Ugok* (Domestic); Barawan: *Bikuoi tanah*; Bintulu & Kalabit: *Bakah*; Miri: *San*; Kayan: *Babui*.

The Bearded Pig is found in Sumatra, rarely in the Malay Peninsula and some islands but is very common in Borneo where so far it is the only species really known, though some others have been doubtfully recorded. The British Museum has an undoubted skull of the Javan Wart Hog (*S. verrucosus*), taken by Wallace in the Upper Sadong, but it is possible that Wallace mixed this and others of his specimens as regards localities and the animal has never been taken again; I believe the same skull, which is of course ever so much shorter in the snout than any *barbatus* skull, was later attributed to the Bornean form of *S. celebensis*, a varied