

# NATURAL SCIENCE:

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## NOTES AND COMMENTS.

### ARGON.

IN our attempt to limit the pages of NATURAL SCIENCE to that branch of the sciences long ago called by the French "Natural" we necessarily exclude detailed reference to chemistry and physics; still we are eager to congratulate Lord Rayleigh and his patient collaborators on the discovery of a new element. It may be long before Argon is satisfactorily investigated and assigned its appropriate place or places in the hierarchy of the elements. Indeed, the new substance seems unruly and not to be set in its place without an undue shouldering of its neighbours. What is most impressive to us now is the method of the discovery and its promise for other realms of science. It was found by no restless ranging over the face of the earth seeking out the scanty and the rare. It was gained as the direct result of more careful, exact, and patient investigation of the familiar than had been done before. A few years ago biologists were ill content with any animal not dredged from the remotest ocean, not taken in the furthest land, and many far-reaching theories were founded upon the anatomy and development of "*Outis mirabilis*," some rare organism known only from Cathay. We have no wish that such investigation should be discouraged: the remotest in Nature may yield a clue to the most familiar secret. But, as we have noticed before in these pages, the present fashion in biology is to study the familiar in new ways rather than to seek out the unfamiliar. May we hope that, as Lord Rayleigh, weighing the constituents of the air, came upon an undiscovered element, so some of those who are measuring the lengths of crabs or the variations in the shells of ammonites may come upon unsuspected truths.

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## I.

# The Mammals of the Malay Peninsula.

### PART III.

**UNGULATA** :—As might be expected, the larger Ungulates are absent from so small an island as Singapore; but Deer (*Cervus equinus*), Wild Pig (*Sus cristatus*), and the small Mouse-deer (*Tragulus*) still occur, the latter being abundant. In the Peninsula are also the Elephant, Rhinoceros (one or two species), Tapir, Wild Ox (one or two species), the Kijang (*Cervulus muntjac*), and the Wild Goat (*Nemorhædus sumatranus*).

The Wild Pig (*Sus cristatus*), or "Babi Hutan," is far too abundant. It is most destructive to the pineapple- and tapioca-fields. Coming out of the woods at night and falling on the crops, it contrives to do a great deal of damage in a very short time. It is not entirely nocturnal, for one may often see it moving about in the day-time, and I have seen boars feeding among the buffaloes in the swamps at midday. The young are spotted with yellow, like the young of the tapir.

The habits of the Rhinoceros here are but little known, and it is by no means certain how many species there are. The Malays call it "Badak," and they also talk of a beast by name "Badak Api" (*lit.*, fire-rhinoceros). From the only native I ever met who could tell me about the latter animal, I gathered it had a red appearance, and guess it to be perhaps *R. sumatrensis*. The animal is not often seen, and I never heard of one being trapped. Europeans sometimes shoot them, but never take the trouble to bring any specimens home, so that it is really difficult to decide what species we really have. The common one appears to be *R. sondaicus*. It frequents the hill-jungles, ascending to 4,000 feet altitude, and seems usually to move about at night, though one may come upon it by day. It has a habit of constantly using the same track, and dropping its dung in the same place daily, a habit common also to the tapir. As the jungle gets cleared, it wanders often into the low, open country, apparently losing its way. It is a quiet, inoffensive beast.

The Tapir (*Tapirus malayanus*) is called "Tenok" by the Malays; the name "Kudah ayer" (water-horse) given as a Malay name in some Natural History books is not known to any native I have ever met, and appears to be entirely fictitious. This animal is still tolerably

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abundant in the further jungles of the interior, and though rarer than the rhinoceros, is oftener to be seen in captivity. It is wonderful how so defenceless an animal should be able to escape the attacks of the bigger carnivora; but it inhabits the deeper hill-woods where the tiger is scarce or does not go, and is very quick at hearing and slipping away from an enemy. It eats grass, and more usually bushes. A tame one was found to prefer the common *Melastoma polyanthum* to any other plant. It also ate fruit and boiled rice, and was very fond of biting and eating bones.

The young one is dark brown, with yellow, creamy spots, a most beautiful adaptation for protection; as it lies during the hot part of the day under the bushes, its coat is so exactly like a patch of ground flecked with sunlight that it is quite invisible. Some of the spots are round and some are elongate, the former resembling the flecks of sunlight falling vertically, the latter those which come slanting through the foliage. The little animal lies in such an attitude that the round and long spots are exactly in the position in which the sun-spots would be. On one occasion my tapir was lying asleep during the hot part of the day among some bushes, and wishing to shut it up, I went to look for it; but on parting the bushes I could not see it at all, though I was absolutely looking down upon it. In the jungle any animal of a single colour is much more conspicuous than a parti-coloured one, the mass of colour striking the eye more clearly. So that an entirely black or entirely white animal is easily seen; but a mixture of the two colours blends with the reflections of light and shadow falling on the ground through the foliage. The adult tapir is black, except for the tips of its ears and from the saddle to the rump, which parts are greyish-white; this would be thought conspicuous enough at first, but it is not at all so. When lying down during the day, it exactly resembles a grey boulder, and as it often lives near the rocky streams of the hill-jungles, it is really nearly as invisible then as it was when it was speckled. It feeds at dawn, and till the sun gets hot, when it retires to sleep, recommencing at dusk.

The tapir when young utters a kind of whistle, which can be heard afar; it is done through the trunk. The adult gives a kind of low coughing bark, as an alarm-note. As in its haunts it has often many obstacles, such as fallen trees and rocks, to scramble over, it is quite skilful at clambering about, and when as big as a fair-sized pig my animal would contrive, if left alone, to get upon a chair and thence upon the table. It can trot, or gallop at a good pace, and goes very fast through the jungle when disturbed. When taken young it becomes very tame and amusing. As the jungles are cleared the tapir becomes rarer and rarer, but it is to be hoped that it may be long ere this most interesting element in our fauna becomes extinct.

On the Elephant it is hardly necessary to give any notes. It is not excessively abundant, but is plentiful in many parts of the Peninsula. It is called "Gajah" by the Malays, who seem rather

to dread it. The Aborigines, known as Sakais, sometimes hunt it. There was recently living a man who used to follow up a herd and, selecting an animal with good tusks, creep quietly up; when near enough he would drive a large-bladed spear between the hind legs into the abdomen, which wound was soon after fatal, and tracking the animal, he would secure the ivory.

The black Wild Goat (*Nemorhædus sumatranus*) inhabits the isolated patches of limestone rocks which flank at intervals the main granite chain of the Peninsula. Though apparently not rare in these places, it has never been shot by any sportsman, and the only specimens I have seen are skeletons and a head in the Perak Museum.

The natives often affirm that there are two distinct species of Wild Ox in the Peninsula, viz., the Sâpi and the Sêladang; but I have never been able to find out what the former is. It is stated to be quite a different animal, with longer horns than the Sêladang (*Bos gaurus*). The latter is probably the biggest and most powerful ox now living, though even it is inferior in size to the old British ox, *B. primigenius*. The Sêladang usually inhabits the denser hill-jungles, where its tracks may often be seen; but it is also abundant in more open, grassy spots, such as the banks of the Pahang river. It lives chiefly on leaves of trees, but also eats fruit.

There are two or three species of Mouse-deer in the Peninsula, of which the commonest is the Napu (*Tragulus napu*). It is as big as a hare, and generally inhabits the thicker woods. It can swim well, and I have seen it crossing a small stream, swimming very low in the water. The call is a low bark, like that of a fallow-deer, though by no means as loud; but they often call to each other by beating their feet upon the ground. This is taken advantage of by the natives in shooting them, in the following way. A hunter, placing a dry leaf on the ground in the wood where mouse-deer are supposed to be, taps it with a stick, thus—Tap: tap-tap-tap: Tap: tap-tap-tap: Tap, now and then making a rapid succession of taps like the roll of a drum. Presently the Napu answers by stamping its feet in the same manner, and the tapping is continued. The animal comes nearer and nearer, answering as it comes, till it comes within range of the gun. Sometimes, it is said, a tiger, thinking that the tapping is really that of a Mouse-deer, comes up instead. The Napu is also caught by springes. A small palisade of sticks about a foot high is made across a wood, and at intervals passages are made in the wall big enough to admit the animal. In these is set the springe, made by bending down a small slender shrub, with a noose held in position by a small stick, and the noose is covered by a leaf. The Mouse-deer, on meeting with the palisade, does not jump over it, as it could easily do, being very active at leaping, but goes along it till it can find a passage through, and putting its foot in the noose is immediately caught. It is sold in the markets for food.

In captivity the Mouse-deer require plenty of room to run about

or they will stay perfectly still in one corner till the hind legs become callused at the joints, and even paralysed. They become very tame, but sometimes fight together, biting each other's ears and noses. The males can also give sharp cuts with their long, sharp canine teeth. They eat sliced sweet potatoes, and almost any green vegetable. Sometimes they do a good deal of damage to garden crops, and are rather troublesome.

The Napu varies somewhat in colour, and I have had some specimens which were remarkably bright chestnut on the back. These came, I was told, from Rhio, south of Singapore. They appeared so distinct in colouring that it is possible that they may belong to a distinct species.

The Kanchil (*Tragulus kanchil*) is a much smaller, perfectly brown animal. It is supposed to be very cunning and plays the part of Brer Rabbit in Malay folklore, but I never saw anything in its behaviour to justify its reputation. The natives state that there is a third species which is called Pelandok, intermediate in size between the two; but the name is also used vaguely for either species, and if there is a third species here, I have either not seen it or failed to distinguish it.

The Napu breeds in confinement, producing one or two at a birth. It appears to have a long period of gestation, for one that had been for some months in an enclosure without a male unexpectedly produced a young one.

The Kijang (*Cervulus muntjac*) does not occur now in Singapore, if it ever did. It is abundant in many places, such as the slopes of Mount Ophir, and is often shot by planters and others in and about the coffee plantations. Very little is known of its habits.

The Rusa (*Cervus equinus*) is common in the Peninsula, and a few still occur in Singapore; but most have been killed by sportsmen. It inhabits the open country and small woods. I have, however, seen the tracks of a big deer quite at the top of Mount Ophir, at 4,000 ft. elevation. As the animal seems to avoid paths when possible, it is comparatively rare to find its tracks, while those of tiger, pig, mouse-deer, ox, tapir, rhinoceros, and elephant are all conspicuous whenever one is in the district where they abound. It feeds at dusk and dawn, remaining quietly in the woods during the day. It is often kept in captivity, and sometimes breeds; but the buck is rarely safe in the rutting season, and sometimes becomes then most dangerous. A fine example in the Botanic Gardens, though brought up from a fawn, on one occasion attacked the coolie who was giving it water, and tossed him over the palisade of its enclosure, inflicting severe wounds on him, and later succeeded in forcing its way into an adjoining paddock, where a black buck was kept, which it killed by one thrust of its antler. The young are produced singly, and are coloured like the adult, but with much softer hair. There are, however, faint traces of light spots on the rump, which disappear after the first week.

The natives say that there are two species of deer—the Rusa Daun (foliage deer) or Rusa Hijau (green deer), and the Rusa Lalang (grass deer), the former residing in the forests, the latter in open grassy country. They are said to differ in colour, and are probably merely local varieties.

**Sirenia** :—The Dugong (*Halicore dugong*) is tolerably common in the strait between Johore and Singapore; but one does not often see it. However, the Chinese sometimes catch it in nets when fishing, and sell it in the markets as food. It is said to live on the marine phanerogam Setul (*Enhalus acoroides*), but very little is known about it. I have seen it sleeping on the surface of the sea, when it looked like an old brown trunk of a coco-nut tree floating about. It is called “Duyong” by the Malays. It is remarkable that an animal so defenceless and slow should be able to hold its own against the sharks and crocodiles which abound in its haunts.

**Edentata** :—Our only representative of this Order is the common *Manis javanica*, the Tengiling of the Malays. It is frequently found in open sandy country making large burrows in the ground. Termites form its principal food, but ants are also acceptable to it. From the difficulty of feeding it, it is impossible to keep it long in captivity; but it is often brought for sale, and I have had a female with a young one for some days. In spite of its appearance it can climb trees well, but slowly, using its prehensile tail to aid it, and one would remain for a long time suspended by its tail to a bough, its head curled in between its paws. The Chinese are fond of eating this animal, but the flesh is tough and not worth eating.

These notes are naturally very incomplete as an account of our mammal fauna, but they may call attention to many points which require settling, and which it is to be hoped intelligent and observing explorers will in time work out. It is only by watching the animals in their native haunts that it is possible to realise the meaning of their special colouring. Much depends on their habits: an animal which is much exposed by day is naturally differently coloured from one which, well concealed by day, exposes itself in the dusk. Animals which change their habits as they develop often change their colouring to suit their environment. The young of the tapir, pig, and kijang illustrate this, lying hid during the day beneath the foliage, where their speckled coats match with the sun-flecked ground. Their parents are weak beasts which are unable to protect them from attacks of enemies, and their only hope of escape is in remaining motionless, so as to be overlooked. When strong enough to seek safety, like their parents, in flight, they adopt the adult colouring. The adult tapir, as has been said, resembles a grey rock. The pig is of the colour of the dark mud of the forests in which it spends the day; but not being quite black, appears at a short distance of a dusky grey in the evening twilight, when it usually leaves the

forests to feed in the open country. The russet brown of the kijang, flying squirrel, and the wild dog appears at first sight most conspicuous, but somehow it is not as visible as one would think. This brown-red colour, so common in wild dogs, such as the dingo, is very often to be seen in pariah dogs, *i.e.*, the offspring of domestic dogs which have taken to a jungle life, and I have noticed that these brown ones are much more difficult to see in the dusk than those of any other colour. The invisibility of the tiger when moving quietly through the long grass and fern, or when waiting in ambush for its prey, has been mentioned by others. About our only other striped animal, *Hemigale hardwickii*, little is known. It may be diurnal in habit. The only person whom I have met with who has seen one wild is Mr. H. L. Kelsal, who saw one under a log in thick jungle by the Tahan river in Pahang. It may, perhaps, conceal itself usually among the grasses by the river edge, where it would be very inconspicuous. Of really black animals we have the bear, black panther, *Hylobates*, and some *Semnopithecus* and *Sciurus bicolor*. The first of these not being carnivorous, and, at the same time, being a match for almost any enemy, has no necessity to conceal itself. The black panther is quite nocturnal, and being a powerful beast has no need for special colouring to conceal it during the day. *Hylobates*, *Semnopithecus*, and *Sciurus bicolor*, all strictly diurnal in habits, seem free from any enemies, living high up in the trees, where carnivorous animals never go. The monkeys do not attempt to conceal themselves, but, on the sight of an enemy, dash off with immense leaps, often uttering warning cries. The squirrel, which is slower in habits, usually hides itself among the thick creepers in the nearest tree which it can find when alarmed. It is interesting to note that in both *Hylobates* and the squirrel we have forms of the equally or more conspicuous colour—white, a colour very rare among mammals, and there are also white species of *Semnopithecus*. The smaller monkeys, on the other hand, which often come down on the ground and are liable to attacks from wild cats and other carnivora, are grey or brownish and far less conspicuous, though the young of the Kra are born with black hair, which is replaced by grey as soon as they can go alone.

The colouring of mammals is, then, in this region adapted for concealment. There is no instance of modification for signalling to each other, either by warning colours or by attracting colours, like the white tail of the rabbit. Indeed, such would be absolutely useless in a jungle country, where animals at a few yards' distance from each other could not see each other. Warning and attraction are both effected by the voice, and the latter probably also to a large extent by scent. Still, even in jungles, where, from the fresh tracks, one can see that big animals are abundant, one may remain for days without hearing more than the morning wail of the Wa Wa, the loud cry of the Lotong, and occasionally the distant bark of a tiger.

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