

# NATURALIST



## THE UMBRELLA ANT.

OF THE MANY SPECIES OF ANTS which inhabit tropical and semi-tropical countries the umbrella ant is one of the most interesting. These insects have the habit of cutting small round pieces about a quarter of an inch in diameter from the leaves of trees, which they then carry to their burrows; owing to this fact the species is also known as the leaf-cutting ant. The process of stripping the trees of their leaves is carried out methodically. The ants on these preparatory expeditions are divided into two parties, one party ascending the trees and deaching the leaves by cutting through their stalks; another party remains on the ground, seizes the fallen leaves, and cuts from them the small discs already mentioned. The disc is carried off to the burrow, the ant holding it over his head in a fashion which reminds one of a man carrying an umbrella, hence the term "umbrella ant."

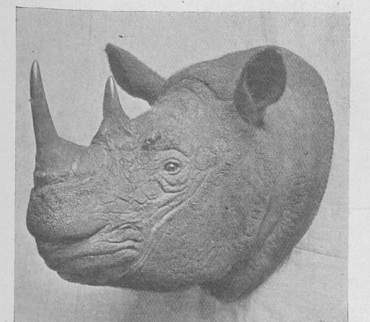
What do the ants do with these pieces of leaf? Belt, in his work, *The Naturalist in Nicaragua*, states that the leaves are stored in underground burrows till they decay, when they become covered with a kind of fungus which forms the food of the ants; in other words, the ants are mushroom cultivators, and the leaves are carried off for the purpose of forming mushroom beds.

There is perhaps nothing strange in this, for it has also been stated that other kinds of ants act as dairymen; their cows being the aphides which abound on certain kinds of plants. These aphides secrete a kind of sweet liquid; the ants greedily hunt for this, and have been seen tickling the aphides to induce secretion. They also tend, protect, and imprison these valuable sources of sweetness, just as we do cows.

The umbrella ants are most destructive in gardens. By some peculiar instinct, they seem to confine their attentions to the most valuable plants, while weeds and plants of little value are spared. Of the leaves of orange trees they are especially fond, and will often strip a large tree of all its leaves in a single night. Often have I noticed, on awaking in the morning, that some fine tree was entirely stripped of its leaves, as bare as an oak in an English winter, the fallen leaves thickly carpeting the ground underneath; all being due to the ravages of these pests. Night is their favourite time for work, but though mainly nocturnal in their habits, they may sometimes be seen engaged in their favourite occupation even under the noonday rays of a tropical sun. Of the leaves of peach trees and rose bushes they are also fond, but they never attack the banana plant, perhaps because its immense leaves are not easy to manhandle. In fact, it is about the only fruit tree that they spare.

Some ants are omnivorous in their habits, but the umbrella ant is exclusively vegetarian; at least, I have never at any time seen it eat any kind of animal food even when plenty was at hand. In South American countries horses are largely fed on hay made from alfalfa (lucerne), and this hay is also a favourite food of the ants. They will strip off the leaves of the lucerne and leave only the bare stalks, which contain little nutrient. The amount of destruction they can do in a single night is almost incredible. Orange seeds they will carry away bodily, and orange peel they will cut into little discs, as they do with leaves.

One warm summer night in Paraguay I was sleeping in a hammock which had been slung in the verandah, for the weather was so sultry that sleeping indoors was out of the question. Suddenly, on awaking, I was surprised to hear a peculiar sound, such as might be produced by thousands of diminutive elves tapping on tiny anvils. Unable to solve the mystery, I got up and struck a light. Then the cause of the strange noise was apparent. A five gallon tin full of maize (used as horse feed) had been left in a corner of the verandah, and it was perfectly black with ants, the insects carrying off the grains of maize, each one loaded with a single grain, heavier than himself. The tin was half empty, and to carry away the grains they had to haul them up one side of the tin and then crawl down the other side with their load. In this way the grains of maize, which were large, would bang continually against the tin, causing the noise I had heard.



TWO-HORNED ASIATIC RHINOCEROS MOUNTED IN THE ROWLAND WARD STUDIOS.

tin was full of maize when left there, but when I saw it was already half empty, and would have been entirely so in a short time for "many hands make short work," and the insects were to be combed by the thousand.

Have ants any sense of fear? I have never been able to perceive any. On one occasion I watched a train of these came out till a pile of dead encircled the hole. Still they continued to come out, taking no notice of their fallen comrades. Again, I have often as an ant was on the way to carrying, and he would allow himself to be lifted bodily, leaf and all, without relaxing his hold unless to attack the finger which sought to annoy him.

The umbrella ants burrow underground, and their burrows will extend for miles in every direction. In gardens they are often very numerous and destructive. Many methods have been tried for destroying the pests, but the only effective method, I believe, the use of a pump for fumigating the burrows by the injection of poisonous fumes. Even then the operation is not easy, for the burrows, emanating from a common centre, radiate in all directions, and as the numerous tunnels or outlets communicate with each other they must all be covered and stopped up if the fumigation is to be effective. Even this will not entirely exterminate the ants unless repeated several times, for, though the poisonous fumes will

kill them, they do not kill the eggs, and these will hatch out afterwards.

If the rule that the size of the head in proportion to the rest of the body is a measure of intelligence, then the umbrella ant must be among the most intelligent of insects, for the head is enormous, being even larger than the body. The mandibles, too, are very formidable, and a bite from those will draw blood and cause considerable pain.

That umbrella ants have intelligence cannot be denied. They are engineers in a way, not only from the ingenuity with which they form their burrows, but they even make regular roads across the grassy ground, cutting down all stalks and leaves which impede their progress till they have carved for themselves an open road, just like a miniature copy of one formed by human beings. Some people lay poison across this track, and a neighbour gave me a certain powder (I forget the name of it) which he assured me was a violent poison. By strewn this plentifully in the pathway made by the ants I was told the poison would adhere to their bodies and be carried by them into the general hive, with deadly result, but I have never found any effective method of exterminating except the fumigation mentioned above.

Another friend informed me that the extermination of the umbrella ants on his farm had cost him several hundred pounds, but he employed a man who was well acquainted with their habits, who dug out their burrows patiently and tracked them to their central lair. It was a tedious and costly process which few would care to employ.

JOHN D. LECKIE.

## THE TWO-HORNED ASIATIC RHINOCEROS.

OF THE BIG GAME ANIMALS of tropical Asia the three well-defined species of rhinoceros are certainly the rarest; and singularly enough their rarity, both as trophies and as exported wild animals, varies directly as the extent of their distribution. The commonest is the big one-horned



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species, *R. unicornis*, which is now practically restricted to Nepal, Cooch Behar, and Assam. The rarest is the small one-horned species, *R. sondaicus*, usually but unfortunately known as the Javan rhinoceros, which ranges from Sikkim to Borneo. Intermediate between these two both in scarcity and in range is the two-horned Asiatic species, *R. sumatrensis*, which just enters the north-east corner of India and extends thence to Borneo, but apparently is not found in Java.

Two fine examples of this species were recently shot by Mr Theodore Hubback at Pertang, Jelebu, in the Federated Malay States, and I am indebted to Messrs Rowland Ward Ltd. for an opportunity to examine the heads which were mounted at their studios. The skulls differ considerably in shape, one being long and narrow, the other short and broad. Similar differences have been previously recorded in the skulls of this and the other two species of Asiatic rhinoceroses, but the variation in the present instance is particularly interesting from its occurrence between two animals from precisely the same locality, thus showing the character to be individual and not geographically racial. It would be important to ascertain if it is sexual.

In Rowland Ward's *Records of Big Game*, 1914, p. 465, the horn measurements of this species are derived from six specimens only, and two of these, both in the British Museum, have front horns enormously exceeding in length those of the remaining four. They measure respectively just over 32 in. and 37 in.; the third on the list being 15 in., and the last only 5 in. Again, the British Museum examples are the only two in which the basal circumference of the front horns, over 17 in., is less than the length. In the others the circumference usually exceeds the length, generally. Unfortunately, no measurement of the rear horn in the museum examples are available, but in the others that horn is always much shorter, but only a little narrower than the front one. The following measurements of the horns of Mr Hubback's specimens show that they fall into the short-horned category:

- 1. Length of front horn, 10 in.; circumference, 18 in.; length of rear horn, 6 in.; circumference, 16 in.
- 2. Length of front horn, 7 in.; circumference, 16 in.; length of rear horn, 4 in.; circumference, 12 in.

The facts above stated show that the front horns of this species may reach a length which would be considered good for an African black rhinoceros. Possibly the great scarcity of such horns is to be found in the value set upon them by Chinamen (possibly also Malays), who, according to Blyth, eagerly buy them at high prices for carrying into ornaments and for use for medicinal purposes.

A other point of interest connected with the heads in question is the absence of fringes on the ears. They differ in this particular from the heads of examples of the Zoological Society has received from Chittagong, which had the outer rim of the ear thickly fringed with hair. Dr Sclater considered these Chittagong specimens to belong to a distinct species, to which he gave the name *lasiotis*. There is not sufficient material to show the exact value of this difference, but it is generally regarded merely as of racial importance.

Since the Zoological Society has for several years been without an example of this rhinoceros, a young specimen would be an exceedingly valuable acquisition to the G. Z. dens.

R. I. POCOCK.

**HUNTING THE SEA OTTER.** By Alexander Allan. With illustrations. Price 7s. 6d. net.—FIELD & QUEEN (HORACE COX) LTD., Windsor House, Bream's Buildings, E.C.—[ADVT.]

## THE LATE

THE WAR of natural Capt. the Hon Dartmouth, w Gerald Legge's brief time allot things in the As a specialist *Anatidae*, he w recent years se a scientific poe experience of h home was ver thorough and o the task of a lake at Patah through were Netherby floc of seefing flock from birds ree been only a ma such as pinta left for his last joy and enthu a pair of garga a genuine biru excelled many increase in the to his careful m

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## THE PLAGUE

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## PRACTICAL

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