

rent side, until at length the antelopes passed over a ditch in which a fifth wolf lay concealed. This wolf, jumping up as the antelopes crossed, secured one of them, upon which his four companions joined him, and assisted in making a meal of the captured animal.

A civilian of the N.W.P.\* told me that he witnessed a very similar occurrence in Oudh. He saw two wolves standing together, and shortly after noticing them was surprised to see one of them lie down in a ditch, and the other walk away over the open plain. He watched the latter, which deliberately went to the far side of a herd of antelopes standing in the plain, and drove them, as a sheep dog would a flock of sheep, to the very spot where his companion lay in ambush. As the antelopes crossed the ditch, the concealed wolf jumped up, as in the former case, seized a doe, and was joined by his colleague.

Here are two well-authenticated instances of an action or series of actions requiring the exercise of combined sagacity of a high degree on the part of two or more individual animals, being performed in exactly the same way by different members of the same species. Was the method employed by the wolves to secure their food, which they could not have caught single-handed, the result of separate experience or of inherited habit? The identical character of the stratagem employed in the two cases points to the latter.

I have noticed some similar instances of collective action on the part of other animals which I believe to be as much inherited as the habitual actions of individual animals. I have constantly seen a flock of pelicans when on the feed form a line across a lake, and drive the fish before them up its whole length, just as fishermen would with a net. The capture of the fish is rendered doubly easy by this method. I have witnessed exactly a similar plan pursued by a large number of Ganges crocodiles which had been lying or swimming about all day in front of my tent, at the mouth of a small stream which led from some large inland lakes to the Ganges. Towards dusk, at the same moment, every one of them left the bank on which they were lying, or the deep water in which they were swimming, and formed line across the stream, which was about twenty yards wide. They had to form a double line, as there was not room for all in a single line. They then swam slowly up the shallow stream, driving the fish before them, and I saw two or three fish caught before they disappeared.

Where a large number of individuals constantly repeat in continuation the same action, it is possible that the younger members may merely copy the older members of the species, and so carry on the habit generation after generation. This is less likely where few are concerned, as in the case of the wolves. A pair of wolves are probably of the same age. It is a marked habit of some species of birds to hunt in pairs, and assist each other in the capture of their prey. The *wokhab*, or common eagles of the Indian plains, hunt in this way. When one of the pair misses in its swoop, the other descends on the victim before it has time to make a fresh attempt to escape. The circumstance that some species of birds of prey are in the habit of combining for the capture of their food, while others hunt singly, would tend to prove that the combined habit is as much inherited as the habits of individuals are known to be.

Gregarious actions, which require combination of purpose on the part of two or more individuals, entail the exercise, if not of a higher degree of intelligence, at any rate of a greater number of intelligent qualities than the isolated actions of single individuals. This class of actions possesses, therefore, a special interest. Those instances in which different individuals perform totally different acts for the attainment of the same end, as in the case of the wolves, are the most interesting, as requiring the most intelligent qualities. I should be glad to learn if any of your readers have ever witnessed or heard of the stratagem described above being employed by wolves for the capture of their prey.

Allahabad, June 29

E. C. BUCK

#### Ants and "the Taint of the Hand"

IN NATURE, July 24, Mr. James D. Hague, writing on the habits of ants, attributes their dislike to the place across which a finger has been drawn to "the taint of the hand."

Now, Sir, I have frequently drawn a line with a piece of chalk across the track of ants, and observed in them the same symptoms of dislike as Mr. Hague's ants showed to the finger-mark.

\* Mr. Elliott, B.C.S., now Secretary to Government, N.W.P.

I have also drawn a small circle with chalk round one or more ants, who will seek a spot untouched by the chalk through which to make their escape; but should there be no such opening, they will presently cross the circle. If, however, this enclosure be made upon a perpendicular wall, &c., they will frequently drop to the ground rather than walk across the line.

Now, as I have never observed this same dislike—exhibited by dropping—of the "taint" when ants have been running over my hands, and as the chalk-line has the same effect as the finger-mark, may it not be something else than the "taint of the hand" to which the ants object when their usual track is interfered with?

Stamford, Aug. 8

G. E. C.

#### Venomous Caterpillars

WITH reference to a paper published by Mr. Murray in NATURE, vol. viii. p. 7, on Venomous Caterpillars, I wish, in corroboration, to add my testimony from personal experience, that a species of caterpillar has the power of inflicting a very painful sensation (I will not say wound, as such was not visible) by its sting.

In 1868, when travelling in company with Capt. Street in the Burmese forests on a botanical trip, and whilst in the act of detaching a specimen plant of *Deudrobium farmieri*, from the naked branch of a tree, I felt a severe and painful sting on my thumb. On examination I noticed I had seized hold of a large caterpillar lodged amongst the roots of this orchid. It was about two inches long, clothed with erect hairs; its colour was a reddish brown, the lower part of the abdomen being darker, with well-developed legs.

My thumb continued painful for three days; it was considerably swollen, the skin having a drawn glazed appearance.

The Burmese told me that this kind of caterpillar was exceedingly venomous, and one fellow was particularly consoling by informing me that unless the pain subsided in three days the sting might prove fatal. I am inclined to think that the caterpillar for self-protection has the power of detaching these hairs; whether any propelling force is present at the time of detachment it would be difficult to prove.

I found steeping my thumb in Eau de Cologne gave me the greatest relief.

Whether these hairy caterpillars have a special venom or otherwise I do not feel qualified to express my opinion either one way or the other; but I lean towards the conclusion that the irritation is set up by the mechanical action of the spine during its penetration of the skin, and my reason for inclining towards this opinion is because we have a somewhat parallel case in the irritation caused by the hairs of the prickly pear.

I was present when an officer was thrown off his horse into a prickly pear hedge; he suffered the greatest pain, and could not bear the parts, where these minute spines had penetrated the skin, to be touched. On his being placed in a warm bath the relief was almost immediate, especially to those parts capable of total immersion, and this I attribute to the prickles or hairs floating and becoming removed from the skin by the oscillatory motion of the water.

Madras, July

R. BENSON

#### Abnormal Ox-eye Daisy

IN 1868 I gathered among the ruins of Pompeii a very curious monstrosity of the common ox-eye daisy. The flower and flower-stalk were confounded into a strap-shaped mass which was fringed with the florets. I showed it to Prof. Wyville Thomson, who told me it was an instance abnormal in this species, of the form of inflorescence which is normal in the cockscomb.

JOSEPH JOHN MURPHY

Old Forge, Dunmurry, Aug. 1

#### Canarese Snakes

FAM. *Erycidae*, Gen. *Gonylophis*? Sp.?—Captured in Mangalore, December 2. Gape wide; fangs in sup. and inf. maxillaris.

Body moderate, tail short, obtuse scales, smooth, 48;—ventrals narrow, 197, terminating with three rows of scales between last ventral and anal; latter entire. Subcaudals single, 24, last forming conical point.