

Puss tried the door, and mewed, thinking, probably, some one must be near, and after waiting two or three minutes in vain, again sprang up the trellis, and renewed her attack on the bell-wire, of course to be immediately admitted by the delighted maid, who this time did *not* cross the yard, nor ever again, I fear sometimes to the inconvenience of visitors, if puss was waiting for admission.

Now I think Mr. Henslow will concede that no one ever taught that cat how to ring the bell by *pulling the wire*. To my mind she must have gone through the following process of reasoning:—1. She noticed whenever the bell rang the door opened. 2. In clambering up the trellis to the house-top she accidentally moved the wire, and caused the bell to ring. This probably occurred several times before she noticed it, but having once done so, she repeated it, purposely, whenever she wanted entrance; I have often made her do it for the amusement of friends, by turning her out from her snug nest by the fire on cold or wet days.

I have known dogs shake a door violently to attract attention and be let in. A dear old spaniel of ours, at the Cape, used to rattle the empty bucket if he was thirsty, and then come and look in our faces. My horse will come up from his pasture to the pump in the yard and whinny till some one gives him water. I have known several dogs rear up and place their paws on the old-fashioned "thumb-latch," and let themselves in. Surely all this is "abstract reasoning"? These things are not taught them, and they do not do all of them, even by imitation. I don't go to the pump and whinny, if I want drink! nor rattle a bucket! No! they come by a process of mental reasoning, and I am convinced all animals have it to a certain degree, more or less. I could multiply instances by the page-full, but have already taken up too much space. Among others I could confirm the gnawing of water-pipes by rats to get at the water.

Brit. Consulate, Noumea, May 30 E. L. LAYARD

As a contribution to the doubtless numerous cases in which dogs have recognised the representations in paintings, I put on record the following fact:—

I have in my possession a small picture in which several dogs are represented; a small spaniel was frequently found standing on a chair before the picture and barking at it, and this was the only picture of which he took any notice. P. B. M.

Black Lizards

FROM the interesting letters of Messrs. Giglioli and Ernst it appears that lizards are found of a black colour where, according to received ideas, they ought to be nearly white. How is this anomaly to be explained?

With all due respect to those who have made this subject their study for tens of years, it seems to me that they keep too exclusively to one single proposition, which may be thus enunciated: *An organism is made to prey or be preyed upon*. What I am inclined to maintain is that an unfavourable climate is the common enemy of all, an enemy that must be eluded. If an animal be thrown into a climate too hot, or too cold, it will die if it cannot speedily adapt itself to its altered surroundings. We see a mild case of this adaptation to environment in man himself, the pale-face of temperate zones becoming soon in torrid zones bronzed, and, after a few generations, black. The black dermal covering is therefore clearly the one which is best adapted for extreme heat.

I submit then that here we have the case of the lizards simply stated. On the sandy beaches of Los Roques and Orchila, covered with a very scanty vegetation the pitiless rays of the sun must fall on the lizards in a most uncomfortable manner, to say nothing of the heat reflected and radiated from the ground itself. From the moment the islands were separated from the mainland, a change would commence in the lizards to suit them to their altered position, a change which has resulted in their present wide divergence from the mainland type so far as colour is concerned.

WM. ACKROYD

Sowerby Bridge, July 31

Spicula in Helix

THE spicula observed by your correspondent (NATURE, vol. xx. p. 316) lying underneath the albuminiferous gland in some specimens of *Helix aspersa* are probably Spicula Amoris. Their cal-

careous composition if coupled with a quadrangular outline would establish the fact.

PAUL HENRY STOKOE

Beddington Park

Distribution of Black Rat

IT may interest Mr. Middleton to know that in 1866, the black rat was abundant on the top of the Island of Ascension; below, the "House of Hanover" held sway. I counted about a dozen, lying in a manure pit, that had been killed in the farm stables, during the previous two or three days, and was told by a soldier, who did not think them anything out of the way, that "there were plenty of them."

E. L. LAYARD

Noumea, May 31

ON THE STRUCTURE OF THE STYLASTERIDÆ: A FAMILY OF HYDROID STONY CORALS¹

UNTIL the late Prof. Agassiz in 1859 announced his discovery that the Milleporidæ were Hydroids and not Anthozoans, it was confidently believed that all living recent stony corals were most closely allied in their essential structure to the common sea anemones of our coasts. The majority of stony corals still remain under the old category. The beautiful calcareous branched or variously formed objects so familiar as ornaments or as exhibits in museums are nearly all of them formed within the bodies of animals which differ in no important features from the flower-like anemones of our aquariums. The sea anemones have no hard skeleton to support their soft and yielding bodies; the corals differ from them in that they have such skeletons. These are, during the life of the animals of which they form part, entirely embedded within the soft tissues, and only become exposed and appear in the familiar form when the animals are dead and their flesh has been removed from their bones by the action of decomposition or more speedy solution by means of caustic alkalis.

It seems difficult to explain how the popular error by which corals are spoken of as structures built up by coral "insects" arose. It is still perpetuated with considerable misleading detail in some schoolroom books, and it is quite common to meet still with educated persons who regard coral as analogous to honeycomb, and look upon it as built up by the "insects" in much the same sort of way.

Very many corals are solitary or simple, being the skeletons of single animals. As an example may be cited the mushroom-coral, the common chimney ornament, which is the largest known simple coral. This is the skeleton of a single animal comparable with and closely allied to a sea anemone. By far the greater number of forms of corals are, however, compound; that is to say, they are the skeletons of colonies of animals, each comparable to a single mushroom coral but living united together for mutual benefit and with their skeletons fused together to form a common support. Such are for example the various branched Madreporas and other similar forms, and the brain-corals so often brought home from the tropics by sailors.

Until Prof. Agassiz made the discovery above alluded to it was supposed that all stony corals were, as above described, Anthozoan. He found, however, to the astonishment of naturalists, that the corals known as the Milleporidæ were the skeletons of animals allied not to the sea anemones, but to the jelly-fish or Medusæ and the common Hydra of our fresh-water ponds and ditches. The Milleporidæ, of which there are very many species, which, however, fall within but a single genus, Millepora, are either branched and form shrub-like or antler-like masses of various sizes, or occur as irregular rounded lumps, often spreading in their growth over dead corals or other objects, and encrusting them. The Millepores are distin-

¹ The Croonian Lecture, 1878.