

THEIR WAY OF DEFENCE.

SOME OF THE WAYS ANIMALS DEFEND THEMSELVES.

The Remarkable Gilt, which Nature has bestowed upon some of the Despondents of the ocean—allow the Octopus does its Work of Defence.

'If I was going to undertake to prove the existence of mind in nature,' said a naturalist, 'I would take the methods of protection exhibited by various animals. As an example, look at these Pacific Coast octopuses, indicating a small tank in which were seven or eight sprawling animals reaching out in every direction for some flying mackerel; they have two remarkable methods of escape. Watch this one when I drop it into the tank.'

The speaker took from a can an octopus so large that it covered his hands with its slimy folds, winding about them like so many snakes. He held it over the water for a moment, then the animal released its myriads of suckers. As it darted away it left a wave of ink behind that was so dense that pursuit was out of the question.

'That,' continued the naturalist, 'is one of the most remarkable methods of protection in the animal kingdom, and is to an extent complete, as the animal is perfectly concealed from its enemies. Yesterday I was fortunate in being able to notice the attitude of a squid about six feet long. It was placed in a tank eight by fifteen and the moment it was released it sent a volume of ink into the water and in five minutes an extent of 820 cubic feet was almost black. An examination of the squid showed that the ink bag was long, lying along the lower part of the intestine, the larger portion being three and a half inches in length, the entrance opening into the siphon. Later I took out this ink bag and found it full of ink—the sepia of commerce—and diluting some of it wrote with it. So a squid can be written up with its own ink.

This faculty of throwing off a protecting barrier is not confined to the cuttle fishes and squids. I have a remarkable aplusion or sea slug, that is nearly eighteen inches in length. It is a perfect slug, capable of moving by creeping along on its foot in a slow manner. Irritate it or make it think that it is going to be disturbed and it throws out a beautiful violet ink that will fill in a few seconds a tank containing forty or fifty cubic feet of water. The ink is not so dense as in the case of the octopus, but it is almost as effective as I have found it impossible to follow a fish with success as it was continually disappearing in the artificial gloom. The sea snail—Lanthina—throws out a beautiful purple ink that stains linen almost indelibly. A small shell has a similar power and from the vast numbers found in Italy in shell heaps it is supposed to be the original of the Tyrian dye or purple of the ancient Romans. Search through the various branches of the animal kingdom doubtless produce similar and equally interesting instances. In the search for remarkable methods of defence one is struck by the statement of Semper that a sea slug in the South Pacific throws out a discharge of minute barbs or javelins that are actually shot clear of the animal; are minute yet of sufficient size, force and virulence to constitute a protection.

Among the insects we find a remarkable method of protection. The Peripatus is a seemingly helpless creature, but it is some animal acceptable to his palate approaches it draws back its head and ejects from its mouth and special glands a curious secretion that has the singular faculty of crystallizing in the air, freezing it, so that a mass of darts or cords resembling ice or glass are sent about the victim that is thus completely bound and held, all its struggles being futile. In a word, Peripatus, a very low form, seems to be able to create a web and encompass its prey in a second so that it can devour it leisurely. Such methods are wonderful, but many of the animals I have mentioned have other resources, among which the adaptation of color to their surroundings is the most interesting. Imagine a man running along over the country; when he came to a dusty road a flash of gray overcame his face and body so that he was almost invisible. Now he reaches a rocky shore and the grey of a moment before deepens and increases until he is almost black. Such a change would be deemed marvellous, yet this is exactly what scores of animals do all the time. The same octopuses which I have watched throw out their ink to the confusion of their enemies are adepts at this change of color. I had the bottom of the tank arranged so that it was of different colors, and it was interesting to note the changes which were often almost instantaneous. On the white rocks the animals are of a very light color; those on the black bottom very dark and so on. Change them about and they soon become adapted to the new condition of things. When disturbed the color changes flashed over their surfaces like blushes over sensitive person's face;

and when enraged patches of black appeared, the animal having the aspect of a tiger.

'The power of squids is remarkable. I had one that, including the long tentacles, was six or seven feet in length, and it was almost impossible to wrench away a stick or anything it had embraced with its tentacles, showing the power a large squid must possess. This creature gave a fine exhibition of its color changing, the tail portion flashing and paling constantly, reminding one of the play of heat lightning. This is true of the flat fishes, as the sand dab, California sole and others. They lie upon the bottom and assume almost the exact color and tint of their surroundings, and their enemies the sharks, that are armed with rows of ferocious teeth and cannot change color, fail to distinguish them from advantage of this to escape sharks and other predatory fishes, and assume marvellous tints while their strange shapes add to the deception.

'Among the reptiles we find the same protection. I have kept a number of the very defenceless horned toads, a spiny and harmless lizard, in an enclosure, the floor of which was like a checkerboard of different colors, and it was interesting to see them adapt themselves to it. On a white ground they would be very pale or a light gray; on a very dark one a rich red or brown, all finding protection or concealment in the change of color. The little Florida anolis is a remarkable example of this, while the chameleon of the East is known all over the world for this faculty.

I once visited a key on the outer Florida reef for the special purpose of watching the methods of protection of the various animals, and I saw a remarkable instance of an animal's power of rendering itself invisible to an enemy. The key while covered with bay cedar was cut up into byways and lanes just wide enough for a person to

push through. In following up one of these lanes I came upon a spider's web that bridged the pathway. It was a flimsy affair, the most interesting feature being the remarkable length of the cables that held it to the bushes on either side. These were as large as a large thread and strong enough to be used as thread. Indeed they have been put to such use in the Bahamas. The web proper was in the centre—a comparatively small affair—and upon it clung a large spider with bars of black and white on its enormous abdomen, the white patches giving it great prominence. When I first observed the spider it was hanging motionless on the web, but the moment it caught a gnat of me it began to swing the web. Gradually the motion increased and I now could see only the long guy ropes. The motion was rapidly increased, the big spider began to disappear from view and in a moment was gone. I stood perfectly still until slowly the spider came into sight again and presently rested almost motionless in its web, starting the swinging again when I moved. The swinging movement was this gnaty spider's protection, as no bird could have seen it, and its disappearance was complete, owing to the rapid motion, just as a boy whirls a stone about his head so rapidly that it disappears from view. Do some of these peculiar dissolving views of spiders appeared and disappeared as I moved up the little avenue in search of gnat's eggs that lined it in vast numbers each egg an unconscious mimic of its surroundings, and thus finding almost perfect protection, as it was difficult to see them from a short distance. They were speckled with spots and splashes and resembled the curled yellow and brown leaves of the bay cedar.

HANDY WITH A SHOTGUN.

So They Thought Him, Though It Was the First Time he had Ever Fired One.

'I've often wondered,' said a jolly-looking man, 'if anybody ever got the credit of being a good shot as easily as I did. I was visiting at a house in the country and one day the host says: "Let's go out

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and try the shooting.' There were two or three other guests there besides myself. The host led the way into the hall, where there were standing three or four shot-guns. He handed a gun to me, though though really I didn't want it, supplied one or two others of the guests, who did shoot with guns, and took the remaining gun himself, and we started out.

'It was a delightful tramp, and a novel experience for me, going gunning, for I had never fired a shotgun in my life. I enjoyed it all very much, but I sort of joggled along in the rear, a little behind the rest to give the others a chance at the game, with the hope that I would not be called upon to shoot. I thought I should only make a ridiculous exhibition of myself; but, as it happened, I fired the only shot fired that day, and it was a bull-eye.

Right in the centre of a field that we were crossing there was a big dead tree, sixty or seventy feet high, and on the top-most branch of it sat a solitary pigeon. The quick-eyed host, a keen sportsman himself, turning around to see if I were coming alright—he was walking just ahead with the others—spied that pigeon.

'There is a chance for you,' he said to

me, enthusiastically, as he looked up at the bird, and I couldn't do less than make a bluff at it. I swung the old shotgun up and fired, all in one moment, and dropped the bird just as near as you please. The host was delighted; it would have been a good fair shot for anybody to make, and he was especially that it should have been made by one of his guests. The rest had turned in time to see the pigeon fall. I had protested that I was no shot and they all thought now that I was far too modest. And so by that single chance shot I got the reputation, at least for the moment, of being very handy with a shotgun.

Admiral Dewey Homeward Bound.

The cruiser Olympia, with Admiral Dewey on board, left Manila May 30th, on her homeward journey to the United States. She has stopped at Hongkong to change her drab war-paint for white, and will come by the way of the Suez Canal, reaching New York, probably, not far from the first of August. The Olympia left Manila to the noise of saluting batteries and the music of brass bands, with the men on the other war-ships cheering and the merchant vessels dipping their flags. She will be cordially received at foreign ports, and preparations are being made for a great demonstration when she reaches New York.



IDLE MOMENTS.