

fish to a considerable height, and drop it on to a shallow in one of the bays, recover its prize, and drop it again and again to obtain the fish within. Many weeks before nesting time these birds visit the old breeding-stations, as if to estimate the repairs that will be necessary to render the old nests available; this visit is carried on with great clamour. A cormorant (*Graculus*) was shot at and wounded at a tench-pond at Rockwood; it kept in the pond; it could not fly. A dog was sent in to fetch it out; it faced the dog resolutely, which turned tail; this part of the animal was immediately seized by the cormorant, who was in this singular manner towed ashore; but its odd feat did not serve to save its life. The fantail flycatcher (*Rhipidura*) enters houses in pursuit of flies glancing from room to room; it soon clears them of these insects. Dr. Otto Finsch in his "Ornithological Letters from the Pacific" mentions this habit as witnessed by him here.

Amongst hymenopterous insects the Sphegidae offer instances of intelligence. A species of Spheg with orange-coloured body deposits the benumbed or torpid bodies of spiders in some crevice for future use. An individual of this species had its hole in a dry corner beneath the plate of a long veranda. One day I observed it dragging a victim along a gravelled walk that was parallel to the veranda; the small stones and grit made its progress very difficult. After very trying struggles with these impediments it displayed a remarkable degree of intelligence, by which it gained its ends. It altered its course and made for the veranda, ascending the smooth, painted board that adjoined the gravelled walk. After slowly traversing seven inches of perpendicular it came to a rounded beading which projected outwards. Now came its supreme moment of physical exertion. The body of the spider apparently was too heavy to render the aid of wings available. After several pauses in its progress it slowly yet surely surmounted the difficulty presented by the projecting beading, gained the level boards of the veranda, along which it travelled rapidly with its burden, which it sometimes dragged, sometimes pushed before it. By the expenditure of great exertion in surmounting the beading it gained a smooth and level run to its home of thirty-nine feet. A species of Mantis remains so still on a leaf of its own colour that it is difficult of detection; it takes its prey by surprise, darting forward its armed fore-limbs with a sudden spring.

I have had in the shrubbery a colony of Phasmæ for the last nine or ten years. In all that time they have remained almost entirely on one tree (*Oleurea Fosteri*). Yet, accustomed as I am to them, they place themselves so much in a line with the sprays of the tree that they are difficult to discern; in drizzling north-east weather some dark markings appear along their bodies, which match the wet sprays wonderfully. It should be noted that the Australian magpie, the halcyon, and many insect-eaters have for years bred and lived in the trees or banks near them; yet they still survive, notwithstanding the proximity of these enemies to insect life.

T. H. POTTS

Ohinitahi

THE following extract from a letter which I have just received from Mr. J. H. Wheelwright appears to me of sufficient interest to publish in your columns, as it serves to give, among other things, a good deal of new and first-hand information on one of the most important branches of comparative psychology, viz. that relating to feral and partly wild domesticated animals.

GEORGE J. ROMANES

Cattle very easily relapse from domestication. They become distinctly nocturnal in their habits; their sense of smell is very strong. Wild cattle degenerate rapidly in size, owing, I think, to the persecution of the young heifers by the yearling bulls. In three or four generations in Queensland wild cattle revert to one uniform colour, a dun colour or dirty brown with a yellowish stripe along the spine, and a yellow nose. Wild cattle will remain all day long concealed in the depths of thick, inaccessible jungle—"bungalow scrub" or "mallee" we call it in Australia—issuing forth at night to graze and drink, and it requires much care and very hard riding to entangle a few of them among a lot of quiet cattle and secure them. Australian cattle have many habits their domesticated progenitors have lost. For instance, in summer-time grass becomes very scarce near the rivers, and the cattle walk in from their feeding-grounds as much as ten or fifteen miles to water, marching in long strings and feeding back again. Young calves of course could not do this. I have frequently noticed two or three cows far out on the plain, who, when they saw me, would lift their heads and watch me. Presently I would

come across a kind of *crèche*, a mob of perhaps thirty little calves all lying snugly in some small, sheltered dip of the ground, left there in charge of the sentinel cows by their mothers who had gone in to water. Now as soon as these calves saw me they would try to hide—do it very well too, under any little bush there might be handy, and lie close until I got off my horse and touched one; then he would jump up, and, no matter how young, make a staggering charge at my legs. He would give a peculiar cry at the same time, which would bring the guardian cows in at a full gallop and give me reason to mount at once. Cattle have extraordinary *homing* power; so have horses. Cattle recognise *individuals* in a very extraordinary way. I have had considerable experience in droving large herds, say 1000 or 1200 head, long journeys extending over many months. I have been struck with the fact that, a week after that herd has been travelling, every beast in it seems personally acquainted with every other: that is, if a strange cow or bullock were to join the herd, that cow or bullock would be immediately expelled. When a herd is travelling thus, each beast in a very few days takes up his position in the mob, and may always be found in the van, the rear, or on the right or left wing, the strongest cattle leading. That cattle and horses can *smell* water is a delusion. Cattle and horses always have their particular friends; at night when cattle are *camping* on a journey, there is always much bellowing and fuss until certain *côteries* of friends get together and lie down comfortably. A beast blind of, say the *left* eye, always travels at the outside of the *right* wing of the drove. A beast that has been scratched sufficiently to draw blood will be hunted and pursued by all the rest. Cattle have a habit of appointing certain *camps* or *rendezvous*, where, on any alarm, they congregate. Half-wild cattle are sometimes very difficult to drive off these camps. Wild cattle are singularly clever in concealing themselves, as are all wild beasts, and will hide in half a dozen little bushes no one would suppose would hold a calf.

Wild "dingo" puppies, taken away from their mothers, are easily reared, but never lose their inborn savagery: they are not to be trusted near poultry, sheep, or cats. The chief difference between them and their civilised brethren is, if, say a collie pup misbehaves himself and is kicked, he yelps, sticks his tail between his legs, and runs away; whereas his wild brother, with his tail erect as that of a Dandie Dimont terrier, snaps viciously at the foot which kicks him. I have owned a pure-bred dingo ("warrigal" we call them) which ran with our kangaroo dogs, and the dog would worry one of his own kind with as savage a zest as would any of the great powerful hounds with which he had associated himself. As to feigning death, I think the Australian "dingo," or "warrigal," a good case in point. We once ran a wild dog with three powerful kangaroo dogs, noted for their killing powers; they caught him, worried him, and he lay for dead; at any rate the hounds thought he was done for; they lay down quite contentedly to regain their wind. We cut off the warrigal's brush, and he gave no sign. Just as I was getting on to my horse, I saw the supposed corpse open one eye. Of course we put the thing beyond a doubt. A kangaroo dog has been known to run down a dingo bitch at heat, line her, and then kill her. The worst and most dangerous wild dogs in the Australian pastoral districts are *half-bred ones*. Kangaroo dogs should be, I think, about three-quarters greyhound—the rest either mastiff or bull-dog; such a dog should be able to catch and kill almost anything.

A doe kangaroo, when hunted and hard pressed, will throw the young one out of the pouch into any handy clump of scrub or tussock of grass. The "Joey" accepts the situation, and makes himself as small as ever he can; in fact, in looking for him, all you ever can see are his bright eyes. Young kangaroos seem to possess exactly the same instinct as the calves of wild or semi-wild cattle, that of concealing themselves. Young kangaroos soon adapt themselves to circumstances, and make themselves comfortable at the bottom of the pocket of a jacket.

I remember that once upon a time, about 1856, we caught a brood of wild ducklings, which we took home and put under a hen. These ducklings, not one of them fledged, walked a mile and a half along a very dusty road to the place whence we had taken them, and rejoined, as I hope, their progenitors. Our black boys tracked them.

Diffusion of Scientific Memoirs

IN some of the numbers of NATURE which have recently reached me I find that Prof. Tait has broached a subject of