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MENTAL POWERS OF ANIMALS.

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To a student of Natural History nothing is perhaps more interesting than to observe the display of mental and other powers by animals. In many instances it is exceedingly difficult to distinguish whether a particular action is the result of instinct, or that of reason, and at the outset it will be as well to understand clearly the difference between instinctive and rational actions. "Instinct," says Romanes, "is a generic term comprising all those faculties of mind which lead to the conscious performance of actions that are adaptive in character, but pursued without necessary knowledge of the relation between the means employed and the ends attained. We must, however, remember that instinctive actions are very commonly tempered with what Pierre Huber calls 'a little dose of judgment or reason.' But although reason may thus in varying degrees be blended with instinct, the distinction between the two is sufficiently precise; for reason, in whatever degree present, only acts upon a definite and often laboriously acquired knowledge of the relation between means and ends. Moreover, adjustive actions due to instinct are similarly performed by all individuals of a species under the stimulus supplied by the same appropriate circumstances, whereas adjustive actions due to reason are variously performed by different individuals. Lastly, instinctive actions are only performed under particular circumstances which have been frequently experienced during the life-

history of the species, whereas rational actions are performed under varied circumstances, and serve to meet novel exigencies which may never before have occurred even in the life-history of the individual."

The chief feature that strikes one in observations of this kind is the extraordinary amount of variability in the mental capacities of animals belonging to the same species. This phenomenon is particularly apparent in dogs. No two are alike, and in individuality they differ as much as human beings do.

For many years past I have been in the habit of attending carefully to various characteristics displayed by dogs and other animals, and by birds, and the result of my observations, as also a few furnished by some friends and others, may, perhaps, be of interest to a few readers.

At present I have two terriers—mother and daughter—and it is astonishing to notice the great mental gulf that separates them. The mother from a very early age exhibited a considerable amount of intelligence, more so than is generally observable in others of the same species. She "took" to rats and guns as a duck does to water, and seemed from the commencement to know what was expected of her. The daughter, on the other hand, had to be trained in both things, and here her instinct did not even seem to help her.

While we are sitting at meals, the old dog frequently scratches one's arms to attract attention when she finds herself being neglected; and again, in order to have her back scratched, she walks up to one, whines, and then turns her head round towards her back to indicate the part of her to which she wishes to draw attention. She has a peculiarity which I have not noticed in other dogs: When she has puppies, and they have grown a few weeks old and are able to crawl about, she finds that her milk is not sufficient to satisfy them, so she has a hearty meal, and deliberately vomits it before them. She then induces the pups to eat by pretending to eat the mess herself, making a low whining noise the while to attract their notice. The mother knows no doubt exactly when meat will not be harmful to her family. I also observed that at this stage she frequently brings bones and other tit-bits for her pups. But

the most interesting example of intelligence is shown by these dogs when they happen to discover a rat or a mouse in a place which they cannot get at without help. I have a very vivid recollection of the behaviour of one of the dogs on the first occasion that she came to me for help. In this case a rat was tracked to a large packing-case, which had been stored away in an empty godown. For a long time I heard a good deal of barking and whining going on, but took no notice of it. The dog, on finding that nobody went to help her, rushed into my room suddenly, and began to behave in a very unusual manner. She repeatedly barked, rushed to the door, and then looked round to see if I was following her. I did not at first grasp what all this meant, and tried to pacify her, but as my efforts proved fruitless, I got up and went after her. She ran on ahead, and kept looking back anxiously to see if I followed. On two or three occasions I stopped, but this seemed to excite her more. Guided by her movements, I came to the box at last, and the cause of the whole of this strange proceeding was, of course, at once apparent. Since then these dogs have frequently repeated this behaviour, and, to tease them, I have pretended to walk in a wrong direction. It is really a most curious sight to watch their efforts to try and set me right!

Among birds, crows are remarkable for their intelligence, and many stories could be related in support of this statement. Large cities, like Calcutta, Bombay, and others in India, generally swarm with the grey-necked variety (*Corvus splendens*), and from seeing how numerous their nests were (I once counted five on a single tree on the Calcutta Maidan), it struck me that these birds must experience considerable difficulty and trouble in getting together materials for their large homes. My attention, however, was shortly afterwards directed by my friend, Mr. Harrington, to their method of obtaining sticks. The procedure was as follows: A crow would select a dry twig, which was still adhering to the branch, and endeavour to snap it with its beak. If it did not readily yield to this force, the bird deliberately flew against it from a slightly higher altitude, and by the force of its momentum invariably severed the twig's connection with the branch. Before the stick had time to reach the ground, other crows, who always seemed to be on the look-

out for such mishaps—the competition for materials being very keen—would fly down after it, and then invariably ensued a struggle for ownership.

I have often wondered whether it is reason or instinct that guides Jungle Crows (*Corvus macrorhynchus*) to the nests and young of small birds. It has been said that some schoolboys have a genius for discovering hidden nests, and all observers in India will agree that crows are in no way behind boys in this respect. These birds are not usually to be seen searching systematically for nests, as an oölogist has to do, and yet the numbers of eggs destroyed by the former is something appalling. They are doubtless to a very large extent guided to the spots by the movements of the parent birds.

Crows apparently know that water has a softening effect, as a couple of years ago I saw one of these birds frequently bring a bone or dry piece of bread, drop it into a bucket containing some water, let it soak for a little while, and then eat it.

A few years ago I was fortunate enough to witness a curious case of intelligence displayed by Short-billed Minivets (*Pericrocotus brevirostris*) when they found that their young were in danger (*vide* 'Journal of Natural History Society,' Bombay, vol. xx., No. 2). A friend and myself were out egg-hunting, and found a nest of this species on a Himalayan cedar. When my man had climbed up the tree close to the nest, the parent birds (as I afterwards discovered them to be) began to behave in a most singular manner. They would turn their tails inwards between their legs, spread out their wings, and flutter down from a neighbouring tree on to the ground, just as a young bird, which could scarcely fly, would do. I at first thought that these birds were the young ones from some other nest which might be close by, and began chasing them about in order to catch them. As soon as I got close to one of them, it would steady itself, and fly on to the branch of a neighbouring tree, only to repeat the performance again. After watching them for some time, and observing them closely, I discovered to my astonishment that they were the parent birds! Their object in behaving in this extraordinary manner apparently was to entice us away from the spot by trying to delude us into

the belief (as they undoubtedly did at first) that they were the young birds from the nest.

My friend, Mr. T. G. Baldwin, has sent me the following very interesting note, which I quote *in extenso* :—

“ You have asked me to give you a few instances which I may have observed of intelligence displayed by animals in the Sundarbans (Bengal), a place with which I have been acquainted for many years. The tract is about 270 miles in length from east to west, approximately 80 miles from north to south, and forms a network of rivers and islands. The main rivers of the Sundarbans are very broad, and near the sea-face the banks are miles apart. The big game to be found in this tract are Royal Bengal tigers, rhinoceri, leopards, and spotted deer ; the common brown monkey is to be seen in great numbers. I may mention that the rhinoceros, unlike that found in Purneah, Assam, Nepal, and other places, has no horn, but there is a growth of very stiff bristly hair where the horn should be.

“ The sagacity of the Sundarban Tiger is very remarkable. Having exploited, we will say, the whole of one of the islands or *churs*, and finding that the deer and pigs have become conscious of its presence, the tiger seeks fresh fields and pastures new to sustain itself. While on this mission, it crosses from one island to another. With apparent ease it will negotiate a small stream in a single leap. But the sagacity of the animal is tested when a broad river comes in the way. If the tiger happens to be north, and wishes to travel in a southerly direction, it proceeds to the water's edge, and enters the stream at a sufficient distance to feel the force of the current. (The rivers are all tidal.) If it finds that the set of the tide is advantageous to its purpose, it starts off, swimming and drifting till it reaches the opposite shore. In one of my visits to the tract, I came upon a solitary island, bounded on all sides by a vast expanse of water. I did not expect to meet ‘ stripes ’ there, but the fresh pugs on the soft soil clearly indicated its presence. I went in pursuit for some distance, and was only prevented from going further by a stream about fourteen feet wide, through which I did not care to risk wading for fear of being caught in the jaws of a crocodile, which is so abundant in these parts.

“ The ingenuity of the monkeys in this tract is marvellous.

On one occasion a number of them were seen to come to the edge of the stream, which separated them from an adjoining island. The stream was quite twenty feet broad. The alacrity they displayed in devising and carrying out a plan to overcome what appeared to be an unsurmountable obstacle was really wonderful, and is well worth recounting. One of the two largest members of the band firmly attached itself to a bough of a neighbouring tree, and a certain number of the smaller ones linking themselves to it in succession formed, in less time than it takes to relate, a chain. When this preliminary was completed, the other large monkey attached itself to the end of the chain, and, setting it into a swing with its hands, gradually developed a momentum, which enabled it to grasp the bough of a tree on the opposite bank. Those monkeys, including the very young ones, who so far had remained idle on the bank, quickly passed over the living bridge; then, at a peculiar signal, which all seemed to understand, the large monkey, who formed the initial link in the chain, released its grasp, and away they swung safely across to the opposite side of the stream. The calculations of these creatures were, I should say, as accurate as if they had been determined by mathematics. They gauged the breadth of the stream, and the exact number of them which it would take to form a chain of sufficient length to stretch across. This incident occurred at a river called the Booj Booja, at a bend known as 'Fiddler's Elbow.' What I have never been able to ascertain is how these creatures manage to cross the broad rivers. They certainly could never swim such distances; I fancy they must get hold of some floating tree or palm, and so drift until it touches a bank, and then disembark.

“While in quest of rhino, it is interesting to note how the *shikaris* can indicate where the animals are to be found in the jungles. One would think that these large, unwieldy creatures would not be difficult to come up with when once their footprints were found. But this is not the case. You may come up with them in time, but owing to the very dense forest you will probably pass them at a distance of 100 or 150 yards. The *shikaris* are really the only persons who can locate them without difficulty. They ignore the footprints, but every now and again you will observe them halt and look up at the tops of the trees.

On my inquiring of one the reason for this action, he replied :— ‘The *gandar* [native name for rhino] always likes the young leaves of the *garran*.’ (This tree is used largely in Calcutta for fuel, and is *slender*, and does not generally grow to a great height.) Asked : ‘But how do they get to the top leaves?’ ‘Very easily, sir,’ replied the *shikari*. ‘They take it by turns to eat. One of them leans his huge body against the stem ; the soil being soft the tree bends with its weight. If yet too high for the young leaves to be got at by the others, the animal moves his body higher up the trunk of the tree.’ ‘But, then, would not the tree lie where it had been pressed down?’ ‘Temporarily it does,’ replied the *shikari*, ‘but after a time the weight of its roots brings it to an upright position again, and that is why you see us always looking up at the tops of the trees to see whether they have been nibbled at and broken off.’

“These animals are now very scarce ; a great number of them were destroyed in the cyclone of 1867. They are with difficulty to be had except away up to the north. Prior to the cyclone they were very numerous at the mouths of the Roy-mangal and Molinchoo Rivers.”

My brother, Mr. Owen Dodsworth, of the Indian Forest Department, was stationed for some time in the Sundarbans, and informs me that the tigers in this tract know well the difference between the ordinary boats and “dingies” (dug-out canoes). The latter are used by the wood-cutters, and while some were about to land on one occasion in the forest a tiger sprang into the dug-out, caught a man, and sprang back again to land with him. Had these men used an ordinary boat it is probable that the animal would not have molested them.

Birds sometimes show considerable intelligence in availing themselves, during the breeding season, of the protection afforded them by the more quarrelsome and powerful species. This is notoriously the case with the larger Falcons, and “their fellow-tenants of a rock or a tree are not only safe from molestation, but actually look to them for protection.” Some of the *Dicruri* are exceedingly pugnacious during the breeding season, and never allow crows, kites, *et hoc genus omne*, ever to approach within their “spheres of influence.” It is, therefore, not an uncommon thing to find nests of the weaker species in close

proximity to those of Drongos. Along this portion of the Himalayas (Simla) the eggs and young of the Kokla Green Pigeons (*Sphenocercus sphenurus*) suffer largely from the depredations of Jungle Crows, and I have often found a nest of the former placed within a few feet of one belonging to the Indian Ashy Drongo (*Dicrurus longicaudatus*). The Koklas belonging to the nest were allowed free access and regress to the tree, but it was very different when a stranger showed himself in the vicinity. In this particular instance that I happened to witness, it was an unfortunate Black-throated Jay (*Garrulus lanceolatus*), which unknowingly approached too close, and was handled so severely by the Drongos that it soon had to make itself scarce.

Vultures are dull birds, and yet I have been assured on excellent authority that on one occasion when a zealous oölogist approached the nest of apparently a *Gyps bengalensis*, the old bird refused to budge, and, to get rid of the intruder, vomited on him! The sequel of the story is not known, but we may, I think, safely assume that the old bird was left in peaceful possession of her home.

One cannot help being struck with the extraordinary care and judgment exhibited by a large majority of birds in the selection of sites for their nests. When the proper time approaches, a pair may frequently be seen examining branch after branch with the minutest scrutiny; the examination sometimes extending over a considerable period, and at other times being only the work of a few hours. In a large number of cases, it is not easy to say why a particular spot has been chosen, when scores of other places, which to our way of thinking are equally as good, have been rejected. Ants, lizards, exposure to rain and wind, food supplies, &c., are no doubt important factors, which must necessarily be taken into calculation, though these do not always appear to influence selection. Concealment from possible enemies is of course the *sine qua non* aimed at, but even this important precaution is not always taken. Some nests are placed in exposed positions, and the only reasonable conclusion to be drawn is that in their very conspicuousness lies their safety.

Once a spot has been selected, building operations go on with great activity; but in some instances, when a nest has

been partially completed, the site is, for some reason or another, found insecure, and a fresh one chosen; the materials from the old nest being utilized freely for the new one. I have known of an instance in which a pair of birds shifted their nest three times in quick succession to various parts of a bush, but could not ascertain the reason of this. I examined the rejected sites most minutely with a powerful magnifying-glass, but not an insect of any kind was visible, and the rejected sites appeared to be better sheltered from rain and wind than the one chosen last. There must, however, have been some defect, and, in justice to the wisdom of the birds, I must add that they successfully reared their young.

The cleaning of the nests by most Passerine birds is purely an instinctive action; but to realize fully the dangers which would ensue from insanitary conditions, if the excreta of the young were not carried away by the parent birds, one has only to keep, for a few hours, a nest full of young Tits or Magpies. In some species both parents help in cleaning the nest; while in others I have noticed that this task is relegated only to the hen. Of course the pains taken by the old birds to drop the excreta as far away as possible from the nest have the obvious object of concealing all traces of their young from likely enemies.

Faint traces of what may be called *forethought* are sometimes noticeable in dogs and birds. One of my terriers, when not hungry, has a habit of concealing bones in holes in the ground, and then covering them over with some mud. Whether she ever remembers these places afterwards, when necessity arises, and brings out the hidden treasures, I have been unable to ascertain.

Various species of Magpies in confinement also exhibit this habit of hiding scraps of food in nooks and corners of their cages.

We have often heard of dogs, which have been brought up with cats, *imitating* the latter in some of their habits; but at present I have a dog which has never in all her life been privileged to associate with any members of the cat species, and yet some of its actions are distinctly feline in character. For instance, it has a habit of playing with a wounded bird, or half-dead mouse, just as a cat does. And again, it licks its paws, and frequently sits with its front legs bent inwards. When

stalking after Squirrels or Sparrows feeding on the ground, its actions and movements are very similar to those of a cat.

Some years ago I had a pair of Jackals (*C. aureus*), which were brought up with the dogs of the house, and the former in various ways learnt to imitate the latter. They would rush out of the house after strangers just in the manner of dogs; hunt in company with them; and once actually helped to kill a wild cat! They would often come to the table for scraps, but never got rid of that horrible habit of howling when they heard their brethren outside.

Lovers of dogs should be able to throw some light on the question whether the canine species ever suffers from the effects of *somnambulism*. Some years ago I had a dog which would often, while fast asleep, suddenly jump down from his bed, walk about the room in a dazed sort of manner with half-closed eyes, and quietly get back to bed again as if nothing unusual had happened. During these midnight wanderings, I once or twice made a noise by dropping a book on the floor, or clapping my hands, and the dog certainly seemed to wake up and stare about, just as a human being might be expected to do, if roused suddenly out of a deep slumber.

I have frequently noticed that dogs, when *dreaming*, not only bark in low tones, but keep moving their jaws as if they were crunching something. A few twitches in the hind legs are sometimes also noticeable.

Birds seldom appear to dream, but when they do, I have occasionally noticed them opening and shutting their beaks. Doves and pigeons frequently "coo" in the nights, but I have never yet been able to ascertain properly whether they were awake or dreaming.

Animals and birds are, without doubt, fully cognisant of the great principle that "in unity lies strength." Most of us have doubtless often observed that a dog, when single-handed, will sometimes refuse to attack a wild cat, or other similar animal, and yet how completely matters change if another dog is introduced on the scene.

In this station (Simla) there seems to be an old standing feud between the monkeys and crows, and when the latter are breeding, the former make a great point of destroying as many

eggs and young as they possibly can every year. When these marauding excursions take place, two monkeys invariably take the field, and while one keeps the crows employed, the other slips off to the nest and quietly drops the contents on the ground.

In the case of the ordinary House-sparrow (*Passer domesticus*) I have frequently noticed that, not content with installing himself in a particular neighbourhood, and bringing up innumerable families in quick succession, he forthwith proceeds to install others of his fraternity in the same place, and when once established, they jointly set to work and systematically drive away all the other small birds from the vicinity. "Live and let live" is a maxim quite foreign to the sparrow's constitution, as every oölogist knows. I have notes of several cases which have come under observation of sparrows—not singly, but invariably in numbers—having systematically bullied and driven away small birds which intended nesting in the compound. A few years ago a pair of Crested Black Tits (*Lophophanes melanolophus*) decided to set up their home in one of the numerous crevices of an old outhouse attached to my bungalow. I had never seen a nest of this species before, and was, therefore, very interested in their proceedings. The spot chosen was in a very convenient situation for making observations, and for several days I spent a large portion of my time in watching the progress of the building operations. Some House-sparrows were also nesting close by, and complete harmony seemingly prevailed among all tenants. The tits' nest was nearing completion, when suddenly the sparrows began to show signs of prying into their neighbours' affairs, and would make several attempts to peep into the nest. The peaceful tits seemed disposed to ignore these intrusions, but the inquisitive attitude of their neighbours soon developed into a more aggressive one. From peeps it came to blows, and as soon as an unfortunate tit showed itself on the scene, it was immediately chased away. After making several attempts to regain the position, they eventually deserted the nest, and shortly afterwards I saw a pair of sparrows installed in peaceful possession! Superfluous to add that they had forthwith to pay the extreme penalty of the law.

Take again the case of the common Red-headed Tits (*Ægi-*

thaliscus erythrocephalus), which invariably associate in small parties, and as explained by Professor Newton, "it requires no very abstruse reflection to perceive that the adoption of this habit is one eminently conducive to the easy attainment of their food, which is collected, as it were, into particular spots often far apart, but where it does occur, occurring plentifully. Thus a single titmouse searching alone might hunt for a whole day without meeting with a sufficiency, while if a dozen are united by the same motive it is hardly possible for the place in which the food is lodged to escape their detection, and when discovered a few call-notes from the lucky finder are enough to assemble the whole company to share the feast. It is impossible to watch a band of any species of titmouse, even for a few minutes, without arriving at this conclusion. One tree after another is visited by the active little rovers, and its branches examined; if nothing be forthcoming away goes the explorer to the next that presents itself, merely giving utterance to the usual twitter that serves to keep the body together. But if the object of search be found, another kind of chirp is emitted, and the next moment the several members of the band are flitting in succession to the tree and eagerly engaged with the spoil."

The following is an extract from my daily journal, and relates to an account of an attack made by Red-billed Blue Magpies (*Urocissa occipitalis*) on my climber:—

Keonthal State (Punjab), May 5th.—So far as I am aware these birds never breed in company, and the large number of nests so close to each other struck me as most peculiar; the more so, as up to this we had only seen a couple of these birds in the neighbourhood. . . . However, each nest was examined in turn, but it was very different when the climber approached the tenanted one. The whole hillside seemed suddenly to get alive with these birds, and eight or nine of them appeared most miraculously on the scene. Uttering their harsh cries, they began making most furious dashes and pecks at the climber, quite regardless of their safety. So determined did their attacks become that at one time I thought we had lost the field. The nearer the man approached the nest, the bolder did the birds become. And their tactics were truly worthy of a Hannibal. At one time forming into separate parties, and attacking both

from front and rear; now singly, now in a body, now on all sides. All the climber could do was to get down with a whole skin, and in spite of coaxings, threats, &c., nothing would induce him to attempt the nest a second time. It was only after I very reluctantly shot one of the plucky little fellows, and drove away the rest, that we were able to examine the nest in safety. . . . It was one of the most interesting sights that I have ever witnessed in my life. And here, what is still more interesting to an ornithologist is that, not only did the birds belonging to the nest take part in its defence, but all the others of the same species in the neighbourhood also joined in it.

That some animals and a few birds occasionally indulge in *practical jokes* will, I think, be readily admitted. Take the case of a dog which has been trained to bring balls or pieces of sticks which are thrown in front of it. It will sometimes bring the object and drop it in front of one, and just as its master goes to pick it up, it will seize it, and run off with it.

A few years ago I had a small poodle, which was in the habit of chasing and barking at monkeys. One day I saw a large monkey catch it in his hands, give it a good shaking, and then let it go. And again, I once saw a dog slapped in the face by one of these animals.

Last year I happened to witness an amusing incident in the "Eden Gardens" in Calcutta. A large number of Flying Foxes (*Pteropus edwardsii*) had taken up their abode on one of the high trees growing on the sides of one of the avenues, and the crows (*C. splendens*) spent a good deal of their time daily in harassing these poor animals. A crow would take up a position on a branch from which a few foxes were suspended, look at them in a most casual sort of way as if no harm were intended, and having selected an unfortunate, who was half asleep, peck at him most viciously three or four times in quick succession. When he had roused all the foxes on the branch to his complete satisfaction, he would suddenly dart across to another branch, from which a few more of these animals were suspended, and while passing, make a sudden assault on one, who was probably in dreamland, and was thus always taken unawares. Judging from the number of crows taking part in this game, it seemed that they derived much

enjoyment from this form of recreation. The Flying Foxes doubtless had a very different opinion!

In the way of *recreation*, I have often noticed the Simla Crows (*C. machrorhynchus*) sailing about in wide circles high up in the air, and occasionally in the evenings indulging in a game which looks very like "I'm the King of the castle" on the lightning conductors of the Imperial Secretariat Buildings.

The common Kites (*Milvus govinda*), especially the young birds, may often be seen playing with each other in the air. One bird gets above the other, and then makes a swoop downwards, and is received by the lower one, which turns on its back with its talons upwards, and so on, till both are lost in the azure of the sky.

The only case of *abnormal* instinct which has come under my observation is that of one of my terrier bitches bringing up a pup which had lost its mother. Before the pup was brought into the house, the bitch showed no signs whatever which would lead one to suppose that she would shortly become a mother, and yet, after allowing the pup to suckle her, in a few days she developed a copious supply of milk in all her teats.

One of the most curious cases of *aberrant* instinct which I have read about is that mentioned in Col. G. Marshall's 'Birds' Nesting in India' (Calcutta, 1877), on the authority of Col. Tucker, R.E., the heroine this time being a Kite (*Milvus govinda*):—"Kites are not attractive birds, except for the wonderful grace of their flight, and it is hard to imagine a tender heart beneath their fierce but treacherous and withal cowardly exteriors. In the month of January, in Lower Bengal, when with the kites the breeding season is at its height, a solitary female, over whom the instincts of the season evidently had their sway, but who from some cause or other was unprovided with a nest or eggs, appropriated an empty pill-box that had been thrown on to the roof of a portico, and gathering some sticks and straws round it in the corner of the roof to serve as a nest, she commenced and carried on with admirable perseverance a forlorn attempt to hatch it. When approached and driven from her place, she would return to defend the beloved treasure, dashing fiercely at the intruder. How long it would have taken before her hopes of welcoming a young kite out of the pill-box

would have been finally abandoned was not proved, for a heavy storm of rain reduced it to a pulp, and in its place the egg of a domestic fowl was put down, and on that the kite, now joined by a male kite, who keeps careful guard over her, is still sitting. The egg will be hatched in a few days, and the life of the young chick, which will probably be short and adventurous, will commence."

A well-authenticated case of a dog acting as foster-mother to a very young kitten has been kindly contributed to me by a friend. The dog, a black-and-tan terrier, had a batch of pups, which were given away after they were a fortnight or three weeks



old. Very shortly after this a tabby kitten was found in the street by the gentleman's children, who brought the little thing home, and put it to the terrier's teats, which had become enlarged and swollen in consequence of a copious supply of milk. The kitten, being in a starved condition, readily took to its foster-mother, but the bitch at first resented the action. She seemed, however, to appreciate the relief, but would not allow the kitten to suck too long. Gradually she became accustomed to it, and when her teats got full of milk she used to hunt up the kitten and give her a feed. The illustration shows the foster-mother feeding the kitten when about two months old. The kitten grew up to full size, and used to join its foster-mother in her chases after other cats!

Dogs and a few other animals, when rebuked, undoubtedly

feel *shame* ; and the germs of this idea appear to some extent to exist in birds. All observers will admit that crows are seldom, if ever, seen *in copula*, and when a pair dare to carry their matrimonial endearments too far, the rest, as if aware of their comrades' indecent behaviour, invariably make it a duty of immediately putting an end to all such public displays of affection.

“As for the wing-drooping, tail-cocking strut,” says Finn, “which the English rook indulges in during the breeding season, any Calcutta crow who presumed to show off in such a way would most likely be very soon taught that it was no ‘matter for his swellings, nor his turkey-cocks.’ This interference by crows in each other's domestic affairs is not confined to their own community, but is extended to other birds which might happen to misbehave themselves publicly. I have frequently noticed in Calcutta that the crows invariably made it ‘a point of honour’ of trying to stop the amorous displays on the part of kites, which are notorious sinners in publishing their banns of marriage *more felino*.”