

It was suggested to the writer by Dr. Cockayne that in order to get some evidence that might be depended on, all the men who had seen the kea attack sheep, should be requested to send in an unexaggerated account of what they had seen, and when this eye-witness evidence had been sifted and arranged, some real facts about this interesting bird might be obtained and published.

In response to several requests, kindly published for me by the newspapers, I have received a large amount of evidence from men who live or have lived in the kea country, namely, musters, shepherds, head shepherds, managers of stations, rangers, and station owners.

These, it is true, are probably not trained scientific observers. Nevertheless, they all live in contact with facts; and it seems to me that we are sure to get nearer to the truth by taking the experiences of men who have spent most of their lives in kea country, than that of men who judge the birds, mostly from caged or preserved specimens.

To make the evidence as reliable as possible, the following precautions have been taken:—

- I. Nothing but accounts from eye-witnesses themselves has been taken.
- II. Evidence without the writer's name and address has been cast out.
- III. All details as to year, station, etc., have been received in each case.
- IV. The witnesses, if necessary, have been cross-examined by post.
- V. All the accounts of keas attacking sheep have been forwarded with a written statement; that, if necessary, the writer will be willing to swear to his evidence before a Justice of the Peace.
- VI. The names and addresses of the chief witnesses will be published at the end of this paper, so that anyone doubting the evidence can enquire from the writer himself.
- VII. The accounts that have been received will be filed and presented to the library of this Institute, for further reference.

In spite of all these precautions, I am aware that inaccuracies may creep in, but I think that when fifty or sixty eye-witnesses agree in the main facts of the case, we may take it for granted that we are somewhere near the truth.

To some people this question will never be satisfactorily proved, until some man of scientific standing has actually seen the kea killing the sheep. In order to satisfy these doubters, I should suggest that some sheep should be fenced in on some station where keas are plentiful, and by getting someone of scientific standing to keep watch, the kea's method of attack could be witnessed in surroundings that are quite natural. In this way no forcing or starving of the bird would be needed.

However, I think I am justified in saying that as far as human evidence can be relied on, I have conclusively proved that the kea has not only taken to meat-eating, but that it does actually attack and kill sheep for the sake of the meat.

In order to have evidence from both sides, I invited accounts from men who believed the kea to be innocent, but I only received one reply. The writer did not want his name published, and told me not to take much notice of what the stock inspectors told me, for the whole thing was a bogey. He promised to send me down the names of a number of reliable men who would give me satisfactory evidence to support his side.

However, as his list included two inspectors, and that four other names were marked as doubtful, I did not deem it wise to continue this kind of investigation.

MEAT AND VEGETABLE EATING.

If keas, both in captivity and in their wild state, have never been known to eat meat or fat, then this fact would cast grave doubts on the belief that they are the culprits.

On the other hand, if the birds, though they are not naturally carnivorous, have been known to eat meat and fat, and even relish it, then we have some reason to believe that these parrots may be guilty of sheep-killing.

Many people still think that these birds are not meat eaters, but though in some cases this is true, most of the men who have kept keas have seen them feeding in the open on any diet. There are other birds besides these mountain parrots that have taken to eating meat, though not naturally carnivorous.

Many cockatoos are fond of picking the meat from bones, and the White Eye (*Zosterops capricornis*) can be often seen in winter eating meat and fat.

Sir W. L. Buller tells of a number of parrots that took to killing and eating their fellows.

Mr C. C. Lake writes, saying:—"I was given a kea when in Fairlie some two or three years ago, and although I had him several months prior to his death, I can honestly say that never once did I see him refuse meat in preference to anything else."

Mr R. Urquhart, when writing on the question, says:—"It is a strange thing, for we have nine keas in a cage, and I can honestly say that they have had nothing but meat to eat for the last two years."

Mr Fred Daw writes of an experience of his when on the Red Mountains, Southland:—"The bird (kea) not only made a hole in the tent, but started eating the fat which was hanging on the ridge pole."

Mr Geo. Rutherford states:—"I have had a kea on the chain here this last four months, and he seems as lively now as the first day we got him, and his only diet is kidneys, liver, and warm fat. He won't eat much cold fat. He seems very fond of raw carrots, and eats them every day."

Dr L. Cockayne writes as follows:—"In the summer of 1897-98, I was camped for some weeks on Arthur's Pass, at an altitude of 2800 feet. During a part of that time, three keas lived round the camp, frequently perching on the beech trees and at times climbing over the tents. These birds fed greedily on any meat which was thrown to them, picking bones and so on. They were by no means friendly with one another, one being especially the 'cock of the walk,' and driving away the others when they came after food. These particular birds were extremely tame, and would actually perch upon the long ends of wood jutting from our fire."

Dr Cockayne adds the following to the above and his other statements about the kea:—

"All the above is written from memory, and therefore I do not vouch for its accuracy. Observations of animals and plants should be entered in a note book at the time of observation, otherwise they can only be accepted with caution."

Others testifying to the kea's eating meat are Messrs W. N. Ford, J. Morgan, J. McIntosh, John McGregor, A. Watherston, H. T. Heckler, P. Dunbar. Without going into the evidence of these men, I think enough has been said to prove that many keas, whether wild or tame, will eat meat and even relish it.

Not only does the kea eat meat, but twice it has been seen acting the cannibal.

Mr J. Morgan writes:—"When going up to the Big Basin, Forks, Mesopotamia, one day, a mob of keas came and settled close to me. I knocked one over and cut off its beak and let it roll down the snow slips to the bottom of the basin. Immediately the mob swooped down on it and started pulling the feathers out as it was rolling down. I was rather curious to see if they would eat their dead mate, so when going back, I went and saw the bird. The mob of keas were still there kicking up a great fuss, and all that remained of their dead mate was the head and bones, which were picked clean. It could not have been more than three quarters of an hour since I killed the bird until I saw it again 'stripped.' I have seen the same on more than one occasion since, though I never investigated it the same as the above."

Some of my correspondents have written to say that the keas under their observation prefer vegetables, insects, etc., to meat. These instances are not very numerous, but I think are worth while recording.

Mr A. J. McKay writes:—"I had a kea sent me from the McKenzie Country, and I observed its habits very closely. He would eat flies, spiders, and caterpillars of any description, and was fond of vegetables, such as peas and beans in the pod. I tried him with kidney fat (sheep), and the kidneys themselves, but he would hardly deign to put his beak into them."

Mr Gully writes:—"I beg to acknowledge your letter, and in reply beg to inform you that we have a live kea in the gardens here. It eats bread and milk, sugar, apples, dock leaves, etc., and since its confinement has preferred a vegetable diet, eating no meat."

Dr F. W. Hilgendorf gives me the following account of a kea that lives near Matte Brun, Mount Cook:—"A plate of meat which was put on a platform was pulled over the edge immediately by the kea without tasting the meat, and this we could never get him to eat, although he would pick up crumbs of bread."

Mr C. V. Rides, of the Christchurch Acclimatisation Gardens, gives the following account of two keas in the aviary, which shows that these birds often like both the vegetable and the meat diets. He says:—"We have two keas here, which we have had in a cage for about eighteen months with a hawk, with which they agree very well. Although these birds will and do eat meat, always preferring the fat and suet, they are equally fond of all kinds of fruit, such as apples, plums, cherries, elderberries, green peas, bits of cabbage stumps, etc., not caring for wheat or maize, such as the other parrots are fed on. When dead rats are put in for the hawk, the keas never attempt to pull them to pieces. I do not think that the information concerning these birds in captivity is of much value as regards their native life; I notice that most birds in confinement lose character to a large extent. Even the wild ducks prefer cakes and buns to the usual wheat and maize, etc."

From what has been said, it can be seen that many, if not most keas in captivity, will eat meat; a few keep to both diets, as no doubt the wild keas do, and others seem to abhor meat and keep to a vegetable or insectivorous diet.

These accounts may at first seem very contradictory, but I think the explanation is that all keas have not acquired the taste for meat, and very likely if a bird is captured before it has got the taste for meat, it is not likely to acquire it as long as it has a plentiful supply of ordinary food.

CARCASE EATING.

At the St. Louis Exhibition, according to Mr Guthrie, the New Zealand Tourist Department represented the kea as follows:—

"The kea, a species of parrot that fastens itself to the back of the sheep, picks out the fat surrounding the kidneys, leaving the animal to die a lingering death."

From the accounts that I have received, this description is erroneous, for the kea does not only eat the kidney fat, but in many instances the whole carcass is devoured. People who kill the birds by poisoning, state that often the difficulty is to find a carcass with enough flesh on to poison.

Mr Guthrie says:—"My experience is that the kea prefers putrid meat to fresh. In shooting them, before dying, they generally disgorge, and in the hundreds I have seen over 90 per cent. disgorged putrid meat."

Mr Morgan writes as follows:—"Some writers say that this bird won't eat dead sheep, but they will, and seem to enjoy them. They will get on a dead sheep and clean every bit of flesh off the bones."

Mr Ford says:—"I was engaged for some time in destroying the keas by arsenic and strychnine mixed. I would go out on the hill in the afternoon and wait about until the sun got weak, as then the keas would gather and make in the direction to where they had mutton. I would then follow them up, and would always find one or more dead sheep killed by them. I would poison the carcass thoroughly, but the trouble was to find a carcass with sufficient flesh to poison, as they devour the sheep completely, leaving nothing but wool and bones. Cases when I have found sheep partly eaten, on coming to them next day, I would pick up as many as twenty-eight dead keas near the carcasses."

So sure are the men that the keas eat the dead sheep, that for the purpose of killing the birds, they often camp near the carcass.

Mr E. Cameron says:—"The way we used to do if we did not find a dead sheep on the ground was to kill one and camp near it at night. Often as many as fifty keas would come and eat it, and they are that tame that every one could be shot."

From this and other evidence which I have received, there seems little doubt that the birds will eat almost the whole of the carcass, and they certainly do not confine themselves to the kidney fat.

This naturally leads up to the question as to whether the kea's beak, filthy from a recent gorge of decaying meat does not, sometimes, cause blood poisoning in the next live sheep it attacks, and so a very small scar might be sufficient to cause death.

Mr Guthrie writing on this question, says:—"I visited the camp daily for some time, and found newly-killed sheep almost every day. Some would be lying down in the camp without any outward sign of a wound, but on skinning them there would be a spot of bruised blood on the spinal cord. Others would be torn and bleeding from a wound over the kidneys, generally black and swollen, just as if the sheep had died from blood-poisoning."

Mr Turton writes:—"Others you find with a hole so small that you could scarcely get your finger in, merely a scratch, but they would mope about, and die in a few days. If you skin these sheep as I have done, you will find that it is as black as ink, and smells something vile. The bird's bill is, in my opinion, poisonous to sheep."

It seems as if in some cases blood-poisoning is caused, but it certainly is not always so, as is proved by the number of sheep which come into the sheds every year marked with kea scars, but otherwise quite healthy.

WHY THEY ARE NOT SEEN ATTACKING THE SHEEP.

It has often been asked, If the kea does so much damage to the flocks, why is it that so few people have ever seen the bird at work?

This question is satisfactorily answered when we study the habits of the bird, for it is nocturnal, and seems to be especially lively in the morning and evening, and if we may take the circumstantial evidence, it appears to do most of its work at night.

Mr Foster, discussing this subject in a letter to me, says:—"I fear, however, that it will be difficult to obtain the evidence of eye witnesses, because the keas work in the night and very early in the morning. . . The work is done, too, pretty high up on the ranges, where the musterer or shepherd perhaps does not reach until eight or nine o'clock."

Mr R. Guthrie, in writing to the "Tamaru Herald," says:—"In my opinion the kea, which is of nocturnal habits, does chiefly all its mischief at night or on very dull, foggy days, and never shows its true character in sunshine."

Mr J. Logan writes:—"The reason why there are not more eye witnesses to the ravages of the kea is that the time of their attack is at night or on foggy days."

Messrs R. Urquhart, W. N. Ford and others give similar evidence.

It can be seen from what these men say that owing to the time when the kea does the mischief and the distance from the homestead of the places where the sheep are found dead, it is not surprising that so few men have seen the bird actually killing the sheep.

ATTACKING SHEEP.

Among my numerous correspondents over thirty state that they have seen the keas actually attacking sheep. These witnesses do not consist only of musterers and shepherds, but in many instances they are either managers of the sheep stations or the station owners themselves. Summing up the different accounts, the bird's mode of procedure seems as follows:—They may attack in ones or twos or in numbers, but usually one or two birds do the killing and the others share the spoil. The keas do not, as some people think, attack the sheep that are in poor condition, but always seem to choose the pick of the flock. The bird settles on the ground near its quarry, and after hopping round for some time, it leaps on to its prey, usually on the rump. If it cannot get a firm grip with its feet, the movement of the sheep causes it to fall off, but it persists until it has firmly perched itself on the sheep's back. Then the kea begins its operations by tearing out the wool with its powerful beak, and at last gets its beak into the flesh.

The sheep, which for some time has been moving uneasily about, gives a jump as the beak pierces the flesh, and then begins to run wildly about in vain efforts to rid itself of its tormentor. When, however, the sheep finds it cannot dislodge its enemy, it seems to become terrified by pain and fright, and rushes blindly about, usually at a high speed.

Sometimes the sheep tears round the flock until it is played out and cowed, when it sinks to the ground and lies with its neck stretched out, a picture of misery.

If snow is on the ground, the poor beast flounders about until it gets into a snowdrift, and then it becomes an easy prey to the relentless birds.

At other times, the terrified sheep, as if making a last despairing attempt to get rid of its enemy, rushes madly forward in one direction, usually down hill, at a terrific speed, quite oblivious of rocks and pitfalls, the kea meanwhile holding on and balancing itself with outstretched wings.

Very soon the sheep strikes a rock or stubbles and rolls over and over down the hill, only to get on its feet again

and repeat the performance time after time. When the beast stumbles, the kea rises on its wings and settles down again on to the sheep when it has regained its feet.

This awful race is continued, until, bruised by its numerous falls, utterly exhausted by its death struggles, and maddened with pain, the terrified animal stumbles to rise no more, and becomes an easy prey to the kea.

The blind rushes often end even more tragically, the sheep in its blind rush often comes to a precipice, and with the same mad impulse that brought it so far, it leaps over the edge and is dashed to pieces on the ground below. In this case the kea leaves go its hold as soon as the sheep begins to fall, but follows the unfortunate animal in the descent, to satisfy its hunger on the result of its labours.

Some writers think that many inexperienced keas kill sheep in this way, even though they may not have intended to.

I will now give some typical accounts from men who have seen the bird at work.

Mr Don. Finlayson, late of Glen-thorne Station, Canterbury, writes:—"In December, 1898, in company with Walter Grieve (now manager for Mr F. W. Cordy, Hororata), when walking along the edge of Lake Coleridge, at the foot of Mt. Oakden (on the Acheron run), we saw a kea rise suddenly about a chain ahead of us. We walked to the place and found a sheep lying with a hole torn in its back. The sheep was so severely injured that we had to kill it."

"When mustering in the same year on Totara Hill, up the Wilberforce river, I was walking quietly along, and coming to the edge of a slight depression in the ground, there right at my feet, a kea rose from the body of a sheep. I examined the sheep. It was a merino wether, perfectly sound, but had been so severely injured by the kea (a hole had been torn in the sheep's loin, the kidneys were protruding, and some of the fat had been eaten) that I had to kill it."

Mr Chas. W. Symones, writing of his experiences while living on the border line of Canterbury and Otago, says:—"While mustering, I have on many occasions actually seen the kea on the sheep's back (loin), and generally three or four keas would be flying round the sheep, which would be running at the tail of the mob. The sheep would run until it was thoroughly exhausted and had to lie down from exhaustion and fright."

Mr R. McKenzie writes:—"Seeing your request re the kea in the local paper, I write to say that I have seen the kea at work on the sheep's back. The latter was driven frantic by the bird's attack, ran wildly in any and every direction, eventually making a bee line down a steep slope, and as if blind, took a 'header' over a precipice, more than a hundred feet high, and was dashed to pieces on the rocky and shingly bottom. The kea hung on to its prey until the moment the unfortunate animal left terra firma, when the bird relaxed its hold but flew down almost on the very track of its prey, when it was lost to view by the writer and a shepherd who was there also."

Mr Donald Burnett writes:—"It was in the afternoon, I was mustering in Boundary Gully, Mount Cook Station, at the time, and had a mob of sheep in hand and was about two chains away, when a kea, one of several that were flying around, settled on a sheep. The beast at first gave a jump or two and then made down hill at a great rate. When the sheep got into motion, the bird spread out its wings, and as the pace became faster, the wings came together at the perpendicular. The sheep continued its race until both were lost to view, after going some distance through the storm."

Mr Thomas Wilson writes:—"Some years ago a kea rode a sheep into the woolshed on the Double Hill Estate; I was an eye witness and closed the door. The kea was caught and I killed the sheep, which was badly picked on the back and the entrails were pulled out just over the kidneys."