

a nest situated in the centre of a tussock on the edge of a potato-field. "A brownish-coloured bird flew out of the nest, which contained two blue eggs with blackish spots." The lad was asked to bring me the nest and contents, but when he went for them the eggs had been taken.

I hope soon to be able to forward a specimen of the strange bird for identification. These birds have a peculiar habit of throwing leaves over their shoulders when busily hunting for food.

### Notes on the Cassowary (*Casuarius australis*, Wall).

By H. L. WHITE, R.A.O.U., SCONE, N.S.W.

FOR years, prior to 1911, I offered as much as £10 each for full clutches of Cassowary eggs, had upwards of a dozen men on the look-out for me, and obtained one clutch only. The reports were usually, "Birds often seen, but eggs impossible to find." The aborigines even appeared able to secure only odd eggs.

Since 1911 I have obtained five clutches and several odd eggs, all of which show variations in size and colour. Following are the measurements of average-sized specimens from my six sets:— (1) 5.03 x 3.57; (2) 5.15 x 3.68; (3) 4.87 x 3.67; (4) 5.27 x 3.67; (5) 5.58 x 3.78; (6) 5.52 x 3.92. No. 6 is the largest egg of any Australian species in my collection. The colour ranges from pale to very dark green, and is much darker in fresh than in incubated specimens. Cassowary eggs, like those of the Emu, lose their colour completely when exposed to the weather for a length of time. I have an almost white specimen, found in what was supposed to be an old nest. The surface of the shell varies from comparatively smooth to extremely rough and shagreen-like. I have not obtained more than four eggs to the clutch.

Early in May, 1911, I engaged Mr. E. D. Frizelle, who had previously collected for me, to spend a few months in the Rockingham Bay district observing the habits of these most interesting birds. Mr. Frizelle fixed his camp at Clump Point, at the northern end of the bay, and spent five months in the locality, making a close study of the birds during the whole time. He was fortunate in obtaining two clutches of eggs, and confirmed the theory I have always held, that the finding of these rare eggs is almost entirely a matter of chance. Mr. Frizelle is observant, energetic, and a bushman with an extensive knowledge of North Queensland scrubs. He had been well coached, and placed in a locality where the birds were plentiful. If he, therefore, experienced such difficulty (as his notes show) in obtaining eggs, it tends to uphold my argument.

In addition to the difficulty in finding eggs provided with perfect protective colouring, concealed in almost impenetrable scrub, there is the fact that the female bird, when disturbed from her nest, invariably deserts the eggs, and in some instances



Cassowary's Nest in Palm Scrub.

scatters them about. In the case of one clutch in my collection, the eggs, though fresh, are scratched all over, and one of them was found 20 yards away from the nest. The collector, on his first visit, did not approach nearer than 5 yards to the nest, leaving it untouched in order to see whether more eggs would be laid. I consider that this trait on the part of the bird is the cause of a large proportion of the clutches found being incomplete.

The following notes are taken from letters, &c., received from Mr. Frizelle since May, 1911. They are naturally disjointed, but I give practically his own words, and trust that they may throw a little more light upon the habits of this interesting and rapidly disappearing bird.

Mr. J. H. Maiden, Government Botanist of New South Wales, has kindly identified (as well as the material supplied permitted) the various fruit foods of the Cassowary, as hereinafter mentioned. Mr. Frizelle sent me large quantities of fruit, seeds, &c.; but owing to the delay in transit, and the soft nature of many of the specimens, considerable difficulty was experienced in delivering them to Mr. Maiden in a state suitable for identification purposes. The photographs accompanying this article were taken under great difficulties. The pictures of the Cassowaries' nests *in situ* are, I understand, unique.

#### FIELD NOTES.

CLUMP POINT, N.Q., *May, 1911.*—The Cassowaries, in the laying season, appear very jealous of each other, and one female never lays near or within another's district. Like the Tooth-billed Bower-Birds (*Scenopæetes dentirostris*), they have certain patches of scrub which they seem to consider their own. These are of great extent; the smallest I have seen is about half a square mile. I know of another pair of birds which roam in the season over a two-mile block. At certain places the presence of considerable quantities of droppings would lead one to believe that there must be large numbers of these birds present; but they, like horses, have their own sunny spots for resting, from about noon to 4 p.m. This spot can easily be found by searching edges of forest pockets. It was my old native who told me this, and I have proved it. The birds like a dry run, not too stony, and within call of several of the different berries which they eat. I know of about ten different runs now.

The Cassowaries about Cardwell are the first to lay, on account of the dry weather starting earlier there. Young birds are often to be seen with the natives, but they are dangerous pets to have, on account of the way in which they kick. Observed many Cassowaries in the ranges at Clump Point. I never saw such a number of these birds together before. The young birds which I saw must, by the great differences in sizes of various broods, be from eggs laid late or early. We had no difficulty in catching one of three, while others were fully three feet high and able to run like a horse. While with the mother they have a peculiar cry, rather like a note made by a tame young Turkey. We saw also individual young birds walking about alone, but these were shy.

FOOD this month consisted of the fruit of the bright red berry of a palm (*Archontophœnix alexandræ*, Wendl.), seed of the zamia palm

(*Macrozamia denisonii*, F. v. M.), and the fruit of a tree belonging to the *Sapotaceæ* family.

*June.*—I selected Clump Point for the camp on account of the number of birds seen and its secluded state. There are birds in any portion of this valley one goes to. In one place, some 3 miles from camp, there are tracks resembling those of cattle, made by Cassowaries in their wanderings along the creek. The only thing against the country is the dense undergrowth, which makes it so hard to travel through. In some places there is an impenetrable mass of lawyer-vines (*Calamus moti*, Bail.) I have been within 10 feet of a Cassowary here. The bird actually sat down, under some lawyer-vines, and watched me also. The birds have not mated yet, and the general opinion is that they will not start until the end of July. But I am out every day, and have selected four pairs, which I visit in turn, spending a day with each. At Maria Creek also I have found the birds, but they are much disturbed by natives, dogs, and timber-getters walking about. Their food for the last two months has been mostly palm (*Archontophœnix alexandræ*, Wendl.) berries—a small red berry three times the size of a pea. These are knocked down in thousands by the purple-breasted Fruit-Pigeon (*Megaloprepia assimilis*, Gld.), Topknot-Pigeon (*Lopholæmus antarcticus*, Shaw), and White-headed Fruit-Pigeon (*Columba leucomela*, Temm.), which are here in large numbers. If it were not for these berries the Cassowaries would often go hungry. Of course, there are a few other kinds of berries which they obtain in the same way, but these are by no means so plentiful as the palm berries.

The young Cassowaries seen with their parents are too big to be this year's birds. Now the young have mostly been hunted by the female, who, however, makes little heaps of berries as she goes about, as if for their benefit. The young birds can easily look after themselves, as they can beat a dog, to my own knowledge. Though one may meet an odd Cassowary walking about among the scattered palms on a creek-bank, or flush one from the kangaroo-grass in a quiet pocket, to see the mob one has to go to a palm scrub among the foot-hills. In such a spot may be seen as many as six Cassowaries close together; the males can easily be recognized by their size alone. I came across a nest containing three eggs on Thursday, 15th June. As there were no more by Saturday evening, I took the clutch, and found that the eggs were all slightly incubated. They are light green in colour, and were laid two feet from the base of a large clump of lawyer-vines (*Calamus moti*, Bail.), in the sunlight. I was beside them before I saw them, the scrub was so dense. Last year a farmer took up land here in July, and in brushing his scrub in August he found a nest with four eggs; and Mr. Cutten, of Clump Point, has a set of three, obtained in August.

By comparing the notes, which I took from Gould's "Handbook" and from other sources, I am sure that the birds lay up to mid-September (Patterson's Atherton set). And, although it is pure luck finding them now, I think that the season has only just started. (Rainy season just finished.) My system is, first to see a pair, then find the usual feeding ground and watering place; and search the country round about. There are seven small creeks altogether in the country which I have selected for hunting; these creeks rise from the Clump Mountain Range, to the south, and travel north-east to north. Four are permanent. During my first trips to find out



Cassowary's Nest Among "Lawyer" Canes.

the lay of the country I often heard and saw Cassowaries, but always the birds were solitary, and during my whole trip so far (August), I have seen a pair together only six times. I know now that the male bird never visits the nesting country, but keeps within warning call of it. When anyone approaches he utters his deep-sounding "Bōōm bōōm"; or else, if taken by surprise, a short "Heùgh heùgh heùgh." He may also stamp his feet on the ground as he goes away. The feeding hours were easy to find out. Cassowaries are early risers, and at daybreak are to be seen, in this month, feeding on the red palm berries or else the large red plum. The female returns to the nest before 8 o'clock if she is laying; but the male bird travels about his feeding-ground till about 11 a.m., when he selects a sunny—or, if raining, a sheltered—spot, and rests until about 2 p.m., when he resumes his feeding. At about 5 p.m. he returns to higher ground, and walks about for a while before going to his favourite camp for the night. These camps are usually under a mass of lawyer-vines, and, in many instances, those I found were rain-proof to a great extent. The female, when laying, does not leave the nest until 11 a.m. or later. She feeds until 1 p.m. If the weather is fine she is away from 5 p.m. till 5.30 p.m., when she returns to her nest for the night.

FOOD this month consisted of the bright red berries of a palm (*Archontophoenix alexandræ*, Wendl.), a long-stoned plum (*Cryptocarya*, sp.), a yellow fruit (*Polyalthia*, sp.), scrub-apple (? *Pygeum turnerianum*, Bailey), seed of the zamia palm (*Macrozamia denisonii*, F. v. M.), &c.

*July.*—It has been raining continually here since the middle of June, and the Cassowaries have just started laying. I consider that July and August are the two principal months for egg-laying, and that June is the beginning and September the end of the laying season. I have been cutting my way through a portion of the scrub where I saw birds, but so far without result. As I do not like to stir them up continually in the one place, I keep changing my country. The scrub here is like a wall, and the natives never go through it, but follow the beds of the creeks. The male Cassowary is in brilliant colours now. On seeing or hearing anyone near he makes a deep "Bōōm bōōm," and strikes the ground a few times hard with his feet. One thing I notice is that, in spite of the bird being clumsy and heavy, he is hard to track, and can go through the thickest lawyer patch with head held about a foot off the ground, like a fast-trotting horse. We searched the country marked on the rough map so persistently that the birds left it. Since the end of June (now 18th July) we have noticed that the birds do not make the "Bōōm bōōm" so much. Often they camp for the night in a thick clump of scrub pandanus, and, as the least movement can be heard, I have no doubt it is for purposes of protection.

We saw a male bird showing off before his mate yesterday (17th July), and it was the most amusing performance I ever saw in the bush. The male pretended to be very frightened, and darted away for 50 yards, tearing aside everything in front of him. Then he turned and came back with a rush as if he were chasing something, which he pretended to kill by a terrific jump and a few thuds of his feet. Then he made a noise which I cannot describe, and walked away up *my track*. I noticed during the first part of this month that the majority of the birds had become quiet. One which I passed

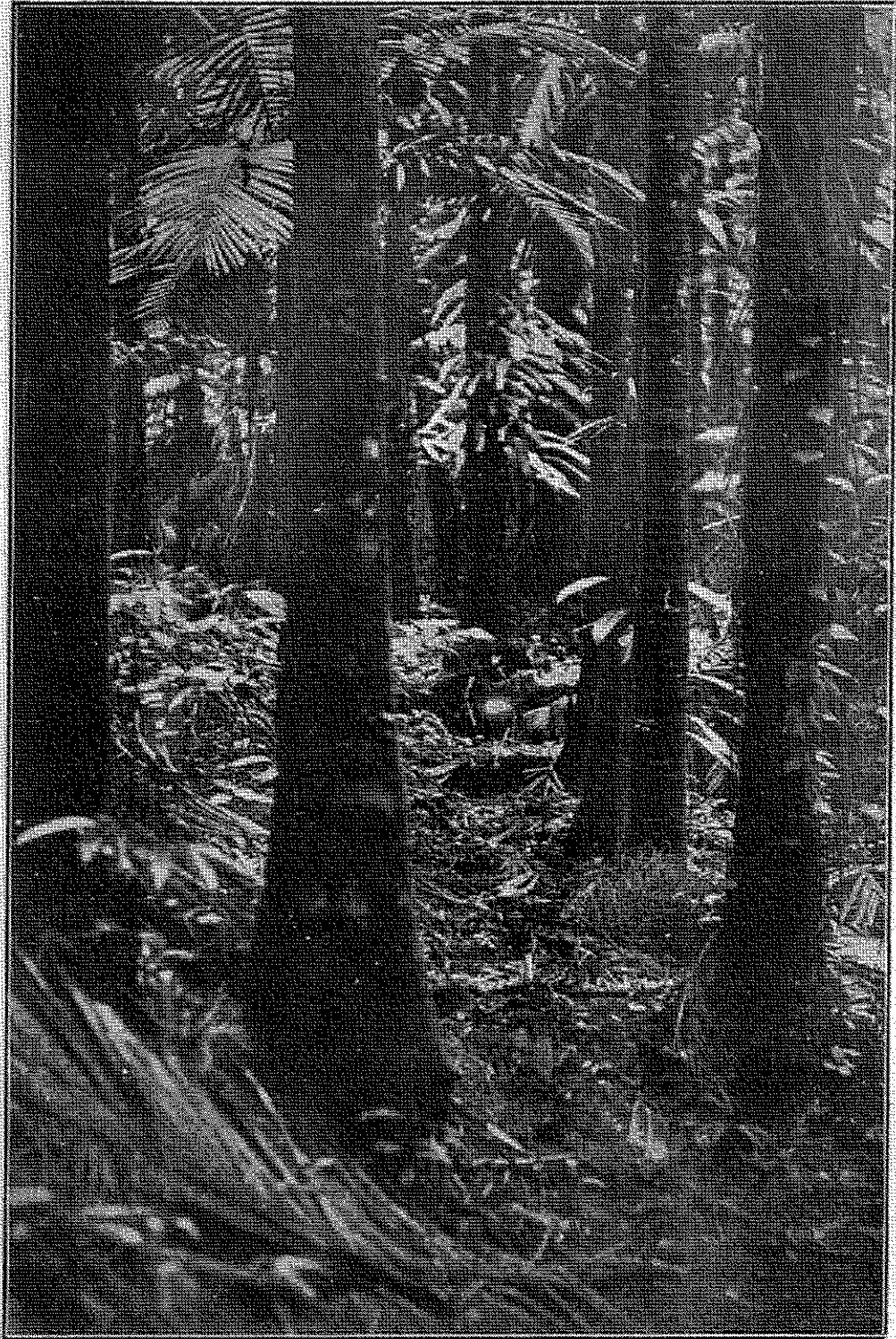
every morning when he was eating his breakfast always greeted me with a "Bōōm" or two, and now he is silent. The Cassowaries by the middle of this month had become energetic, and were to be seen almost anywhere. But I strongly suspect that they follow me. Their feeding grounds are far larger than I thought, June being so wet that the birds made a sort of a pad going for food. When one gets used to it he can follow them everywhere. I followed one bird about all day, and he was fully a mile away from his camping-ground at one time. They have regular, well-marked tracks going over foodless ridges or crossing creeks and dry gullies to favourite feeding-grounds.

Food this month consisted of the bright red berries of a palm (*Archontophœnix alexandræ*, Wendl.), blue quondong (*Elæocarpus grandis*, F. v. M.), red plum (species of *Eugenia*), a long-stoned plum (*Cryptocarya*; sp.), a yellow fruit (*Polyalthia*, sp.), scrub apple (? *Pygeum turnerianum*, Bailey), seed of zamia palm (*Macrozamia denisonii*, F. v. M.), &c.

*August.*—If I had not heard, on good authority, of the finding of one Cassowary's egg on Sunday (30th July), I would have thought that the birds had finished laying. Last month I kept two pairs of birds under observation as well as I was able. The females were to be seen feeding by themselves at 8 a.m., 10.30 a.m., and 4 p.m. Though the males were not far off, I never saw them with their mates, but observed tracks of the two on a sand-bank. No young birds have been seen yet. The natives capture some every year here with their dogs. The more I study the food question of the Cassowary the more convinced I become that the bird swallows anything except what is actually nauseous, and there are a few fruits of that order here. I am in good country now, only rather far from camp; so I am going to camp out in the scrub, to be near the birds for a while. On 2nd August, after three weeks' search, I found clutch No. 2, containing four eggs. Will leave it till 6th August before looking again. I looked all round the spot a week before, and never saw the nest. I waited until the evening of 5th August, and then took the four eggs from the ground. There were stains underneath them, and when I blew them I found that they were slightly incubated. I have had the clutch of three eggs (No. 1) photographed in the natural position. (See Plate XXI.)

This is a very important month for the Cassowaries, as the quondongs, which form their chief article of food, finish. In the first half of this month there were great quantities of Cassowary food on the ground, but the weather kept dry, which caused an earlier ripening of the fruits. This affected the birds, and at the end of the month the males rarely left the vicinity of a good food tree, if on their run. They seemed to be watching over the tree, so that their mates should have plenty to eat. They were also more wary than usual, seldom uttering a sound unless surprised. This alteration in their habits was a great disadvantage to me, as it was by noting the different intonations of the sounds made that I could tell when I was in the vicinity of their nests. The male follows one about, and from time to time utters a low "Bōōm," or, if one is near the nest, a quick "Heugh heugh heugh." Sometimes he tries to lead one away by "booming" in a new quarter. If successful he suddenly stops and goes back to his sentry-ground again.

The Cassowary utters no other sounds save the mate call and the



Cassowary Pad in Palm Valley.



danger notes. If one comes quietly on a bird while it is having its mid-day rest there is a mad, tearing rush, the Cassowary often being brought up by the lawyer-vines rather suddenly. But it never seems to look where it is going. From early morning till dusk there is a Babel of song and rustling of leaves in the scrub, with brief intervals of quiet, broken only by the "Buk-buk-boo" of the beautiful purple-breasted Fruit-Pigeon (*Megaloprepia assimilis*, Gld.), or the harsh notes of the Rifle-Bird (*Ptilorhis victoriae*, Gld.) and Quoy's Butcher-Bird (*Cracticus rufescens*, De Vis). The first appearance of the white Nutmeg-Pigeons (*Myristicivora spilorrhoa*, Gray) was on the 10th of this month. A Hull River native caught a young Cassowary this month, but liberated it at my request. It was three weeks or a month old. It did not seem to be afraid of human beings, but became frantic at sight of a dog. The White-headed Fruit-Pigeons (*Columba leucomela*, Temm.) visit this locality in large numbers while the quondongs are in, and on the arrival of the Nutmeg-Pigeons, about the 10th August, they had all disappeared.

Food this month consisted of the blue quondong (*Elæocarpus grandis*, F. v. M.), red plum (species of *Eugenia*, a long-stoned plum (*Cryptocarya*, sp.), a yellow fruit (*Polyalthia*, sp.), scrub-apple (? *Pygeum turnerianum*, Bailey), seed of the zamia palm (*Macrozamia denisonii*, F. v. M.), &c.

*September.*—In spite of all my efforts, I found no more nests, but saw two broods of young birds, consisting of three in each case. It is my opinion that the majority have hatched out. I saw three Jabirus (*Xenorhynchus asiaticus*, Lath.) on a swamp near the Hull River, not far from the sea. Here there are a few Rifle-Birds (*Ptilorhis victoriae*, Gld.) and Spotted Cat-Birds (*Ælurædus maculosus*, Ramsay), but Tooth-billed Bower-Birds (*Scenopæetes dentirostris*, Ramsay) are scarce. The handsome *Pitta strepitans* is abundant everywhere, also the Bower Thrush (*Pinarolestes boweri*, Ramsay). Have seen only one Manucode (*Phonygama gouldi*, Gray) all the time, but often hear them. They are shy birds. The search was on a portion of a creek with a hill rising from one bank with flat terraces, dense growth of lawyer-vines, and steep, dry gullies to the east. On the western side there is a continual thicket of lawyer-vines and heavy scrub. One Sunday (10th September) I came across a female Cassowary with three very young birds. This left me only the pair from which I obtained the set of four eggs. In spite of my careful search for the nest, the female hatched out four eggs on or about 26th September. She crossed the creek with the brood one day while I was having my lunch. I seldom heard the birds make a sound; when I did it was generally a female with young, who had got wind of me. The male birds went over the range for food, with the exception of one or two, which returned to their old haunts of May and June. There being no quondongs, and a scarcity of other kinds of foods, the birds have a hard time of it this month. The young birds are easily caught by a quick rush, as they simply run into a thick clump of lawyer-vines and hide. When one comes on a bird with young she tries to "bluff" by a "Bōm" or two, and a pretence of charging, thus gaining time for her chicks to hide. Then, with a quick run, she too disappears. But if one waits for a while and keeps quiet she returns and gathers the young ones together, uttering a low "Heugh," repeated many times. There are signs that, as the young birds grow strong, they migrate westward to the lower slopes of the main range, where food will still be available.



Cassowary Crossing-place on Cedar Creek.

FROM A PHOTO. BY A. GARNER.

Food this month consisted of the blue quondong (*Elæocarpus grandis*, F. v. M.), scrub-apple (? *Pygeum turnerianum*, Bailey), and have seen these birds eating the black cherry (*Endiandra*, sp.), wild banana (*Musa*, sp.), and wild Brazilian cherry (*Acronychia vestita*, F. v. M.).

KAIRI, NEAR ATHERTON, November, 1911.—The largest brood of young Cassowaries I saw here consisted of four birds. They were feeding on the species of fig (*Ficus*) with which Mr. S. W. Jackson and I fed the young of the Tooth-billed Bower-Bird (*Scenopæetes dentirostris*, Ramsay) at "Cherra-chelbo" camp, in the scrub near here, in 1908. The Cassowaries are fond of these figs. The scrub here has been cleared to a large extent.

December.—The food of the Cassowary now is a species of large scrub fig (*Ficus*, sp.), the fruit measuring 1 inch by  $\frac{1}{2}$  inch; also the fruit of *Castanospora alphandi*, F. v. M.

January, 1912.—Young Cassowaries are still with the mother. The birds are feeding on a species of fig (*Ficus*) and the fruit of *Castanospora alphandi*, F. v. M. (the leaves of this tree the Tooth-billed Bower-Birds frequently use in their singing or play-grounds, as well as the leaves of other species); the fruit of a species of *Eugenia*, known as the white apple; and the fruit of the black pine (*Podocarpus*, sp.), &c.

February.—Some young Cassowaries are out alone, and their food appears to consist almost entirely of figs of different kinds. The fruit of *Castanospora alphandi*, F. v. M., the fruit of the black pine (*Podocarpus*, sp.), and the white apples of a species of *Eugenia* are also being eaten.

March.—As far as I can see at present, the Cassowaries are having a lean time as regards both species of scrub fruit. On 26th February I observed a splendid male bird feeding on the fruit of the large lawyer-vine (*Calamus moti*, Bailey), and later on found droppings of both mature and young birds, consisting of the stones of the fruit of both the large and small species of lawyer-vine. The lawyer-vines are erratic in fruiting. I never saw them eaten by Cassowaries before, and can only conclude that hunger has made the birds eat them.

CLUMP POINT, 25th June.—The continuous rain, combined with a poor wild-fruit season resulting from last year's very dry spell, has caused a large number of Cassowaries to go elsewhere to look for food and to nest. I saw a female with one young, 2 feet in height, feeding on quondongs, and another, with two young birds, in another spot farther away. Fruit seasons in the scrubs alter with the climatic conditions every year.

---

**Kite as an Egg-Robber.**—Last month a fine male specimen of *Lophoictinia isura* (Square-tailed Kite) was brought to me, having been shot while attacking chickens at a neighbouring farm. In its gizzard I found a perfect egg of *Cuculus inornatus* (Pallid Cuckoo). This egg was completely coated with fragments of other broken egg-shells, which apparently were those of *Anthus australis* (Ground-Lark). I cannot find any record in my ornithological works of this Kite feeding on eggs.—TOM CARTER. Broome Hill (W.A.), 12/11/12.