

Observations on The Satin Bower Bird with Regard to the Material Used by It in Painting Its Bower

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Sydney ornithologists are fortunate in having the use of a cabin (belonging to the National Park Trust) for week-end observations. Situated about three miles from Waterfall and just off Lady Carrington's Drive (in National Park), it is the centre of a group of avian wonders. Within two hundred yards of its shelter the habits of such birds as the Suberb Lyrebird (*Menura novæ-hollandiæ*), Satin Bower-bird (*Ptilonorhynchus violaceus*), Pilot Bird (*Pycnoptilus floccosus*), Coachwhip Bird (*Psophodes olivaceus*), and a host of others, each with its own peculiar interest, may be studied.

Recently I had the good fortune to spend two full days at this observatory, and paid special attention to the birds specified above. On the first morning, before noon, I had watched a female Coachwhip Bird building her nest, made observations on a pair of Pilot Birds, and from a distance of twenty feet saw a male Lyrebird in full display upon its mound. The main objects of this article are, however, the presentation of some observations which were made on the Satin Bower-bird. My interest had been aroused through reading an article which appeared in *The Emu* by Mr. E. Nubling on the Satin Bower-bird (*The Emu*, Vol. XXI., July, 1921), and also through an article by Mr. A. H. Chisholm on the subject, "Is there any reasonable limit to the ability or the intelligence of Australia's Bower-birds?" (*The Emu*, Vol. XXIV., October, 1924, p. 150).

Mr. Chisholm described how each of the hundreds of sticks comprising the bower had been blackened by some substance from top to bottom. I desired to witness this avian æsthetic performance and made my preparations accordingly. I was fortunate, and the observations which follow are extracts from notes which were made on the spot and are somewhat in the form of a diary.

22/10/29.—At 4.50 p.m., when I arrived, I visited a bower which is not far from the cabin and got behind a hide. The male Satin-bird arrived almost simultaneously and started poking sticks in position, lifted up a snail shell, dropped it, toyed with dried leaves, then departed.

23/10/29.—At bower a few minutes after 5 a.m. Evidently disturbed the male bird flew away at my approach. He returned again in a few minutes and appeared to be rubbing several of the sticks up and down with his bill. He placed sticks in ground at the rear of bower and

arranged them in the centre. Came out and toyed with dried leaves. Hopped round bower. After ten minutes he flew away. He returned in another ten minutes and proceeded to place sticks in position. The bird remained in the centre of bower for some time, but from my position I could not see what he was actually doing; after about ten minutes he departed. I then examined the bower and found the inside sticks wet with a black substance. I left the bower at 6 a.m. 2 p.m.—Many flowers had been added; two blue species and one yellowish-green (*Billardiera scandens*). 5.45 p.m.—Bird present; unfortunately, he saw me and departed, first wiping his bill on a large stick. Many of the sticks comprising the bower had a black wet substance on them. I noticed a piece of charcoal about one inch in length at the back of the bower. This was not there on my previous visit.

24/10/29.—Up with the birds and at side of bower by 4.30 a.m. Just light enough to see bower from a distance of about fifteen feet. Bird arrived in a few minutes, toyed with leaves, critically examined sticks and straightened them. Stayed about three minutes then departed. At 5.5 a.m. he arrived back, moved leaves about and appeared to chew something from outside the bower. Departed at 5.15 a.m. 6 a.m.—Back again working or playing inside bower. From my position I could not see what he was actually doing. After his departure I examined the bower and noticed a bark-like material in the centre of it; also the same material wet and blackened on one of the sticks. Mr. Nubling in his article states: "I have never found any article inside the bower, and if anything was put there he removed it." So I therefore paid some significance to this discovery. 9 a.m.—Bird visited bower while I was a few yards away and in full view. He appeared to pick up a piece of charcoal and a munching sound could be heard as he went inside bower. 9.10 a.m.—Set up my camera as the bird seemed to take little notice of my presence. 9.30 a.m.—Female arrived and critically examined the bower from a nearby log. The male in a tree a few yards distant made curious noises. I began to regret the presence of the camera, as the female flew away, no doubt due to its nearness to the bower. The male chased her through the trees.

Other observations did not add materially to those given above except that several pieces of charcoal were found just below the platform, more dry bark-like material inside the bower, and the same material wet and black on the sticks. The size of one of these dry wads measured $\frac{3}{4}$ inch by $\frac{1}{2}$ inch. A wet one occupied much less space and adhering to a stick could be easily overlooked.

The bird was later on (at a week-end) viewed through a pair of field glasses going through its performance of



Lizard attacking Cuckoo nestling.

Photo. by Norman Chaffer, R.A.O.U.

painting its bower. The sides of the bird's bill moved backward and forward along the sticks, but no material could be seen in its mouth. The evidence from these observations lead one to the conclusion that charcoal is the black substance used by the bird in its painting operations.

During one wet drizzly week-end visit the substance was partly washed off; it was easily removed by a touch, and rubbed between the fingers had a gritty feel. Seen under the microscope the reason for this became apparent, as it consisted of irregular fine black particles. The wet material did not dye a piece of paper. That the substance used is charcoal has been confirmed for me by Mr. Welch, of the Sydney Technological Museum, who by the aid of a powerful microscope was able to see and show me the cell structure of the wood which the charcoal still retained. The bark-like material has been microscopically identified by the fibrous bundles which it contains as bark which may be obtained from the inner or outer bark structure of some of our native plants.

Tentative conclusions.—The bark wad appears to be used as a nucleus in the bird's mouth to hold the saliva and charcoal as it is chewed into fine particles, and is applied to the sticks as it oozes from the sides of the bird's bill. I believe that as a rule it is prepared away from the bower, but on occasions the raw material is brought to the bower and there prepared.

Later.—As the season advanced into December the bird's interest in its bower appeared to wane, as its visits became less and less. On January 11, 1930, several fresh flowers were added to the bower, but since that date to the present there is no indication that the bird has returned to it.

Lizard Attacking Nestling.—On December 23, 1929, Mr. Hugh Innes and I focussed our cameras on the nest of a pair of White-browed Scrub-Wrens (*Sericornis frontalis*) containing a Fantail Cuckoo (*Cacomantis flabelliformis*) about three-quarters grown. We retired a little distance to await the return of the foster parents with food, but had not been waiting long when we noticed a lizard about eight inches in length approaching the nest. He eyed the young Cuckoo for a while and then commenced viciously to attack it. He would make sudden darts at the young bird, appearing to strike it with some force. The foster parents flew up in a great state of agitation and attacked the lizard. He drew back when the old birds attacked, but did not appear to be much afraid of them. A photograph was taken at this juncture. The excitement of the Scrub-Wrens can be clearly seen by the outspread fan-shaped tails of the two birds and the general attitude. The bird