HABITS OF SOUTH AUSTRALIAN CUCKOOS

By J. Neil McGilp.

Probably more has been written about cuckoos and their habits than about any other family of birds. Happy flights of imagination have been responsible for the publication of many theories, which through repetition, have gained a world-wide reputation.

Many writers contend that the cuckoo lays its egg directly into the nest of another type of bird, which is generally referred to as the foster parent. Others strive to upset this contention with a claim that the egg is laid on the ground, carried in the beak and deposited in the nest. Another writer, Mr. Bernard Acworth, in "The Spectator," goes so far as to make the astounding assertion that the female cuckoo does not lay eggs. She is sterile and simply serves to excite the genital organs of the male, at a period when other birds are nesting, and he consorts with the selected foster-mother, who, in consequence becomes the real mother of the young cuckoo.

Possibly Mr. Acworth has been led to this assumption through observing the similarity of some cuckoo's eggs with the eggs of the foster parent and the possibility that the supposed cuckoo's egg could well have been laid by her.

To anyone with even an elementary knowledge of cuckoo eggs and those birds selected as foster parents, it will be apparent that Mr. Acworth knows very little about his subject.

It is true that the Black-eared Cuckoo chooses as foster parents the Red Throat, the Field Wren, the Speckled Warbler, and the Scrub Wrens, and these birds lay eggs which, although somewhat different in shape and texture, are very similar to the acorn-colored egg of this cuckoo. It is also true that Honeyeaters, which lay pinkish-tinted eggs, are frequently called upon to incubate the flesh-colored egg of the Pallid Cuckoo. For instance, the eggs of the Singing Honeyeater so closely resemble the egg of this cuckoo that it is sometimes most difficult to separate them. We know, however, that the Pallid Cuckoo sometimes deposits its eggs in the nest of the Harmonious Thrush, the Yellow Robin, the Hooded Robin, the Flame Robin, the Masked Wood Swallow, the Rufous-breasted Whistler, the White-shouldered Caterpillar-eater, etc. These birds lay eggs so different from those of the Pallid Cuckoo that it would be unreasonable to think that they could be responsible for the production of the "pink" egg. Then again, could we imagine that the little White-naped Honeyeater which lays an egg with an average measurement $\frac{3}{4}$ inch by $\frac{1}{2}$ inch was the rightful owner of the Pallid Cuckoo's egg which averages 1 inch by $\frac{3}{4}$ inch.

If more proof is necessary to show that at least two of the South Australian cuckoos lay eggs, the writer can testify that he has, more than once, seen well developed eggs, almost ready for laying, in the oviduct of both the Pallid and the Black-eared Cuckoo. Other ornithologists have no doubt observed a similar condition in respect to other cuckoos.

There are a few Australian records of a cuckoo having been seen actually sitting on a nest. The late Sydney Jackson stated that in 1890 he had seen a Pallid Cuckoo sitting on a nest (a Honeyeater's), and that when the cuckoo left the nest he climbed up and saw one egg—that of the Pallid Cuckoo. Dr. Ramsay, too, claimed that the cuckoo's egg is laid in the nest. He had examined and photographed many domed nests in which he had found cuckoo eggs, and was satisfied that the cuckoo had meddled with the entrance to the nest to such an extent that the hood had been enlarged and pushed back so far that it was reasonable to surmise that the cuckoo had been able to sit on the nest over the entrance and lay the egg which would drop into the egg cavity of the nest. There have been other references to cuckoos sitting in a nest. As might readily be understood, these records are rarely made, and as they are invariably the results of observation only they are apt to be considered somewhat unreliable.

On the other hand, many observers have stated that the cuckoo has been seen to lay on the ground and then to carry the egg to the nest. Keartland, many years ago, when writing about the Fantailed Cuckoo, stated that he had shot several of these birds when they were carrying eggs in the mouth; he also stated that he had disturbed the Golden Bronze Cuckoo from the ground, and on making a close examination of the spot had found the little olive-colored egg of this cuckoo, quite warm and apparently just laid.

When two such notable ornithologists as Ramsay and Keartland could not agree about it, is it any wonder that there is still some confusion as to the method adopted by the cuckoo in depositing its egg in the nest of the foster parent.

The writer has for many years been greatly interested in this phase of ornithology, and in his search for first hand information has made some observations which, while in no way throwing sufficient light on the subject to suggest a solution, should prove of some interest to those who may take up the study of such an absorbing problem.

In South Australia we have five fairly well-known cuckoos. We have the Pallid, the Fantailed and the Black-eared Cuckoo, and the two smaller birds, the Golden Bronze and the Horsfield Bronze Cuckoo. In addition to these, the Channel-billed Cuckoo, the largest

of all Australian Cuckoos, is known to work its way down from Queensland and Northern Territory into our northern cattle lands in South Australia, As its arrival frequently coincides with tropical downpours of rain and flooded rivers, it is locally known as the Storm or Flood Bird. Mr. L. Reese, when residing on Miranda, near the South Australian-Queensland border, informed the writer that he had often seen the eggs and young of the Channel-bill in nests belonging to Crows and Magpies, and that the egg closely resembled that of the "purplish-red" type of the Magpie.

In South Australia the writer has observed that the egg of the Pallid Cuckoo is found only in open nests, and this feature appears fairly consistent throughout the Commonwealth, for, so far as can be learned, there are extremely few records of this cuckoo having taken temporary possession of a domed or closed nest. The Pallid Cuckoo shows decided preference for Honeyeaters' nests, and does not seem to mind if the nest is close to the ground or well up in a tree. The writer has taken this cuckoo egg from a nest of the White Plumed Honeyeater, which was fully 30 feet up in a drooping branchlet of a Red Gum, and from a Yellow-winged Honeyeater's nest built within a foot of the ground.

The writer has not found the egg of the Fantailed Cuckoo or of the Black-eared Cuckoo in an open nest. These birds have always used closed nests for the future home of their offspring, and they very definitely show preference to nests built close to if not on the ground. The little Golden Bronze Cuckoo has only been noted in South Australia to have laid or deposited its eggs in the nest of one foster parent—the Yellow-tailed Thornbill, which constructs the well-known double-chambered nest. The Golden Bronze Cuckoo is quite frequently observed in this State, and it is remarkable that, in comparison with our other cuckoos, so few of its eggs are found. Horsfield Bronze Cuckoo, better known as the Narrow-billed Bronze Cuckoo, is not at all fussy in the selection of foster parents, and is quite indifferent as to whether the nest is an open or a closed one. The two smaller cuckoos, although preferring to use nests within a few feet of the ground, have at times chosen those that are at some height.

The South Australian cuckoos, excepting the Golden Bronze, lay as it were, in communities. Where a cuckoo egg is found it is customary to find quite a number of these eggs—perhaps of more than the one species of cuckoo.

The writer has made a list of the different foster parents of the South Australian cuckoos. This list is compiled from South Australian nestings only, found by him or in company with other

ornithologists. It should be well worth while obtaining a fuller record, for there are surely other combinations found by other bird observers.

The following is a list of the cuckoo egg combinations found by the writer in South Australia:—

Pallid Cuckoo (*Cuculus pallidus*) with: Hooded Robin (*Melanodryas cucullata*); Willie Wagtail (*Rhipidura leucophrys*); Masked Wood-Swallow (*Artamus personatus*); White-naped Honeyeater (*Melithreptus lunatus*); Tawny-crowned Honeyeater (*Gliciphila melanops*); Singing Honeyeater (*Meliphaga virescens*); Yellow-faced Honeyeater (*Meliphaga chrysops*); White-eared Honeyeater (*Meliphaga leucotis*); Yellow-plumed Honeyeater (*Meliphaga ornata*); Greenie (*Meliphaga penicillata*); Yellow-winged Honeyeater (*Meliornis novae-hollandiae*); Noisy Miner (*Myzantha melanocephala*); Little Wattle-Bird (*Anthochaera chrysoptera*); Red Wattle-Bird (*Anthochaera carunculata*).

Fan-Tailed Cuckoo (*Cacomantis flabelliformis*) with: Brown Thornbill (*Acanthiza pusilla*); Spotted Scrub-Wren (*Sericornis maculatus*); Superb Blue Wren (*Malurus cyaneus*).

Black-Eared Cuckoo (*Owenavis osculans*) with: Spotted Scrub-Wren (*Sericornis maculatus*); Redthroat (*Pyrrholaemus brunneus*); Rusty Field Wren (*Calamanthus isabellinus*).

Horsfield Bronze Cuckoo (*Chalcites basalis*) with: Scarlet Robin (*Petroica multicolor*); Red-Capped Robin (*Petroica goodenovii*); White-Fronted Chat (*Epthianura albifrons*); Crimson Chat (*Epthianura tricolor*); Orange Chat (*Epthianura aurifrons*); Brown Thornbill (*Acanthiza pusilla*); Red-tailed Thornbill (*Acanthiza hamiltoni*); Chestnut-tailed Thornbill (*Acanthiza uropygialis*); Dark Thornbill (*Acanthiza hedleyi*); Yellow-tailed Thornbill (*Acanthiza chrysorrhoa*); Brown Weebill (*Smicrornis brevirostris*); Striated Grass Wren (*Amytornis striatus*); Superb Blue Wren (*Malurus cyaneus*); Blue and White Wren (*Malurus cyanotus*); Purple-backed Wren (*Malurus assimilis*); Spotted Scrub Wren (*Sericornis maculatus*); Tawny-crowned Honeyeater (*Gliciphila melanops*); Yellow-winged Honeyeater (*Meliornis novae-hollandiae*).

Golden Bronze Cuckoo (*Chalcites plagosus*) with: Yellow-tailed Thornbill (*Acanthiza chrysorrhoa*).

On numerous occasions more than one cuckoo egg has been observed in a nest. Two eggs of Horsfield Bronze Cuckoo have been found in a nest of the Superb Blue Wren, and also in a Spotted Scrub Wren's nest. The same cuckoo had deposited two eggs in a Spotted Scrub Wren's nest, which also contained two

Scrub Wren's eggs and a Fan-tailed Cuckoo's egg. In yet another Spotted Scrub Wren's nest were found three eggs of the Wren and two eggs of the Fan-tailed Cuckoo; the two last-named eggs were in the nest three days before the Scrub Wren started to lay her eggs.

Birds, such as the Superb Blue Wren and the Red-capped Robin, have been known to build in or cover up the eggs of the intruding cuckoo. A nest, containing three eggs of the Superb Blue Wren and an egg of Horsfield Bronze Cuckoo, when closely examined, appeared to have lumps in the lining. When this was pulled apart, two more eggs of the same cuckoo were found under the lining materials. It has been claimed that this building-in process is done to prevent these eggs from hatching, but the writer is of the opinion that these hidden eggs had been deposited in the nest before it had been completed, and the wrens had simply continued with the furnishing of their home. In every case of building-in it has been noticeable that the hidden eggs were resting on the structure of the nest and not in the layers of lining.

The writer has frequently found closed nests, which contained a cuckoo egg, so interfered with that it was quite easy to see the contents of the nest without opening out the entrance. In no case did it appear that the hood over the entrance had been pushed back to such an extent that it appeared probable that the cuckoo had sat upon the nest when laying its egg. Actually a very small proportion of the closed nests, containing cuckoo eggs, had to all appearance been tampered with. It is of course quite possible that the foster parents had repaired the damaged entrances or that the cuckoo egg had been laid before the nest was properly completed. It is well known that birds often repair damaged nests and that they add material to their nests throughout the incubating period.

As if in evidence to support Dr. Ramsay's claim that the egg is dropped by the cuckoo as she sits upon or above the nest, the writer has on quite a number of occasions found one or more damaged eggs in a cuckoo egg combination set, and that almost invariably the dents were in the foster mother's eggs. As those dented eggs have also been seen in fairly large open nests, such as those of Wood Swallows and Red Wattle Birds, where the cuckoo might reasonably have been able to sit, there is very little reliability in the dented egg theory.

The writer well recalls noticing a Fantailed Cuckoo hanging around in the vicinity of a Spotted Scrub Wren's nest, containing two fresh eggs. It was decided to keep an eye on the nest in the hope of developments. The nest, a typical closed structure, was well hidden in the centre of a samphire bush. It was necessary to

push back some of the foliage so that the nest could be seen from a distance of say 50 yards. The Scrub Wren, which flushed when the nest was first found, did not take long to return and take possession of its nest. The cuckoo, about 30 minutes later, caused a lively interest and expectation by flying on to the top of the samphire bush. During her short stay on the bush the cuckoo made no effort to go to the nest or to disturb the sitting bird. It was surprising to note that the mate of the sitting bird did not give forth his usual scolding note in resentment of the cuckoo's approach. This is most unusual and it might be accounted for if the cuckoo had been watching and going to the nest for some days and the Scrub Wrens had become accustomed to her presence. The cuckoo, on leaving the samphire, flew into a clump of tea-tree scrub and did not show further interest in the nest. As the light was fading, the vigil was abandoned with a resolve to get to the nest early next morning. Great disappointment was felt when, at 9.30 that Sunday morning, it was found to be too late, for an extra egg, that of a Fantailed Cuckoo had been added to the two Scrub Wren's. Later in the day, at about 11 o'clock, the nest was again examined and it was observed that the Scrub Wren had laid a third egg in her clutch. At the Grange, South Australia, a great many cuckoo eggs have been noted in Spotted Scrub Wrens' nests. The Scrub Wrens' clutch varies from two to three eggs, so it is almost impossible to state that the cuckoo usually removed an egg of the foster parent.

Time after time, nests with eggs have been watched in the hope of seeing a cuckoo add its egg to those already there. Fortune has not favord the watcher and he has not succeeded in procuring first hand evidence to solve the problem as to how the cuckoo's egg gets into the foster parent's nest. Hope springs eternal in the human breast, and the writer is still hopeful of one day seeing a Pallid Cuckoo actually sitting on the nest to lay the egg, and any one of the other recognised South Australian cuckoos carrying the egg in the beak to deposit it into the nest.

It has been repeatedly stated that the cuckoo always removes an egg from the nest in which its own egg is deposited. This is supposed to be due to the desire of the cuckoo to allay any suspicions the foster parents may have about the egg and the inconvenience of sitting on too large a clutch. Records have been made of seeing a cuckoo, with an egg in its beak, flying away from a nest. In the writer's experience no reliable first-hand information has been gained in regard to this "removal" business. Cuckoo eggs have rarely been added to a nest which already held a set of eggs well advanced in incubation. Frequently the cuckoo egg has been

the first in the nest and the usual full clutch of foster parent's eggs was laid afterwards. In one case easily remembered two Fantailed Cuckoo eggs were in the nest of the Spotted Scrub Wren, yet the foster parent laid her full three-egg clutch. Three eggs of the White-plumed Honeyeater were found in a nest hanging in a drooping branch of a gum tree in Hamilton Creek, Moolawatana Station; the eggs appeared to be quite fresh. Two days later an inspection showed that a Pallid Cuckoo's egg had been added; no eggs had been removed. In another case in the same locality, two fresh White-plumed Honeyeater's eggs were found in a nest eight feet up in a gum tree; the next morning the nest contained not only the third egg of the Honeyeater, but also a Pallid Cuckoo's egg. During August, in 1918, in this locality, all the eggs in seven nests (three Red-capped Robins' four White-plumed Honeyeaters'), were marked in order to ascertain if possible if the cuckoo removes an egg. In only one nest, a Red-capped Robin's home, was a cuckoo's egg—the Horsfield Bronze—added, and none of the marked eggs were removed. A Yellow-winged Honeyeater's nest, built in a honeysuckle near Happy Valley, contained two slightly incubated eggs when first seen. A week later they were still there, but accompanied by the much smaller egg of the Horsfield Bronze Cuckoo, and a visit to the nest a fortnight later revealed a fairly strong young cuckoo, but no sign of either of the other eggs or young birds.

As the clutches of eggs laid by most birds, especially those chosen as foster parents, vary quite a lot it is not reasonable to suppose that the cuckoo had removed an egg simply because there are less eggs in the foster parent's setting than one often finds. The short-set may have resulted through the bird only producing two instead of the three eggs, which perhaps most frequently comprise the clutch.

On one occasion only has the writer definite proof that an egg had been removed from a nest and its place taken by a cuckoo's egg. Near Box Dam, Moolawatana, a Crimson Chat was sitting on a set of three eggs and, two days later, the nest contained only two of these eggs and the egg of Horsfield Bronze Cuckoo. As if to prove that the removal of the Chat's egg was accidental rather than deliberate, on the same day a nest of the same species, which previously had three eggs, also contained an egg of the Horsfield Bronze Cuckoo; no eggs had been removed. The two nests were within 50 yards. The writer has left short cuckoo combination sets and on again visiting the nest found that the foster parents have laid extra eggs. On one occasion at the Grange a second cuckoo's egg had been added, as well as two Scrub Wren's eggs. Many short cuckoo combinations are taken because the collector has heard of the removal

of an egg by the cuckoo. The writer well recalls his first taking of a Cuckoo-Orange Chat combination. As he was on horseback and had no box or tin to collect the pretty two-egg set—one cuckoo, one chat—he decided to leave it in the nest until he returned that way to the Moolawatana homestead the next day. Due to unforeseen circumstances, the return trip was not made until three days later, and he was overjoyed to find that the Orange Chat had laid two more eggs. Three eggs are the usual setting though four are not uncommonly found.

As the result of his experience, the writer is of opinion that the cuckoo rarely, if ever, removes an egg either before or after it deposits its own egg in a nest. He has never found an egg which by appearance could reasonably have been ejected from a nest containing a cuckoo's egg. Young cuckoos, it is well known, do eject eggs or young from a nest, and this feature will be dealt with later in this paper.

If asked how the cuckoo's egg is placed in a nest, the writer, after many years of field work, would have to admit that he does not know. If pressed further, he would venture an intelligent (through observation) guess by saying that the cuckoo probably takes the line of least resistance, laying directly into suitable nests and interfering with the openings of closed nests in such a way that the cuckoo could sit above the nest. As will be evident in this article, the writer believes that the great majority of cuckoo's eggs are placed in the nest before it is completed and when it could probably have been laid in or above the nest. This opinion, it is regretted, cannot be supported with very definite evidence. It is purely circumstantial evidence.

Though there may be some uncertainty regarding the actual laying of the cuckoo's egg, we know quite a lot about it after it appears in the nest and about the young cuckoos.

In comparison with the size of the cuckoo, the egg is very small, the shell is thin and fine in texture, and the incubation period is shorter than is required for similar sized eggs of other birds. This has been noticeable when a few cuckoo combinations have been watched fairly closely from the laying to the hatching. The young of the foster parent rarely hatch out before the young cuckoo, except in cases where the latter egg had been added to a fairly advanced incubating set.

The young cuckoo is born naked, blind and very dark colored in the skin; its feet are zygodactyl, the toes being in pairs, the first and fourth toes being turned backwards as in the case of parrots. The young cuckoo grows apace and requires more food than its fair proportion of the supply gathered for the brood in

the nest. It soon realises that its companions are given some of the food it wants, and so sets about getting rid of its competitors. The greater strength, due to the earlier development, comes to its aid, and it gradually works its body and wings under its intended victim and, with a process of pushing and leverage, ejects its companions, one at a time, from the nest. Those who have watched these operations must have stood aghast at the cold blooded efforts of so tiny a baby, with its eyes still closed. The writing of this paragraph carries the writer back to a sunny morning in Hamilton Creek on Moolawatana Station. A nest of the Red-capped Robin, built three feet from the ground in a teatree had contained three eggs—two Robin's and one Horsfield Bronze Cuckoo's—when found four days earlier. As the eggs were nearing the hatching stage, it was decided to visit the nest daily until the young arrived. The young cuckoo hatched out about four hours before the two young Robins. The next day the writer took his family along to see the young birds and was astonishesd to find only the young cuckoo was in the nest, and the two young Robins, one dead and cold, were underneath on the ground. The other young robin was still alive, so it was replaced in the nest. Within a few minutes the young cuckoo began stirring and commenced pushing the other baby bird to the side of the nest. It then got its back to its victim and with the use of its outspread wings gave several heaves, each time getting nearer the rim of the nest, and finally with what seemed to be a superhuman uplift, toppled its load overboard. The young robin was again replaced in the nest, but the cuckoo refused to work again while we kept watch. Three hours later the young robin was dead on the ground. When it ejected its companions the young cuckoo was not more than 30 hours old and was still quite blind. The writer well recalls, when in company of the late Dr. A. M. Morgan, the late John Sutton, and Frank Parsons, finding, near Wertigo Rocks, Eyre Peninsula, a Redthroat's nest, which contained a young Black-eared Cuckoo. It had hatched out before the foster parent's eggs and it had thrown them out. One of the eggs was seen on the ground and another on the slight runway platform to the entrance. The eggs were replaced in the nest, which was opened up so that the "removal" work could be watched. The young cuckoo, still blind, but having a few pin feathers did not take long to get rid of the eggs. He pushed the eggs with his hinder end until opposite the entrance and then, with a definite flick of the tail and wings, pushed first one and then the other on to the runway outside of the nest.

It has been said that the skin of a young cuckoo is so sensitive that it cannot bear any other object in the nest. Personally, the

writer considers that the young bird's intuition tells it that the eggs are potential competitors for the food supply and that it is well to get rid of them before the trouble occurs. Judging by the actions of the young cuckoo, it appears easier for it to eject the egg rather than a young bird.

At the Grange, a young Fantailed Cuckoo was seen to eject two young Spotted Scrub Wrens out of the nest. It was quite naked and blind. A week later the youngster had grown rapidly and was fairly well feathered; at the following week-end—14 days since it was first discovered—the young cuckoo filled the nest, and its head and neck protruded from the entrance. It almost appeared that the youngster was unable to break out, so the opening was enlarged. Then, with ungainly flight, the bird fluttered a few yards, to settle on the ground near a samphire; it forthwith set up an almost incessant call for food, and although a pair of Singing Honeyeaters assisted now and again, the foster parents seemed hard put to it to supply food. Like Oliver Twist, the young cuckoo had a hearty appetite.

Some time ago a writer in the "Emu" suggested that cuckoos' eggs and young cuckoos should be destroyed, because if left to survive it meant the destruction of so many more insectivorous birds which would be of much greater value to the country.

The young cuckoo is undoubtedly guilty of premeditated cold-blooded murder, but if we carry out their destruction it would be most unwise. The cuckoo family almost subsists upon hairy caterpillars and grubs which do not appear to be palatable to other birds. The processional caterpillar, which does so much harm to our forest trees, is frequently noted on the cuckoo family "menu." Further than this, the rearing of cuckoos is probably undertaken in addition to the usual brood of the foster parents for it is customary to find cuckoo eggs only in the early nests and this would give the opportunity of further broods. The feeding of the young cuckoo, even before it leaves the nest, is rather a communal business—its cry for more and more food evidently compels others than the foster parents to help, and it is not more than a few days after leaving the nest that the young cuckoo is left to fend for itself.

The study of the cuckoo problem is a very fascinating one; there is still much to learn about these birds and anyone desiring to take up this specialised subject will find that notwithstanding many exasperating disappointments, there will be a great deal of expectant pleasure in one's watching and waiting "for something to turn up."