# Notes on the Mallee Fowl.

*Leipoa ocellata rosinae.*

By T. P. Bellchambers.

For many years I have taken a special interest in these beautiful birds, and as I have had many opportunities of observing their habits, both in the wild state and in captivity, a few remarks from my note book may be of interest. They are fast disappearing in consequence of the destruction of scrub lands and the keen hunt for their eggs (which are of large size and fine flavour), and the introduction of the fox. During the season 1908-09 I found several mounds, which I examined at intervals. Every one was visited by foxes, and, so far as I could discover, only three chicks hatched out. The eggs are very thin shelled, and when fresh are of a beautiful pink colour. They measure 3¾ inches in length by 8 inches in circumference, and weigh about 8 ozs. There is generally an interval of about six days between the laying of each egg. The chicks begin to hatch in about eight weeks. This limits the number of eggs in a mound to about eight or nine, unless, as often happens, some eggs are infertile, when, naturally, there would be more. The birds are of a gentle and playful disposition, but very shy. Their highly developed sense of hearing enables them to catch the least sound, consequently

they are seldom seen. They inhabit dry, waterless tracts of sandy scrub lands; their food consists of seeds, insects, berries, bulbs, and green stuff. Though they require water in captivity, in the wild state they appear to do without it, getting what moisture they require from the dew, wild fruits, &c. I have seen the birds take the drops of dew from the leaves—dew is frequent in the mallee scrub.

The male mates with one female only (Fig. 1), and all the labour of mound building is done by the single pair of birds. They are active in the early morning and in the evening, camping during the heat of the day. Their plumage harmonises well with their surroundings, making them hard to discover when at rest. They will continue to lay in the mound though every egg be taken, and I have known several instances where they have still laid after the mallee round the nest has all been rolled down.

The first preparation for nesting, the opening of the pit, is usually made at the end of the previous summer, the work going on intermittently through the following winter. The filling is generally started some time in May or June. After forming the pit the birds proceed with the gathering of material—leaves, sticks, and bark are all gathered into the most open ways and runs that converge on the nesting place. Starting near the pit the bird stands on one foot, and with powerful but leisurely movements of the other foot, throws the material behind it (Fig. 2), alternating the feet every six or eight strokes, all the time advancing along the line of gathered material. On reaching the end they retrace their steps, working from the pit outwards. Thus all the material is being moved along lines converging on the pit, and eventually is all collected there. (Fig. No. 3 shows lines of movement of material. No. 4 shows mode of forming cone, the material being taken up in easy gradual spiral curves). The mounds are often opened at other than laying time. This is done, I believe, for the purpose of regulating the temperature.

The mounds are always placed in such position as will expose them to the direct rays of the sun during the hottest time of the day. The hot bed provides a bottom heat, but this alone does not seem to satisfy the birds—the mounds are frequently opened to the sun's rays, the hot sand being gradually replaced. This work does not interfere with hatching chicks, as they always emerge at an earlier hour than the birds choose for this work, which is always done by the male.

After laying starts should occasion arise, through change of weather or disturbance of the mound, the male will work by moonlight to rectify matters. This I have seen on several occasions. The completed mound is usually covered over with sticks or rubble, the reason for which I have not been able to ascertain. They lay from 16 to 25 eggs—I have known of 29. The egg is placed on the small end, for the very evident reason that that position is the only one which could give the chick the right position to strike out for liberty. I have known a chick to take 12 hours to reach the surface after the first indication of hatching was seen—this was in a very sandy mound, and the indication was a slight depression above the rising chick. The chick forces its way upwards by levering with feet and wings, the head and neck folded down along the breast, so keeping the sand from the nostrils. It at last emerges, shoulders first, kicks itself free, and lays as if exhausted for some time—a dainty morsel for the first fox or hawk that comes along. Should it escape this fate it at last jumps up and runs quickly to cover. Being fully fledged it has the power of flight, and is quite able to take care of itself. I have noticed in some cases that the female is slightly larger and more pugnacious than the male. This may have been due to the male being a young bird. The plumage of the wing feathers of the female is lighter.

The male and female forage apart, meeting at intervals for mound construction, &c. The male speaks his love and admiration for his consort in a manner peculiarly his own, with head under breast he emits deep hollow notes difficult to describe, like uh, uh, uh, oome, oome, oome, to which the female replies, whaugh, whaugh, long drawn out, and rising in cadence. Their note of danger is ut, ut, ut, softly repeated many times. The call note of the female sounds like whoo how, whoo how.

The longer a mound is in use the larger it is. First season's mounds are much smaller, increasing in bulk each year by reason of fresh material added. An old mound measured three feet in height by 51 feet in circumference. The same mound is not continuously worked by the same pair of birds. Of 31 mounds examined four were rebuilt during the second season and two others during the third, in each case by other birds, as the original owners were captured. In making the mound they do not use the wings, as has been stated. That this was an error I ascertained by examining

the wings of the first bird I captured, and later by cautiously approaching the mound I was able to see the birds working with their powerful claws, throwing material to a considerable distance.

In the season 1911-12 I succeeded in getting these birds to breed in captivity. Since then I have been enabled to keep them under close observation. The material is gathered and placed in position by means of the feet alone. The beak is often used, when opening the egg chamber, to remove sticks that obstruct their work. I was for a long time puzzled as to how they managed to place and keep all the eggs on the small end, but the explanation is very simple. An excavation is made that acts as an egg cup, into which the egg is dropped. (Fig. 5.) The female then leaves the mound, the male taking her place, the egg leaning too far forward he puts it in an upright position. To do this he does not touch the egg, which is very fragile, and easily broken, but, pushing beak and forehead into the loose sand about 1½ inches from the egg, he pushes the sand against it until it is forced into the required upright position. (Fig. 7.)

The chick takes about two years to reach maturity. They make preparation in the third season for nesting during the fourth, such as cleaning out an old mound, or digging a pit for a new one this work being done mostly after rain. The egs are few the first season, increasing the following season to a considerable number. There is often a difference of four or five months between the first and last chick of a season, which makes them very irregular in their first nesting. Construction of the mound often starts six months before the laying season. The hot bed is ready for egs about September, though my birds have laid as early as the 25th of October, when laying begins, and continues up to the middle of February.

In excavating the pit the female throws the stuff backwards from the bottom to the male above, who, in his turn, throws it over the rim of the excavation. The hardest work appears to be done by the female, though both appear to take great interest in the work. When the female lays both sexes work at opening the mound, but as soon as the egg is laid the male takes charge, and, after placing the egg in position, refills the mound, the female disappearing practically at once. The female does most of the hard work when constructing the mound, but after laying starts all the hard work falls on the

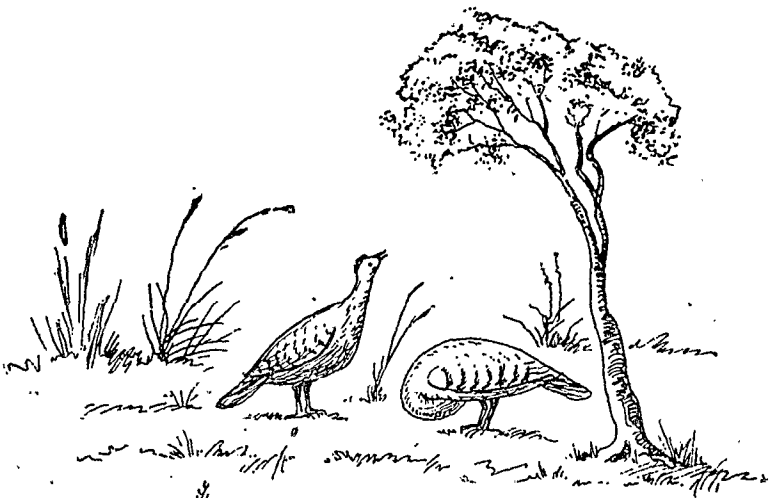


FIG 1.

FIG 3

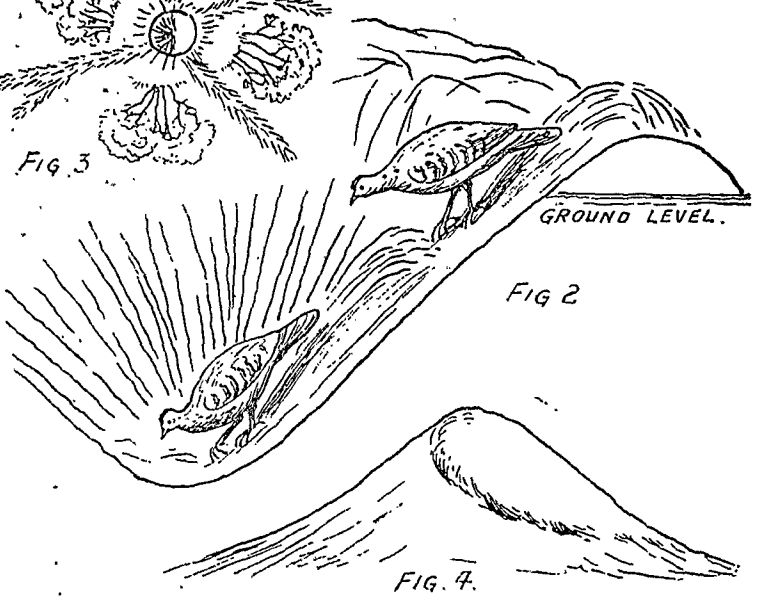



FIG 2



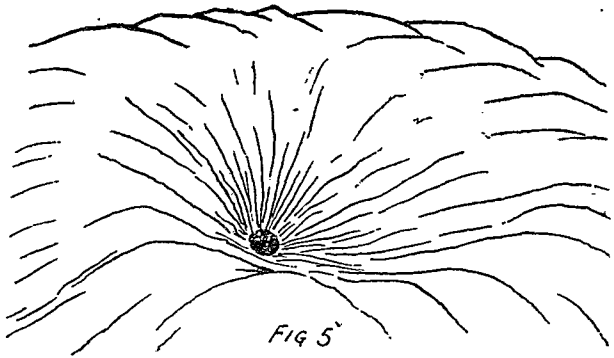
FIG. 4.

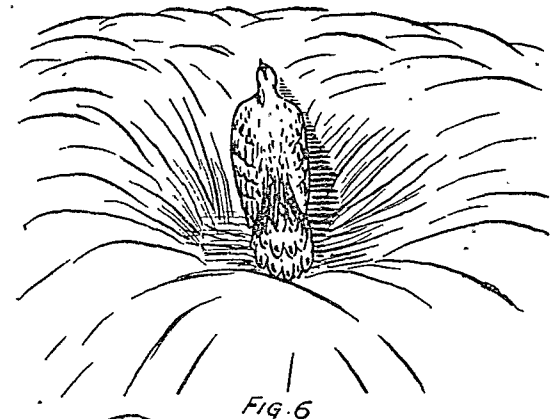
Fig. 1.—Courting pair.

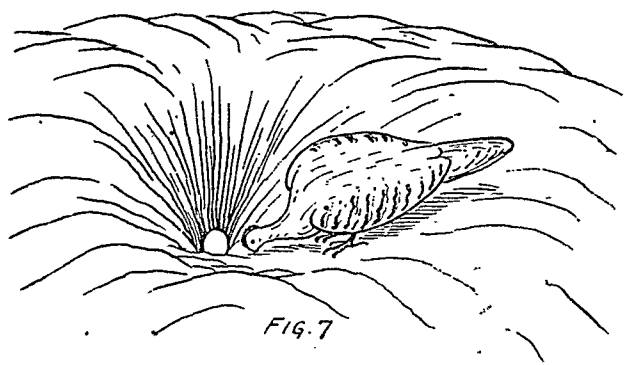
Fig. 2.—Excavating pit. Female throwing to Male, who throws over rim.

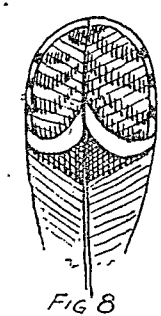
Fig. 3.—Mode of gathering material for filling pit; scratched into lines in clear routes leading to pit from among surrounding bushes, trees, &c.

Fig. 4.—Spiral track of material in forming cone.



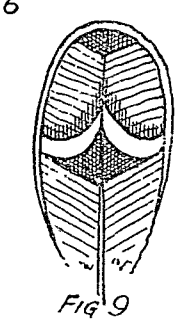




Fig. 5.—Cavity ready for reception of egg.
Fig. 6.—Position taken by Female in act of laying. When taking up this position, the head is not in view, but is finally drawn up from between the bird's body and the bank, following which movement the egg is deposited in the cup like hole prepared for its reception.
Fig. 7.—Male placing egg in upright position, using loose sand as cushion. All filling and forming is done by the Male during the laying season, but in opening the mound the Female assists her mate.
Fig. 8.—Feather from wing of Female.
Fig. 9.—Feather from wing of Male. The slight difference noted here is in evidence at two years. The amorous instincts come into play the third year.

male. I have seen the female in the act of laying. The sketch (Fig. 6) shows the most peculiar position she takes up to place the egg in the hole prepared for its reception. I was enabled to ascertain definitely the period of incubation by numbering each egg as laid and entering number and date in my note book. As each chick appeared I opened the mound to see which number was gone. I also kept a plan showing position of each egg.

By getting these birds to breed in captivity I have been able to bring to a satisfactory conclusion a study that has already occupied many years and cost much patient labour. Since 1907 I have examined about 31 mounds, and in every instance found only one pair of birds at work.

Mallee Fowl food.—Seed of *Acacia stenophylla*, *A. rigens*, and a new variety of *Acacia*. Identified by Mr. J. M. Black.

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Table showing period of incubation, &c., of *Leipoa* in captivity by T. P. Bellchambers, 1914.

| No. of Egg | Date Laid | Date Hatched | Period of Incubation in days |
|---|---|---|---|
| 1 | Aug. 19 | failed to hatch | |
| 2 | Aug. 26 | | |
| 3 | Aug. 31 | | |
| 4 | Sept. 2 | | |
| 5 | Sept. 11 | | |
| 6 | Sept. 17 | Dec. 3 | 77 |
| 7 | Sept. 23 | Dec. 1 | 69 |
| 8 | Sept. 28 | Dec. 2 | 65 |
| 9 | Oct. 6 | Dec. 8 | 63 |
| 10 | Oct. 11 | Dec. 8 | 58 |
| 11 | Oct. 18 | Dec. 15 | 58 |
| 12 | Oct. 21 | Dec. 15 | 55 |
| 13 | Oct. 25 | Dec. 25 | 61 |
| 14 | Oct. 30 | Jan. 1 | 63 |
| 15 | Nov. 4 | removed from mound | |
| 16 | Nov. 11 | | |
| 17 | not noted | | |
| 18 | Nov. 19 | failed to hatch | |
| 19 | Nov. 24 | Jan. 24 | 61 |
| 20 | Nov. 29 | Feb. 3 | 66 |
| 21 | Dec. 5 | failed to hatch | |
| 22 | Dec. 12 | | |