

## PARENTAL INSTINCTS IN BLACK PHOEBES

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Desiring to obtain new specimens of the Black Phoebe (*Sayornis nigricans*) for use in the continuance of our studies on color changes and natural food substitutes in captive native birds, we set out in middle June of this year to cover certain nesting locations of this species situated in the Point Reyes district of Marin County, California.

It is almost impossible to trap the larger flycatchers, resident or migratory, other than during their nesting season, and as we do not wish to unnecessarily sacrifice life in the collection of our avian working material, it is our usual practice to trap only at nests containing fresh eggs.

Middle June is the normal time for fresh eggs of *Sayornis* in the district covered; however, for some reason, every nest this spring contained young instead of eggs at the time of our visit.

After two days field work in which all of the nesting sites then known to us were covered, it was decided to collect a certain pair of adults which had five young just on the point of leaving the nest. We had previously successfully hand-reared a nest of orphan Black Phoebes. But, knowing the burden of the constant attention and effort required to supply their wants in the nature of live insect food and not having the time available to repeat the experiment, we found ourselves in a quandary as to what disposition to make of the nestlings. We needed the adults, but we could not bring ourselves to the point of sacrificing their young.

After considerable thought and argument we decided to transfer the young to another nest situated approximately a half mile distant, which at the time contained newly hatched nestlings. The adult specimens were caught at the nest, their fully feathered young were netted and placed in a transfer cage. They were then taken to the other nesting location and carefully deposited in the nest, after the very young brood had been removed. The nest was watched through glasses from a distance of approximately seventy-five feet in order to ascertain whether or not the foster parents would accept the matured nestlings in place of their own newly-hatched ones.

After a period of about five minutes of fussing and obvious uncertainty on the part of both foster parents, we noticed the male go to the nest and feed one of the young. This appeared to be a good beginning and, as the female seemed to be greatly concerned over our presence in the immediate neighborhood, we withdrew a considerable distance and let nature take its course for the next twenty minutes. Then we again took our station near the nest and after further watching through our glasses saw both male and female feeding all the young. Eureka! What a relief. It was quite apparent that the problem of the older nestlings was successfully solved, but we still had the younger brood on our hands.

We puzzled over the new problem and again, after considerable thought and greater argument, we decided to make a further search to see if we could possibly find some new nest, containing only fresh eggs. We, therefore, started out for an entirely different location and at a distance of some fifteen miles finally found what we sought, a nest with fresh eggs under a stone culvert. The eggs were removed, the newly-hatched young from the second nest were placed in this third nest; and we stationed ourselves near-by, again to watch developments through our glasses. Once more there appeared to be some few minutes of puzzlement on the part of the

adult phoebes and again it was the male which first brought food to the young.

As it was then growing dusk it was necessary for us to leave for home in order to properly attend the first pair of adults now captive in our holding cage. It was decided, however, to return at daybreak the following morning to see that both groups of nestlings were being properly cared for by their foster parents, or to effect their rescue, if necessitated by desertion or some other cause.

Both sets of parents were feeding their respective broods when we arrived early next morning, which was most gratifying, also a considerable relief to our conscience which had been troubling us as the result of what my softer-hearted companion termed "our untimely meddling." After watching them for some time we began to speculate on how far the parental instincts of this species would carry. Query: If one set of parents would accept a brood of young some ten days older than their own and another set would accept newly hatched young in place of their own freshly laid eggs, might it not be interesting to make a general shift among a number of nests and watch the various parental reactions? We could always shift them back, if necessary, at least I so argued. Moreover our two experiments of the previous day along this line seemed to indicate that the risk involved would be small as compared with the scientific knowledge to be gained. It was decided to try the experiment forthwith, notwithstanding my companion's skepticism and admonishment to "let well enough alone."

As we were then at the site of the second nest, in new territory, a further search was made for additional nests with the result that a number were found containing broods of various ages and also one additional nest with slightly incubated eggs. We shifted young several days old into a nest containing young on the point of leaving. The latter brood was placed in the nest containing the eggs, the eggs were placed in the nest which formerly contained the young several days old. A watch was maintained, in turn, upon each nest with the following results. The partly grown young were accepted in lieu of the older group, the older group was accepted, after slight hesitation, by the adults with the eggs; however, the eggs were, so far as we could tell, never brooded by the pair from which the half grown young were taken. All of these nests were subsequently visited some three or four days later and all of the respective broods of young were being cared for by their foster parents just as though they were of their own hatching.

Due to the fact that we could not differentiate the male and female of the pair which received the fully feathered young in lieu of eggs we could not tell whether it was the male or female which first started feeding. In the case of the two shifts made the day before we feel sure that in each instance the male was the one which first accepted the new brood.

What conclusions may be drawn from the foregoing necessarily incomplete experiments are for the reader to decide. If the female of the pair to which the eggs were given in place of young had only brooded and hatched them we would feel safe in saying that any sort of shift could be made with impunity in this species. We will try this particular shift again next year. Possibly we will be lucky enough to strike upon a female with maternal instincts so strongly developed as to cause her to incubate and hatch the eggs which we will give her to replace her own brood of nestlings.

*Manor, Marin County, California, July 19, 1935.*