

Puppet-rearing Pekin Robins

(*Leiothrix lutea*)

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Looking back at my life-long career in zoo work, I recall the fundamental changes ethology brought about in the breeding of zoo animals. In the 1960s the new insights into animal behavior gave us tools to breed many species only sporadically reproduced in captivity before. Hand-raising of offspring became common practice to save the young which often were abandoned or even killed by the parents due to outdated, unsuitable environments. The knowledge of how to breed species biologically correctly suddenly outpaced the ability for zoos to rebuild their facilities.

In the interim, this time period generated significant new data and experience in the technology of rearing offspring without their natural parents. Soon however, the focus shifted from hand-rearing to parent-rearing, and with species-designed environments this gained considerable grounds. The driving force to this notion was the growing awareness of and reservation against taking specimens from the wild, in light of the species extinction crisis looming on the horizon.

Parent-rearing produced progeny imprinted on their parents rather than human foster parents, which in turn assures that the young will interact with their own kin properly as they mature, mate, and reproduce. This is the foundation of captive breeding

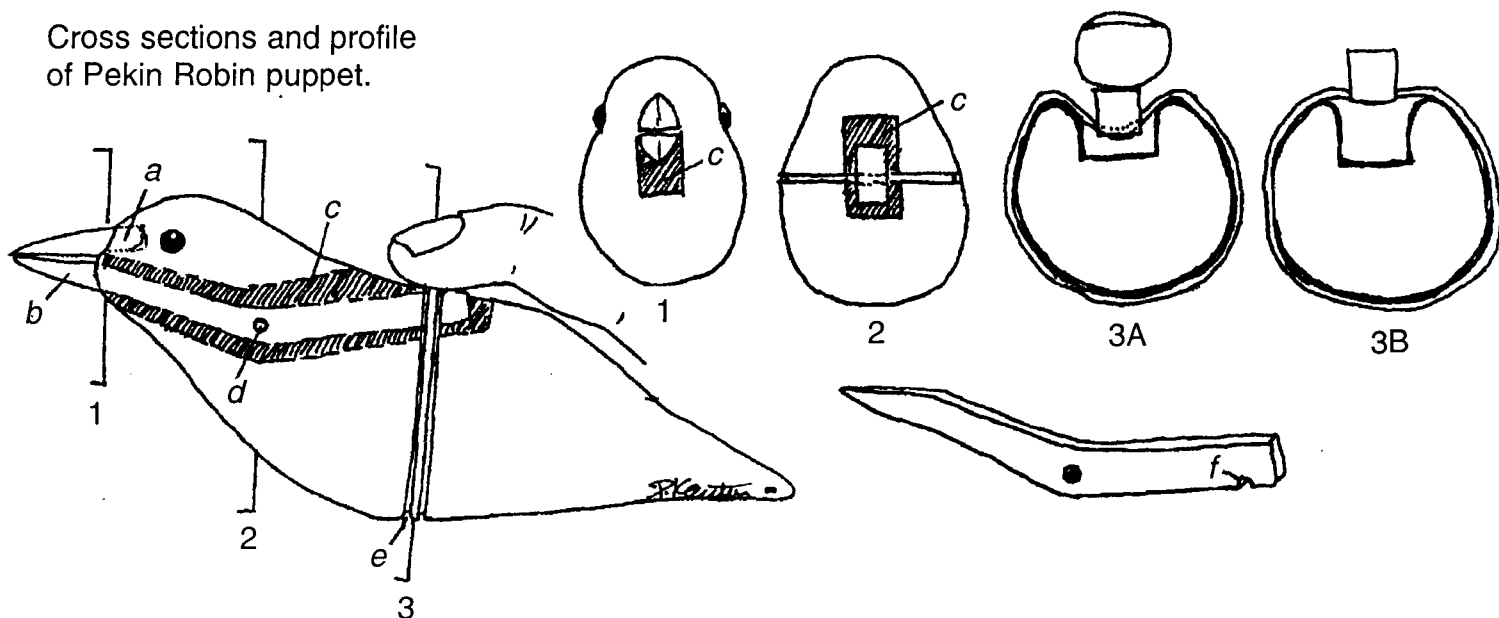
programs of wild animals from an ethological perspective.

To overcome the profound imprinting effects in birds, chicks were raised with puppets replicating the parents image and taped vocalization of their natural parents. I need not to mention the astonishing work done in the crane breeding program, California Condor recovery work, and many others. Although, I am unaware of puppet raising Pekin Robins, I submit this case study by giving full credit to the great mentors from which I got the inspiration. What may be new, is to apply this technique to a less threatened softbill bird species much lower on the scale of things. But then, you can impose innovation from the bottom up as well as from the top down.

Now retired, I decided in spring of 1999 to add a pair of Pekin Robins to my small courtyard type Oriental garden. I anticipated obtaining these by making a few phone calls. Not so. The species had been placed on CITES September 18 1997 and zoological suppliers no longer had easy access to Pekin Robins.

It became apparent that effectively only male birds had been imported from Asia, not because of Western market interest, but due to the market demand in their home range, where the birds are captured for singing companion birds. Hence females were hard to

Cross sections and profile of Pekin Robin puppet.



The body is made out of a solid piece of easily carved wood such as cedar or bass wood. A hole is drilled in the upper fore head to glue in the fixed upper mandible (a).

The lower mandible is part of the dog leg shaped lever (b). Both mandibles are shaped out of a 1/4 inch thick piece of hard wood.

The lever pocket (c) is drilled with a 3/8 inch drill and cleaned out with a small bladed knife or chip knife to allow for enough room to operate the lever. A pivoting pin hole (d) is drilled into the body and lever to receive a finishing nail to align the parts.

A groove is cut around the middle of the body (e) to hold a rubber band in position to pass under the end of the lever, as seen in cross section 3A. The lever has a small notch to keep the rubber band in place (f). The band must be under tension to bring the lever back up in "beak-open position" when the pressure is released by raising the finger, as seen in cross section 3B. Correspondingly the beak is closed by depressing the lever in the lever pocket on the back of the body.

The puppet is painted with acrylic paint and finished with Varathane water based finish to allow for frequent cleaning. Black glass pins serve as eyes.

come by.

Eventually a female was located and breeding the species became a keen, personal goal. The original pair produced two females in 1999 and subsequent breeding in 2000 added 6 female chicks to the program, now in place to breed the species in a budding circle of breeders at the West coast of British Columbia, Canada.

The decision to handrear a clutch of Pekin Robins rests with the need to produce captive born birds and females in particular for the moment. In addition, the parents, a pair I am holding on loan, had not reproduced successfully prior to this and progeny with unrelated genes had to be saved.

On July 8, 2000 the loaned pair of Pekin Robins abandoned their nest with two 5-day old chicks. A cat had been seen on an adjacent aviary roof at nights which presumably caused the abandonment. The chicks were cold and immobile when they were removed from the nest in the early morning. A thermometer placed next to their bodies read 25 degrees Celsius [75° F.]. Each weighed 13 grams. It always amazes us how fast the chicks gain body mass and weight when we recognize that a Pekin Robin weighs less than 2 grams at hatching time.

A nest was created out of dry grasses by twisting a handful of grasses into a nest shape and taping it with

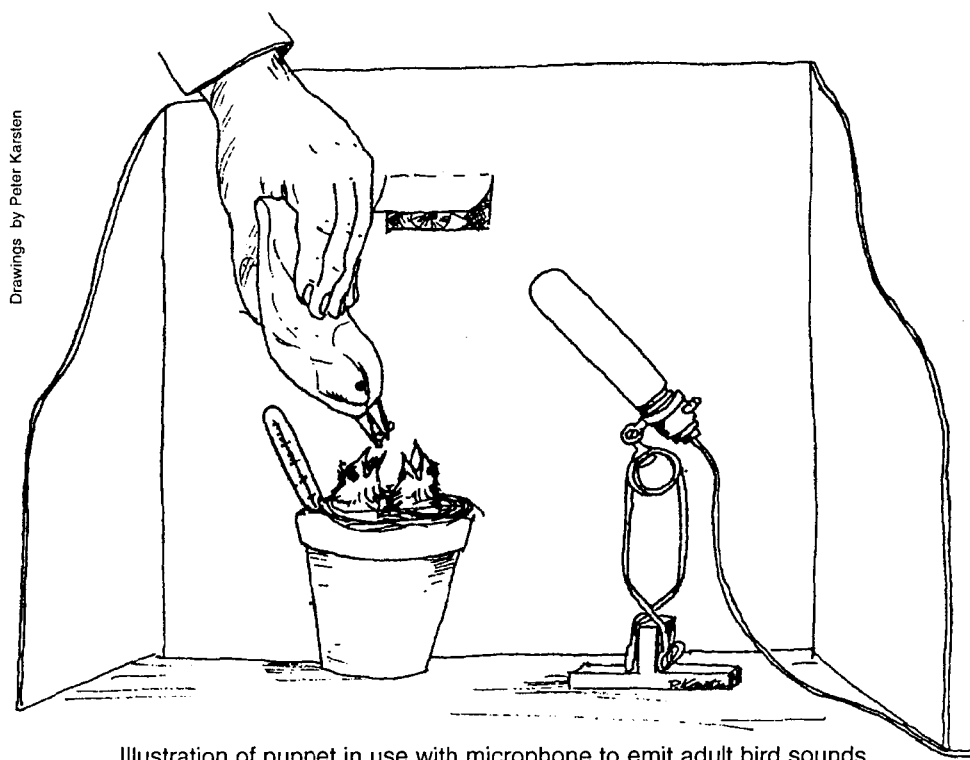


Illustration of puppet in use with microphone to emit adult bird sounds.

Drawings by Peter Karsten



Adult Pekin Robin

masking tape to maintain its form. This was then slipped into a six-inch flower pot. The textured nest lining is important to allow the growing chicks to grasp the nest material to exercise their feet and legs. Soft, non-textured lining will interfere with the development of strong legs and limbs and should be avoided.

The chicks were placed in the artificial nest and covered with a piece of cloth to retain their body heat. A thermometer was placed close to them in the nest material to read ambient temperatures. Some references recommend

Photo by Peter K



A Pekin Robin handfeeding puppet.

Photo by Peter Karsten



The handrearing station for the Pekin Robin chicks. An artificial nest containing a Pekin Robin chick (under the blue cloth used to prevent heat loss). Note the thermometer stuck into the nest to monitor the temperature.

keeping the temperature at 36-37 degrees C. (approx. 97 to 98.6° F.) until the chicks are covered with down and feathers. The chicks showed signs of stress at that temperature by stretching their necks over the nest rim and panting. The temperature was reduced to 32-34 degrees C. (89.6 to 93.2° F.) and their behavior stabilized. A 40 watt "black" terrarium lightbulb was used to adjust the ambient temperature on a 24 hour basis by sliding it into the respective range of the nest.

The following data were established in this case.

- **Day 5** after hatching, (the day the chicks were abandoned).

The chicks were fed wax worms, crickets abdomens, and meal worms (preferably freshly shed, soft bodied larvae) every 45 to 60 minutes on the first day. Chick A took 18 food items and chick B 15. For the first four to five feedings they had to be force-fed, but responded by gaping for food to tapping on the nest rim by the latter part of the day. The parents can be observed making small hops, like a form of tapping, on the nest rim when they wish to entice the chicks to accept food.

- **Day 6**

Chick A ate 28 insect items and chick B consumed 23. The nest was placed on an electronic letter scale and their weights had increased to a 14 gram average. Chicks now seemed comfortable at 28-30 degrees C. (82.4 to 86° F.)

- **Day 7**

Chick A took 32 items while chick B fed on 24 insects. Eyes begin to show signs of opening. The puppet was introduced to feed the chicks and a blind, to conceal the author, was erected. The blind had a small window to observe the chicks, but it did not permit the chicks to make clear eye contact with the surrogate parent. The puppet functions like a set of forceps. It is hand-held and moved into position to feed the chicks from behind the blind.

- **Day 8**

Wing pin feathers are unfolding, body covered with down, covering

cloth removed from the nest. Ambient temperature 26 degrees C. (78.8 ° F.). Eyes begin to open. They consumed 27 and 26 items respectively.

- **Day 9**

The chicks fledged midday. Their weight was 16 grams average. Their bodies were extensively covered with feathers. Typically the tail feathers had not begun to show.

Chick A consumed 30 insects and chick B 27. Chicks kept at room temperature 20-24 degrees C. (68 to 75.2 F.). They were transferred to a small box type cage approx. 12 x 20 x 18 inches high.

- **Day 10**

The food intake dropped slightly, but the chicks were active and interested in the surrounding and occurring events. Chicks were still offered food by the puppet, although without the blind.

- **Day 12**

Chicks begin to feed on wax worms and mealworms on their own. Red huckleberries triggered an interest in picking up food items. Tail feathers began to grow out.

- **Day 13**

Chicks were transferred to a small flight cage 30 x 36 x 68 inches high. Feeding was now done by a set of forceps through the mesh sides of the cage. The chicks readily approached the food and continued to show no fear of the feeding person.

- **Day 15**

Chicks began to feed on egg cake and blueberries, besides insect food.

- **Day 19**

A strange parent-raised male was introduced to the chicks. The response behavior was typical as observed in other introductions of wild caught birds. The two chicks stayed close together and threatened the other bird when it approached by beak clapping and pecking at the intruder. In the excitement the siblings also became confused and threatened each other. There were not aggressive pursuits.

The introduced bird roosted away from the chicks at nights.

- **Day 20**

The chicks, which had been fed mostly by forceps so far, began to pick up food on their own and hand-feeding was curtailed. One of the first items that interested them was red huckleberries. Progressively the birds became shy and cautious when approached, unless food was offered by forceps.


- **Day 23**

Male chick began to practice singing. The sibling chick did not sing and gave the typical plaintive call of a female about a week later. All birds are sexed by vocalization as the only sure method, since the species really is not dimorphic, despite some variances between sexes.

- **Day 25**

All three birds displayed full compatibility, engaged in mutual preening and roosted together. A comprehensive softbill diet was offered.

Conclusion

While there is no proof, due to a lack of a control experiment, it can be stated that the species-typical behavior was apparently preserved by using the puppet rearing method. No problematic imprinting effects were noted. The female of the two chicks is now mated with a parent-raised bird and all behavior patterns are typical. The male chick was surplus to a zoological garden as part of a three-male group for display in a large aviary. The author feels that the relatively small extra effort to introduce a puppet at the critical period of imprinting is a worthwhile strategy. This method will be of greater importance if a single chick must be hand-reared, as siblings will imprint on each other to an extent. 

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