

Foster Rearing Button Quail Chicks

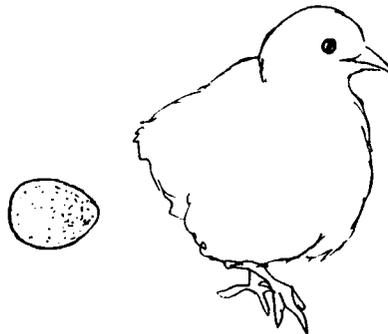
An attempt at a return to natural breeding

by Nancy Bent, Brookfield, IL

Why another article about the Button Quail, or Blue-breasted Quail *Coturnix (Excalfactoria) chinensis* as it is more accurately known (Clements 1991)? Certainly there has been a lot written about this tiny game bird over the years, so why did I feel the need to add my two cents worth? This paper will describe my efforts to facilitate the natural breeding of Button Quail, and offer some ideas for teaching naive birds to raise their own chicks.

I have kept and bred Button Quail on a small scale for about 10 years now. I purchased my first pair from a local pet store and set them up for breeding in a thirty gallon "long" fish tank. Having been a bird keeper at the Brookfield Zoo for a number of years, I was convinced of the desirability of a naturalistic habitat to get the birds to feel comfortable enough to breed. This fact was also noted by Hayes (1992) and Parrot-Holden (1988). Johnsgard (1988) states that these birds are found in the wild in open grassland habitats, and Ali and Ripley (1969) describe the nest as a "scrape ... lined sparsely with leaves and grass ... placed in a clump of short grass." I therefore set up the tank with a substrate of corn cob bedding, a tangled clump of artificial plants in the corner as a nest site, and plastic leaves wired to the cage top to prevent injuries should the birds spook and try to fly straight up.

I just naively assumed that the birds would then nest and raise their own young. I was totally unaware of the problems often encountered with this species, that they are often "too nervous to care for their own eggs and young unless conditions are absolutely ideal" (Radford 1987). Either I was blessed with a female who had not read any of the dire predictions about her species, or the pair was very compatible, or the cage was just what they preferred, because from the first egg she laid the female was a good sitter. And though several authorities also suggest removing the male right away



Drawing by Nancy Bent

This is when I discovered the "typical" button Quail female who will not build a nest, preferring to scatter eggs around the enclosure with no thought of incubation.

(Radford 1986 & 1987, Rutgers and Norris 1970), my male never bothered the female while she was incubating. He did have to be removed when the chicks hatched though, as he tended to peck them when they tried to brood under him.

This pair raised a number of clutches, many chicks from which went to friends and co-workers. Many of the females from this pair who were later paired with males also proved to be good sitters. After four successful clutches my old female died and I purchased her replacement at another pet store.

This is when I discovered the "typical" Button Quail female who will not build a nest, preferring to scatter eggs around the enclosure with no thoughts of incubation. This new female always appeared more nervous than my original female, and tended to spend much of the day pacing around the tank. The male was much rougher with her than he was with his original mate. Thinking that he could be part of the problem I traded him to a friend for a gentle older male that she had. This calmed the female enough that she at least deposited all of her eggs in a nest in the artificial plant clump, but the concept of incubation still eluded her.

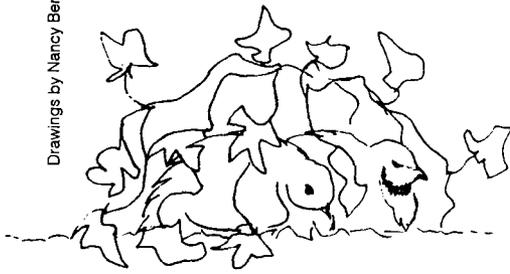
After several more tries with different birds I began to realize what a treasure I had had with my original female. Even a move to the floor of a large mixed-species flight cage with a

big thicket on one side for their nest attempts did not prompt any nest-building behavior from the pair I had at that time. I gave a number of eggs to friends for artificial incubation and hatching, but I was only interested in having chicks from parents which had cared for them.

At this point I called Cathy House, a well-known breeder of Button Quails, and explained that I was looking for a daughter from a female that would sit on her own eggs and raise her own chicks. She was kind enough to provide me with just such a female (she also very generously donated a pair of quail to Brookfield Zoo, where they resided in our mixed-species finch exhibit until their deaths). This female immediately paired with my current, very gentle male. She built a nest in the thicket, lined it with grasses that I provided, laid a clutch, then incubated. Unfortunately, her idea of the incubation period varied from two to nine days—nowhere near the required 16 days.

A friend requested some eggs, which I was glad to provide, and hatched a number of chicks. One of the female chicks proved to be beautiful and calm and was shown at a number of local bird shows where she won several ribbons. Meanwhile, her mother developed egg peritonitis in the midst of laying her latest clutch and had to be euthanized. In desperation, knowing that I didn't want to lose this "sitting" bloodline, I begged my friend for the prizewinning female. Since she did not want to breed Button Quail my friend graciously complied.

This new female proved to be as calm as her mother, and from her first serious egg-laying she built nests in the thicket area and incubated the resulting clutches. But, like her mother, she only incubated each clutch for part of the required period. She always sat very tightly for eight days and was not disturbed by her mate or the other birds in the cage. In fact, her mate



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would often join her on her nest, sitting next to her in full body contact. Harrison (1968) also observed this behavior. However, on the ninth day she would come off her nest in the morning and never go back.

After six or seven clutches following this same pattern I decided to try a different tactic. I wanted to see if this female would care for her chicks once they were hatched. I hoped that the stimulus of tiny chicks would awaken the female's maternal instincts, despite the fact that she had not completed the entire nesting cycle with its hormonal and behavioral changes. Wood-Gush (1971) describes these changes for the domestic chicken, which would presumably also operate in their tiny relatives.

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I set up a Marsh Farms Turn-X incubator at 99.5° and 55% relative humidity and waited for the next clutch. Sure enough, after eight days of faithful sitting, the female deserted her nest on the morning of day nine. This time though, the eggs immediately went into the incubator. I now had eight days to make a few decisions on how to proceed.

The first decision was whether or not to include the male in this experiment. Several authors have noted that male Button Quail will provide care for

their young, both in the wild (Ali and Ripley 1969) and in captivity (Harrison 1973, Rogerson 1966). However, since I had negative experiences with my original male, and since I would be attempting to teach a presumably nervous, naive female to care for her offspring, I decided to reduce the stress on the female by leaving the male out of the equation.

The second decision was where to perform the experiment. Would the female be more comfortable in the large mixed-species flight she was used to, or should external stimuli be reduced by moving her to a cage by herself? Wood-Gush (1971) cites several studies where broodiness was induced in domestic hens by placing them singly with small chicks. This seemed to be the best approach as it removed the distraction of the other species in the flight. I therefore set up a thirty gallon "long" fish tank in our basement where the birds would be



This also had the advantage of being out of vocal range of the male's crowing.

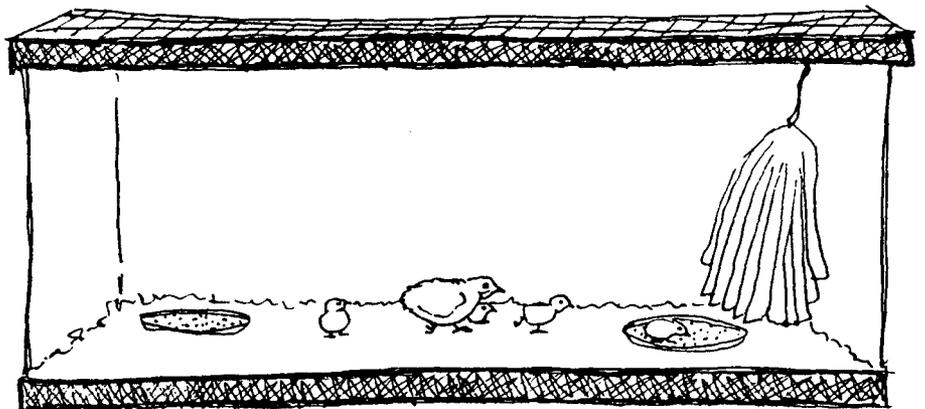
quiet and undisturbed. This also had the advantage of being out of vocal range of the male's crowing.

The heat lamp and dust mop were included as artificial brooders in case the female refused to care for her chicks.

The tank was furnished with corn cob bedding, a heat lamp, a dust mop, food and water. The heat lamp and dust mop were included as artificial brooders in case the female refused to care for her chicks. Food consisted of gamebird starter, small pieces of leaf lettuce, and small mealworms in a shallow container (a Tupperware lid). Water was also presented in a Tupperware lid, filled with aquarium gravel so that the chicks couldn't drown. Vitamins were added to the water.

On day 16, six out of eight of the eggs hatched (the other two were clear). One chick had crippled feet and had to be euthanized when it became clear that it could not walk, but the other five dried off normally and were ready for the experiment. They were placed into the tank and allowed to explore their surroundings for about an hour. The chicks eventually found the dust mop "mother" and went under it to be brooded. I then introduced the female.

She wandered for a minute, but then found the food and began to feed. The chicks woke up, saw her, and immediately ran out from under the dust mop and tried to brood under



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the female. This made her very nervous, and she kept running away from the chicks as they touched her. She never pecked them or tried to hurt them, but it was clear that they made her very jittery. She began to calm down after about an hour but still did not want the chicks to touch her. When she sat down to rest, the chicks could sleep next to her as long as they did not try to go underneath her.

The chicks later observed the female eating and drinking and followed her lead. Though she never called her chicks to food or tidbitted them (a behavior seen in my original female), she never objected when they joined her at the food dish.



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After about a day and a half the female was calm enough to allow the chicks to nestle under her feathers when she slept, though she never called them to brood. At this point the chicks no longer used the dust mop "mother." The heat lamp was moved away when the female allowed the chicks to brood and there was no danger of their becoming chilled. From then on the female was basically a good mother and raised all five chicks.

The next step in the experiment would have been to see if the process of rearing chicks "switched on" the female's incubating instinct as it seemed to "switch on" her brooding instinct. Would she sit on her next clutch for the full 16 day incubation, and then rear her chicks? Would the experience of successfully rearing a clutch of chicks affect her behavior with her next clutch? There is evidence that experienced birds are more effi-

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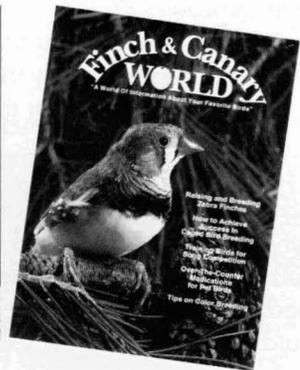
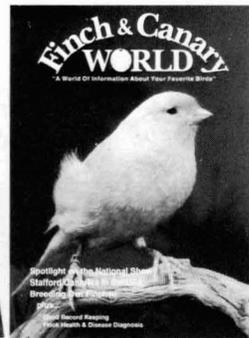
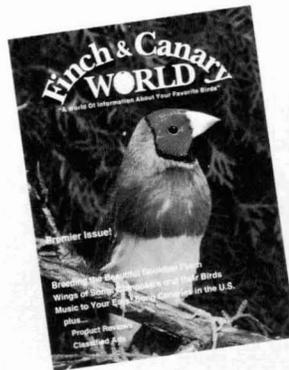
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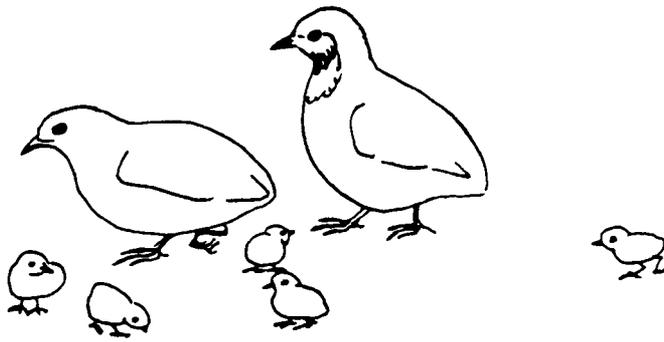
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I would like to hear from other breeders who keep birds that incubate and rear their own broods, both to trade stock and to compare methods.

cient as parents than those nesting for the first time (Skutch 1976). Unfortunately, I could not answer any of these questions with this female, as she never laid again. It is possible that the chicks she raised and all of the eggs she laid and never finished incubating represented the sum of her potential reproductive output. She was at this point approximately three years old, and may have been at the end of her reproductive life.

However, I discovered that this female Button Quail was capable of raising chicks that she had not fully incubated and demonstrated many aspects of good parental behavior. It would be interesting to see if other female Button Quail, particularly calm individuals that have already demonstrated some reproductive behaviors

(such as nest building or incubation), could be induced to foster chicks that have been artificially incubated. It is possible that such "parent" raised chicks will in turn be better parents. It is also possible that the experienced foster mothers may then go on to raise their own clutches.

We aviculturists need more quail who will raise their own chicks, and need to rely less on artificial incubators. As Alderton (1986) states, "unfortunately, studies suggest that birds reared in this way (by incubator) over numerous generations lose their brooding instincts, compounding the difficulty in the future." Many breeders incubate all of their eggs, turning out hundreds of birds per season. This is especially true of those breeding for pet trade quantity and for those breed-

ing color mutations. These "modern 'strains' are less willing to incubate. This situation has almost certainly been brought about by the intensive methods employed by some breeders" (Woolham 1987). No other species of bird found in aviculture is produced this way—are we trying to create a species that can only be raised artificially?

I am currently searching for parent-raised quail so that I can start my breeding program again, but I am having difficulty locating naturally bred birds locally. I would like to hear from other breeders who keep birds that incubate and rear their own broods, both to trade stock and to compare methods.

I would like to thank Roger Reason for comments on an earlier draft of this paper, and for assistance with all phases of my quail breeding program.

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