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THE NESTING HABITS OF THE GOLDFINCH *Carduelis carduelis* (LINN.) & *C. caniceps* VIGORS. By R. S. P. BATES. (With a plate).



Female European Goldfinch regurgitating seeds



Nest and eggs of Himalayan Goldfinch

Photos : R. S. P. Bates

The Nesting Habits of the Goldfinch *Carduelis carduelis* (Linn.) & *C. caniceps* Vigors

BY

R. S. P. BATES

(With a plate)

The Goldfinch, a truly delightful bird in every way, in dress, in voice, and in habits, has a wide range over the greater part of Europe and a good slice of Asia, inclusive of the frontier hills of West Pakistan and thence in India along the western Himalayas to about Kumaon. The genus is divided into two species, the typical *carduelis* and the eastern *caniceps*, both subdivided into races of which the Himalayan bird is the most easterly form of all.

On coming into close contact with Goldfinches here in England after meeting their counterparts in Asia I find myself wondering what lies behind this separation into two different species. One realises that a vast range with its consequential differences in climatic and other conditions is bound to result in the production of numbers of somewhat differing forms, so that the Himalayan Goldfinch at one extreme is almost bound to possess some striking difference from the English bird, in this case the lack of any black about the face. Nevertheless I find the ways of both species so strikingly similar, inclusive of the choice of nesting site, the architecture of the nest and the material, manner of its construction, incubation and feeding, movements after nesting, the delightful call notes, joyous song, and so on, that I find it difficult to believe that there really are two true species. Indeed would not, I wonder, individuals picked up at random from anywhere along this long line, whether belonging to *carduelis* or *caniceps*, be perfectly happy to breed together? In short, could not the whole lot belong in reality to but one species? This is of course probably nothing more than wishful thinking on my part and I would not really presume to contradict the taxonomists,

¹ In A SYNOPSIS OF BIRDS OF INDIA AND PAKISTAN by Prof. S. Dillon Ripley (in press) both the British and the Himalayan Goldfinch are recognized as races of *Carduelis carduelis*. EDS.

who with their access to large collections and far more literature than I am ever likely to see, do not have to rely on a few impressions and consequently have probably got the strongest of reasons for carving up our palaeartic goldfinches. I could, I suppose, even be wrong in crediting the different forms with identical ways, and therein lies my whole object in putting this article on paper: someone may like to pull my ideas to pieces and show up the error of my ways. My contacts with the Indian bird on the north-west frontier of West Pakistan and in Kashmir, though pretty frequent, admittedly have always been of short duration, and I never had the chance of following a pair of goldfinches right through their nesting cycle as I have just done this summer in my garden in Surrey.

In the Vale of Kashmir the Himalayan Goldfinch is common enough the year through, and in early spring plenty of nests are to be found in a variety of situations. I have come upon them in willows lining water channels, in fruit trees in the orchards, and of course amongst the smaller branches of fir and pine trees, but I believe the pine wood on the Takht-i-Suleiman, mentioned by almost every ornithologist who has written about them, first dwindled and then disappeared altogether some years ago. In the summer numbers of goldfinches move up the side valleys to quite high elevations, many of the young then produced probably being second broods, and it was one of these higher elevation pairs which produced the most striking nest I have ever seen. I found it on June 22nd at an elevation of about 10,400 ft. between Bal Tal and the Zoji La Pass into Ladakh. The site was typical, being about 3 ft. out and 15 ft. from the ground on a horizontal branch of a small pine tree, and the general construction was quite normal, a beautifully soft affair containing the usual thick inner wad of felted vegetable down finished off with a somewhat scant inner lining of hair. The outer materials were perhaps a little unconventional for, to quote from my remarks about this nest in my diary: 'Two-thirds of it were exclusively of Edelweiss and forget-me-nots quite fresh-flowering stems which I suppose the bird had cut itself? Then came a thick layer of dandelion down. Finally it was lined with horse-hair but inside on the bottom was a further limited quantity of dandelion down . . . On the way back from the Zoji La saw three pairs of goldfinches on the ground near the same place. It does seem, by the way, that where there is one pair nesting there may well be a number spread over a very limited area.' Later I wrote: 'The eggs have a transparent appearance unmarked and white when blown, but they are by

no means as fragile as they look.' I came upon one other unmarked clutch in a nest near Nagmarg above the Wular Lake.

Shortly after returning to England in 1946 I had a couple of sessions at a goldfinch's nest in a hawthorn tree and watched, but failed to photograph, the transference of predigested food from the male to the sitting female; and noted too how a beautiful nest, neat, soft and cosy-looking, became within a week of the young being hatched, an offensive ring of droppings through lack of attempt at nest sanitation. Nests noted since then were either in situations unsuitable to deal with, or came to an untimely end thanks to the appalling increase in predators during and immediately following the war; magpies, jays, and Grey Squirrels in the main, the latter more fittingly called tree-rats, real horrors and not in the least lovable as are India's confiding little rascals, the Striped Palm Squirrels.

At last in the first week of July this year I found I had a goldfinch's nest only 9 ft. from the ground, hidden in a cup of small shoots near the top of an apple tree in our own garden. We also had two others, one of them hopelessly placed amongst the outer branches of a tall Sweet Chestnut tree and the second in a cedar which I did not spot until too late and which was probably the earlier nest of the pair I was now to deal with. Although I had of course heard and seen the goldfinches moving about the orchard—the bright plumage and mellow call-notes incessantly indulged in saw to that—I had not realized that this second nest was already in being. It contained, in fact, 2 eggs and incubation seemed already to have commenced. Basically the nest was constructed just like others I have come across, whether in the Himalayas or in Britain. The outer parts contained one or two thin twigs, but in general it seemed to be made of dry grass and soft weed stems, the inner felted cup being about one-third of an inch thick made of some vegetable down khaki in colour. This was rounded off with a final scanty lining of white hairs belonging to one of our Cocker spaniels. An interesting point was that amongst them was not one single hair from the Golden Cocker's coat which would, in fact, have matched the felt core instead of contrasting with it.

On the 7th I found a third egg had been deposited, but it is in no way unusual for goldfinches, British goldfinches anyway, to begin incubation before the deposition of the full clutch, which in this case proved to be one of three eggs only.

The next few days were spent in getting the sitting bird thoroughly used to traffic and other noises so that my wife and I could eventually talk and move about directly below the nest without causing her the least embarrassment. When I erected a pylon hide on a triangular

platform made by resting a couple of planks on a rung of a vertical aluminium ladder with their other ends through the garage windows she did not bother to leave the nest until I got on to the platform to put up the hiding tent within 4 ft. of her. By the way the Bal Tal bird was just as tame and returned to within 6 inches of the nest while my head was still almost level with her.

Early on the morning of July 18th I found that two of the eggs hatched, but it was some time in the afternoon of the 19th before the third chick arrived. I replaced the dummy lens with the reflex equipped with an 8-inch Cooke lens, and getting inside the hide let off the focal plane shutter a few times to test the effect on the sitting bird. She jumped once or twice at the snap of the falling blind, but soon took no notice of it whatsoever. Unfortunately from beginning to end the male reacted unfavourably every time the blind dropped, and usually made off like a scalded cat. He always did leave with unexpected suddenness anyway, and never gave me a chance of two exposures during any one visit.

I already have good photographs of an incubating female, so wished to concentrate on the passing of food by the visiting male. The female seldom leaves the nest except, I suspect, for the purpose of drinking, being relieved of any such necessity by being fed by the male by regurgitation. You see goldfinches are typical finches in that they have strong, though in their case rather long, conical bills specially adapted for crushing seeds. This does not mean that they eat nothing else, but seeds do form by far the greater proportion of their diet. Numbers of finches however feed their youngsters, like so many small birds do, on insects, but goldfinches and some others of the family have got over the dangers of giving their chicks tummyache through feeding hard seed to them by predigesting this type of food and storing it up in their own crops to feed to the young in bulk. This means of course that the nest need only be visited at infrequent intervals, a practice which has its disadvantages as will in due course be seen.

At 11 o'clock the male appeared on the rim of the nest and was greeted by the sitting bird at once soliciting food with head thrown back and bill well opened. He promptly sank his own bill well into her throat, but I could at times see a stream of matter of the consistency and colour of thick cream flowing into her gape. The flow lasted an appreciable time with a slight raising and lowering of his head which was why I could occasionally see the flow. The female did not immediately pass on this gruel to the young ones but covered them for another seven minutes. She then stood up and so far as

I could tell fed her two offspring. Unfortunately the chicks were so tiny that their heads did not come above the rim of the nest.

By the 20th it had become evident that the male's visits were at intervals of not less than half an hour, and that the female usually passed on the food within from 5 to 10 minutes of a visit. On one occasion, however, more than 40 minutes elapsed between visits. This time the female fed the young twice, that is 5 minutes after his visit and again half an hour later. It seems therefore that she can retain the food in her crop at the right consistency for some time. Once the female seemed to regurgitate a small seed which I could see her holding in the tip of her bill before feeding it to one of the chicks. On another occasion, but after the male had commenced to supply the chicks direct, he produced what I am almost certain was a spider still with its legs intact.

The change over to direct feeding of the young by the male was most interesting and I was indeed lucky to be in the hide to witness it. On the 21st before entering the hide I had snipped off one or two leaves above the nest which were throwing awkward shadows. In so doing I inadvertently dropped a tiny bit of debris into the nest cup. The female returned almost as soon as I was comfortably settled in and brooded the young for quarter of an hour. Then she stood up and for 5 minutes or so cleaned up the nest and attended to the young. The rim of the nest was still absolutely free from excreta. She appeared indeed at this stage still to be swallowing the faecal sacs. The chicks in any case were too small to be able to eject excreta on to or over the rim. So here is a passing thought: how is the mother bird at one moment able to swallow faeces yet very soon afterwards bring up food for the young?

I could see her nibbling something in the bottom of the nest then she picked up my bit of debris and flew away with it. Shortly afterwards the male flew in. Finding his mate absent he just stood on the edge of the nest looking rather non-plussed. Then the three chicks showed their open gapes dithering in the sunlight below him. The spell was broken; he soon started to feed them but, his method at once changed. No longer was it a rather deliberate process of continual regurgitation. He fed them in strict rotation with quick dabs of the bill into each open gape, repeating the round two or three times. Halfway through this the female appeared on the back of the nest and at once solicited food for herself. He merely included her in the rotational round, using the same dabbing motion for her as for the chicks. From then on both parents started to feed the growing family though on one occasion the male arrived when his wife was

brooding the chicks who now took up sufficient room in the cup to necessitate her sitting rather perched up in the air. He fed her in the old deliberate manner stretching well up to enable him to insert his bill into her up-turned gape though there was a certain amount of up and down movement involved. Unfortunately I waited a little too long for a favourable moment to press the release and lost the opportunity altogether. As the young grew, I expected the parents' visits to increase in frequency but the minimum interval of half an hour was maintained throughout. The fact that both parents were now employed in food collection provided, I suppose, the necessary increase in supply. There appeared to be no co-ordination between the parents as to the spacing of their visits. At times both would arrive almost together with much melodious calling to one another; sometimes the intervals would be more or less evenly spaced. In other words, the times of arrival were quite fortuitous. Both birds had their fixed lines of approach, the female always directly on to the back of the nest while the male flew in from another apple tree to my right but alighted on the left front side of the nest. I wonder if this had anything to do with the youngsters' choice in the location of their latrine?

I have already said that the female kept the nest clean so long as she was continuously brooding the callow young. She continued to do so for two or three days after she had joined the male in food collection. From the 25th, however, I began to notice that droppings were commencing to soil that quarter of the rim to my right front and no attempt was made by either parent to remove them—the male never had taken an interest in nest sanitation anyway. What happens appears to be this: anything falling inside the cup is removed by the female, but as soon as the young are big and strong enough to deposit the faeces beyond the inner cup itself, no matter how near to it, they are ignored. By the 29th the young filled the whole cup and when one wished to defecate there would be a general upheaval, the chick concerned pushing its brethren around until it could raise its tail end roughly in the right direction, that is towards my right front. The droppings were ejected with a certain amount of force but never with sufficient vim to clear the nest altogether with the result that by the time the young flew there was a sticky congealed mass bulging out from the side of the nest in the most favoured spot by a good inch, and the whole of that sector of the nest facing me had become soiled in some measure.

On the 31st the male suddenly changed his line of approach—possibly because his pet perch had become dirty and slippery—and

started to land on the extreme right front of the nest. This was a nuisance so far as I was concerned as part of his body was shielded from the lens by one or two leaves on an upward-growing spur starting just below the nest. The young were now practically ready to leave, the two first-hatched frequently indulging in vigorous wing-whirring exercises. I felt I could get better photographs of this and of the male on his new perch by removing the masking spur, so when my wife arrived to call me in for a meal I asked for her secateurs. I thought that if I cut off this twig at its base below the nest the young would not be able to see me and so would not take alarm. All went well and the offending thing was nearly severed when the secateurs went through the last bit of wood with an unfortunate click. To my horror the whole nestful 'exploded', the three young taking off in different directions but fortunately all landing safely in a plum tree and some bushes behind a herbaceous border. Moral: do any gardening likely to be necessary before the young become fear-conscious.

Fortunately there was still a chance of recording the fledglings' plumage. In front of the house there is a lily-pond with a stone bird-bath close beside it. I had noticed that another goldfinch family consisting of the adults with one surviving juvenile visited this bath very frequently so I at once moved the hide, placing it on the narrow strip of grass between the pond and the wall and 7 ft. from the bath. Therein I made a grave mistake; for a solid week nothing came near that bath, not even the cheeky sparrows. Thinking things over I concluded that the hide must be blocking the birds' usual lines of approach and departure but it was not easy to put the hide elsewhere. I could not place it to the north of the bath for the light would have been all wrong. The only way out of the dilemma was to put it right up against the wall so that most of the tent was on top of the wall with its front panel just far enough out to allow me to lean back against the wall with the toes of my shoes just peeping out, one leg of the camera tripod leading under my left armpit on to the grass on the top of the wall into which it was firmly pegged, the other two legs sticking out on either side of the front panel just by my feet. My position in the hide was by no means uncomfortable—I had of course to stand all the time, but the wall sloped back slightly so I could rest against it.

Birds are queer things! Although the hide was now closer to the bath every bird in the garden appeared to be satisfied with the change. The weather was hot and brilliant so bathing and drinking became the order of the day with practically all species. If I had

been able to stay in the hide all day and every day my list of captures would undoubtedly have been of considerable length. Alas, I had other jobs to attend to at times, and food to get down me. My annoyance can be imagined when in the middle of lunch the bath was visited first by a pair of Yellow Buntings and immediately afterwards by a nightingale with one of its fledglings. But I must not wander at the moment from my main theme. Unfortunately the abortive week turned the scales against me. A change was coming over the behaviour of the finches in general and the goldfinches in particular. For one thing the harvest had begun and this was probably a contributory factor to the change in the behaviour of many species as well as the fact that no longer were so many of them tied to one small area through having nests to think about. Of course I often heard the goldfinches and greenfinches in the garden, but just as often they went further afield and also joined up into flocks with other family parties. No longer did the goldfinch parents with one juvenile appear so regularly and indeed their visits soon petered out altogether. To cut a long story short I never did get that juvenile plumage photograph.

On one occasion I was in the tent the whole morning during which I photographed Willow Warbler, Blue Tit, Robin, and cock House Sparrow bathing, and in addition a whole family of greenfinches the members of which came a number of times, once with an adult goldfinch, but at last I had to pack up. Pulling a polythene bag over the camera I undid the press-studs down one side of the tent and prepared to leave. To my utter confusion just as my posterior was sticking out into the open air like the Rock of Gibraltar emerging from the sea, with much twittering my whole goldfinch family descended on to the rim of the bird bath. Needless to say I made a frenzied effort to get back to cope with the situation but they left as suddenly and joyfully as they had arrived just as I finished focussing and picked up the shutter release! And so my last opportunity ended in failure.

I learnt quite a lot of things from the bird bath attempts, one being, as of course one might expect, that seed-eaters in general and goldfinches and greenfinches in particular, and I might also add crossbills, drink very frequently. Blackbirds drank hardly at all, the moisture they required coming mainly from our fallen apples, and only once did I see a Blackbird take a bath—they prefer to sun-bathe. Song Thrushes too drink infrequently, probably getting their moisture from snails and other soft food, but they bathe rather more frequently. The cheeky sparrows in spite of their hoydenish ways seemed to love

the water more than any other bird, both bathing and drinking at very frequent intervals.

And now one last tip for bird-photographers. For more than four weeks I left the camera, at times with a plate in position, in the hide in all weathers—indeed sometimes the hide was flooded out. Its sole protection night and day when I was absent was a polythene bag pulled right over the lens, camera, and tilting-top, held together underneath by a tight rubber band. I had no trouble from condensation either on the focussing screen or on the lens and found I could be quite ready for action within a couple of minutes of getting into the hide, only having to check up on the exposure, stop, and focussing, to ensure that all was in order.

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