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THE AVICULTURAL MAGAZINE

BEING THE JOURNAL OF THE AVICULTURAL SOCIETY FOR THE STUDY OF BRITISH AND FOREIGN BIRDS IN FREEDOM AND IN CAPTIVITY

EDITED BY

PHYLLIS BARCLAY-SMITH, F.Z.S.

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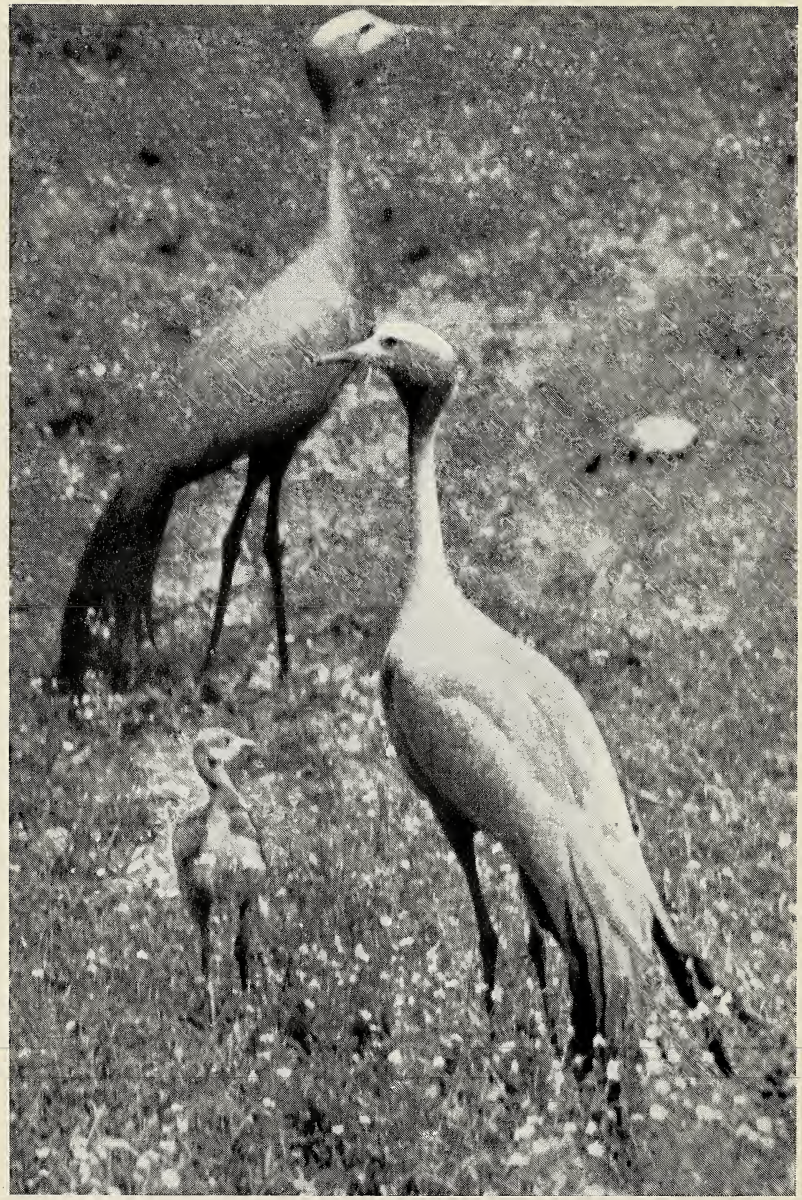

 [*George Sohn*

Stanley Cranes and Young
(19 days old)
Chicago Zoological Park, Brookfield, Illinois

Frontispiece]

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THE JOURNAL OF THE
AVICULTURAL SOCIETY

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BREEDING RESULTS FOR 1943 IN THE BIRD DEPARTMENT OF THE CHICAGO ZOOLOGICAL PARK AT BROOKFIELD, ILL.

By KARL PLATH, Curator of Birds

The year 1943 in the bird department of the Chicago Zoological Park at Brookfield, had more encouragement from the breeding standpoint than the previous year. Some birds bred for the first time in the several years we have had them, and the young at time of writing, 19th November, are hale and hearty and taking good care of themselves. Starting in January and intermittently throughout the year, the ubiquitous Zebra Finches came from the various breeding gourds hung in the large Australian Finch Aviary in the Perching-bird House. This cage displays a good assortment of the beautiful Australian Finches, and in the past we have bred many of them such as the Star Finch, Parson Finch, Black-throated and Long-tailed Grassfinches, Painted Finch, and Common and Blue-faced Parrot Finches.

A pair of Blue Geese nested for the first time in the nine years we have had them, but deserted their two eggs when came a spell of rainy weather, which caused high water. We had a bantam hen on some Pheasant eggs, so we put these eggs under another bantam and substituted the Goose eggs. After twenty-six days both eggs hatched, but one gosling died soon after. It was amusing to see the affection displayed between the foster-mother and the gosling. When the gosling was five weeks old it was twice as big as the bantam, and we thought it would be time to separate them. The bantam was put back with the others, but the youngster raised such a fuss and peeped steadily for nearly two hours besides running wildly around the boundaries of its run. The bantam was put back and peace was restored. Later we put them in the large grassy open yard which was the domain of the Shoe-billed Storks. Shortly after the hen got out, evidently having lost interest in the young Goose, which soon settled down and is still in the run, but with the company of an adult Blue Goose and a female Red-breasted Goose. The Shoebills, of course, were taken inside in October. An abundance of grass in this yard

assures the healthy bird it appears to be. At date of writing it is just beginning to show white feathers on the head.

A pair of Mute Swans raised a solitary cygnet. It was hatched 15th June, and in November was much like the parents, but lacked the orange bill and its white plumage is tinged with buff. Other Mute Swans, Black Swans, and Barnacle Geese laid eggs, but these were destroyed by the floods. Canada Geese, of course, were successful and we pinioned nine of the goslings.

Two pairs of the lovely Silver Gull bred this year in the inside flying cage and raised three fine young, but their breeding is not unusual. The Laughing Gulls had a nest with three eggs, but this was destroyed by the African Wood Ibises.

Chukar Partridges laid eggs all over their run, which were gathered up and put under a widow White-crested Kaleege who had been sitting patiently on her own infertile eggs. Eight Partridge eggs were set in the box which was high up in the Pigeon aviary under a shelter. Twenty-six days later we found a chick on the ground 10 feet below, and on climbing up to put it under the hen we found six more youngsters—the eighth egg was broken. They appear easy to raise on growing-mash and greens with a little riced egg the first week or so. By November they were rapidly assuming the colour of the adults, but were not quite so large.

Three Diamond Doves were raised outside in the Finch-breeding run.

Our Parrot-like birds did much better this year than in 1942. Queen Alexandra Parrakeets, who did not hatch any eggs in 1942, raised three fine young from two pairs. The original pair did not hatch their eggs this year. We now have sixteen of these lovely birds.

Crimson-winged Parrakeets which have not bred since 1939, also raised three healthy young. Our faithful old pair of King Parrots raised three husky babies, and their young from 1939 raised two more, so we have sixteen of these also. Swainson Lorikeets, who are kept all together in one of the outdoor exhibition cages in summer, raised four young—two each from two pairs. There are six or seven hollow logs in this large cage, and there never seems to be any trouble until the young are ready to leave the nest, when we have to remove them. They seem to be able to feed themselves immediately after leaving the nest, but later in the fall when all are brought inside and put together, we notice that the young birds find their parents and beg for food, which is not in vain. Like all Parrots, it is given by regurgitation. Our Lorikeets are fed on the liquid mixture, viz. four tablespoonfuls of Horlick's Malted Milk, six of Mellin's Food, six of honey, and six of evaporated milk to half a gallon of hot water. In the cage we also put a pan of canary seed. For fruit we give a few pieces of apple, orange, and carrot, and some grapes. Some of these birds

are part of the original collection sent over from Australia in 1934—the balance being young which have been bred from them. At present our flock numbers twenty-four. Shell Parrakeets or Budgerigars as you like to call them (here they are popularly called " love birds ") are bred each year as a matter of course, and we have a fine flock of eighty-two in all, in many colours. The public surely likes to look at them, and possibly spends more time in front of their cage than in looking at many of our rarer and finer sorts. One of the several breeding pairs (Cobalts) raised two broods of six each—the last brood leaving the nest in November after the nest box was brought inside. A pair of Greens threw two each of Greens, Cobalts, and Mauves, so we wonder what their antecedents could have been. We have been breeding these little fellows in with other Parrots—Kings, Crimson-wings, etc. Some day it is our hope to raise the little Mexican Parrotlet. These beautiful mites persist in waiting until late summer to nest. Last year they deserted a nest of four eggs during a cold spell in September, and this year we had great hopes because they had hatched two young, but later when a cold snap came along they deserted them, and we found them dead in the nest. We had learned from experience three years ago not to move them indoors, because they would leave the nest. Years ago I had this species in my aviary at home, and they hatched their eggs but threw the young out of the box. I did successfully breed the Blue-winged Parrotlet and the little Venezuelan Green-rumped Parrotlet but that was a long time ago. One of the Blue-wings is still alive and is nearly 10 years old.

Possibly our greatest achievement this year was the raising of a Stanley Crane exclusively by the parents. Last year the female laid two eggs in the moat of the extensive yard inhabited by small African antelopes, Secretary Bird, Spur-winged Geese, and Crowned Cranes. They sat interminably and of course the eggs were infertile. Crane eggs are very handsome, and these had a ground colour of sandy brown blotched with brown and purplish-grey. This year the pair again chose the same site, the exact spot in fact, and on 6th June we saw that one egg had been laid followed by another two days later. During the time of incubation participated in by both birds in relays, the male became very aggressive, and kept all the other birds to the western half of the area. Strangely enough, he did not molest any of the mammals. On 6th July I saw both birds standing together some distance from their carelessly-thrown-together " nest ". Between them was a tiny fuzzy object of a bright rust colour and a short distance away was the other egg which had been ejected. Later inspection showed this egg to be addled. A short time later when the keeper entered the yard, the male made a vicious and unexpected attack and ripped his coveralls to shreds. Two days later we entered the yard, and keeping both parents at bay with brooms caught up the

lively youngster and pinioned one wing, which seemed to cause him no discomfort at all. Done at this time the operation is quite bloodless and probably has no more pain than clipping a toenail. There was an abundance of insect life and it was amusing to see the old birds stalking along stabbing at the turf and occasionally holding up a piece of sod for the chick who would reach up and seize some insect. They would also catch grasshoppers and crickets and after showers had a feast on the earthworms. From the time of hatching we would lower a pan of food down in the moat. We offered ground heart, growing mash, bone meal, grit, and cod-liver oil, but it was two weeks before they condescended to eat of it. The young Crane grew very rapidly, indeed it was noticeable day by day, and it soon became apparent that we would have to remove the family owing to the nasty disposition of the male. They were taken over to another spacious yard, partly wooded, and inhabited by Barbados sheep. Here they got along well. When the young Crane was about six weeks old we noticed it sat on its " heels " frequently, and examination showed its legs more swollen than natural, and when the bird stood up they were noticeably bowed. Adding a teaspoonful of dicalcium phosphate to his food and giving a spoonful of cod-liver oil each day seemed to remedy the trouble, and at this date the legs appear to be stronger and straighter. The rapid growth was very obvious, and at four months it is a trifle larger than the mother. The legs are noticeably longer, so it is likely to be a male. The nestling colour of the chick appears to be characteristic of all Cranes with much bright rust colour. As the bird grows older the colour pales, the body becoming greyer. It is a large bird before the down is replaced by feathers which are brownish-grey fading on the head to whitish. At an early age there was a noticeable patch of lengthened down on the cheeks, but this gradually spread over the sides of the head, indicating the puffy head plumage of the adult.

* * *

THE ERRORS OF NEVILLE CAYLEY'S AUSTRALIAN PARROTS

By Lieut.-Col. Alan Lendon

Although only five years have elapsed since the publication of the above-mentioned work, aviculture has made such progress in Australia particularly, despite the War, that many of its errors can be rectified and many of its omissions made good. The following notes, inspired by similar articles by the then Marquess of Tavistock pointing out the mistakes of Dr. Greene's and his own work are written purely with the idea of adding recently acquired knowledge to friend Neville Cayley's very excellent and authoritative work. Regarding Lorikeets ; the three largest species are easily kept in captivity, sometimes living for many years on a diet of seed alone, though in most cases thriving better if sweetened bread and milk is added to their dietary. The Rainbow (Blue Mountain) Lorikeet has been frequently bred in captivity in all parts of Australia. The same statement applies to the Red-collared Lorikeet, though the statement " it is well known that it takes many years for most Parrots to attain full adult plumage " is very far from correct. The Scaly-breasted Lorikeet is also commonly bred in captivity. The pretty little Varied Lorikeet is rare in captivity and is not very hardy ; a pair that survived for several years, to my knowledge, were fed principally on grapes and moistened oatmeal. The statement that the female is *much* duller is not correct. Apart from the successes at Keston, I know of no record of this species breeding in captivity. The Musky Lorikeet is reasonably hardy, but must be given some soft food and fruit ; the female has less red about the head as well as less blue coloration. A number have been bred in the Adelaide Zoo in recent years, but apart from that, I know of very few records of its successful breeding. The purple-crowned Lorikeet, although by no means hardy, has been kept in South Australia on a number of occasions, and I know of two breeding successes. The statement " there is no record of it ever having been taken abroad " is not correct ; Dr. W. Hamilton took several to England about 1930, and one, presumably, of these was on exhibition in the London Zoo in 1940. I have never seen the Little Lorikeet in captivity, and have only heard of its being kept on a very few occasions ; there is no record of breeding in captivity to my knowledge. As regards the Lorilets or Fig Parrots, I have not heard of either species in captivity ; it is a pity that the females, which differ considerably in plumage from the males, were not figured in plate I.

Turning to the Cockatoos, the female Palm Cockatoo has a much smaller beak than the male. The Red-tailed Black (Banksian)

Cockatoo has frequently laid eggs in captivity, and I believe that a young bird was hand-reared in the Marquess of Tavistock's collection about 1939. The Western Australian race is a smaller bird with a differently shaped crest from the race found in Northern Australia. The Glossy Black Cockatoo is apparently not known to aviculture ; I have been unable to obtain any record of it ever having been kept in captivity, other than a doubtful one from Kangaroo Island. It is a pity that the females of the Red-tailed and Glossy Black Cockatoos were not figured in plate II, as they differ so markedly in plumage from the males. The White-tailed Black Cockatoo is rare in captivity, being much more difficult to rear from the nest than the Red-tailed, and the plumage differences between the sexes have never been clarified as yet, though I fancy that the birds without much black speckling on the white tail-bar are probably males.

The Yellow-tailed Black Cockatoo is also rather uncommon in captivity, being another species which is difficult to rear, and again the plumage differences between the sexes are not clearly understood, though my impression is that the yellow ear coverts are brighter in the female. There is considerable variation in the colour of the beak in both the last two mentioned species, and my feeling is that the birds with the dark, almost black beaks, are males, while the light, horn-coloured beak is an indication of the female sex, but I am by no means certain of this. The illustration of the Gang-gang Cockatoo in plate III gives a wrong impression of the shape of its crest ; it was successfully bred in England by the Marquess of Tavistock about 1939. In the White (Sulphur-crested) Cockatoo the iris of the male is almost black, while that of the female is dark brown. I know of no record of it having bred in captivity in Australia.

In the Pink (Leadbeater's) Cockatoo the male's iris is again almost black, while that of the female is quite a light reddish-brown. In addition, there is less yellow and more red in the crest feathers of the male as compared with the female. It has been bred in captivity on several occasions in Australia. I know of no reliable sexual difference in the Corella (Slender-billed Cockatoo), but I feel certain that the Western variety which lacks the red crescent on the chest, and has a shorter bill, should be regarded as a distinct species, fairly closely related to the Little Corella (Bare-eyed Cockatoo), which again has no obvious means of sexual differentiation. I do not know of a record of either of the foregoing species breeding in captivity in Australia. The colour of the iris in the Galah (Rose-breasted Cockatoo) varies in the sexes in exactly the same way as it does in the Pink (Leadbeater's) Cockatoo. It has frequently bred in captivity in this country. I have always been surprised that no mutations have yet arisen in a species which has bred as freely in captivity as has the Cockatiel.

The Red-sided Eclectus has bred very freely in Taronga Park Zoo in recent years. I have never seen the Red-cheeked Parrot, though before the War I was in touch with a man in Queensland who claimed to have a pair. The immature Superb (Barraband's) Parrakeet does not differ materially from the adult female. In the Western regions of the Regent (Rock Pebbler) Parrakeet the males never attain the bright yellow plumage of the Eastern Birds. Although jealously protected in Victoria, it is by no means a rare species in either South or West Australia. The Princess Parrakeet has bred so freely in captivity in Australia in recent years that it can no longer be considered rare ; the illustration in plate V does not depict the spatulate third primary which occurs only in the adult male.

I regard the Red-winged Parrakeet as almost impossible to sex with any certainty until the young males begin to assume the adult plumage in their third year. The King Parrakeet has been bred on several occasions in South Australia in recent years. As Mr. Cayley remarks, attempts to breed the commoner species of Rosellas are infrequent, but I know of at least one successful breeding of the Crimson Rosella in South Australia. I have always considered the Adelaide Rosella to be a valid species and Mr. Parsons' excellent contribution on the subject clarifies the question beyond doubt, to my mind. In the Yellow Rosella, I believe that Tavistock is correct when he states that the female always has a few reddish feathers on the throat. I do not agree that this species ever approaches the Green Rosella in plumage. I know of no record of its breeding in captivity in Australia. The female of the Green Rosella is not much duller than the male, and I only know of a single recorded breeding. The description of the female Western Rosella is quite inadequate, and it would have been advisable to have included it in the otherwise good plate VI.

The immatures of this species have only a slight indication of the yellow cheek patches, unlike the rest of the genus, which exhibit the cheek patches in the immature plumage. In the Pale-headed Rosella, the adult male always has brighter blue under parts than the female. I do not think that the female Northern Rosella is, as a rule, much duller than the male : I have, however, seen specimens with a large amount of red on the breast. The Golden-mantled race of the Eastern Rosella is very much brighter than the southern race, and the females very often have some yellow feathers mixed with the red on the head, which does not occur in the southern race. Like the foregoing genus, the Australian Ring-necks are seldom bred in captivity. The Mallee (Barnard's) Parrakeet has at least two very distinct races, the South Australian birds being much darker, particularly about the head. It was a strange inconsistence on Mr. Cayley's part to devote a chapter to the " Uniform Parrakeet " which is only a variation of the preceding very variable species. I have no doubt whatever as regards the validity

of the Cloncurry Parrakeet as a species ; since I first recorded their successful breeding in the AVICULTURAL MAGAZINE, my pair have had two or three successful nests each season. The female Port Lincoln Parrakeet has a less intensely black head than the male ; I have successfully bred them myself, but know of no other record in this country. I have always regarded the Twenty-eight Parrakeet as a good species, with typically an all-green breast, unlike the one figured in plate VII ; it is also a much larger bird than the preceding, and the female has a much smaller red frontal band than the male. The Red-capped Parrakeet has been successfully bred in the Adelaide Zoo in each of the last few seasons ; in my opinion, the adult female always attains a similar plumage to the male, though duller in all respects. The display of this species differs markedly from that of the Rosellas and Ringnecks.

Turning now to the group which I think are best called the Lesser Broadtails ; in the Red-backed (Red-rumped) Parrakeet the immature male is merely a duller edition of the adult, while the adult and immature females are alike in colouring. The same statement is correct regarding the Mulga (Many-coloured) Parrakeet ; the female as figured in plate VII is much too bright, and looks like an immature male. I am still uncertain whether the red-vented and yellow-vented Blue-bonnet Parrakeets should be considered as distinct species ; it seems to me a mistake to have figured the red-vented, if they were to be lumped together, rather than the commoner and much more widely distributed yellow-vented, as has been done in plate VIII. I have no doubt whatsoever that the Little Blue-bonnet (Naretha Parrakeet) is a valid and distinct species, the illustration clearly shows how it differs from the larger bird ; it never has the red abdominal patch, and furthermore its distribution is separated from the larger species by some hundreds of miles, and no intermediate forms between the two have ever been described, as do undoubtedly exist between the two extremes of the larger bird. The Naretha was successfully bred in the Adelaide Zoo a few seasons ago. Since I have been in Queensland, I have met a man who described the Paradise Parrakeet quite accurately and claimed to have seen them less than two years ago ; I have little doubt, having regard to the size of this country, that the species will eventually be rediscovered in considerable numbers. With the opening up of the Cape York district since the war, it seems probable that the Golden-shouldered Parrakeet may be reintroduced to aviculture.

I am now able to correct my statement in regard to sexing of immature Hooded Parrakeets ; the immature male always has brighter blue cheek patches than either the immature or adult female ; adult plumage is not attained by the young males until after the second complete moult, which is rarely completed before they are

nearly two years old. The Grass Parrakeets have been the subjects of extensive study by aviculturists the last decade or so. Immature male Bourke Parrakeets nearly always show a brighter pink on the breast than do the females. Quite a number of Orange-breasted Parrakeets were obtained in Adelaide soon after the outbreak of war, but they have not proved very hardy. A pair belonging to a friend of mine, laid and incubated in each of the last two seasons, but the eggs were infertile on each occasion ; he has recently secured a new cock bird and is now hopefully awaiting results. Dr. W. Hamilton has informed me that a pair in his aviary have reared one young bird since the war, but owing to pressure of work, he has never recorded the success. The Blue-winged Parrakeet has not proved so prolific a breeder in captivity in this country as it is in England, where the reverse appears to be true of the Elegant Parrakeet. I have always found it extremely difficult to express a confident opinion regarding the sex of a single Rock Parrakeet, though it is easy enough to pick out a pair from a number ; it is not an easy species to breed in captivity, though there have been several successes recorded.

It is gratifying to be able to record that both the Turquoise and Scarlet-chested Parrakeets are firmly established and breeding freely in captivity in many parts of Australia. In the key to plate IX the females of these two species are transposed. Although the female Swift Parrakeet is correctly described in the text, in plate X it is shown as having a yellow face, whereas in fact there is always a red face, as in the male, though of somewhat less extent ; this is probably the worst error in all the illustrations. As Mr. Cayley had previously published a book devoted entirely to the Budgerigar, it would, in my opinion, have been preferable to have only figured the naturally occurring green form in this work ; the space thus saved in plates X and XI could have been used to greater advantage, as already pointed out. Although three specimens of the Ground Parrakeet have been exhibited in the Adelaide Zoo for several years past, very little more has been learnt of their habits nor has it yet been decided if there are any reliable external sexual differences. It has, however, been established that these birds possess a faint call note not unlike that of the Grass-Parrakeet. It is sincerely to be hoped that these birds can be induced to breed, as they have recently been transferred to a well-planted aviary. No fresh news of the Night Parrakeet has been recorded in recent years.

Addendum.—Since writing of the Little Lorikeet, I saw and was able to secure four birds of this species in a bird shop in Brisbane, and am arranging for them to be sent to the Zoo at Adelaide, where they have never yet been exhibited.

* * *

CONCERNING WHITE PEAFOWL

By W. C. Osman Hill, M.D., Colombo, Ceylon

Peafowl in captivity have been amply discussed in the pages of this Magazine by more experienced observers than myself, as witness the contributions of Beebe (1905), Finn (1909), Pocock (1910), and, quite recently, Seth-Smith (1940). Some apology is therefore needed for my own essay in this direction. The only one I have to offer is that my contribution relates principally to the white variety and its hybrid offspring.

According to Stuart-Baker (1915), albinism is common in the Peafowl both in captivity and in the wild state ; the domestic breed having developed into a permanent form, breeding true with great regularity. It thus differs markedly from the other known mutation—the black-shouldered form (*Nigripennis*)—which is rare in captivity and has not been found in the wild state.

Although albinistic, the white variety of the Common Peafowl is not a complete albino. It lacks the red eyes of the true albino, and is not entirely lacking in melanin pigment in other parts also. Its eyes are paler than the normal, being blue. It frequently possesses some pigment in the bill and feet, and although the plumage is for the most part quite white, I have noted some duskiness on the crown of the head just in front of the crest. Despite the white or creamy white of the plumage, it is possible, on account of the surface structure of the feathers, to detect the existence of the ocelli on the feathers of the train of the male. Consequently the display is every bit as beautiful in its way, as that of the normally coloured bird. When the train is spread the ocellated parts are seen to be arranged in interlacing spiral curves, with the intervening areas filled with delicate interlacing " decomposed " barbs ; the whole effect being one of a gigantic lace fan.

In spite of the fact that albinism, for some unknown reason, is particularly prevalent among wild mammals, birds, and reptiles in Ceylon, I have not yet come across an instance in the Peafowl, though I have met with it in Crows, Mynahs, and Babblers. The white Peafowl upon which my observations are based, are three imported individuals, two cocks and a hen, originally obtained in Europe by the late John Hagenbeck. They are presumably aviary-bred birds therefore.

All three were kept together in a large run, along with several normally coloured birds of local origin. The white cocks, however, were so pugnacious that the coloured males had to be removed. Curiously enough, however, the two white cocks never seem to quarrel, even after they had been reduced to having only one mate

between the two of them. This latter arrangement resulted from the deaths of all the females but one coloured hen ; the single white hen having died some two years ago with a tumour in the thorax. I have never found that coloured hens are averse to the attentions of the white cocks, as seems to have been Whitley's experience (reported in Seth-Smith's article).

Several clutches of eggs have now been laid by the extant coloured hen, who shares her pen with the two white cocks. Some of these have been artificially incubated in a laboratory drying-oven (not a proper egg-incubator), whilst others were put under a broody hen. The year before last (1942) two chicks (both males) were hatched and reared by the hen, and two others (one cock and one hen) hatched in the oven and were reared by hand. Most of the eggs were fertile, but there was a high percentage of chicks dying in the egg when about half to two-thirds developed. All four birds reared have lived till the present time, except the hand-reared cock, who succumbed to a very heavy infection of the gape-worm (*Syngamus trachealis*) when about six months old. The hand-reared female was also infected, but recovered under treatment. The most satisfactory treatment was undoubtedly the administration of large quantities of fresh garlic. The birds seem to like this diet just as they do onion. It certainly pervades all their tissues and is excreted in the respiratory tract. The body of the one that died reeked of garlic during the post-mortem examination. Local application of turpentine with a feather was also tried, and is partly effective ; but it is difficult and dangerous to deal with parasites low down the windpipe by this method.

As would be expected, according to Mendelian rules, all the hybrids turned out to be coloured birds. But the dominance of colour is not quite complete, for they all show one or two white primary feathers, and there is a tendency for the exhibition of irregular patches of depigmentation on the foot or toes. The production of " pied " birds " which are anything but beautiful ", as reported by Seth-Smith, is difficult to account for ; but that author does not make it perfectly clear whether he is referring to genuine hybrids between coloured and white Peafowl or between normal birds and the whitish females of the *nigripennis* mutation to which he had been previously alluding.

At one year old the hybrid males have developed full male plumage with the exception of the train.

Since Stuart-Baker's account of the early stages in this species is incomplete, I append below some data based upon the growth of our hybrids.

The incubation period was twenty-eight days, but in one case it was several days longer. After hatching, the artificially incubated chicks were kept in a foster-mother at 98° F. till their feathers had dried out ; thereafter they were allowed in an open run in the daytime, but

replaced in the foster-mother at about 90° F. at night. It should be pointed out that the atmospheric temperature in Colombo is about 80° F. normally. No food was given for twenty-four hours ; but after that they were fed on wetted bran containing finely chopped hard-boiled egg-yolk, and a little boiled rice. Grit was required on the third day. The " egg tooth " disappeared on the second day. From the fourth day insects were added to the diet ; these consisted of sweepings off the grass with a butterfly net and usually contained myriads of small moths, beetles, flies, spiders, and early grasshopper instars, any and all of which were avidly seized by the pea chicks.

The chicks used their wings on the fifth day. The first indication of a crest was noted at three weeks in the form of hard sheaths projecting from among the down feathers on top of the head. Contour feathers begin to replace the down about a week later, commencing on the neck. The first plumage in both sexes is a dull brown, faintly mottled. The first indication of colour other than brown is seen at six months when some greenish feathers make their appearance on the neck and upper breast of the male and somewhat later in the female. The males begin to strut about boldly at this age, but both sexes will sometimes pose with their tails erected and their bills depressed.

The hand-reared female has become particularly tame. She is allowed the freedom of the garden along with an adult male normal bird. Both of them seem to prefer human company to that of their own kind, and will walk on to the veranda or even into the house for food ; often behaving like dogs at the meal-table. The male wanders rather more than the female, who spends more time about the house than away ; but the cock, apart from one occasion, keeps well within a quarter of a mile of home. They roost in a big mangoe tree in the compound.

We await with extreme interest the results of matings between the hybrid birds, and also between them and their own parents ; but some years may be needed to satisfy our curiosity.

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NOTES ON THE REARING OF A COLLARED SCOPS OWL (*Otus bakkamoena bakkamoena*) IN CAPTIVITY

By Yvonne Burn, F.Z.S.

A recent perusal of the Marquess Hachisuka's article in the Avicultural Magazine (1941, fifth series, vol. vi, No. 5) has prompted me to put on record my experiences with the Collared Scops Owl of Ceylon.

The specimen in question was brought to me on 5th May of this year (1943). It was entirely naked except for a slight grey down sparsely disposed over the body ; the eyes, although open, were kept for the most part tightly shut, even against the most feeble light, and judging from young parrots, which it closely resembled, I estimated it to be about two weeks old. It was entirely helpless and had no idea of feeding itself and, to add to its disabilities, it was suffering from a clock-wise rotation of the head, with the left side elevated. This was so severe at times that it resulted in complete retroversion similar to that described by Dr. Osman Hill in his account of the Wood Owl (Avi. Mag., 1943, fifth series, vol. 8, p. 46).

The bird was fed by hand, first on yolk of egg mixed with a little olive oil and, later, on raw, finely-chopped liver. In an endeavour to counteract the retroversion of the head, haliverol was also administered, but with no appreciable improvement. After reading the symptoms displayed by Dr. Hill's Wood Owl I decided to try the same treatment, though it seemed improbable in a bird so young that he could be suffering from a deficiency disease. His diet was also changed to include some beetles and grasshoppers and similar natural food !

At the end of a week the rotation showed slight improvement and he seemed to be able to control the movement of the head to some extent, but it was observed that any disturbance, noise, or slight movement in his vicinity threw him completely off his balance again and the position of the head was as bad as ever. He was, however, taking more interest in his food and was able to feed himself in a very clumsy fashion, using his claw to assist him in holding down large or lively objects.

His plumage was also improving and wings and tail coverts erupting, the tarsus was covered and the eyes fully open, the latter were extremely large for his size and of a golden colour with dark hazel irides. The eyelids were bluish, but with naked bright pink margins. He showed a definite interest in his surroundings and recognized colours. About this time he developed a voice and attracted attention to himself by a soft wheezing note which he employed chiefly at night, and a long drawn-out twittering which he used as a sign of recognition or when he was disturbed.

At the end of a fortnight the head still showed very little improvement even with regular doses of potassium iodide, accompanied by iodine in glycerin administered in both auditory meatuses, but he could feed himself without assistance and his plumage was assuming a more adult aspect; nearly all the filoplumes had disappeared and the contour feathers had erupted through the sheaths especially on the eye-lids, around the ears, and along the mid-line of the back, and the typical "stippled" effect of the adult was fast becoming apparent. The rings of dark feathers around the eyes which cause the mask-like appearance typical of the *Striges* were also apparent, and he showed an interest in the use of his wings, not for flying, however, but merely flapping to remove dust and pieces of discarded feather sheaths which he had previously pulled loose with his beak.

About this time I decided that he should learn to find his own food as far as possible, so it was left with him over night, scattered over the floor of his cage (36 in. by 36 in. by 22 in.). He was apparently successful in this as, in the morning, there was no trace of any left and he was waiting at the door, indicating by loud hissings that he was ready for the next meal. In an endeavour to cure the strange condition of his head I added rat and rabbit skin with the fur still adherent, to his diet, and almost immediately he started to disgorge pellets regularly. By the end of another week his "ears" had made their appearance, being represented at first by a single feather on each side of a considerably darker colour than the rest of his head; he used these when startled by any loud noise or at the approach of any person he did not know.

I now decided that, whatever the cause of the rotation, it was not responding to the treatment then being administered and that it was possibly of a hysterical origin and might remedy itself in time. Fortunately this surmise proved correct for, by the time I had had him a month, the head had righted itself and no further manifestations have been noted.

It was a considerable time before he made any attempt to fly, although I had him out of his cage both morning and evening and even now, at the age of six months, he is at best a clumsy flyer and always makes a crash-landing. He is remarkably tame and shows no fear even of the dogs, though I should not care to try the Marquess Hachisuka's experiment. He will lie for long periods in the hollow of my hand on his back and apparently asleep with his legs straight up in the air and enjoys being handled. I have him out twice a day; at breakfast time, when he has his meal with the rest of the family. He has recently discovered that a finger-bowl can also be used as a very good Owl's bath, and now invariably has a bath, standing right in the water and splashing it over his head and back with his wings. He is out again in the evening and has about a dozen large

COLLARED SCOPS OWL 2 DAYS AFTER ARRIVAL
(Note position of head)

COLLARED SCOPS OWL MONTH AFTER ARRIVAL

[*To face p. 14*

grasshoppers or any other insect, supplemented with raw meat and rat fur.

I early discovered that a diet of insects alone is not sufficient, however many may be provided ; they must be supplemented with meat and fur. I imagine this is true of many insect-eating birds, and wish I had realized it sooner as I failed to rear a young Red-backed Woodpecker (*Brachypternus benghalensis erithronotus*) from insufficiency of food.

On account of the great variation among this species (*vide* Wait, *Birds of Ceylon*, 2nd ed.) I append a short description of the bird as he is now :—

Measurement.—Total length, 18 cm. ; wing span, 36 cm.

Crown.—Very dark brown, almost black ; with erectile tufts forming a V anteriorly and having a few pale-edged feathers. Crown separated from dark feathers of mantle by a *collar* of paler, dusky greyish feathers.

Face Discs.—Greyish brown.

Breast and Belly.—Buff with blackish shaft-streaks and some transverse dusky bands.

Mantle—Almost as dark as crown, but some pale buffy mottling on individual feathers, especially at edges.

Wings.—Similar to mantle, but with more buff spots, forming a rudimentary bar.

Tail.—Paler than wings.

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FAILURES AND SUCCESSES IN THE LECKFORD COLLECTION, 1943

By E. F. Chawner

I wonder if other bird keepers have shared our disappointment and had an unusually large number of clear eggs this season ? Our Pheasants began to lay rather late in the season and a very large proportion of the first clutches were clear, though the birds were well acclimatized and in good condition, and most had laid fertile eggs in the past. The same applies to our Brush Turkeys, when the cock had made his new mound the old one was cleared away and a number of beautiful eggs were found in it. They were astonishingly large for the size of the bird, in fact, when they were shown to me I thought they must be Andean Goose eggs. It is unknown if any young were hatched, because the birds are at liberty in a small wood, and chicks could hide in the undergrowth until vermin took them. One was found in Mr. Lewis's garden, but it did not live long.

Pheasants did better on the whole in the second round, especially Temminck's Tragopan ; this delightful bird is one of our most prolific

breeders, and is charmingly tame. Taken by and large we certainly might have done better, but could easily have done worse, taking into consideration inferior food and less of it. Bulwer's Pheasant is particularly disappointing ; it lives well, but is always shy and goes into moult just when all the other Pheasants are breeding ; I suppose it has not yet accommodated itself to our seasons. It usually moults its wonderful tail in one piece. I have only once seen it show a desire to display, but it did not attempt to pair, and the hen did not seem impressed.

We have had the same experience with our Parrakeets ; the Green-winged Kings laid, but all the eggs were clear, and the pair of Queen of Bavaria who last year reared a nestling almost to maturity did nothing at all. The cock, who is crippled in one wing, tried to entice his wife into their nesting box, but she would have none of it. Turquoisines also had infertile eggs. The Hawk-heads raised our hopes by going in and out of their nest box, but nothing came of it.

Waterfowl were more satisfactory, though there also the percentage of infertile eggs was high. Blue-winged Abyssinian Geese proved excellent parents, the four breeding pairs reared twenty-three goslings, all fine large birds. Cape Teal went four times to nest, and a number of ducklings hatched. More would have been reared if they could have been left with their parents, but this was unfortunately impossible, rats, gulls, and rooks are only too plentiful, and these small birds stand no chance against them. Swans did not attempt to nest, and the Andean Geese were unfortunately disturbed just at the breeding time, and only dropped a few eggs at random. We had one good success : our pair of Puna Teal went to nest and young have been safely reared. This is the first time in captivity. The young are dusky brown mites at first, have no intermediate plumage, and soon resemble their parents. The bright blue bill is noticeable at an early age. The old birds had four nests, and I began to fear that the Duck would exhaust herself, but she was none the worse for it.

A pair of Egyptian Geese which had bred and successfully reared young in the past, suddenly fell out, and have had to be kept in separate pens, for the gander savagely attacks his mate whenever he can get at her, and would certainly kill her out of hand. Ruddy and Australian Shelduck have reared young.

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INFRA-RED TREATMENT FOR SICK BIRDS

By W. K. Boulton (Wanganui Hospital)

[Reprinted from the War-time Report and Bulletin, Avicultural Society of New Zealand, 1940, 1941, and 1942.]

You may be interested to hear of a method that I have tried on three occasions as a means of saving sick birds. Round here with me I have a tame Budgerigar who is quite a good talker and a favourite with everyone. One morning when I came back from my massage treatment I found that a stupid individual here had been teasing him by poking a cigarette end into the cage. He had been snapping at it and evidently must have got a tiny shred of tobacco into the crop, because about ten minutes after I returned to bed he started to go crazy in the cage, tearing about all over the place as if in pain. He then proceeded frantically to pluck out every feather over his crop as if he were endeavouring to tear his way inside.

I immediately suspected the cause of the trouble, knowing that the nicotine would set up a frantic irritation in the crop, so I gave him a couple of drops of olive oil to the beak to help soothe the inflamed lining of the crop. This seemed to help a little although he continued plucking sporadically. By midday he was looking a pretty sick bird, fluffed up and thoroughly miserable and with very laboured breathing.

The day was rather cold and damp, so I borrowed from the massage department an infra-red heating lamp. This was portable, so that I could continuously regulate the heat he was getting. About an hour of that and he was a different looking bird altogether. For the remainder of the day and at intervals during the night, I let him have a little heat from time to time and by the following morning he was quite all right again, except that he was a sorry looking mess with his completely plucked breast.

The following day, out of sheer mischief, he started chewing and breaking his feathers, particularly round the crop. I was rather worried, knowing how difficult it is to stop plucking once parrot-like birds have started it. However I applied a light coating of olive oil to those areas where he was doing the most feather-eating, and this cured him completely. He soon grew a new lot of feathers and is now quite fit and well again.

All this may seem rather involved, but the point I am trying to make is the value of the infra-red lamp in the application of heat to sick birds. I have used it on three occasions now with complete success, the birds in each case being so obviously sick that in other circumstances I would have had no hesitation in saying that they would not last twenty-four hours. Of course, all bird fanciers are aware of the fact that heat is invaluable in the treatment of sick birds,

mainly because a sick bird loses body heat rapidly, and as a rule the ordinary methods of applying heat are directed to that one end only, i.e. raising or maintaining the body temperature. My method goes a step further in that by the use of the infra-red lamp not only is the body temperature maintained, but what is to my mind more important, the circulation is directly stimulated, metabolism is assisted, and by these means we hasten the elimination of toxic matter from the system. The only difference in the infra-red lamp from most forms of radiant heat is that instead of using an ordinary electric light bulb as the source of heat, it uses an infra-red or heating element. In fact, the element is very similar to that used in the bowl-type electric radiators, which type of radiator would serve very well as a source of infra-red rays.

After all this type of heat ray has a very definite place in the world of medicine, particularly in inflammatory and congestive conditions, and I do think that this treatment could be the means of saving many a valuable bird.

I have been busy studying some textbooks on Actino-Therapy or, in other words, healing by light, a subject which covers the whole range of ultra-violet, infra-red rays, etc. Incidentally, in perusing these books, I came across the interesting fact that at the Royal Veterinary Hospital, London, they have been using infra-red lamps in the treatment of sick animals for some little time now with great success. Rather a coincidence after my experiment with the Budgie !

Here is some of the information I summarized. First of all let me say that light-therapy consists of treatment by ultra-violet and visible or invisible infra-red rays. All the various lamps on the market, such as sun-lamps and so on, whether for medical use or for home use, are designed to project one or another of those types of rays. A point worth mentioning is that the majority of violet-ray and sun-lamps widely advertised for home use actually project very little ultra-violet rays, their rays being mostly visible infra-red rays. I found mention of one type of quartz lamp, supposedly ultra-violet, but projecting 93 per cent visible infra-red and only about 1 per cent ultra-violet.

The medical profession is strongly opposed to the indiscriminate use of these sun-lamps by laymen, that is, those that actually do project ultra-violet rays, as these rays can be very dangerous in inexperienced hands. In fact it is a simple matter to give an overdose of ultra-violet rays with fairly serious results. In practice, the length of exposure to the ultra-violet rays and the distance of the lamp from the body has to be very carefully calculated, whereas with the infra-red lamps one cannot get an overdose and they are quite safe for home use. In England they are often so prescribed for different ailments.

The main difference between ultra-violet and infra-red is that the effect of the rays in the former is principally chemical, while that of

the latter is physical. For instance, ultra-violet acting on cholesterol in the superficial layers of the skin causes chemical changes forming vitamin D, hence its value in curing rickets in children, and French moult in Budgies, as I once saw reported. (Rather an expensive cure for Budgies !)

Now for some notes on infra-red rays, what they are, and how they are produced.

Infra-Red Lamps

" Infra-red Rays. The name is used to designate a precise group or band of rays in the electro-magnetic spectrum. They are forms of energy like all other radiation, the result of movements of electrons. They are rays of low frequency and are found between the red rays and Hertzian or Wireless waves of the electro-magnetic spectrum. Their wave-length is roughly between 7,700 to 400,000 Angstrom Units. They are beyond the visible rays of the spectrum and are therefore invisible. All the well known authorities agree that from the stand-point of their use in medical treatment there are three regions of interest, roughly divided as follows :—

Near Infra-Red . .	7,700–15,000 A.V.
Middle Infra-Red .	15,000–30,000 A.V.
Far Infra-Red . .	30,000–400,000 A.V.

" The wave-lengths above 150,000 are known only to physicists and are difficult to produce in any quantity and there is no evidence that they have any value from a medical point of view. Infra-red radiation is receiving remarkable attention both from the medical and lay professions. These rays have revolutionized photography owing to their remarkable powers of penetration. They are now being used extensively by the medical profession in the treatment of a great many conditions, and they have been used extensively in treating sick animals, often with amazing results. There is nothing new about them. They are always present in the radiation of the sun, but these beneficient rays are mostly absorbed by the atmosphere and the smoke and dust clouds above the earth, so that the rays which reach us are weak. These rays, however, which can be artificially produced in sufficient quantity by electrical means, are nature's own way of healing many painful conditions of the body. The usual sources from which infra-red rays are produced for healing purposes may be divided into two classes, the Incandescent Radiant Heat Lamp, giving luminous and short infra-red rays, and the Non-luminous Generator, giving pure penetrating infra-red rays."

The most widely used infra-red lamps are supplied with both the luminous and black elements. These are interchangeable—you just screw out one and insert the other. The best makes available in New Zealand, so far as I can ascertain, are the Cox-Cavendish Duplex,

Schalls and Sollux. They cost somewhere about £8 or £9 for the models that are used here, although I believe there are cheaper models available.

The Non-visible Generator producing long wave pure infra-red rays is the one I used on the Budgie. It is the one most commonly used in medical treatment because of its greater depths of penetration into the tissues. The luminous type is only superficial in action and is only used for surface conditions such as stimulating a slow healing wound. The non-luminous type is used in treating most muscular conditions such as rheumatism, neuritis, lumbago, etc., and also in inflammatory conditions such as boils, carbuncles, etc. It is very soothing in nervous conditions and relieves pain. It raises the body temperature, increases the blood supply to the affected part through stimulation of the circulation, and assists metabolism, particularly of carbohydrates, and kills superficial bacteria. From the point of view of treating sick birds these last effects are, I think, the main points.

1. *Raises the body temperature.* Maintaining body heat is the most important thing in treating any sick bird, *vide* Butler, Tavistock, etc.

2. *Increases the blood supply to the affected part through stimulation of the circulation.* This must be important, as through the stimulation and increased blood supply, toxins and waste matter must be more rapidly eliminated from the bird's system.

3. *Assists metabolism, particularly of carbohydrates.* Another important point, particularly with seed-eating birds, is seeing that the bulk of their diet consists of carbohydrates. Obviously anything that assists them to assimilate their food is valuable, as the chief difficulty with a sick bird is trying to encourage it to eat.

4. *Kills superficial bacteria.* This last seems to me important when one has a bird sick with pneumonia or bronchitis, for instance. These infections of the lungs usually mean an involvement of the air-sacs which lie just beneath the skin. The rays should kill any bacteria in these areas. At least that is my idea.

In the medical application the treatment is usually twenty to thirty minutes' exposure once a day, although there is nothing against it being used several times a day. The Non-luminous element takes about ten minutes to reach full output, and the time is taken from then, the lamp being placed in such a position that the patient feels a comfortable warmth. With birds, of course, one has to make allowances for the penetration of the feathers before the rays can penetrate the skin. Taking that into account in treating the Budgies, my method was as follows—I placed the bird in a cage about the same dimensions as a standard show-cage, i.e. one with a depth of about 8 inches. I adjusted the lamp so that my hand held against the cage-front became comfortably warm. Allowing for the feathers, I gave an exposure of about three-quarters to one hour, and repeated

it at intervals during the day. With Budgies it is easy to tell whether they are becoming over-heated, as almost invariably they will hold the wings well out from the body. When that happened all I did was to move the lamp back a little. Foreign birds also probably show evidence of heating by holding out their wings like that. In any case, should there be any doubt about it, I think a deeper cage would solve the problem, as I noticed with the Budgies that when the lamp was first turned on they came right up to the cage-front for a while then, as they became warmed, they moved back.

Anyway, as opportunity occurs, I will experiment further and see if I can find out anything useful.

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SOME BREEDING RESULTS FROM NEW ZEALAND

[Reprinted from the War-time Report and Bulletin of the Avicultural Society of New Zealand, 1940, 1941, and 1942.]

Breeding of Yellow-rumped Tanagers

By G. Rowland Hutchinson

When Mr. Sydney Porter was last in New Zealand, on his return to the Old Country via Panama, he secured from a friend of mine there a pair of Yellow-rumped Tanagers. These birds, after completing the necessary six months' quarantine in Great Britain, were sent to New Zealand, and fortunately arrived in good health.

The following winter, however, the hen but not the cock appeared to feel the cold, and the pair was brought indoors. The following breeding season they made a half-hearted attempt to breed, but did not feed the young after the first few days.

The next year, however, both birds were fully acclimatized, the cock in his black velvety plumage with light canary-yellow rump and back, and the hen with her brownish grey and pale fawn breast. The hen built a nest under the cover of some asbestos sheeting amongst some dead tea-tree, making the nest out of pieces of twiggy hay and a few feathers at the finish for lining.

She started sitting on 8th March, 1939. The young hatched on 22nd March. Unfortunately it was not observed exactly when they left the nest, as it was partly obscured and the hen hid the young in the growing greenstuff of the aviary. By 30th April, 1940, however, they were completely independent and the hen went to nest again.

The original numbers of eggs laid was not ascertained, but two youngsters hatched and two were reared. The second time she went to nest only one was reared, and that had to be finished by hand owing

to the advent of the cold weather and the lack of interest of the hen in her offspring.

In my opinion the main contributing factor to the success of rearing these rare Tanagers was the further improvement of the mealworm feeding machine developed by the boys of the family and referred to in last year's bulletin. The previous year the mealworm feeder had been operated by water turbine, which exposed two tin drinkers of mealworms every hour, but unfortunately made the aviary very sloppy with water from the exhaust. The latest model feeder is operated by the works of an ordinary alarm clock and is kept completely under cover all the time. Some adjustments were necessary to make sure that revolving drinkers did not slip backwards, and after several trials the mechanism now seems to be nigh perfect. Of course, the use of the mechanism avoids having to request the household to feed mealworms every two hours at least during the day, so one could almost say that the machine was more appreciated by the household than by the birds.

Bananas, pears, ample quantities of soaked seedless raisins, soft sweet apple, and the usual Shama food was used in the rearing of the youngsters, while daily a small dish of little pieces (the size of a pea) of Madeira cake was offered. There was always a pot of mincemeat on the tray, and the Tanagers used small quantities of this. Gentles in bran were fed in great quantities, and a certain amount of live food was obtainable amongst the greenery of the aviary.

I am sure that this routine of feeding, with slight variations according to the likes and dislikes of individual species, will enable most of the more robust species of Tanagers being reared under New Zealand conditions.

Breeding of Fijian Parrakeets

By Mrs. G. Collins

I consider myself very fortunate to be able to record the breeding of these Parrakeets. The hen bird is the Tabuan species. This bird, which I have had in my aviary for several years, has a wonderful disposition and strong maternal instinct. To this I largely attribute my success in breeding. The cock bird is a very fine specimen of the Red Shining Parrakeet.

Although I placed nesting boxes and hollow logs in the aviary the Parrakeet insisted on laying her eggs on the earthen floor. For three consecutive years she usually laid four eggs and suffered from egg-binding with the fifth egg. In the article on these birds written by the Marquess of Tavistock he mentions that the usual clutch is two eggs. I was fortunate each time in saving the bird after egg-binding, but she did not attempt to sit.

In August, 1940, she again laid and once again suffered from egg-binding, so I reconciled myself to another unsuccessful breeding season. But imagine my astonishment when entering the aviary one morning during September to discover the two birds busy incubating two eggs. The eggs are large and white. I was again subject to disappointment when after a week I found one egg broken, but decided to leave the birds alone. After about twenty-one days I noticed, as I thought, another broken egg, and picked the shell up to examine it when the hen left the nest. At last there was the long-looked-for chick ! He was an ugly little fellow, quite naked, and remained in this state for at least a month, and was then covered in thick dark grey down.

The hen was a wonderful mother, constantly watching for tit-bits and never neglecting her chick. She slept on the floor until the youngster was well-feathered. As he feathered the plumage was identical with the parent bird other than the breast feathers, which are a darker shade than the cock bird's but lighter than the hen bird's. At four months' old the young bird is hardly distinguishable from the parent birds excepting that his beak retains light markings.

Possibly owing to the fact that his mother has always been a great pet in the aviary, the young bird quickly gained confidence and will come to me at any time. While feeding the young one I fed the usual seed mixture with the addition of fruit, green pear, seeding grasses, and a little cake or biscuit. The cake or biscuit the hen bird always soaked in water.

Breeding Madagascar Lovebird (*Agapornis cana*)

By H. Jacobs

During January, 1939, I was fortunate in securing an outstanding pair of Madagascar Lovebirds. They were housed in roomy sleeping quarters with a large outside flight. From January to September a close watch was kept on their general behaviour, and various foods were supplied (including general green weeds) with the object of getting them in nesting condition. This had an immediate result.

In went three kinds of nesting boxes in the outside flight, with plenty of cocksfoot roots hung near the nest boxes, and oats and the usual greens planted in the flight. The cock immediately commenced to feed the hen, who carried very short pieces of grass, tucked under her right wing, to the highest and most secluded box.

This continued for about three weeks. She would come out only to be fed by her mate and returned immediately, and things appeared to be going fine until December when she came out of the nest box for rather long periods. When the opportunity permitted the *first* inspection was made to find a fully-coloured cock and two infertile eggs, in just enough dry grass to prevent the eggs from being scattered.

In three days the seemingly proud parents had their son in the flight, and have proceeded with the second sitting of eggs.

Dry grass was the only nesting material used, and the hen carried out most of the work until a week before inspection, when the cock fed plenty of green food and decided to sleep in the box. General food fed was African lovebird mixture, and I was not particular about sunflower seeds. The plumage of the baby is similar to that of the father's with the exception of the green on the breast, which is much brighter.

Since my first success the parents have had two nests of clear eggs, with two eggs in each nest, but I attribute the clear eggs to change of feeding, and would be interested to learn if the nest box should be taken away as it would appear that it may be necessary to leave the box for roosting as they will not depart from it.

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REVIEW

DREAM ISLAND DAYS. A RECORD OF THE SIMPLE LIFE. By R. M. LOCKLEY. Published by H. F. and G. Witherby, Ltd., 326 High Holborn, London, W.C. 1. Price 10*s.* 6*d.*

Dream Island Days is a book which can be appreciated at the present more than at any other time, for in its pages the reader can find escape from the grim troubles of war and for some hours achieve forgetfulness. R. M. Lockley has a singularly attractive style of writing and he unfolds a fascinating story of how he attained his boyhood dreams by obtaining an island of his own off the coast of Wales, turned a ruined farmhouse into a habitable dwelling, brought his bride there, and gradually cultivated the ground and collected a presentable stock of animals.

The description of his various adventures in boiling seas and the visits he made to other islands are so vivid that one can almost smell the tang of salt and hear the beat of the waves. Throughout the book chief attention is paid to the author's main interest, wild birds, and the accounts of the habits of the many species which visited the island are both absorbing and instructive. He also gives full descriptions of the mammals and flowers on and around the island and at the end of the book is a list of birds recorded from 1927–1940 noting those which bred, and a list of flora found, which form a valuable addition. The book is illustrated by Doris Lockley with her own inimitable charm, and there is a plentiful supply of photographs in addition.

P. B-S.

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NOTES

Editor's Note

The Editor apologises for the lateness of publication in the present and previous numbers of the Magazine ; this is not due in any way to the printers, who have given the utmost co-operation and good service in spite of war conditions, but to lack of articles. If it were not for the continued help of certain members, and more especially those overseas, it would not be possible to bring out the Magazine. The Editor makes a most urgent appeal for further articles, particularly during the coming months, in order that the link which keeps the Society together—the Magazine—may not fail.

The Avicultural Society of New Zealand

The Avicultural Society of New Zealand is to be warmly congratulated on the excellence of the 12th Annual Report and Bulletin (covering the years 1940, 1941, and 1942). Some of the articles contained in the Bulletin are reprinted in this number of the Avicultural Magazine, and other subjects dealt with are " Mealworms ", " Indian Shama ", and reprints from the Avicultural Magazine and *Aviculture*. In his report the Hon. Secretary, Mr. G. Rowland Hutchinson, states that though all members are devoting the major portion of their time to work of more national importance than that of aviculture a few moments must be given to it to supply that little distraction which helps to keep people sane in spite of the pressure of business and war work. He adds that the Executive have decided that no importation of birds should take place for the duration of the war and stresses the importance of endeavouring to breed in captivity many of the more rare birds that have been imported into the country and become fairly acclimatized to New Zealand conditions in aviaries.

He explains that the Society's funds are much smaller owing to the fact that in response to the English Society's request for prompt payment a permit was obtained to export not only the whole of the year's annual subscriptions but also a portion of those for 1941. Such ready co-operation and help is greatly appreciated by the Society in the Mother Country.

" Cuckoo "

How sad it is when we have to part with an old friend. I have recently lost my old grey Parrot " Cuckoo ", which I have had since 1917. He came to us in rather a remarkable way. I was out for a walk with my dog when I met a man with two grey Parrots on his walking stick. He was a Belgian who had come from the Congo to join up for the war. He spoke Flemish, which I found hard to understand—but I did make out that he was wanting to sell them—and I made him understand to stay where he was, and I would fetch my Father. He wanted £4 for the two birds, and we always regretted we did not buy the two. But he put one on my hand and he bit me to the bone, and I came home with a dripping finger. Then he gave me the other one, and I was able to do what I liked with him. So we gave him £2 10*s*., and I walked home with him on my hand through the streets of London. On getting home, of course, we put him in a nice large cage, but for three days he just would not feed, and I became very worried. Then I had a brain wave, took out the white porcelain dishes, and put the food and water in plain tins. He instantly started to feed, and to the end of his life he would not eat out of white dishes. This bird absolutely adored my Father, and would sit for hours on his shoulder, but he never really took to me. After my Father died he took to my faithful cook, Jarvis, who has been with me over thirty years. She cuddled and loved him, and he roamed round the kitchen and had a fine time in and out of boxes and coal scuttles, and a bath in the sink. He was a good whistler, but never a very good talker, but he was a most cheery bird, never dull, and you may imagine how we miss him.

E. Maud Knobel.

A New Parrakeet Hybrid

I learn from the Keston Foreign Bird Farm that this last season they have bred a Redrump × Stanley hybrid. It is a male, and it will be interesting to see how he moults out.

Arthur A. Prestwich.

* * *

CORRESPONDENCE

BREEDING OF VIOLET-EAR WAXBILL

In the September-October Avicultural Magazine of 1943, Mr. Seth-Smith writes, "Although the Violet-ear (Waxbill) has been known for a long time, it has always been rare, and so far as I know has never been successfully bred." He has overlooked the fact that the Society's medal was awarded to Mrs. K. Drake for breeding these Waxbills, as recorded in Vol. I of the Fifth Series. Mrs. Drake's account will be found on page 325.

E. F. Chawner.

The White House,
Leckford, Hants.

COLOURED PLATE OF SENEGAL PARROT

The coloured plate of *Poeocephalus senegalus* mentioned by Prebendary Sweetnam in the last number of the Avicultural Magazine, did not appear in Avicultural Magazine, but in *Bird Notes*, vol. v, 1906–7. It was from a very characteristic painting by H. Goodchild.

A. A. Prestwich

Chelmsford Road,
Southgate, N. 14.

* * *

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POST-MORTEM EXAMINATIONS CANCELLED UNTIL FURTHER NOTICE

A Tame Cream-coloured Sparrow

confides in her owner before settling to sleep in his cupped hands.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE
AVICULTURAL SOCIETY

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1943 AT BLISSFORD POOL

By A. H. Scott

1943, like all the war years, was mostly a record of disappointments, and the greatest of these was the loss of the only Kingfisher's nest which I have ever found. With these notes there is a photograph of a Sparrow, a remarkable bird, but in spite of appearances, she is telling me nothing of any particular interest. I had hoped to have not this picture but another : of a Kingfisher telling a fellow sportsman about that big one that got away. Kingfishers used, I heard, to build regularly in the banks of my little stream, but after I had dammed it up to make a pond they had few suitable sites and moved away. This year a pair came back and nested under an oak tree which leaned over a pool below the dam. As there is an abundance of minnows it would have been easy enough to rear a couple of young ones, but one day when all was going well, I received an official letter informing me that the stream was to be deepened and cleared (at my expense) with a view to better land drainage. I wrote at once to point out that as it ran below high banks far below the lowest part of the land, not a blade of grass the more would result, and much harm be done. The official reply was surprising, " You need not waste arguments on me, for I am entirely opposed to this scheme. My voice, however, is not the deciding one." This raised a little hope, which was very soon quenched by another " expert " who came to my house, declined to go with me to look at the stream, and even refused to spare that particular oak tree. It might, he said, some day fall down and block the flow. In vain I pointed out that it had been leaning at the same angle for at least ten years, and probably all its life. This expert was far from employing a Chinese courtesy, but he ended more or less with a regular Chinese formula : " Tremble and obey." So there came strong fellows with powerful machines, cutting down trees, scraping out the gravel, abolishing all the little pools, shaving away the banks ; uncompromising men trained to a modernist belief in the mystical beauty and rightness of straight lines. Thus the function of rivers being to convey water, their beauty is best expressed by the formula of the canal. As if by magic the oak tree vanished with all its gnarled and

twisted roots from which the Kingfishers dived for minnows : nothing remained but a ditch, deserted even by the fish. The making of canals is a habit-forming vice and in a committee of bureaucrats a single addict will soon infect the rest. Unless we resist the time will come when no brooks may chatter as they go because their music is made at the expense of speed, nor loiter a moment to dally with the marigolds lest they catch the eye of the man with the bulldozer ; and all will hurry with an air of set purpose on their way like those daughters of misfortune who find it prudent to walk a little faster than anybody else. Kingfishers have been bred in a French aviary, but not, I think, in England, though it should not be difficult for anyone living near a suitable river where minnows abound.

Disaster also came upon some Long-tailed Tits, of which I wished to rear a couple. Their nest was in a very thick bramble-bush, into which no hand could penetrate with impunity. Here, it seemed, was a real fortress, safe from every kind of vermin, and moreover, only a few yards from the house : yet, looking out of the window one day I saw a Magpie force itself through the thorns and tear out the young before it was possible to run to the rescue. It is difficult not to hate Jays and Magpies after seeing them destroy the nests and eggs of almost every bird around. Only a week before I had seen two Magpies on the ground by a bush, out of which a most gallant Blackbird dashed in defence of its young. The first Magpie instantly seized it by the neck, and held it pressed against the ground, while the second hammered the poor thing with its beak. I threw open the window and shouted ; hardly in time, for when the invaders flew off it was a very shaky Blackbird that hopped slowly into the bushes, where the thorns and brambles were so thick that it could not be found.

In the aviaries a few lutino, cinnamon, and fawn Greenfinches were reared, and a few albinos and cream-coloured Sparrows ; and a Japanese × British Bullfinch hybrid cock produced five young ones from a British hen. Chaffinches did well, although as usual some hens would not nest even in the largest aviaries, up to 70 feet by 40 feet. Occasionally hen Chaffinches will build in a cage while others refuse to breed even under semi-natural conditions ; but they have great virtues, for they live on almost any seed and, like old soldiers, never die. In ten years I have not lost a single adult Chaffinch through illness and can recommend them to anybody who is disheartened by losses in his aviaries. My old cinnamon hen, bought in 1934, was, I know, not less than two years old at that time, and may have been more. Yet she still produces healthy young in what is usually considered old age. She brought up two in June, and quickly laid four more eggs, of which three were fertile. They were lost owing to her being taken suddenly very ill, and it was natural to suppose that breeding had proved fatal at such an age, but after a month she was well as and

glossy as ever : perhaps she picked up something harmful. Another Chaffinch hen, a wild-caught bird of ordinary colour, produced two white young, one cinnamon, and no normals ; her mate being a white cock bred from a white father and a cinnamon mother. This is an extraordinary result. My expectation was 75 per cent normal young, and 25 per cent either white or cinnamon, or just possibly a quite new colour. There was no second nest. I hope to pair this interesting couple again next spring though presumably any wild hen (if willing to nest) would serve as well as the first. With these new colours the regular result of mating a new coloured bird to a normal bird is, in the first generation, all normal young if the new coloured bird is the mother ; 25 per cent new and 75 per cent normal if it is the cock that has the mutation. (This seems to apply to most cases provided the whole plumage is affected and not mere patches.) That three out of three, and those the first and only young ones bred should all be new coloured seemed to me to be beyond mere coincidence. As I am not on speaking terms with mathematics I wrote about it to a professor of that subject. He replied that the chance of coincidence, assuming the usual ratio to be 25 per cent, would be $\frac{25}{100} \times \frac{24}{99} \times \frac{23}{98}$, which is roughly 1 in 64 (or so he says). That is a proportion not beyond the powers of coincidence, so judgment must be withheld till next year. As we are touching on the repellent subject of Probability I wonder how many lifetimes its laws would require a bird-keeper to live before he may expect to catch a large snake in a twopenny breakback mousetrap. This has now happened once, possibly the first time since mousetraps were invented. I had made a shallow hole in an aviary and placed in it an ordinary mousetrap, the hole being covered by a plank. One day I found a large grass snake half in and half out of the wide meshes of this aviary. It had passed under the plank, and set off the trap, of which the spike on which the bait is placed had penetrated its tough skin. As the trap was too large to go through the wire netting there the snake had to remain till found and released at a safe distance. It must have come through a mole run, as did also no doubt an unusually big adder which was killed in the same aviary. As Chaffinches have some blue I hope it may be possible some day to breed a blue Chaffinch—with white wings—for blue is the colour of delight. The most beautiful bird I have had so far was a snow white Goldfinch with a pink neck and golden wings, and only the worst luck prevented the founding of a strain of that new loveliness.

During the spring I tried to find a Grebe's nest on the main river, hoping for a successor to the late Moses, but there seemed to be none. All waterfowl were far scarcer than before, thanks to the canal enthusiasts who cleared the river bank. In this case the floods on the upper reaches will no doubt subside a little more quickly, possibly at the cost of larger floods lower down. The shortage of hen's eggs

has caused people to collect those of waterfowl, and a gipsy boy told me that he got thirty-six in one morning from " Moorhen " nests. That would mean the nests of any water bird, for the interest in nature which we associate with gipsies is only a literary fiction : like most other country people they readily distinguish a horse from a cow, but rarely pursue their zoological studies beyond that point.

A word must be said about the Sparrow in the photograph, which contributed the most pleasing incident of the season by an instance of remarkable courage and devotion. She had reared two young ones by June, cream-coloured like herself, and was sitting again on four eggs a little later. One day I found her hanging upside down against the netting, her ring having been caught by a small piece of wire. In her long struggles the leg had got broken and torn, so that it was only joined to her body by a frayed sinew. Her breast was wet with blood, and she was very weak. I cut through the sinew, bandaged the stump, and took her back to her nest of cold eggs. She settled down and carried on in spite of pain and exhaustion, and actually hatched out three young ones, one pure white, one cream, and one ordinary. For a few months she used the tip of a wing as a crutch to balance herself, but gradually learned to manage without. She was always very tame, but after this accident she became visibly more affectionate than ever, and really seemed aware that I had rescued her. As Sparrow nestlings, once they are fairly well feathered, are normally very wild indeed it was interesting to see how far these youngsters from a perfectly tame mother and a friendly father would show signs of fear. Young birds crouch down in their nest when the parents utter a warning cry, and as this has so often been observed it is commonly asserted that they have no natural sense of fear but learn prudence from their parents. I sometimes handed the mother food in her box, and she turned round and gave it to the nestlings, which did not mind being handled for occasional inspection until fairly well covered with feathers ; but they then became as wild as any other young birds, though the parents made no sign or sound of alarm. After they were fledged they were fairly tame, though only visited once a day. No doubt there is an inborn sense of fear shown by all young creatures unless constantly handled from birth by a number of different people. Even in the case of Canaries, which have been domesticated for centuries, many young birds come to grief every year because at the partly feathered stage they are wild enough, and often, in aviaries, hurl themselves out of the nest if anyone goes near it. Puppies are not frightened of strangers until old enough to distinguish one person from another, and human infants (after the earliest stage of coma broken by occasional squalls) respond to everybody with a friendly and mechanical smile ; but soon they, too, pass through the stage when an unknown face causes them, without any warning cries from their parents, to hide against their

mother's breast. Later, of course, they fix even the most unprepossessing visitor with an imperturbable and devastating stare.

To eke out my very exiguous material one other incident may be worth mentioning. One day I had taken a cage containing a Canary outside the house, and was cleaning it there. My body was in the shadow of the house, but my hands were in the sun, moving about the cage as I started on the job. Suddenly without a sound, and before I was aware of anything at all, a Sparrow Hawk dived out of the sky and crashed on to the cage hardly a foot from my face. I was too surprised to move, and so was the Hawk, but after a couple of seconds I grabbed at it, too late by a hair-breadth for he slipped through my fingers and escaped. This occurrence seems to show that when a Hawk concentrates his sight upon his prey he sees that and nothing else. Hawks often dive on to the aviaries when I am inside them and only a very few feet away, but wire netting, of course, is a good camouflage.

* * *

PARRAKEETS IN ENGLAND IN WAR-TIME

By C. P. Phillips

It has been suggested to me that my war-time experience in regard to the breeding of Parrakeets might be of interest to other bird lovers, so without aspiring to any great literary effort I record the following which indicates the extent of my successes and failures.

In 1939 I had a collection of about forty pairs, mostly Australian, and a fair supply of seed, but realizing that there would be difficulty in regard to the latter I was reluctantly compelled to reduce the number of my pets. It was sad parting with old favourites such as Adelaides, Mealy, Eastern and Golden Mantled Rosellas, Bauers, Barrabands, etc., but a choice had to be made and I decided to keep the rarer species.

I have not found it difficult to keep the birds in good condition on a war-time diet out of the nesting season ; with young in the nest, however, the position is different. The amount of food consumed by say seven Rock Peplars or Pennants is prodigious as compared with that required by a single pair ; this entails the collection of large quantities of seeding grasses, plus lettuce, groundsel, etc. However, success has been achieved and the 1943 results, which are set out hereafter, indicate to what extent.

First, a few notes regarding the arrangement of my flights. These are mostly 30 feet long and either 4 or 5 feet wide ; the shelters at one end are more or less open all the year round ; no heat is provided, this applies to all birds including Turquoisines, and although over 20 degrees of frost have been registered during the winter of 1942 the birds came to no harm ; in fact some species prefer to roost in the

flights, and a pair of Turquoisines proceeded to follow this up by rearing three lots of youngsters in the following spring and summer. The spaces between the flights correspond in width to that of the adjoining flights, so that the shelters can be moved along when fresh ground is necessary. This, however, does not happen every year, due to the fact that there is a sandy subsoil not very far below the surface, providing an extraordinarily efficient drainage system, which while being ideally suitable for keeping livestock is not so good for fruit and vegetables.

Nesting logs are cleaned when the young leave them, otherwise they are left in the flights all the year round. Some of the pairs start preparing their nests as early as February, but do not lay before March. During 1943 Ringnecks and Redrumps started to sit on the 12th of that month ; Turquoisines on the 26th. No losses have ever occurred through egg binding ; in fact, over a number of years losses, apart from the depredations of vermin and the feeding of frosted groundsel, have been negligible. In regard to the groundsel : one sunny morning I gathered a large bunch of seed heads, which I realized later had been standing for some time during a period of hard frost. Many of the birds seemed to enjoy it, some more than others. I noticed that Crimson Wings and Turquoisines finished up all I gave them, but alas, next morning I found that all was not well with these birds and the male of each pair died. They were both in perfect condition and, remembering afterwards that the same thing happened a year or two ago, I must definitely conclude that frosted green food is very injurious, and taken in quantity fatal.

I now set out the breeding results for 1943.

Ringnecks (*Psittacula manillensis*) Lutino-bred. This pair came to me nearly four years ago. During their first season here they reared one young one, a hen Lutino. The next year three young were reared, all of normal colour, and in 1943 again three youngsters including one Lutino.

Rock Peplars (*Polytelis anthopeplus*). This pair has been in my possession since about 1938, and up to last year they had not bred, then they reared five very strong youngsters. Quite recently I heard from a friend who had a pair of these and he tells me they have grown into beautiful birds. As the hen has already been visiting her nesting log I am hoping for a repeat performance this year.

Crimson Wings (*Aprosmictus erythropterus*). This pair has been with me for many years and has regularly reared young, always four in number. Last year the usual four eggs were laid, but later it was evident that all was not well. The hen seemed one morning to be very wild and refused to return to the nest. Upon investigation it was found that one young one had just left the egg and had at once been eaten by ants, a swarm of which I found in the log. The other three eggs had chicks in.

A second pair of Crimson Wings, a young hen from the above and a very fine cock bird which I have had many years, were mated in the spring of 1942, the hen being hardly a year old—nevertheless, she laid three eggs in that year which proved to be infertile. During 1943 she again laid three eggs and reared a similar number of strong youngsters. Unfortunately it is the cock bird of this pair which succumbed to his predilection for frosted groundsel.

Pennants (*Platycercus elegans*). One pair reared five beautiful youngsters, which left the nest in almost full adult plumage. In 1942 they reared six similar youngsters ; in fact, they have bred regularly for several years.

A second pair of these birds did not nest, the hen being as yet too young.

Queen Alexandra's (*Northipsitta alexandræ*). I have three pairs of these beautiful birds, but only one has so far nested, four young having been reared each year by this pair. One youngster unfortunately broke a wing during 1943 and was destroyed. In regard to the other two pairs, I have been hoping each season that something would happen in the matrimonial line ; the cock birds have fed the hens, but they have not nested. This year I have changed the hens over as I have found that this sometimes improves matters.

I have also three pairs of Kings (*Aprosmictus scapularis*). One youngster only was reared in 1943 ; the other pairs have persisted in laying their eggs on the ground in the shelters and except in the case of one youngster in 1942 they have failed to rear any young there. Last year one nesting box was emptied to ground level and this proved to be more to their liking, as the birds took to it. I have now treated all the boxes in this way and shall be interested to see what happens this year.

I had a pair each of Adelaides (*Platycercus elegans adelaidæ*), Rosellas (*P. eximius*), and Mealy Rosellas (*P. adscitus*). The hen of the first named was killed by a weasel. I have had a lot of trouble with these vermin ; they find their way into the flights through mole runs where these have been made deep enough to go under the wire netting, which is let into the ground 12 to 18 inches. Many have been destroyed, but I still get visitors occasionally. Moles, however, are more difficult to deal with, a number are caught but others come in from surrounding property. The Rosellas reared three young, one of which was killed by a Brown Owl. The latter were so numerous here that a few years ago I had to dispose of my large collection of small birds, British and Foreign, losses were too frequent. All my Pigeons kept in an open loft were taken also, and moreover the large number of wild birds' nests in the grounds were stripped each year of the hens while brooding eggs or youngsters. I have shot and examined a fair number, and on one occasion found on the top of a flight one of the large cocoon-like pellets of undigested food which these birds disgorge. The outer

cover consisted of feathers matted together, and inside were several complete legs of Finches, two of which still bore my metal marking rings. As my ground is infested with mice of several kinds, moles, etc., it is evident that the Brown Owls in this district prefer birds as food.

Referring again to Parrakeets the hen Mealy Rosella deserted her nest of eggs, following the attack on the Rosellas in the next flight, previously mentioned.

I have three pairs of Browns (*Platycercus venustus*) ; only one pair nested, however, during 1943, rearing four fine youngsters. Previously results had been disappointing, but in this case also I changed over the hens at the beginning of last season and success followed with one of the pairs.

Two pairs of Many-coloured (*Psephotus varius*) proved unproductive. I have yet to discover why these birds do not breed. I am trying several types of nesting boxes this year.

The hen of a pair of Blue Bonnets (*P. hæmatogaster*) was killed by a Brown Owl in 1942 ; another was obtained, but last year she failed to rear her young.

Of three pairs of Turquoisines (*Neophema pulchella*), two nested. Both pairs laid very early in the year. The first laid two batches of infertile eggs and then nested again and reared three strong youngsters. The cock bird was perhaps too young in the early part of the season. The second pair reared three young in the early part of the year (March) followed by two more in a second attempt, and nesting a third time reared two more strong birds. The hen of this pair is visiting the nesting log at the present time (13th February), rather too early, but I do not think it wise to interfere.

A year or two ago I had a pair of Salawati Kings (*Aprosmictus dorsalis*), but lost the cock bird and having failed to obtain another, I have tried several mates without success. Rather late in 1943 I tried a cock Pennant and the pair seemed to get on well together ; the cock bird fed the hen and the latter hollowed out a nice nest, but there were no eggs. I am hoping something will happen this year.

Lastly, I come to my Lovebirds. Originally I had a pair of Blue Masked, but lost the cock bird ; a replacement was not possible, but a blue-bred cock was obtained. Two young were reared by this pair, both more or less the normal colour of the Masked. Nesting a second time three young were reared, also normal Masked colour. A hen from the above pair mated to another blue-bred cock reared three youngsters, all green, but I hope that from my several matings a Blue will arrive during 1944.

Until recently I had a pair of Swift Parrakeets (*Lathamus discolor*), which for four years thrived and ultimately reared a strong youngster on the same seed mixture as all my other birds. I mention this because I have seen it recorded that special food is necessary for these birds.

FURTHER NOTES ON ECLECTUS PARROTS
WITH AN ACCOUNT OF A HYBRID RECENTLY BRED

By W. C. Osman Hill, M.D., F.Z.S., etc.

The recent successful breeding of a hybrid Eclectus Parrot prompts me to make the present contribution to the Magazine ; but, in doing so, it is preferable that I should first fill in some details that have become known to me since my record of the breeding of Eclecti published in 1938, as well as to outline the family history of my birds since that date.

First of all, however, some statement is necessary regarding identification and nomenclature, for there is some reason to doubt the validity of my diagnosis of the birds whose history has been already recorded. Even now I cannot be absolutely sure of their identity, as I have not access to the more recent systematic literature. I had previously used Salvadori's (1891) scheme, but modified by Rothschild's (1922) views on nomenclature. According to this two forms only have been represented in my collection, except for a single female of a third (*corneliæ*) whose death occurred before any breeding took place as already reported. These two forms, which I will call *A* and *B*, represented full species according to Salvadori's account, but Rothschild, as well as more recent authors, consider that there is only one species of *Eclectus*, namely *roratus* Müller (syn. *grandis*), of which all the other known forms are regarded as geographical variants or subspecies. There is no doubt that one pair (*A*) of Eclecti in my possession in 1936 were typical *roratus*, for the female had the under-tail coverts bright yellow and the ends of the rectrices were the same colour. Moreover she had purple, or at least a deep lilac, on the lower breast and belly. She was somewhat larger than the blue-bellied females of the other pair (*B*). Her mate was a large handsome bird of bright green general colour with plenty of blue in the lateral tail feathers. He had a light yellow iris. This (*A*) was *not* the pair which bred in 1936. Although female (*A*) laid eggs and spent many months on the nest she produced no young, and I fancy the eggs were infertile, not from any impotence on the part of the male, but from the fact that mating was probably never effectually accomplished from the female having suffered from a deformed foot which almost undoubtedly precluded normal copulation. This hen eventually died in the nest box in 1942, but her mate is still alive and is the father of the hybrid referred to hereinafter. (The characters of the hybrid indicate that its father was the correct mate for the *roratus* female, i.e. that he was typical *roratus* himself.)

The other birds (*B*) whose exploits were the subject of my 1939 contribution were then regarded as the New Guinea race usually

known as *pectoralis* Müller (syn. *polychlorus*) for, in Salvadori's scheme, upon which Tavistock's (1939) account also seems to be based, this is the only one in which the females possess a frankly blue abdomen, with a dorsal band of the same colour and also in the adult a blue ring round the eye. That the male mated to this blue-bellied female is of the same race is proved by the characters of their numerous offspring, all the females having been the image of their mother and the males likewise reproducing their father's characters, which are (i) smaller size than typical *roratus*, (ii) less brilliant green general colour, (iii) less blue on the lateral tail feathers, and (iv) an orange iris instead of a yellow one.

My reason for doubting the identification of this second group of birds as *pectoralis* is based on discussions I have had with Mr. S. Dillon Ripley, of the U.S. National Museum, who recently visited me. Mr. Ripley, who is familiar with the Eclecti in their natural home, thinks that the birds previously thought to be *pectoralis* are much brighter in colour than the ones he has seen in New Guinea. This applies specially to the females. He believes, therefore, that my birds came from the Moluccas, but from a different group of islands from *roratus* which inhabits the northern or Halmahera group. If this is so, then it probably represents the form renamed *vosmæri* by Rothschild in the note referred to above, though it is certainly not *cardinalis*, as described by Salvadori for the female of this is purple-bellied like *roratus*.

The existence of this doubt, and the impossibility of arriving at certainty with available literature, has necessitated my giving the above rather detailed account of the birds concerned. It will be best if, in the sequel, I refer to the two forms involved as the blue-bellied (*B*) and purple-bellied (*A*) types based upon the principal character of their respective females, the former representing the form previously identified as *pectoralis* and the latter the undoubted *roratus*.

My original pair of blue-bellied Eclecti, whose earliest breeding efforts have already been recorded, continued to nest successfully and rear their young until the brutal murder of the female by her own first-born daughter in April this year (1943). Altogether at least a dozen young were produced, which averages out at two per annum, i.e. one every six months. Although two eggs were invariably laid, one is always discarded and a single young hatched. Most of the babies have turned out to be females, only three or four males having been bred and these almost always delicate, two having died before reaching the age of twelve months. One male baby is now several years old and still has the aspect of a baby and is small compared with the father, but otherwise he is healthy and a very cheerful bird. He may be a case of pituitary infantilism. Females are quite hardy.

The baby Eclecti are hatched out quite naked, and, like all young

Parrots, look like shapeless, inert masses of flesh. In about a month they become clothed with a uniform sooty covering of down feathers. Another month sees them fully fledged in the plumage characteristic of their sex, i.e. green for males and red for females. The beak is blotchy at first, but gradually changes to the uniform colour seen in the adult of the same sex, i.e. black for females (previously blotched with yellow) and orange for males (earlier blotched with black). The blue feathers encircling the eye of the females are late in appearing, but the time of appearance is individually variable, sometimes in a few months, sometimes not until the age of one year.

The baby Eclectus spends roughly four months in the nest box and as soon as it has left, the mother makes preparations for the next family, in consequence of which the married females seldom see the full light of day for more than a few moments daily, and this goes on year in year out for probably decades in the wild state !

Now to consider the hybrid. After the death of the hen *roratus* already referred to I gave her widower one of my home-bred blue-bellied hens as a companion. This occurred in August, 1942, when the hen was approximately two years old. She soon took an interest in the nest-box and mating was observed several times, though eggs were not laid for a year. Having occasion to climb up into the top of the aviary to deal with a nest of rats that had appeared there I took the opportunity of looking at what was going on in this nest-box, and found (15th August) a naked baby bird, and, as usual, one unhatched egg. On 13th September the baby was clothed in sooty down feathers and gave no indication as yet of its presence by using its voice, a feature which often leads to the conviction that a family is present when they have reached this stage of development. The next time when I inspected the nest was on 11th October when I saw a fully-fledged female baby in whose plumage there appeared to be quite a lot of yellow ; though the darkness of the box precluded my making detailed observations, whilst the vocal effusions from the scared infant, accompanied by the proximity of its ferocious parent, caused me to beat a hasty retreat. Four days later the baby peeped out of the hole in the nest-box, but for days it would do no more than poke out its head and shoulders—the least interesting parts to the systematic zoologist ; although there was enough " blue " visible to suggest that it was not so pure a blue as its mother on the same parts.

Not until 22nd October was the hybrid completely outside the nest, and then what a marvellous combination of characters it presented. Here I therefore give a summary :—

Size larger than mother, almost as large as father ; head, neck, and upper breast bright scarlet ; no coloured ring round the eye ; iris dark ; bill blotched yellow upon black ; lower breast, including a ring round the base of the neck and abdomen, blue tending to purple ;

bluer than female *roratus* but less blue than female *pectoralis*. Mantle and general colour of wings (except flight feathers which are dark blue) reddish chocolate or brownish maroon due to the infusion of a yellowish element into the crimson of the normal bird. Detailed observation of the secondaries, secondary coverts, and lesser wing coverts shows them to be golden-yellow towards the tips. Actually the secondaries and secondary coverts have narrow red tips, but just within this there is a broader golden-yellow band. The rest of each feather is a dull maroon, except the base of the inner web which is bottle green, a colour which is quite evident in the wing at rest. This green may, of course, disappear with maturity. Under tail coverts bright yellow as in female *roratus*, the same colour occurring also on the distal half of the rectrices.

Analysis of the above characters leads to some interesting conclusions on the modes of inheritance that take place in this genus. At least three different types of inheritance seem to be represented. Firstly, the yellow on the tail and tail coverts has been inherited completely from the paternal side, though the male himself does not manifest this character. It would appear to behave, therefore, as a simple Mendelian dominant which is sex-linked with the factor causing femaleness.

Secondly there occurs an intermediate condition between the two parental forms with respect to the colour of the lower breast and abdomen. It would appear that blueness of these and other parts (except that of the flight feathers) is under the control of one or more intensifying factors. Absence of any such factor produces in the female a red abdomen, a condition which is normal in *E. corneliæ*. Full intensity, on the other hand, gives an ultramarine blue abdomen, the normal condition in *E. pectoralis*, *E. roratus*, and *E. cardinalis* are intermediate, resulting in purple. But in the hybrid a further intermediacy occurs whereby intensification of purple is produced in the direction of blue, but with sufficient red element remaining to prevent the development of the full ultramarine tint of *pectoralis*.

Finally, with respect to the coloration of the mantle and wings, the hybrid presents characters which are not represented in either parental form nor indeed are they to be considered as intermediate thereto. The genetic factors responsible have here produced a new combination indicative of their ability thus to serve as a basis for evolutionary change. The explanation would seem to lie in the probable presence of a factor for producing golden or orange in the areas concerned. Areas like the head, neck, and upper breast, which contain no golden element, appear bright scarlet ; and this seems to be the normal condition of these regions in all races of *Eclectus*. Where the orange occurs the scarlet is dimmed to crimson or even maroon, the exact colour varying in the different subspecies. In the hybrid

the golden tinge seems to have undergone two changes : (*a*) it is excessive in amount, giving a general deep chocolate maroon to the mantle and major part of the wings, and (*b*) it shows a tendency at the tips of the secondaries and secondary coverts to separate from the red element, the red being present alone at the extreme tip and the golden forming a deeper zone just within the red. That the yellowish factor is transmitted by the male is evident in this case, but receives further support from the fact that males occasionally show an odd yellow feather or a slight band of yellow across the back of the neck, as is the case with my original male (*A*) in some of his moults. The green on the wing feathers of the hybrid may be perhaps explained as a similar tendency on the part of the female to display features attributable to inherent maleness. Some of my pure bred blue-bellied hens have produced an occasional green feather in various places, especially in their early youth.

In conclusion I would remark that this hybrid represents the second aviary bred generation. A pure bred blue-bellied F 2 generation is also under way, but the baby concerned is still in the down stage. These examples prove that the aviary bred families, at any rate, are potent, though I have no similar evidence yet for the males.

Finally, I make no claim to be the first breeder of hybrid *Eclecti*. A case is on record of a hybrid between *E. roratus* and *E. cardinalis*. (Meyer, 1890, quoted by Butler (1905), Neunzig (1912), Tavistock (1929), and Hopkinson (1942)), but as both of these are purple-bellied forms the hybrid is of less intrinsic interest than the bird described here, which, in my opinion, teaches us more of the genetic principles involved.

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IKEY, A TAME TOCO TOUCAN

By Guy Falkner

Toucans are delightful pets if they are kept in large aviaries. When kept loose one might as well have a school of small boys and in comparison the damage they would do would be negligible to that of the Toucan. I bought a very young " Toco Toucan " from a fellow member. He arrived at tea-time ; as luck would have it so did my brother, who is a great bird lover. I put the Toucan on the back of a chair in the dining-room while we were having tea. I saw at once that I did not require a Toucan !—and " passed the ball ". He arrived at his new home with my long-suffering brother—Cornwall. He was never shut up and was allowed complete liberty. He had a huge indoor aviary erected for him near a radiator where he was installed. Instantly he dealt with one of the glass panes and sailed into the top of a high beech tree in the park. From that day on he never knew what captivity was, he used to dive through the broken window pane and have a siesta in the warm, or even on cold days sleep in his aviary ; as a rule, however, he slept in a big yew tree near the house. He acquired a " bloom " that I have never seen on any Toucan kept in a cage, and was a perfectly groomed gentleman. Gentleman perhaps is the wrong word. First thing at daybreak one would be woken up by a horrid rattling gurgle only to see Ikey fly out of the window with one's razor, comb, links, or anything handy—never to be found again, or at the best retrieved in a rusty state about a year later from some hidden treasure cave. When one had breakfast Ikey was there, plates smashed on the floor, food (particularly porridge) thrown all over the sideboard. With a hasty sweep of one's napkin, which never was lucky enough to hit its mark, a swoosh of wings through the door or window, and peace—that was until he had time to fly round to the kitchen where the whole performance was repeated again at the servant's breakfast, those poor long-suffering boobs who adored him as much as we did. Perhaps a peach one had had one's eye on to eat after breakfast, just about ripe on the garden wall, you stroll up to pick it—but Ikey was there—bedding plants were put out—but Ikey was there—kittens were born, Ikey was there—giving the kittens and the old cat hell. The dogs (Miniature Daschunds) had their aristocratic " legs " ripped to bits, but they never turned on him—the cat's tail was treated as a worm, but after a time he learned that she had sharp corners at each end of her and he left her for better sport with newly born bantam chicks ; they were carefully examined and were none the better for it. The last straw was the cook's Woolworth pearls. Being fat, like all good cooks, she was none too active and jumped too late—just in time, though, to see the last pearl disappearing down Ikey's gullet. With the presence of mind born of long experience she

lured Ikey back to his aviary with her Irish blarney and a grape—where he was shut up until morning. Next morning she retrieved all her pearls minus the string which had disintegrated. They were beautifully burnished. (Full marks, Mr. Woolworth, for your beads' durability !) He was always ridiculously tame with everyone he knew but suspicious of strangers and terrified of children. He was by no means an ideal house bird, as well have a frightened cow in the house, but one could never successfully snub him ; he was, in fact, the sort of bird that had he been a young man would have walked into Boodles, slapped the oldest member on the head, and said, " Bung oh, what's yours ? " That sort of person, if you know what I mean, is hard to discourage. He used to chase the Wood Pigeons and eat their eggs ; once I saw him being chased by an infuriated bird and he beat it as quick as he could, for he was an awful coward really. An extremely ungainly flyer, one would see him slowly beating his way on his round Peewit-shaped wings, beak hanging low like a lobster claw, and landing with a bump into any small bush which was unable to bear his weight, he was never very clever at landing. He was fed on any sort of house scraps and fruit—nothing came amiss to him. He adored sitting in front of the fire and having his head scratched, especially if he had just had a bath for about the seventh or eighth time—he was a great believer in water. With all his faults everyone who knew him was very fond of him, and he was always most amusing and in good health. I feel sure that lack of exercise is what captive Toucans feel more than anything, as at liberty they are extremely active birds always " on the go ". If one had ever kept one at liberty one would *never* keep one in a cage—but then I'm against cages in any form. (So was Ikey !)

* * *

WILD BIRDS OF CEYLON

By I. Darnton

During my last visit to Ceylon I stayed at one particularly fascinating spot right in the heart of the jungle. With only three or four roughly thatched native huts forming the village the surrounding country is a haunt of all sorts of wild game from the elephant and leopard down to the mouse deer, a sweet little creature hardly larger than a rabbit ; and the birds are legion.

One morning we drove over to Polonnaruwa, a dozen miles away, to visit the ruins of its ancient city and to lunch at the rest-house built on a promontory overlooking one of the lovely lakes (so inartistically called tanks), for which Ceylon is justly famous.

The tank at Polonnaruwa is surely one of the most beautiful of all, with its calm waters broken by lovely bays and tree-clad headlands, backed by low hills, which on the day we were there were hung with heavy thunder clouds, making a dark contrast to the blueness overhead. The jungle spread like a green mantle over everything right down to the water's edge.

The rest-house has its wide and cool veranda almost jutting over the lake, and one of the first things I noticed was a small tree, dead and leafless, lying in the water a few feet away and with a variety of birds perched on its bare branches.

Most prominent, and sitting on its highest point, was a large Stork-billed Kingfisher. He was about 14 inches long, with a huge blood-red beak, coral legs, a dark cream-coloured breast and turquoise back and wings. A little lower on the tree another species, with russet front and darker and more brilliant plumage, hopefully watched the blue water below. This little Kingfisher is peculiar to Ceylon, and we constantly saw it flashing like a living jewel wherever there was a stream or jungle pool for it to fish in.

A pair of Black Robins and a noisy party of Babblers were hopping about on the lower branches, several Swallows sat and preened themselves, while a lovely cock Loten's Sunbird was perched on a slender twig singing his sweet warbler-like melody, his iridescent green and purple breast flashing in the sun. Presently he flew off to a nearby bush of Lantana, and I watched him hovering like a Humming-bird in front of each orange flower, while he probed it to its heart with his long curved black beak, his nearest neighbour being a huge butterfly, gorgeous in his livery of brilliant yellow satin and black velvet, who was also sampling the sweetness of the clustering blooms. Meanwhile from the hanging clouds came several muffled thunder claps which gradually rolled louder and nearer, until with a flurry of hot wind over the jungle the rain came sweeping through the trees, and then we watched it moving like a heavy grey veil over the surface of the water.

My little Sunbird flew to a convenient perch under the lee of a fallen tree trunk, where he sat snugly until the storm had passed, every now and then shaking the raindrops from his glistening back and raising his head to give a twitter of pure delight.

Soon the rain ceased and the sun shone once more. Golden Orioles, Green Barbets, and many other bird voices called from the dripping jungle, Terns screamed and dived in the freshened waters of the tank, while in the distance a pair of Pelicans, which had majestically ridden out the swiftly passing storm, flapped the last drops of water from their heavy wings.

Suddenly, with a chorus of gruff " Woof-woof ", a noisy party of grey Wondaroo monkeys appeared in some trees adjoining the rest-house compound. It was always a joy to watch these expert acrobats swinging easily from branch to branch, running nimbly up and down the boughs, or hanging by one hand from some swaying height, while they gaze inquisitively down at the intruder below. If they think you are a little too near with a swishing of leaves and turmoil of branches they have taken a series of flying leaps to a neighbouring tree, from where they will peer at you until you have moved away. Sometimes one comes upon an old gentleman of the tribe, sitting motionless on a dead tree stump in some lonely jungle clearing, his hands on his knees, and his silver whiskers making a frame for his little wizened black face while his gaze is fixed pensively on some point in the far distance.

In the meantime a table had been laid for us in the corner of the veranda, and we sat down to an excellently cooked meal, fish from the tank and a succulent curry of one of the Jungle Fowl we had shot that morning.

We could see some way out from the shore a huge tree trunk, with a few of its larger branches still intact ; this was crowded with long-necked Cormorants, their wings held stiffly motionless and outstretched at right-angles to their bodies. Several flat-topped trees on a distant promontory were quite black with them, a few snow-white Egrets and " Tick-birds " sitting among them and making a striking contrast ; the latter properly called *B. ibis coromandus*, is very like an Egret, but of course it has no valuable and lovely flowing plumes, for which the other has been cruelly slaughtered.

And so we watched the varied bird scenes of this lovely tropic land, this day being only one of many such happy memories.

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THE BLACK-HOODED RED SISKIN

By Anthony Prasek

[Reprinted from the *Bird Fanciers' Association Bulletin*, New York.]

The most important thing in breeding wild birds in your home is to have patience and some little more patience. The interesting observations that are made are ample rewards for the time spent and in many ways more accurate, than the observations made by many men who have crossed thousands of miles of desert, jungle, and ocean to study and observe the birds in their native habitat.

The first pair of Red Siskins which bred in my home in 1938 and in spring of 1939 have raised eight young from three nests. All eight were males. I have kept three males ; those born in summer of 1938.

In the spring of 1939 I paired these young Red Siskin males with Canary hens. Also the old Siskin with two Canary females. Those four birds produced seventy-six mules of which thirty-two were red-coloured males and the rest grey-coloured mule females. According to Mendel's Inheritance Law there should have been about 50 per cent each of male and female. In this instance the percentage was in favour of the female sex.

In 1942 the same old male had mated with a young Red Siskin hen which I obtained in 1940. They had one nest with four young ones, all of which were females. It is noteworthy of mention that this old Red Siskin male has been in my possession since 1935.

Breeding in 1942. In observing Red Siskins in captivity the past seven years, I believe their mating time in our climate starts in January and ends in June. I have had Red Siskin hens which have built nests and were ready to lay eggs in January. It is not advisable to let them breed so early as the hens get easily eggbound in cold weather. The nest which they build in a bundle of oakbrushes is rather flimsy and steady room temperature of 75 degrees and up is required to keep the hen and the young nestlings comfortable and in health.

The breeding cage which I use for Red Siskins is 6 feet high by 3 feet by 2 feet. They build the nest about 5 feet above the floor. The hen laid her fourth egg on 19th June. One hatched on 1st July and the following morning three more hatched out.

I have given the parent birds the following to feed the young. Three parts nigger, one part canary and cut-oats. Poppy-seeds, crushed sunflower seeds, a piece of bacon hung in the cage. Aphises collected from vegetable leaves. Chicweed and chickory flowers. The bottom of the cage was covered with good garden soil. As these youngsters, all female, are at present one and a half years old and in perfect health, I believe the feeding method which I used is quite satisfactory.

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NOTES

Royal Zoological Society of South Australia

In its 65th Annual Report the Royal Zoological Society of South Australia states that following restrictions and regulations inseparable from the country's war effort many difficulties in administration have arisen. Despite these difficulties, however, a specially attractive feature has been added to the gardens, by a new pool for displaying the Black-footed Penguins. To quote from the report : " These birds, when being fed, were always a popular exhibit, but in the old pond it was difficult to see them clearly under water when taking fish. The new pond is lined with white tiles, and the under-water activities of the birds can be seen with the utmost clarity, never failing to evoke expressions of wonder from onlookers. The enclosure is also provided with suitable nesting accommodation for the birds. This exhibit is so popular that it has been necessary to erect screens to prevent children from climbing on to the structure and ascending trees in the vicinity on busy days. During the year a portion of the Director's private garden was fenced off for inclusion in the Zoo area. Some of this land is being developed for the exhibition of waterfowl, of which the Society has many species. The Council has placed on record its appreciation of the Director's action in this connection." It will be interesting to hear how this provision for waterfowl develops, and it is certainly encouraging to learn that the Royal Society of South Australia is paying such special attention to this interesting group of birds. During 1943, 49 species of birds, comprising 224 individuals, bred in the Zoo.

Wildfowl Visitors to the New York Zoo

A full plumaged male of the lovely little Hooded Merganser, together with two females, has been on our ponds at the New York Zoo since the beginning of November. They are very tame, and the drake is one of the most beautiful of all waterfowl. Among a number of wild American Wigeon we have also had for over two months a young male European Wigeon. This species is not really very rare in North America, and there may be breeding colonies of them in certain grounds of the North.

J. Delacour.

A Near Semi-centenarian

The death has occurred in the Parrot House at the London Zoo of a Yellow-thighed Caique that had been in this country for at least forty-five years. It had been at the Zoo for some ten years and prior to that in the possession of the donor for thirty-five years.

Scaly-breasted Lorikeets

The pair of *Eutelipsitta chlorolepidota* presented to the London Zoological Society by Mr. A. Ezra in 1937 has successfully nested in the Parrot House. Two eggs were laid and duly hatched. One youngster died at a very early age, but the other left the nest on 24th October and is doing well.[1] This would be quite a success at any time, but when the very austere diet of the parents is considered it is quite remarkable. This species seems to have been bred in France and Germany towards the close of the last century and, more recently, in South Australia (1935) and New Zealand (1939). There is only one record for Great Britain. In *Notes on Cage Birds*, Second Series, p. 170 (published in 1899), a correspondent signing himself " H. J." records the successful breeding of this species. Unfortunately, neither the date nor the name of the breeder is given. He writes—" Readers will be interested to know that I have now obtained perfectly fledged young birds of the Scaly-breasted Lorikeet. The hen began to sit about 21st December. The nest is, or rather the nestlings are, in a cocoa-nut husk, in a perfectly detached and open unheated wooden erection, where the water has been frozen almost every night, and sometimes all day, during the severest cold weather. . . . One youngster came out of the nest on 26th February, and the other on 4th March."

In *Foreign Birds for Cage and Aviary*, vol. ii, p. 136, Dr. A. G. Butler records the fact that in 1883 Mr. Abrahams received a considerable number of Scaly-breasted, so that possibly this success was about that date.

[1] 10th March. Thriving amazingly and almost indistinguishable from the parents.

THE SKY'S THE LIMIT

Advertisers have recently offered as much as £140 per cwt. for white millet. The selling price of plain canary seed is now 21*s*. per lb.

BUCKWHEAT

I imagine that the majority of members who keep Parrots and Parrakeets have tried buckwheat. I have given my Lovebirds a fair proportion for some considerable time. The majority take to it readily and it seems to be appreciated. They have suffered no ill-effects except in two notable cases. A sitting Abyssinian hen and a breeding Nyasa hen were found dead. Death in both cases being due to impacted crops—whole buckwheat being the offender. It would seem advisable to give decorticated seed to the smaller Psittaci while breeding. It would be of interest if members would give their experience of this seed. A. A. PRESTWICH.

EAGLE OWL KILLS EGYPTIAN GOOSE IN NEW YORK ZOO

Between Christmas Day and New Year's Day an Egyptian Goose was found partially devoured in its paddock. We naturally suspected a raccoon to be the cause of it as these animals now and then come in to the park. We therefore set a trap over the remains of the Goose. To our astonishment a fine American Eagle Owl, called here the Great Horned Owl, was found in the trap the next morning. It seems extraordinary that such a bird could be caught in a trap of the usual pattern for cats. The Owl no doubt had returned to finish its meal. Eagle Owls are common enough in North America, and now and then one comes to spend the winter in the park, feeding mostly on the innumerable grey squirrels, feral Mallards and Pigeons. They are very powerful and dangerous to our captive birds. The Goose's murderer was quite uninjured and now lives in one of our cages. J. DELACOUR.

THE POSSIBILITIES IN BREEDING BARBARY DOVES

I think Professor Hill's notes on Peafowl raise several interesting points. I have no doubt that his young birds, especially if a young hen be mated with a white cock, would produce a percentage of white offspring from which a pure white strain could be built up. It is unfortunate one has to wait so long before the birds become old enough to breed. I have noticed quite small young in the display attitude ; it is amusing to see a whole brood of perhaps four or five, with tails up and chins depressed, all showing off at the same time. I am glad to have my suspicions confirmed that young hens display, do adult hens do so ? Dr. Hill's birds are, of course, not true hybrids, as he himself says, both the white birds and the black-shouldered are simply mutations from the common Peafowl.

I am reminded of a somewhat similar incident with Barbary Doves. A pair of the white form which used to be known as " Java Doves " produced one young one; when it was a few days old the mother bird escaped and was lost. The young one was, however, safely reared by its father, only being kept warm at night. It proved to be a cock. The old cock was then mated with a particularly nice specimen of the ordinary Barbary Dove, result, two young, both white, and both hens, thus disproving the old fallacy of a " pigeon pair " meaning a male and female. The two young hens were mated to the two white cocks, father and half-brother. Numerous young were bred from both pairs, all white birds, though some showed a slight cream colour on the collar round the hind neck. I remember the late Frank Finn telling me that in India white birds with black rings and other variations may be met with, but I have never heard of them over here. Now, when foreign birds are so scarce, and doubtless will be for years to come, it seems we might do something with the neglected Barbary Dove. Most of the specimens seen are pale rather lumpy looking birds, but one can pick out one here and there better shaped and coloured, so it would be possible to much improve the breed, and we could try to produce some of the forms seen in India. Perhaps a pied bird, or even one with a crest, though so far, this has only, in wild Pigeons, been developed in the Australian region. It is remarkable that a bird like the Barbary, which has been in domestication for so long that even its very origin is still in doubt, should show so little variation, but if this could be produced, who knows but that we might have a rival to the Budgerigar with its innumerable variations. In the future it is possible that we shall have more and more to depend on birds for our aviaries which can be bred in a semi-domesticated way. T. H. NEWMAN.

CORRESPONDENCE

THE SENEGAL PARROT

Having read with interest Prebendary Sweetnam's article on the Senegal Parrot in the Magazine for November–December, 1943, I would like to pass on to him the following information, which, it seems, he has been unable to find.

An interesting article on the species by Miss C. L. Collier and Dr. W. Geo. Cresswell appeared in *Bird Notes* for 1906–7, vol. v.

This was accompanied by a good coloured plate by the late Mr. H. Goodchild, and also there is a note to the effect that Dr. Hopkinson had given notes on the Senegal Parrot in vol. iii of *Bird Notes*.

I would like to note that I very much regret having just lost my last bird, a very tame White Eared Bulbul, which I have had for eleven years.

E. Marshall.

Hillside,
Cadewell Lane,
Shiphay,
Torquay.

THE SATIN BOWER BIRD

In the September–October issue of the Magazine there is a reprinted article by David Fleay, Director of Sir Colin MacKenzie Sanctuary, Badger Creek, Victoria, under the heading " Nesting Habits of Satin Bower Birds ".

Having for some years past made a close study of these birds, I was particularly interested in Mr. Fleay's notes, which touch upon many features of their habits that are fully confirmed by my own observations.

In referring, however, to the colour change which occurs in the male of the species at a certain age, Mr. Fleay comments in these words : " For years the male bird wears the pretty green plumage so characteristic of the female, but adopts at a certain age—no one knowing exactly when—the uniform purple-blue colour so lustrous and beautiful in sunlight."

I think I am right in saying that the generally accepted belief is that the colour change referred to occurs in the seventh year of the life of the male, but how such a point can be determined with any degree of certainty, unless the bird is aviary bred, is difficult to understand, and it is no doubt due to the obviousness of this fact that Mr. Fleay prefers to leave the question an open one. However, the following facts that I have gathered on this subject of transcoloration may be of interest to your readers and help toward the settlement of this question.

Referring to my record of the life history of the bird which I bred in December, 1937, and which is referred to by Mr. Fleay in the article under review, I find that on the 12th June, 1941—when it was three and a half years old—two blue feathers were observed on the back about the overlap of the primaries. Naturally this discovery gave rise to considerable interest as it not only placed the sex of the youngster beyond doubt but afforded me the opportunity of observing the process of transcoloration which was gradual and not complete until February of the following year. Of course, it may be that in their native environment the colour change in the male occurs later, but under the close natural living conditions that my birds enjoy I can see no reason for assuming that it is so, but rather, as my experience goes to prove, that full maturity is attained at a much earlier age than is generally understood and that the uniform purple-blue colour which Mr. Fleay so exactly describes as " lustrous and beautiful in sunlight " is adopted in the fifth year of life.

Arnold Hirst.

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Sydney,
Australia.

I enclose an extract from *Walkabout* (1st October, 1943) concerning the Satin Bower Bird, which I think may be of interest to readers of the AVICULTURAL MAGAZINE :—

'From Katoomba, New South Wales, Mrs. Eleanor Dark has forwarded some exceedingly interesting observations on the behaviour of the Bower Birds in her garden. She writes :—

" For more than five years, each autumn, the birds built a bower in a shrubby part of our garden, decorating it in the usual way with pieces of blue and yellow and brown snail shells. One morning, after rain in the night, my husband and I found a half-used blue-bag lying near the bower ; the snail-shells had been smeared with the blue colour. We could only conclude that the bird had picked up the wet blue-bag near some house and, discovering it left blue marks on everything it touched, decided to paint the snail shells.

" We often put out collections of variously-coloured wools and other substances, but the only pieces ever taken by the Bower Birds were those of a blue or greenish-yellow colour.

" The work on our bowers was done by greenish-coloured birds, and I am not certain whether they were females or young males. There were often a dozen or more flying or hopping about the bower, and I thought that those of a slightly paler colour, and a little smaller, were young males.

" All the greenish ones were easily tamed, flying on to the verandah for food and coming within a foot or two of us, but never actually eating out of our hands. The blue-black birds, however, were very shy.

" The bowers were always built in the same place, about 10 feet from the garage, with the car passing frequently. When our house was remodelled the birds evidently did not appreciate the change, for they did not build in the garden again. However, the bower-birds do come back regularly when the apples are ripe. Our photographs of the bowers are almost exactly like the one at Lindfield."

'Mrs. Dark's observations and experiments support those of the author. These birds do not collect *any* bright objects merely because they are bright, for the selection is always within the range of colour exhibited by the female of the species.—*Tarlton Rayment.*'

GUY FALKNER.

THE OLD FORGE,
FOSSEBRIDGE,
CHELTENHAM.

* * *

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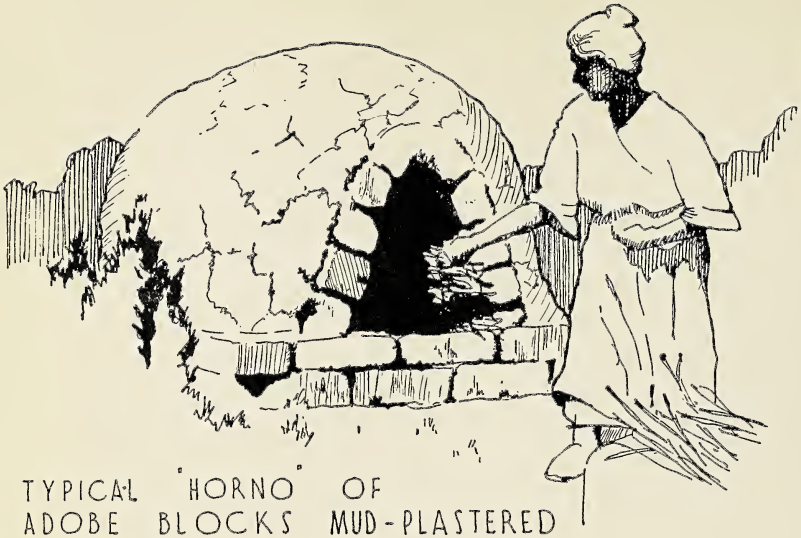

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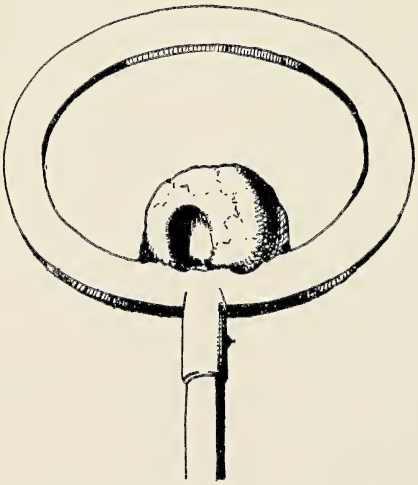

HORNERO'S NEST ON
WINNING-POST OF
SAN ISIDRO RACECOURSE.

Frontispiece]

AVICULTURAL MAGAZINE

THE JOURNAL OF THE
AVICULTURAL SOCIETY

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THE HORNERO

By H. C. Martin

Since I wrote my article about the Oven-bird, I have been reminded of another saying, or belief, common amongst the " camp " folk, illustrative of the friendly feeling towards this bird and of the idea of mutual protection and trust between him and mankind : I think it is worth quoting, thus : " En casa con nido de hornero no caen rayas " = " On the house with an Hornero's nest the lightning does not fall," i.e. that providence will be kind to those who are kind to its creatures. Lightning, of course, is a very frequent phenomenon in the River Plate.

In order to show more clearly than by my text how really apt is the bird's common name, I enclose two line drawings made from photographic illustrations—which I had also lost sight of at the time—in the Argentine paper *La Chacra* ; one of them shows a typical native oven, built of sun-dried mud blocks plastered over with mud, while the figure of a woman beside it gives a good idea of its size and construction. The other picture is of a nest placed in a decidedly quaint situation, namely the goal-post sign at the racecourse of San Isidro, near Buenos Aires. In the course of the year hundreds of thousands of people close by cast their looks towards this disc, and many of them base their hopes upon it, or what it stands for. Those who have backed a winner will no doubt have a blessing to spare for the bold " hornerito ", which has proved such a happy mascot.

I would like to add that in stating that many birds from the Plate should do well out of doors in England " with shelter sufficient " I should have qualified this with the words " dry and frost-proof " : to expose them to any severe cold, even in an inner compartment, would not be kind, or safe, perhaps, and the means of making things comfortable in severe spells, such as a small electric stove, as with my own small aviary, should be provided.

SUCCESSFUL BREEDING OF BLUE-HEADED TANAGER IN U.S.A.

JUNIOR, THE STORY OF A GOOD BIRD

By Alene Erlanger

The first time I ever saw the Blue-headed Tanager (*Tangara cyanocephala*) I thought it was the most beautiful bird in the world. That was a long time ago, and I hadn't seen then nearly as many species as I have since ; but ten years have passed and I still think that this is so. How could anything be lovelier ? As this story is written for aviculturists it can be assumed that all who read it know the Blue-headed Tanager. At any rate, I hope so, otherwise I should have to dust off all my adjectives to describe it, and even then I couldn't do a good job. For how can that particular blue be put into words ? It is the ultimate blue, the absolute blue, the standard of blueness by which all degrees of blue should be measured. As blue as the head of a Blue-headed Tanager—perhaps I had better let it go at that, adding only that, to me, this Tanager is exactly the right size and shape for a bird, and that the sight of that dark body, that lemon coloured rump, and that (missing adjective) blue head, never fails to produce in me a shock of pure delight.

This story starts in New York City with the first Blue-headed Tanager in my life, when I went down town to see a shipment, newly arrived from South America, at the warehouse of an animal and bird importer. There were hundreds of birds received, mostly Tanagers—Emerald, Rainbow, Superb, Palm, Red-rumped, Blue-and-Yellow, Mountain, and Copper-winged—and other Callistes ; (notably Mrs. Wilson's) Green and Blue Euphonias ; Red-headed and Blue-backed Manakins ; all sorts of lovely things. The different species were each in the usual shipping box, long, low, shallow box cages with wire across the front. The birds fluttered in wild excitement in the semi-darkness, making their soft little Tanager noises that sound like kisses. I am sure I was as excited as they were, only more pleasantly. I wanted to buy all of them, evidencing the lack of judgment which is a recurring symptom of the form of insanity common to all of us who keep and raise birds ; when it hits you buy everything that is for sale, regardless of condition, and only stop when your money gives out. I stood so long peering into the twittering cages, trying to decide which to get, that presently a new box was brought in, one that hadn't come up on the first truck.

And in that box were five Blue-headed Tanagers.

That was the end of my indecision. I wanted those birds and nothing else, and when it turned out that they had been shipped on consignment and none were for sale, I felt that nothing life could hold for me in the future could ever compensate for this frustration.

Fortunately, however, only two of them were in sufficiently good condition to deliver to the elegant, fastidious collector who had ordered the lot; three were definitely what Captain Jean Delacour terms bad birds. According to this great authority, a bird is good if he is well, feeds well, and maintains his good condition, no matter what depredations he commits in the flight, or how many sweet little Finches he scalps in the excess of his goodness. A bad bird, however (still according to the same authority), is one which, despite an angelic disposition and an attitude of loving kindness towards man and bird, droops, gets puffy, shows either too much or too little interest in food, and eventually dies, which is the climax of his criminal career.

This terminology (good and bad), and I refer again to the same source, applies only to birds. The opposite is correct in designating a member of an ornithological, an avicultural, or a zoological society; for a good member is one who not only is ill, but who dies immediately upon becoming a member, leaving his entire fortune—and the larger it is the better he is—to the Society he has just joined.

None of this seems to have much to do with Blue-headed Tanagers, but it will soon be evident that it is leading up to the extremely evil behaviour of one of them.

Unhesitatingly and foolishly I gave all the money I had to spend for the three bad birds and drove them down to the country in haste, my idiotic heart beating rapturously. Now, at this point in the acquisition of a new bird, as all of you who read this must know, excitement diminishes and the period of gloating begins. Gloating usually lasts from the time you start for home with the new treasures until they are out in a flight for a week and you get used to them, or until they begin to droop and go bad. My gloat in this case did not run the usual course; for when I unwrapped the box with its precious contents one of my three, the worst, had committed the unforgivable crime, and lay, limp, lifeless, and very sticky, at the bottom of it. The other two were hopping about in a dispirited manner.

I put them in a fresh box-cage, set it in a warm place away from a direct light, and arranged a display of fascinating food—for this was in the days when you could get all sorts of wonderful things for birds—temptingly within easy reach. In fact, it was so easy to reach that the birds couldn't as much as turn their heads without plunging a beak into masses of assorted soft food, mashed boiled yams, squashed bananas, grapes (peeled), pears, fresh figs, soaked currants, chopped eggs, oranges, apples, and desperately added ripe avocado. I am glad to report that they were more intelligent about their diet than I was, for they ate only a little of the sweet green grapes and some bananas. Frantic at their lack of appetite, I boiled mealworms in red wine, the old family cure-all for sick birds, but they didn't eat them, either; so I fell back on the sugar water, Nestle's food, condensed milk formula,

only I used honey instead of sugar water and thinned it. This did the trick, for in a few days the birds settled down sensibly to a diet of soft food prepared with chopped hard-boiled eggs and grated raw carrots, small insects, and fruit. They took chopped green lettuce and watercress with relish, and small mealworms, preferably ones that had just shed their skins and were nice and soft, appealed to them, too.

After a week I noticed that their colours were dimmer than they had been. I put them in a larger, lighter, cage, and observed them constantly. Not only were their colours dullish, but they seemed to move more slowly and deliberately than the other Tanagers. This was cause for anxiety, until I suddenly recalled how sticky the dead one had been ; it was reasonable to suppose that the live ones must be even stickier, threshing around for days in all those bananas, pears, grapes, oranges, and honey ; for although offered every inducement, they had not bathed since their arrival. Thinking that it would be a good idea to bathe them gently in luke-warm water, a procedure which had never harmed any of my other birds, I washed them both under a slow trickle of water from the faucet until they were no longer sticky, and took them out in the sun to dry.

Before I got them safely into the nice clean cage I had prepared for them in the sunshine, they shook their heavenly heads and spread their lovely wings and for weeks thereafter excited neighbours telephoned at odd hours with variations on the following theme. Two of your birds must have got out and stuck their heads in a pot of blue paint, and they're here in my garden, hurry up and get them. Although I always hurried I never did get them, and as summer passed the calls became less and less frequent, and ceased with the coming of autumn. I hope that my birds have been good enough to find their way back to Colombia or Venezuela, where they now live happily, having learned to avoid bird hunters' snares and nets and even Mr. Charles Cordier.

So the first attempt to keep the Blue-headed Tanager ended dismally ; but far from being discouraged, I haunted bird shops, importers, and dealers. Every time any specimens came into the market and I happened to be solvent, I invested in their loveliness and frailty. Some were good, some were bad, some were moral idiots, and couldn't differentiate, being good one day and dead the next. All were fountainheads of delight, things of beauty for as long as I could keep them alive. The best lived four years, the worst only a few days.

With the war few importations were received and the cost of the few birds that trickled into the market rocketed so that a chart of the price trend would have looked like one of Mr. Kaiser's production charts. On the whole, my collection behaved very well ; several enterprising pairs of different species even delighting each other and me by raising nests full of clamouring, gaping babies. When the Philippine Islands were seized the New York Zoological Society lent

me a few pairs of birds from that region, and fortunately young were raised from several of them—but all that is another story, or rather many another story. This one is about the Blue-headed Tanager.

There came a time when there was not even one of them in the aviary, and as there were then no further importations the chances of getting any were not too good. No aviculturist lucky enough to have a Blue-headed Tanager would trade for anything else, unless entirely bereft of his senses ; and although most of my fellow-fanciers evidenced the usual signs of mental derangement common to all of us, not one of them was as insane as all that ; nor all my piety and wit . . . and tears, to say nothing of hitherto otherwise successful blandishments, would move any of them to trade for a White-eared Bulbul, or a Blue Flycatcher (or even a Yellow-rumped one), a White-eyed Zosterops, or a pair of Gouldians, or Painted Finches, or a nice tame Blue-winged Pitta, or anything, in fact, that I had to trade.

Then, one May morning in 1942, after a bleak Blue-head Tanagerless period of nearly two years, the telephone rang suddenly, as telephones always do, and there was the voice of the authority quoted so extensively in this story—the great Delacour himself. He said that there was a shipment of South American birds just arrived at the downtown importers and did I want to go down with him to see if there was anything I needed (besides Blue-headed Tanagers, of course). I was leaving for Washington just then, but I told him yes, to get me anything he thought would do well in New Jersey that would not die at once or kill all the other birds. The next day I had a casual little note from him, saying that there were two of my Tanagers in the shipment, so he sent them both. He said he thought they might be a pair. I took a week off and came home to see them. There they were, still in the isolation room, very gay, fairly tame (for Tanagers), and beautiful beyond words. I tried and tried to discover some little difference between them so as to give hope that the Captain's suggestion might be a fact, with visions of a line of little native Blue-heads increasing the sum-total of the world's beauty ; but to my unpractised eye they looked exactly the same. I turned them out into a flight 15 by 50 feet, a double flight, one end of which was enclosed with doors leading into a heavily planted, wire enclosed, outdoor flight, inhabited cheerfully by quite a number of good natured little birds, a pair of each of the following species : Red-headed Parrot Finches, Parson Finches, Gouldian Finches, Avadavats, Black-headed Red Siskins, Copper-winged Tanagers, a few odd Callistes, Sugarbirds, and Manakins, and a fatherly old Greenfinch. They all accepted the new ones without any fuss, and they went through the summer nicely, wintered well, and started their second summer freshly moulted and more ravishingly beautiful than ever.

In the flight which was to be the new home of the Blue-headed

Tanagers were all sorts of nests, artificial nesting sites, and a great variety of nesting material. In the spring I always supply each flight with all the necessities as well as the luxuries of housekeeping, hoping that this will put ideas into the birds' heads. The Black-headed Red Siskins promptly started building, in all the open basket cages, but as they did that every year their home making efforts aroused no more than an indulgent smile—the little ones are playing house ! The Parrot Finches stuffed all the box nests with grass and leaves, having a wonderful time, but that is all they had. Wonderful to relate, the Copper-winged Tanagers started to carry leaves and twigs. This was the first sign of domesticity on the part of any of the Tanagers, so I moved them into a large, well-planted run with every imaginable modern convenience ; they quickly built a most practical and artistic nest of leaves and grass in a low, thick cedar tree, and then spent the rest of the summer admiring their handiwork.

Around the middle of June the Siskin hen settled suspiciously on the most inauspicious of the nests she and her mate had built, an open canary nest, almost under the projecting eave leading from the enclosed part of the flight to the outside section. On questioning she disclosed four nice pregnant looking eggs ; and there she sat for fourteen days, never leaving the nest, gorged with thistle seeds by her ever-loving mate, and listening to his squeaky little song.

All four eggs hatched when their time came, but grey Mrs. Siskin was so spoiled by having her meals served in bed that she refused to leave her nest. Her bright red little husband hustled to keep her fed, and together they stuffed the four gaping beaks. But the weather was very warm, and it was hot under that eave, so as nothing would induce her to leave them all four babies smothered gently to death under her with their crops crammed full. Even then she continued to cling to her nest ; she was finally prised off, the nest was removed, and she was left to reflect on her lazy habits and the disadvantages of sticking too close to home. Soon the pair built another nest, in which she laid four more eggs, but by the time she started to sit another event took place in the flight which robbed her of the limelight. For two eggs materialized in one of the nests that had been started and abandoned by the Siskins earlier in the summer ; they were a little larger than Siskin eggs, greyish white and profusely speckled with reddish brown dots. No one had seen a bird near the nest, and no bird sat on them all day. True, the nest was up under the eave, where the sun beat hard and the temperature up there was high enough to incubate eggs by itself, but it was mysterious. After attributing the eggs to every pair in the flight conjecture was abandoned, and the whole thing was about to be relegated to the unanswerable questions department, when along came a cool, cloudy day, and lo, there was a tail sticking out of the nest one morning.

It was the Blue-headed Tanager's !

Two days later the first baby appeared, and the second egg hatched four days after that, but by then the first baby had such a start of its sibling that it got all the food ; it is sad to be reminded that the young birds which make the most noise and are loudest in their demands for food and attention are the ones that get the greatest share of the good things of life. The same, alas, is true of young men and women. So the biggest baby throve and flourished, and the little one drooped and died. This loss was not greatly mourned in the excitement of actually having one live baby Blue-headed Tanager.

The scene now shifts to the other side of the flight, where the Siskin family had built again, sat again, hatched four bouncing babies again, stuffed them with thistle seed again, and once again literally smothered them with attention. Their nest was taken down, for there didn't seem to be much sense in encouraging infanticide ; the bird-brained parents, unabashed by their repeated failure to raise a family, seemed quite delighted with themselves, and were as devoted as ever.

The young Blue-headed Tanager ate and throve in its nest on the other side of the flight ; greyish-brown feathers soon covered its nakedness, and at the end of the third week it appeared to be ready to leave the nest. The parents had kept it well supplied with an insectivorous diet, for there was an abundance of worms, grubs, small flies, and other garden pests in the flight, and this natural insect life was supplemented by the little fat worms that breed along with mealworms and maggots. Some fruit was fed to the baby, mainly grapes and small blueberries, of which the parents were very fond.

The whole thing seemed too good to last ; and, indeed, it was. One bright morning the Tanager nest was empty, and after a search which began hopefully and then ran the gamut familiar to aviculturists—hope, anxiety, dread, despair—it was discovered on the ground, quite dead. A heartbrokenly conducted post mortem revealed that its crop was crammed to bursting with thistle seeds.

Too late, the guilty pair of Siskins were banished to another flight. It wasn't possible to treat them as if they were wilful murderers, for the parallel of their behaviour pattern was so clearly traced for us in that of the human parents who ruin their own children by over-indulgence, and spend the rest of their lives spoiling nephews, nieces, and especially grandchildren.

Although inured to disappointments, heartbreak, and even tragedy, as are all bird fanciers, this blow was just almost too much. I went back to Washington, vowing that never, never again would I give my heart for a bird to peck at. Let them live, love, and die as they pleased—from now on it would be a matter of small concern to me. Therefore, four weeks later when a long-distance telephone call came

from the aviary with the news that the Blue-headed Tanagers had again hatched two eggs, it may be assumed that I said " How nice ", and went about my business in the War Department as usual, which was precisely what I didn't do. I stood it for five days, running up astronomical figures in telephone bills, and finally took leave and headed for New Jersey ; by the time I got there, history had repeated itself up to a certain point. The eggs had again hatched four days apart, and the younger baby had died, a victim of its sibling's strength and greediness. Had I been on the scene, I think I should have taken the older baby out of the nest just after feeding, and kept it out in a warm place until after the parents had again visited the nest ; I've tried that method when eggs hatched out at intervals of more than two days, and it works very well. But I hadn't been there to do this, and as the remaining baby was well, large and thriving, there was sufficient cause for rejoicing. A noticeable departure from the usual table manners of young birds was that the baby Blue-headed Tanager made no sound when the parents alighted on the nest or while it was being fed. It was a change from the racket set up by other noisy nests full.

The young Blue-headed Tanager left the nest when it was three weeks old ; it was not even pretty with its stumpy little tail and its dull brownish-grey colour. The wings showed a shadow of the characteristic bands, and in certain lights there was a bluish-grey look to the head ; that was all it hinted of its coming glory. Within a week it got about the flight quite easily, closely guarded by its parents. They roosted at night on each side of their baby, and kept him supplied with all the choicest morsels. They continued to feed him (I find that it is impossible to continue referring to him as it), for at least two weeks after that, and even after he was feeding himself with gusto, he continued to chase and rob his mother or his father whenever one of them picked up a particularly juicy berry, a luscious and plump worm, or a choice cut of sweet seedless green grape. Parentlike, they seemed pleased by his aggressive marauding, and even encouraged him at it ; this should have been a warning, but although foresight is better than hindsight, hindsight is the faculty usually made use of in cases of this kind.

So Junior—the young Tanager had so distinct a personality that it was inevitable that he should be given a name—grew every day in charm and beauty. Black feathers began to replace the drab brownish black ones on his body and wings, and a faint shimmer of blue became discernible all over his head. His flight grew more certain and assured, he spent long hours bathing, preening himself, chasing tiny winged insects, and growing more and more beautiful. He ate like a bird, consuming daily at least ten times his weight in softbill food mixed with chopped eggs, grated raw carrots, or mashed sweet

potatoes, green corn on the cob, fruit, insects, and strangely enough boiled or baked white potatoes. These I broke in half and he pecked out the centre and the part nearest the skin. In the fruit line he preferred apples, bananas, grapes, oranges, and small berries, with dried currants as a substitute for them when they were out of season. He also liked hard-boiled eggs, cut in half and served in the shell.

And then the blow fell.

One morning the hen Red-headed Parrot Finch showed signs that she had taken a beating. Her innocent little mate was immediately accused, caught in a net, which he hated, and isolated ; the next morning she was lying on the ground neatly scalped. Of course, no one suspected Junior. Even when each morning brought fresh evidence of a killer at large, and he alone remained shining and unruffled, the other birds were removed one by one, and Junior stayed in his birthflight, lord of all he surveyed. Finally he was actually caught, red-beaked, happily engaged in pulling the latest causes for congratulations—a nestful of Avadavats, hatched after many attempts on the part of their parents—out of their nest and dashing them to the ground, while their distracted parents made frantic efforts to lure him away by feigning broken wings and broken legs, with pitiful conviction.

In the beak of this evidence there was nothing to do but to banish Junior to a cage. He settled down with his customary adaptability, and was so utterly beguiling, charming, and blue-headed, that when he missed a mealworm one morning and showed signs of longing for the great open spaces all was forgotten and he was put back in another flight, as large as his old one, but inhabited by a collection of spiteful and fast flying Shaft-tails, Goldfinches, Pileated Finches, and Weavers. His fond, foolish parents in the adjoining flight welcomed him with unmistakable signs of joy ; but these birds of a feather were not allowed to flock together. A fertile pair of Blue-headed Tanagers is not a prize to be lightly sacrificed to the principle of keeping the family together.

So is the end of the story—the long, long story, of Junior, the Good Bird. He is still good, but opportunities to exercise his goodness are restricted and life goes on in his flight with only minor mishaps. He is now eight months old, and rapidly showing his true colours, although there are only a few of the true blue feathers on his head at this point. Perhaps, when he grows up and reaches cock's estate, a mate, equally lovely, will be found for him, and the line of native New Jersey Blue-headed Tanagers will be finally established. But after these ten years of paying tribute to this most beautiful and enchanting bird, every time I look at Junior I feel that all that devotion has been rewarded, for he is indeed an end in himself.

* * *

FERTILITY AND HABITS

By J. Spedan Lewis

In writing lately to thank Captain Scott-Hopkins for a very kind offer to send here some of the eggs that he is expecting to get this season from his Rheinhardt's Argus Pheasants, I mentioned to him that, when we had this species before, we lost a chick because the keeper—luckily it was the head keeper or I imagine that there would have been a mysterious disappearance and a slight mound in some quiet corner—did not allow sufficiently for the liveliness and mobility of this species at an age when most Pheasant chicks have not the wing-power to be air-borne.

The coop that contained its foster-mother was not merely out in the open, but dangerously near to what turned out to be sufficient cover for an escape. The coop was opened. The only Rheinhardt chick that we had ever had, so far as at this moment I remember—certainly it was the only one that showed such promise of surviving—flew out and disappeared in a bed of nettles. The nettle-bed was earnestly searched by five British citizens whose sight was not more than ordinarily impaired by those drug-taking customs that in this country bring wealth and hereditary titles to the suppliers of alcohol and nicotine. The chick was never found.

Certainly it is, if not indispensable to sound team-work, at all events extremely useful to know of some really frightful skeleton in the cupboard of any eminent expert with whom one has to deal. But I could have wished to have acquired in some other way such means of keeping my end up in the management of the aviaries here.

As in my letter to Captain Scott-Hopkins I was referring to this particularly sad item in the long list of sorrowful memories that must always arise, I am afraid, from bird-keeping on any considerable scale, there floated across my mind the memory of a photograph of the Zoo's Rheinhardt chicks being brooded by their mother on a bough above the ground.

According to my own recollection expert comment at that time suggested that this habit was very unusual, and perhaps peculiar to *Rheinhardtius*. But as I was writing that letter it struck me that there was perhaps a relation between this habit and the curious fact that, whereas some Pheasants lay large clutches of eggs, others lay no more than two.

As we all know, species tend to maintain themselves by one of two techniques. Either they produce enormously, so that they can stand terrific wastage, or else they contrive that a high proportion of their young are reared.

It occurred to me at that moment that the laying of numerous

eggs on the ground may be for Pheasants an alternative to a very early removal of the chicks to perches out of the reach of ground enemies, which last must, one imagines, in tropical jungles be extremely numerous.

Even at the low pressure of life that arises from the combination of our chilly northern climate with a mere five inches of soil over solid chalk, it appeared, when we came here, difficult to step without treading on a rabbit. Furthermore, it was a reasonable financial operation to hazard a small sum that, if the rabbit were shifted, two rats would be found underneath.

If the uplands of Hampshire can be thus prolific of animal life, one imagines that on the floor of tropical jungles the average distance between individual cats, civets, jackals, foxes, weasels, snakes, and so forth must be a matter of inches, and that it may make a very great difference to the infant mortality rate of the Pheasant world if the period for which the young are flightless and spend all their time on the ground is shortened.

I ventured to make this suggestion to Captain Scott-Hopkins, who is one of those fortunate people who not only keep birds but have time to get to know something about them.

His reply has just come, and it has made me feel that this idea might perhaps seem to the Editor of our Magazine to be worth publishing in these days, when copy is, I understand, abnormally difficult to get.

Captain Scott-Hopkins writes :—

> " You raise a very interesting question about the perching of young Pheasants. My experience with Chinquis Peacock Pheasants, and I have reared many, is that the chicks perch at a very early age, about a month old or even earlier. Each chick takes a wing. The chicks can fly well at that age.
>
> " I think your explanation a very likely one. They have many enemies in the jungle."

Obviously, if at an age when the chicks will need the shelter of the maternal wing and the warmth of the maternal body they are to roost on high perches, there can be only two, so that one may perch on each side of Mother.

One of the justifications for catching wild things and keeping them in captivity is the possibility of getting knowledge that could hardly be got otherwise, and perhaps we have here an example of that kind.

A related question is the fact that Tragopans nest in trees. Presumably they are descended from ancestors in whose being the habit of nesting on the ground was engrained profoundly. How did they come to nest in trees ? And how, if at all, has that affected either their habits or themselves ?

The coloration of the hens is of the full perfection of concealment

for ground-nesting birds. Does that mean that the tree-nesting habit is a very recent development? And under natural conditions what happens to Tragopan chicks? Do they stay upstairs in the ordinary tree-nesting way?

When the war no longer makes the present difficulties for attendance and feeding I hope to experiment here with letting some of the rarer Pheasants rear their own young.

I cannot help feeling that it is very doubtfully sound aviculture to take eggs away and so cause hens to lay more than in a lucky season they would have to do in the wild.

The fact that comparatively few species are really easily developed into healthy domestic strains seems to show that the climate and diet and the other conditions, that as yet we give them, are seriously short of being what they really want. That being so, it seems very doubtful policy to put any additional strain on the bird's constitution by asking her to lay again and again, and indeed I suppose that in the case at all events of monogamous species it means an extra strain on both sexes.

Hitherto we have always accepted at Leckford what we have understood to be the general view that the practice of removing eggs and using foster-mothers has on the whole good results. But for my own part I am beginning to doubt whether this is true to any really serious extent, especially if the breeding pens are, as they ought to be, large enough to keep the adult birds in apparently perfect health.

If anything comes of this idea I hope that we may have now and again some bit of news that the Editor may think worth publishing. But at the back of my mind there is a horrid little chill of fear that no really intelligent person would endeavour to establish a breeding collection of gallinaceous birds in a countryside that did not abound much more, than does this chalk, in ants.

I suspect that in a country full of ants' nests a labourer with a shovel would make the most eminent experts in recondite secrets of chick-rearing look mysteriously foolish.

* * *

THE WATTLED PHEASANT

(*Lobiophasis bulweri*)

By Jean Delacour

[Reprinted from the *Journal of the American Pheasant Society*]

We have in this bird one of the marvels not only of the Pheasant family, but the whole bird class in general. In fact, the Wattled Pheasant hardly constitutes a separate genus. It undoubtedly is a near relation of the Kalijs and Firebacks, which I now unite in the large genus *Lophura*—the species usually referred to *Gennæus* constituting just a convenient subgenus. All have very similar shape, habits, and voice.

The Wattled, or Bulwer's Pheasant, is indeed closely connected with Swinhoe's and Edwards' Kalijs, of which it is just an exaggerated edition. It has the same red legs, the same general shining black, blue, and purple body plumage. The hen is very similar to that of the Edwards' in colour and shape. It differs greatly, however, in the extraordinary size of its tail, which has thirteen pairs of rectrices in the female, fifteen to sixteen in the adult male. Also, the facial wattles are blue and, in the cock, developed to a degree comparable only with the bib of the Tragopans. But the Swinhoe's cock already shows a slight inclination to vertical, horn-like segments. As can be anticipated, tail and wattles play the main part in the very extraordinary and elaborate display peculiar to this species.

The cock Bulwer looks much in general shape like a large Siamese Fireback. It has the same actions. Its neck and upper breast are dark maroon crimson ; the rest of his body is black, each feather with a metallic blue margin, much as shown on the back of the Swinhoe's. The whole tail is pure white. The female is brownish buff above, finely mottled with dark brown, more rufous below. In voice, both sexes resemble much the Kalijs and Firebacks.

The species is found in the whole rolling interior of Borneo, in primeval, dry jungle, usually along rivers. William Beebe, in his *Monograph of the Pheasants*, gives an excellent account of what is known of the life of this bird in its native haunts, which he himself visited. He collected a number of specimens, but none reached New York alive.

It seems that one or two half-dead immature specimens reached Holland many years ago, but the first lot to come to Europe in fair shape was one brought by W. Goodfellow in 1929. A pair of adults came to me, but they never settled down well and lived only a couple of years. In 1930 an immature cock (they attain their full plumage when two years old) arrived at the Berlin Zoo. The following year it assumed its full plumage and lived until July, 1932. Although rather

wild this bird often displayed in his aviary, and Dr. O. Heinroth described its courtship, accompanied by a sketch made from a photograph in *L'Oiseau*, 1938, pp. 265–7.[1]

Dr. Beebe had witnessed a part of the display of a wild bird, but the complete performance was first known by Dr. Heinroth's observations. I and other aviculturists have seen it since. The white tail feathers, very wide but extremely flat, are pressed closely against one another, on each side. Instead of looking like a perpendicular wheel, as in the Peacock, the tail forms a vertical disk, thin as paper, spread along the length of the body, which itself appears like a black ball all dotted with sparkling blue spots. The neck is completely drawn in and the beak becomes invisible. The head is hidden by the distended blue caruncles, with a scarlet spot in the centre, formed by the eye surrounded by a red ring. The caruncles develop in a scythe-shaped, elongated band, protruding 4 inches or more above and below the eye, with a black dot at each end. They are spread in such a way only for a few seconds at a time, when the hen comes just in front of the cock. He then jumps to her and makes his feathers vibrate, the outer rectrices raking the soil, with a guttural call. The whole performance sounds incredible to anyone who has not watched it. Although I never possessed or saw a really tame Wattled Pheasant I have been able to see my birds display from a hide or at some distance.

In 1939 Mr. Shaw Mayer brought over four pairs of Wattled Pheasants in good health. Two pairs came to Clères and they were in perfect condition in June, 1940, when they were lost in the turmoil of the German invasion. The other two pairs went to Mr. Spedan Lewis's aviaries in England, where they still live to-day. But so far they have not yet attempted to breed.

The Dyak natives of Borneo told Dr. Beebe that, like the Argus, Wattled Pheasants laid two eggs in each clutch. But on account of their close relationship with Kalijs and Firebacks it seems difficult to believe this statement.

This makes it the more urgent and interesting to make these lovely birds nest in captivity, as another one of the mysteries of nature could then be solved. We shall have to try again after victory.

Wattled Pheasants come from a warm country and are not hardy in Europe and North America, except the southern sections. They ought, however, to stand perfectly well the climate of South California. At Clères they were slightly heated during the winter, but let out any day when temperature was above freezing.

[1] Dr. Heinroth's account of this species and its display, with the accompanying coloured drawing, was reprinted from *Journal für Ornithologie* in the AVICULTURAL MAGAZINE, July, 1938.

* * *

AN EARLY ACCOUNT OF SOME OF THE PERCHING BIRDS IN THE SCAMPSTON COLLECTION

By A. F. Moody

Foreword

In response to an appeal by the Editor for copy I submit with considerable diffidence some particulars taken many years ago of some of the perching birds in the Scampston Hall collection owned by the late Mr. W. H. St. Quintin. In presenting these notes as written at the time I do not claim that the treatment of the different species mentioned is the best or the only way of keeping them successfully in captivity. On the contrary, many aviculturists may have succeeded by different methods where we have failed, or only partially succeeded ; I have merely tried to give a simple description of the ways and means employed to keep many interesting and valuable birds, apparently in the best of health and condition, in some cases for many years together, leaving it to the reader to decide in his own mind what he would have done or left undone had he been treating the same subjects.

In dealing with the different species it will be observed that I have in no case attempted to describe fully the birds, their habitat, or their habits, but have dealt chiefly with such matters as may be useful or upon the behaviour of birds from my own observation ; also that although my acquaintance with several of the species mentioned was limited and confined to one or two examples only I have thought it better to include such knowing, as I think that every scrap of practical information is usually acceptable to the possessor of a new and rare bird. Finally, as I had for many years the care of this private collection of living birds, and devoted the whole of my time to their welfare, I venture to put the results of my experiences forward hoping that it may help to stimulate the love of aviculture and that possibly the amateur may find at least some of the hints useful.

As giving some idea of the geographical and climatic conditions under which the birds of this collection have thrived or otherwise, I would say that, roughly speaking, the parish of Scampston, East Yorks, is 17 miles inland (S.W.) from Scarborough, and about 212 north of London ; that it is situated about 100 feet above sea-level near the middle of a flat valley some few miles wide (known as the valley of the Derwent) and midway between the Yorkshire Wolds and the Cleveland Hills.

Its average rainfall during a certain five years appears to be about 26 inches per annum, and although a winter is usually passed without

more than 25 degrees of frost being registered, the extreme maximum and minimum temperature during a similar period ranged from 4 degrees below zero to 89 degrees Fahrenheit in the shade.

The chief advantages of this site from an aviculturist's point of view is that it is well wooded, watered, and possessed of a light sandy soil ; advantages, however, which are to some extent marred by an extremely variable temperature, a very frequent cold, damp night atmosphere, and the usual late springs.

In apologizing for the extraordinary late appearance of these notes I can only say that they were intended chiefly as a personal record, a further excuse for now unearthing such ancient history is a belief that nature stories never become old-fashioned, and although I have had the care of a great number of other examples and species in the Lilford collection since these particulars were written, and have, it is to be hoped, learned much, there appears nothing in these old notes that require special contradictions, or that should not be helpful to the beginner. In conclusion I would like to say that it would be inexcusable on my part to lay claim to the successful treatment of the Scampston birds without paying tribute to the guidance and co-operation of their owner, the late Mr. W. H. St. Quintin, a keen ornithologist and aviculturist, too.

Thrushes, Softbills, etc.

There are few representatives of this numerous family that have been kept here, but to avoid repetition with this as with other groups of birds whose members possess various wants in common, it may not be out of place, before taking each species separately, to put forward a few remarks that generally concern the whole. In this instance, I dare say, the aviary, diet, and the treatment that suits one Thrush would with various modifications suit all. As to the size, pattern, etc., of the aviary, that may be left largely to the owner's taste, but as a rule this class of bird appreciates a certain amount of natural cover, such as one or two of the commoner evergreen bushes, and if wintered outside, need access to a dry shed, whilst whatever the arrangement for the outer flight, it is advisable for these and similar feeding birds to include a plot of turf from which during damp weather a certain amount of natural food is obtainable. Part grass and part fine gravel or shingle is an excellent arrangement which will, with a large stone or rock in addition to the wooden or natural perches, help to keep the occupants' bills and feet in order. Also, for an aviary stocked with this description of birds I have found it an excellent plan to provide just within the door of their outer flight a clean swept patch or large tray, and upon this deposit daily, or as convenient, a spadeful of rubbish such as a loose turf with the soil attached. This affords the birds much pleasure, and if just broken or occasionally turned, it is

astonishing the amount of insect life that a Thrush, Hoopoe, or Wagtail will extract from it.

Food.—Concerning a useful general artificial food for insectivorous birds, there are undoubtedly several good preparations upon the market, so without recommending one more than another I will simply state that enriched by the addition of a few best ants' eggs we have successfully used as a foundation for some years a dry preparation known under the name of Cecto. This we prepared by scalding with just as much hot water as it would absorb, say, a tablespoonful of the dry mixture placed in a cup, afterwards adding and stirring in dry, a small teaspoonful of preserved yolk of egg. In the case of any species that cared for fruit we also added a liberal sprinkling of grocers' currants or sultanas previous to the preserved egg, items which are better scalded separately from the mixture or which may be prepared during cool weather by soaking over night in a glass of cold water.

Feeding.—With reference to the feeding of the various soft bills and their allies, most species appear to require food continually before them, and in supplying fruits and moistened artificials of the nature described I would recommend the use only of glass or earthenware vessels, also that these be thoroughly washed and cleansed before each meal.

Rearing.—In the matter of rearing young insectivorous birds in confinement whose parents will carry to them living food only, I have found no better plan than to provide a moderately large zinc bath or glazed hand-bowl (it is advisable that the birds should have become accustomed to the sight of this receptacle some days before hatching), and into this throw a continual supply of mealworms, gentles, wasp grubs, etc. (the latter two items are excellent), or such creeping crawling creatures as can be collected with a shovel from beneath large stones, logs of wood, etc.

Redwing (*Turdus musicus*) Linn.

Four examples for about a year, kept in an outdoor aviary.

Behaviour, etc.—Being wild caught and kept in a large place, they remained wild and suspicious, but gave one the impression of being excellent doers in captivity.

Breeding.—Did not go to nest ; but from the male's habit of singing from an exposed twig, and other indications of courtship during the spring, the probabilities are that they would have nested had they been tried a second season.

Rock Thrush (*Monticola saxatilis*) Linn.

A cheerful and active species kept here for many years.

Appearance, Habits, etc.—A species reminding one more of a Chat than a true Thrush. The male in breeding plumage, in addition to being

a very handsome and showy bird, possesses a song of considerable merit.

As to their habits generally, the species is very much at home upon the ground amidst rocks, large stones, etc., and I have frequently noticed, tries when alarmed to escape observation by an ingenious trick of crouching facing one with as small a front as possible presented.

Breeding.—The Pied Rock Thrush like the next species, is a hole breeder, although we have chiefly kept but an odd male or two (the last example died at the age of nearly fourteen years) and only once reared a young bird to the feathering stage. The females nest readily in suitable sized boxes affixed to the inner wall of their shed.

Eggs.—Five or six in number—pale blue, sparsely freckled at the larger end with minute dots of rusty red, and somewhat smaller in size than those of the Song Thrush.

Hardiness.—We have found it convenient to winter examples indoors as cage birds, but should imagine the species to be tolerably hardy.

Blue Rock Thrush (*Monticola cyanus*) Linn.

One of the most desirable of the Thrushes to keep. The males in addition to possessing a sweet and charming song are attractive in appearance and habits. The species also thrives well in captivity ; a statement that I may substantiate by adding that until recently we possessed two males aged nine and thirteen years respectively.

Breeding.—We have but once possessed a female, a bird that repeatedly nested, laid (usually clear eggs), and incubated, but on the two occasions when young were hatched, proved a most indifferent mother by throwing the newly emerged chicks from the nest.

Nesting Habits.—Similar to those of the last species.

Eggs.—Usually six in number ; indistinguishable from those of the common Starling were it not for the presence of a few minute rusty specks near the larger end.

Hardiness.—Susceptible to cold combined with damp, losing condition and developing a huskiness if left out of doors too late in the autumn.

Himalayan Whistling Thrush (*Myiophoneus temmincki*)

A male kept here for about eight months, parted with, April, 1913.

Appearance.—A handsome long-legged bird about the size of a Jackdaw. General colour of plumage—blackish, relieved with certain whitish specks or markings, and shot with azure blue reflection.

Habits, etc.—Except for certain carnivorous propensities (capturing and devouring mice, small birds, etc.) and a rather curious and oft-repeated habit of jerking the tail up and down, and then slowly spreading it laterally or fan shaped, the behaviour of this example appeared very similar to that of our common Blackbird.

Food and Hardiness.—With the addition of a small quantity of animal food, thrived upon the usual softbills fare, and wintered satisfactorily when confined to an open (wire) fronted shed.

Voice.—A single loud shrill whistle or alarm note, and a rather subdued bubbling song.

WHITE-SPOTTED BLUETHROAT (*Luscinia suecica cyanecula*) Meisner

At different times we have possessed several of these interesting little Warblers. They do not appear particularly difficult to maintain in health, and one at least thrived with us for some years.

Habits.—Referring to the Bluethroat's behaviour in confinement, they appear to care little for fruit, but are great earthworm and insect eaters, and during the summer months may frequently be observed diligently searching a heap of refuse (supplied turf, etc.) for the former, or by means of short excursions into the air, capturing the latter, after the manner of a spotted Flycatcher.

Breeding.—Until quite recently we have possessed no female, but referring to a particular vigorous male which we confined in an aviary for some months with a female Robin ; he sang his best, became most amorous and would no doubt have bred had it not have been that his charms were overlooked for the attentions of a wild male Redbreast outside.

Hardiness.—Appears to require artificial heat during the winter.

REDBREAST (*Erithacus rubecula*) Linn.

As it is possible that few people have given this very familiar, and what I may term every-day bird an opportunity of breeding in confinement, I may record that the female referred to under the heading of the last species, before being liberated, nested and produced eggs.

TEMMINCK'S ROBIN (*Erithacus komadori*)

Male received June, 1914, still living 1916.

Appearance.—A bold handsome bird about the size of our English Robin, and chiefly conspicuous by his rich chestnut or foxy red back, black sides and breast, and whitish under parts.

Habits, Requirements, etc.—Appears possessed of a song of considerable merit and to thrive as a house cage bird when treated similarly to allied species.

(*To be continued.*)

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A VISIT TO THE OHAU RIVER ESTUARY, NEW ZEALAND ON 12TH MARCH, 1944

By Lieut. Lane and Professor K. Wodzicki

The Ohau River is one of several which water the western slopes of the Tararua Range, north of Wellington, and which drain into the Tasman Sea. The Ohau River ranks third after the much larger Manawatu and Otaki rivers, and is situated some forty miles north of Wellington on the west coast of the North Island of New Zealand.

We left at about 9 a.m. from Wellington by the main road, and after passing Otaki we took a side road towards the coast. After walking the last mile or so we reached the beach at 11.15 a.m.

The weather was mainly fair to fine, with an occasional warm drizzle, while the whole country north and south of the estuary was swept by intermittent heavy showers.

The main road from Wellington to the place where we took the beach road presents little, if anything, of interest to an ornithologist. The last five or six miles to the beach run through an undulating plain, occupied by several typical dairy farms, all of which are sheltered by groups of the favourite macrocarpa or a few pine trees. All that coastal plain is supposed to have belonged formerly to the sea, which geologically speaking has retreated a comparatively short time ago. About a mile or two from the beach the rolling hillocks take the shape of sand-dunes, some ancient and some more recently formed. The majority of the latter are already well held, partly with lupins and partly with that typical New Zealand curse, the imported gorse. All this part is uninhabited save for a few " bachs " and a fisherman's household. With the white, sandy, wild beach with its well-defined tidemark, these features form the biggest attraction of that still very primitive part of the New Zealand coast. The last range of dunes—i.e. that closest to the sea—is still in the process of building. These dunes are mostly covered with imported marram or a native sand grass. The coastal belt of dunes forms the home of the majority of the introduced birds observed, while the estuary proper—i.e. the mouth of the Ohau River and the considerable tidal flats—is the congregating place for several species of native sea and shore birds.

The estuary proper has the typical conformation of estuaries in this part of New Zealand ; the river flows to the south, then to the west and north, between three different sandbanks which are partly flooded with water at high tide.

The following are the main species of introduced and native birds which were seen or heard during our four to five hours' stay :—

The lists are not arranged systematically.

A. Introduced Birds

(1) White-eye (*Zosterops lateralis*). Australian species self-introduced about 1860, now widely spread all over the country. A flock of at least ten birds in the lupin-gorse scrub.

(2) Hedgesparrow (*Prunella modularis*). Two or three birds heard in the scrub close to the beach.

(3) Blackbird (*Turdus merula*). Three or four birds seen close to the farms and also in the scrub close to the dunes. The presence of a juvenile bird seems to indicate that they may be breeding there.

(4) Thrush (*Turdus ericetorum*). Not so plentiful, only two birds seen.

(5) Skylark (*Alauda arvensis*). Several birds seen on the way to the estuary, but fewer than at other estuaries.

(6) Yellow Hammer (*Emberiza citrinella*). Present on the dunes. A couple of birds seen.

(7) Goldfinch (*Carduelis carduelis*). Plentiful all over the coastal plain in flocks. A flock of over a dozen birds recorded on the coastal dunes.

(8) Chaffinch (*Fringilla coelebs*). Almost certainly heard and probably present in the coastal scrub.

(9) Starling (*Sturnus vulgaris*). Common ; a flock of a score of birds observed.

(10) Australian Magpie (*Gymnorhina leuconota*). The White-backed Magpie is an introduced bird from Australia, which in a short time has established itself all over the country. It is quite plentiful all along the western coast of the North Island, in pairs or sometimes in flocks of up to five birds. An interesting feature of our outing was two Magpies attacking a Hawk (*Circus approximans*).

B. Native Birds

(11) New Zealand Pipit (*Anthus novæseelandiæ*). Present on the beach. We had a very fine view of a pair feeding ashore among drifted logs.

(12) Harrier (*Circus approximans*). The Harrier or Hawk is one of the commonest New Zealand birds, which since the clearing of the bush and the introducing of pastoral conditions has not only spread all over the country but has also increased in numbers. In spite of the premiums offered by the Acclimatization Societies for its destruction it is still numerous almost everywhere except in heavy bushland, and one can see them even on barren country. A single bird was seen at Ohau estuary.

(13) Shag or Cormorant (*Phalacrocorax carbo*). This ubiquitous species is the most common of all New Zealand Shags and is well spread all over the country, on lakes and the larger rivers, and especially on the coast near the estuaries. It nests like many other Shags, in big colonies, one of them existing close to Wellington, in Golland's Valley. As in many other parts of the world, this Shag is

supposed to be very destructive, especially with regard to trout and every year large numbers are destroyed by Acclimatization Societies and other people. Owing to that fact the bird is extremely cautious. We had a beautiful sight of some twenty-eight birds resting on a bluff north of the river mouth proper or diving on the tide-flats.

(14) Black-backed Gull (*Larus dominicanus*). This is the biggest of the three species of New Zealand Gulls and also the most plentiful along the coast of both islands, in the harbours, and also on estuaries. It nests in huge colonies, the nearest to Wellington on the two islands off the west coast—Mana and Kapiti. It has increased recently in numbers owing to a plentiful supply of food, especially near the freezing works and also probably to a lack of natural enemies. Quite frequently one can observe on the estuaries flocks ranging to several hundreds. Like some other Gulls, it becomes mature in the third year ; the one-year-old birds are almost black, while in the second and third year the plumage becomes more and more white. It is a shrewd bird, especially when collecting at low tide the so-called " pi-pis ", i.e. flat mussels, which it drops from a height of some 60 to 70 feet in order to break the shells and get hold of the contents. Some thirty-five to forty birds were observed, including several of this year's brood.

(15) Red-billed Gull (*Larus novæhollandiæ*). The two smaller New Zealand Gulls, i.e. the Red-billed and the Black-billed Gull (*Larus bulleri*), the latter being mostly confined to the South Island, differ mostly in the colour of their bills. The recognition of the latter species is supposed to be one of the tests of a budding New Zealand ornithologist. The Ohau estuary Gulls—about fifteen—all belonged to the Red-billed Gull species.

(16) Caspian Tern (*Hydroprogne caspia*). This world species is common all along the coast of both islands, but is never present in large quantities. We were delighted to see some six or seven birds in their gracious, head-nodding flight. They included a couple of young birds of this spring's hatching with their grey caps. The Caspian Tern breeds on bars or bluffs, the nearest being north of Wellington in the Wairarapa province, near Cape Palliser.

(17) White-fronted Tern (*Sterna striata*). This graceful little Tern is very common on the estuaries of the North Island, especially in winter-time, sometimes in numbers ranging up to several hundreds. It associates itself with the Caspian and with the Black-fronted Tern (*Sterna albistriata*). Some seven to ten birds were observed, resting ashore.

(18) Banded Dotterel (*Charadrius bicinctus*). Owing to its minute size this bird has never been sought after much by New Zealand's collectors or sportsmen, and its bright twitter throws a note of life into the boulders of the river beds and the sandbanks near the estuaries.

It was gratifying to see more than a hundred birds, all in small flocks, spread over the tidal flats ; all in their eclipse plumage, a few males only having still a slight trace of the sternal band which in the Spring is black and red-brown. This species was recognized recently as partly migratory, large flocks of several hundreds of birds congregating in Auckland and north of it during the winter. Some of my observations taken during a two-year period at Waikanae estuary, which is south of Ohau, proved this in disclosing peak numbers of these birds twice in the year, late in winter and during the autumn. Some birds, however, do not migrate or do not go so far to the north during the winter. It is likely that the birds observed at Ohau estuary were northbound birds.

(19) North Island Oyster-catcher (*Hæmatopus reischeki*). Of the three species of Oyster-catchers this species differs from the Pied Oyster-catcher by its very small—if any—amount of white, and is also a little smaller than the Black Oyster-catcher, which is found mainly in the South Island. There were two birds feeding on one of the spits, which indicates that these birds were not breeding during the last season.

(20) Pied Stilt (*Himantopus leucocephalus*). The Pied Stilt used to be one of the commonest birds frequenting New Zealand estuaries, marshes, and lakes, and is still fairly numerous. Its barking voice brings much life to such deserted places as the Ohau estuary. Like the Banded Dotterel it is supposed to move in big numbers to the north during the Autumn and Winter. The presence of several young birds with grey heads, a different, higher-pitched voice and lighter pink legs, indicates that these birds were breeding last season at the estuary.

(21) Grey Duck (*Anas superciliosa*). A flock of about eleven birds was seen flying close to the estuary.

(22) Lesser Golden Plover (*Pluvialis dominicus*). Three most unusual birds were sighted several times by us during our stay at the estuary, feeding on the tide-flats. They were mixed with Banded Dotterels, but did not associate themselves with these or with any other birds. One of them seemed to be in summer plumage with a black throat and breast and a white patch on the sides of the breast extending well into the abdomen. The mantle, back, and rump were olive-buff, while the short tail appeared brown-buff with some white, possibly in the undercoverts. His two companions were olive-brown streaked with lighter colour and a much lighter breast and abdomen, with no distinct white visible. Their flight was quick, similar to that of some of the Plovers. Their size was almost twice that of a Banded Dotterel.

According to a discussion that I had with Dr. W. R. B. Oliver, Director of the Dominion Museum, it seems almost certain that we came across that species which is known and has been split into the

American Golden Plover (*P. dominicus dominicus*) and the Eastern Plover (*P. dominicus fulvus*), distinguished by its shorter wings and tail, longer bill and legs and more conspicuous yellow spots. While the American species migrates to South America, the eastern species, breeding in Siberia and Alaska migrates to Eastern Asia, the Malay Archipelago, Australia, Tasmania, New Zealand, and the Islands of the Pacific.

(23) Pukeko (*Porphyrio melanotus*). Though not present at Ohau, this Pacific Swamp Hen was sighted by us on our way back, at Waikanae.

* * *

NOTES

Acclimatizing American Robins

In the September–October, 1943, number, I said that I did not recollect seeing mention in the *A.M.* of the attempted acclimatization of American Robins. Nevertheless, reference had been made. In *A.M.* 1910, pp. 104–5, the following was reproduced from the *Daily Mail* of 13th December, 1909 :—

"THE NEW ENGLISH BIRDS

By W. Beach Thomas

An experiment, an endeavour, dear to every English naturalist, has reached another stage of success. More than one account of earlier stages has been given in the *Daily Mail*. It will be remembered that in the early part of last year a dozen American " Robins ", or more properly Thrushes, were brought over to England and kept in a large aviary in a country garden. When breeding time came they duly nested in the aviary, but congregation is not congenial with the family system ; many of the clutches were broken, and none likely to be hatched. When this was discovered, the eggs were taken out as they were laid and put into the nests of wild Thrushes and Blackbirds ; some few pairs of " Robins " were enlarged. The success of both systems was such that the dozen Robins were multiplied eight-fold at the end of the summer . . .

So far, so good. The English summer, as breathed in the shine and shade of a beautiful garden, proved thoroughly sympathetic with the American birds. They fed and bred and flourished without disturbance from their neighbours or their surroundings . . .

Will they remain ? The pleasing fact is now to be chronicled that up to 10th December, they have remained. One migrating period, so far as it has any definite date, is over. Many Blackbirds and Thrushes have gone to France. Flocks of male birds have launched themselves from the shores of Kent southwards and eastwards. But the hundred " Robins ", though many have wandered from their garden centre, have not congregated or flown away."

The concluding paragraph is strangely at variance with the recent account in the *Countryman*.

A. A. P.

A Parrot House Mystery

The Zoological Society's collection has been impoverished by the theft of two Senegal Parrots. One Sunday (12th March) one was abstracted from its cage, and three days later a second was " borrowed ". One was quite an old favourite, having been in the Gardens for twenty years.

A. A. P.

Colour Vision

Birds, speaking generally, are credited with a very limited range of colour vision. Experiments with domestic poultry and Pigeons tend to show that red, yellow, and green are in this range, that blue is seen with some difficulty and violet not at all. In view of the infinite colour variations of plumage in birds one would naturally assume that their vision was very complete in this respect, but this does not appear to be the case. Colour must count for a great deal among birds as witness the frequent contrasts in colour between the sexes and the manner in which males display during courtship. This point is explained by Professor J. Arthur Thomson in his book *The Minds of Animals*. He writes : " . . . it is necessary to try to discriminate between the particular colour as colour and its brilliance as a reflector of light in general and of ultra-violet rays in particular. In many cases it may be the pattern that impresses itself on the eye of the impressionable animal, and the pattern may be marked out by different intensities of surface-reflection. These intensities may be perceived though the colours as such are not distinguished."

Some species, however, seem to be appreciative of colour—even blue. It has often been stated that Satin Bower-birds show a decided perference for blue in their decorative schemes. Blue is mentioned by David Fleay in *A.M.*, 1943, p. 123—" Parrot feathers, pieces of blue chocolate paper, and blue glass lying about at the front door."

Again Neville W. Cayley, describing a Satin Bower-bird's bower in *What Bird is That?*, p. 15—" Scattered over the platform, but rarely in the bower, are various decorations, chiefly coloured blue, yellowish-green, and olive-brown, and consisting of feathers, berries, flowers, leaves, pieces of glass, blue-bags, snail-shells, and cicada larvæ shells." A. E. L. Bertling, at the time Head Keeper of the Zoological Society's Gardens, carried out some experiments in this connection with Bower-birds and writes in the *A.M.*, 1904, p. 236 :—

" The two examples now in the Zoological Society's collection which, I regret to say, are both males, certainly give the choice to blue, as, a few days back, I cut up a small quantity of bright-coloured cloth, consisting of red, pink, and two shades of blue, which I scattered round the bower in the outdoor compartment of their aviary ; but, on visiting the place shortly after, I discovered that they had removed the whole of the blue strips to a bower they were constructing in the interior compartment of their domicile, whilst the red and pink remained outside.

" Is there any connection between their preference for blue and the brilliant blue of their eyes, which is a colour seldom found in birds or mammals except as a sport or in a few domestic species ? " It would be interesting if members who have noticed any particular preference for certain colours by any of their birds would communicate their experiences.

A. A. P.

Horresco referens

The worst has happened. Of course we knew that it would eventually, but the shock is severe, nevertheless. The *Crested* Budgerigar has made its appearance on the show bench—only in Australia, as yet. The crest is described as being the size of a sixpence, right on the forehead.

A. A. P.

Lovebird Hybrids

There is, at present, in the Parrot House at the London Zoological Gardens, a Lovebird hybrid labelled as Nyasa × Masked. In answer to an inquiry the depositor writes that this is a mistake, the bird actually being a Nyasa × Blackcheek. The error on the part of the authorities is easily understood ; at the time this hybrid was deposited a male Nyasa and a female Masked were also deposited and, presumably, these were taken to be the parents, but this was not the case. Several of the Lovebird hybrids are so very similar that unless the parentage is known it is a matter of mere conjecture.

A. A. P.

* * *

CORRESPONDENCE

BREEDING RECORDS

Shortly after the war I propose publishing a revised edition of Dr. Hopkinson's invaluable compilation " Records of Birds Bred in Captivity ". That this may be as complete as possible I would earnestly request readers of the AVICULTURAL MAGAZINE to send me any records, British or foreign, they may have noticed omitted from the first edition (1926), and subsequent records they think may have passed unnoticed.

ARTHUR A. PRESTWICH.

CHELMSFORD ROAD,
SOUTHGATE, N. 14.

SPARROW-HAWK ATTACKING CAGE BIRDS

On 18th March, 1944, I was feeding my birds in a large upstairs room overlooking the garden and sea ; while filling their drinker I heard a great commotion. On turning round, I saw what at first I took to be an early Cuckoo perched on one of my Goldfinch's cages. I walked up to it (so close I could have touched it), and found it was a Sparrow Hawk. I always thought these birds were very shy, but I had great difficulty in persuading it to leave the cage. When it did so, it quietly flew straight out of the window. On the 26th March it again came just into the room, but I chased it away. It was fortunate the first time it came I was there, for I have been in the habit of leaving all the windows wide open.

The birds I have in the room are Canaries (some sitting, due to hatch this week) Goldfinches, odd Canaries, and Goldfinch-Canary mules.

I might mention there are birds of all kinds in the garden. Finches of all sorts, Robins, Wagtails, Tits, Wrens, Thrushes, Blackbirds, Woodpeckers, etc.

A. A. PEARSE (Mrs.), F.Z.S.

CHANNEL VIEW,
BEMBRIDGE,
ISLE OF WIGHT.

SATIN BOWER BIRDS

Further evidence in support of the contention that the Satin Bower Bird shows a preference for blue is to be found in an article reproduced from the *Australian Naturalist*, July, 1914, in *A.M.*, 1915, pp. 303–7. Mr. G. D. Stead, writing on Mr. G. A. Heumann's aviaries at Beecroft, N.S.W., says :—

" The Satin Bower Birds are said to have a decided penchant for the colour of blue, both in the aviary and in a wild state, decorating their bowers or playgrounds with any fragments of blue cloth, paper, or china, etc., or flowers, if available. Mr. Heumann says he has invariably found the bowers in a state of nature, decorated specially with one small blue flower. The *irides* of this bird are of a blue colour, and it is suggested that perhaps this preference, if such really exists throughout the species, is due to the fact that their mates' eyes are blue.

" In this connection it is worthy of note that a Bower, described by Leach in p. 185 of his *Australian Bird Book*, was decorated with blue flowers from the school garden, pieces of blue paper, blue hair-ribbon, besides blue Parrot's feathers. Campbell, in his *Nests and Eggs of Australian Birds*, p. 193 (footnote), says : ' Mr. I. W. De Lany informs me that he has only noticed blue feathers at bowers. His wife, by way of experiment, put out several pieces of coloured wools near the house, and only the blue ones were taken to the bower.'

" A quotation which the same author makes from the MS. of Herman Law, in regard to the occurrence of the bird in Southern Queensland, seems to indicate that the habit is not quite universal, because bowers are there mentioned as being decorated with ' Yellow and blue Lory Parrots' feathers ', etc.

" This Bower Bird's liking for blue is evidently well established, however, and is worthy of attention."

A. A. PRESTWICH.

CHELMSFORD ROAD,
SOUTHGATE, N. 14.

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Bernicle Goose lining an Artificial Nest with her own Flank Feathers and Down

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Pinkfoot Gosling about 20 hours after Hatching

Frontispiece]

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ARTIFICIAL GOOSE NESTS AGAIN

FURTHER OBSERVATIONS ON THE BREEDING PSYCHOLOGY OF WILD GEESE

By JOHN BERRY

In the Waterfowl number of the AVICULTURAL MAGAZINE for May–June, 1943, I described how wild geese of various species appeared to have been induced to lay eggs by the provision of artificial decoy nests. These geese at Tayfield, Fife, are kept in a bare park which lacks ground resembling the nesting territory natural to most species. Before 1942, very few geese had ever attempted to breed, although some pairs had been in the park for many years. But in May of that year a number of artificial nests was made, and no less than fifteen were adopted by geese, eight of which subsequently proceeded with the incubation of eggs.

Because of increased feeding difficulties, some of the breeding pairs of geese had to be disposed of before the spring of 1943, but I was keen to repeat the artificial nest-making experiment for those that remained.

When I got home for Easter leave, the first nest-making success had already been achieved with a pair of Egyptian Geese. These birds were newcomers to Tayfield, having been sent there by a friend in the previous autumn. They did not prove very welcome guests, for they took up their abode in a duck-pond enclosure where they bullied the ducks and almost killed a Redbreasted Goose and a South African Shelduck. Attempts to catch and evict them were unsuccessful, but at the beginning of April they disappeared of their own accord.

Early on the morning of 20th April, the occupant of a cottage near Tayfield went to let out and feed her hens. From within the hen-house came a series of most unusual noises, and further investigation revealed the two Egyptians who had taken possession of it, presumably with the intention of nesting. Having heard of my successful nest-making in 1942, the owner of the hens now kindly made an imitation nest of straw to which she enticed the geese with grain and porridge.

Later in the day the goose settled down on the nest, and by the following morning the first of eleven eggs had been laid. On 29th May I was told that the eggs were expected to hatch within twenty-four hours, because when the bird had left the nest that morning as usual for some grain, the eggs were all big end upwards in the nest, instead of lying on their sides as formerly. Three eggs were unfertile, but the other eight hatched during the following day, and the brood left the nest for good on the 31st.

On 24th April I set about making artificial goose nests for the park geese as in the previous year. I thought it fully early in the season for any geese to use the nests, except perhaps a Greylag, but by the very next morning, Easter Day, a nest had been occupied by a pair of Bernicles and a real Easter egg had been laid. This nesting site was the most artificial of all, being a built-up mound of stones and turf at the root of an oak tree. It had been occupied in 1942 by a pair of Blue Snow Geese.

Four days later I saw another pair of Bernicles running from one artificial nest to another. They were making a great deal of noise, and it seemed that the goose had quite suddenly determined to lay, but could not decide on a site. The pair inspected the root of a lime tree where they had successfully hatched a brood in 1942. There an almost identical artificial nest again awaited them. But after about an hour and a half, they seemed to make up their minds in favour of a new nest at the root of a lone silver fir a couple of hundred yards away.

The whole time they were inspecting nesting sites this pair of Bernicles were followed hither and thither by their devoted family of the previous year. When at last the goose decided on the silver fir site, she sat down in the artificial nest and began at once remaking it to her own liking. The " children " appeared puzzled by their mother's extraordinary behaviour ; they stood round the nest craning their necks and uttering querulous cries. Their father, who had always hitherto behaved as an affectionate parent, now went for two young ganders and chased them away. In the meantime, a young goose had got into the nest and sat down beside her mother. After a minute or so her presence seemed suddenly to be noticed, and she was evicted violently. From then on the father stood on guard beside the nest, and would not permit any of his offspring to come within twenty yards.

I was sorry for the young brood, and feared that I was going to lose them. For they consorted with a wild Bernicle which had frequented the park since the previous November, and with it they now took to flying daily to the perilous foreshores of the estuary. One glorious morning early in May the whole party set off on migration. After circling higher and higher above the trees, with much calling, they were seen to leave, flying almost due north in V-formation.

One young goose was back before evening. Although less than a year old, she seemed more or less paired with a pinioned two-year-old Bernicle × Greylag hybrid,[1] which may account for her early return. But within the next twenty-four hours all her brethren had also come back, although their wild leader has not since been seen.

When I was next at Tayfield on 13th May I found that the Bernicle × Greylag hybrid and his young Bernicle mate were guarding an artificial nest in a charred tree-stump, and were driving away an unmated Bernicle Goose who had laid in that nest in 1942. On the afternoon of the next day, while the two young geese had left the nest to drink and wash in a pool at some distance, the unmated Bernicle took possession and refused to be removed. On 21st May she was sitting on four eggs and was lining her nest with down and feathers pulled, as usual, from the flank wing pockets. Meanwhile the hybrid and his year-old mate were guarding another artificial nest near by, and they continued to do so for more than a fortnight.

Only one other artificial nest was adopted in 1943. It was taken by an old Bean Goose. She did not choose the same site as in the previous year, but a similar site about seventy yards away. There she sat on five unfertile eggs from 17th May until almost the end of June.

A Greylag, a Lesser Snow, and two pairs of Blue Snow Geese, all of which nested in 1942, showed no desire to do so again in 1943. The Greylag and Lesser Snow Geese had both lost their ganders during the autumn and winter, and the Blue Snows were still devoting undiminished attention to members of their last year's broods.

The first pair of Bernicles hatched two goslings, from three eggs, on 24th May, and the second pair hatched a full clutch of five on 31st May. For seven and five nights respectively after the goslings first left their nests the parents took them back to the nests for brooding, from shortly after sunset until the dew had lifted next morning. In 1942 I noted that this was done for at least three nights after hatching by the Bernicles, but not by the Blue Snows ; nor have I noted it for any other species.

By 6th June it seemed evident that all nesting was over for the season. As the unoccupied nests were continually being scattered untidily by poultry, they were all now removed. A fortnight later I was amazed to hear from my wife that she had found a Pinkfooted Goose on a nest. The only female of this species at Tayfield was a full-winged wild bird called " Faithful ". She had never become really tame, yet she it was who had now become the first of her kind—so far as I am aware—ever to have nested in Scotland.

While living at home during the autumn and winter of 1930, I caught quite a number of Pinkfooted Geese from wild flocks frequenting the Firth of Tay. Apart from a few birds whose wings were

[1] See Avicultural Magazine, 1942, p. 83.

injured, none of these geese was pinioned. The flight feathers were cut, but after the next moult they were able to fly as before. I was little at home during the following snowy winters, feeding in the park was short, and the geese took to going further and further afield to seek their own food. Gradually rings began to be returned to me by wildfowlers who had shot the geese, but of " Faithful " I heard and saw nothing until the winter of 1934. Then, on returning to Tayfield for Christmas, I found her back in the park with four pinioned Pinkfooted ganders, all that remained of my former flock.

Since then " Faithful " has never appeared to contemplate migration, and although always shy and ready to take wing, she has never been away from the park for long. A possible reason for this has been the courtship of the four ganders. One of these is an unusually fine specimen called " Samson ". He weighed 8 lb. 6 oz. when I winged him in October, 1930. Although he had been courting " Faithful " for about seven years, I think that their first definite mating was not until May, 1942, and there was no indication of a desire to nest until " Faithful " was found sitting on two eggs on 16th June, 1943.

The nest was little more than a scrape in a patch of gowan daisies under a hawthorn tree just inside the duckpond enclosure. Throughout incubation the goose was never seen to leave the nest and the pinioned gander stood on guard as close to her as the fence of the enclosure permitted.

One of the eggs proved unfertile, but the other hatched on 9th July. On the following day the gosling was often to be seen grazing beside the nest, but the goose continued to incubate the unfertile egg until the 13th or 14th. On the 11th, I managed to get the gander inside the enclosure beside the nest, and from then on he guarded the gosling most attentively. His presence seemed to reassure his mate, and she became tamer than ever before. This is contrary to my previous experience, for I have found that even the tamest geese tend to become wilder and more suspicious when escorting their goslings.

Although " Faithful " did not lay in an artificial nest, none being still available in June when she might have used it, I consider that the artificial nest-making may have been an indirect but important factor in her unexpected breeding.

In May, 1942, when many geese seemed suddenly to contemplate egg-laying in the park for the first time, it was noted that all the Pinkfooted ganders, and particularly " Samson ", were courting " Faithful " more than in any previous season. Her response also was much more marked, and culminated in her definite pairing with " Samson ". Moreover, not only did it then appear that the general flock psychology of the geese in the park had undergone a definite change in favour of breeding, but also that this reaction had been

conditioned by the provision of the artificial decoy nests. Similarly, in 1943, the nest-making seemed to stimulate courting and attempted pairing even among unmated geese and immatures such as the eleven-months-old Bernicle " mate " of the Bernicle × Greylag hybrid.

For geese whose environment cannot be changed for breeding, the appearance in spring of many large and comparatively elaborate " goose nests " may perhaps take the place to some slight extent of the missing natural stimulus of arrival in a characteristically different nesting territory. It is scarcely practicable to put this to the test of a scientifically controlled experiment. But it will be most interesting if others, who have to keep their geese as I do with no naturally suitable breeding ground, can report a similar experience with artificial nests.

* * *

ASIATIC GREY-LAG GOOSE

By A. F. Moody

By the kindness of the late Sir Phillip Sassoon, Bt., I was shown during the spring of 1934, two Grey-lag Geese on the lake at Trent Park. Noticing something unusual in their appearance, I inquired particulars of their origin, and was informed that they had been imported direct from India. These I felt sure were the true Eastern form (*Anser cinereus rubrirostris*), a surmise which was verified later on receiving them at Lilford. These examples, both females, differed from the European Grey-lag by having the bill, legs, feet, and eyelids a decided pink. There was also a general greyness or difference of plumage not easy to describe but which caught the eye at once. They also appeared shorter on the leg and longer in the body than the average Grey-lag.

I record the above particulars not because the birds were particularly attractive, but because they were very interesting and possibly the first examples of their kind to reach this country.

* * *

HAND-REARING FRESH-WATER DUCKLINGS

By Ronald Stevens

Mr. John Yealland, practical as ever, gave us some very good ideas on the above subject in the last Waterfowl number. I hope he will forgive my stealing his subject once again, but I should like to record the experiences my brother and I have had in rearing fresh-water ducklings by hand.

In parenthesis it may be said that there scarcely exists any alternative to hand-rearing, generally speaking. It is most regrettable that ducks cannot be relied on to rear their own young. Personally, I should much prefer to let nature take its course, and if only half the number of duck could be reared by their own parents on their own ponds, I should leave them to carry on rather than succeed in rearing complete broods by hand. Undoubtedly the most charming and instructive phase of a duck's life is lost to us when we have to rob it of its eggs.

Well, if nature fails us in this respect there is nothing else for man to do but to roll up his sleeves and do the job himself. And so it must be his aim to rear every normal duckling that is hatched. He will make use of all means that will attain this end, however irritatingly artificial. And yet the task will be very pleasant, as it will have its own peculiar and interesting problems.

In our early years of duckling rearing, when we were entirely without guidance, we believed that the richer and more expensive the biscuit meal the better the ducklings would thrive. And when young Mandarins and Carolinas developed twisted thighs we blamed cramp and the cold clay soil. We put clean dry sacks over their ground each day. We afterwards tried rearing them on half-inch mesh raised wire-netting, with and without sacks, but still many of them grew into deformities.

No, it could not be cramp after all. So it must be rickets, we thought. What is the cause of rickets? Lack of vitamin B.

So next time the traveller for biscuit-meal stood on our doorstep, we all but pulled him in by his coat collar. He laughed at the idea of his firm's rich and highly priced meal doing aught but produce the most exclusive ducks. We asked him if the mixture was based on a whole-meal biscuit, and he said it was not.

Since then I have often thought it strange that bakers and biscuit manufacturers seem so averse to making their foods from wholemeal flour when the properties of bran are so much extolled.

After our investigations, we had a very cheap biscuit-meal specially made for us from 100 per cent wholemeal flour. The manufacturer added nothing to it, it was just pure biscuit. All that we afterwards

mixed with it was a little fresh blood, delivered daily from the slaughter-house. I cannot remember the proportions, but sufficient blood was added to pink the meal.

From that day we had no more trouble with deformities or disease. The ducklings throve most satisfactorily. True, they were given, as always, plenty of duck-weed, that *sine qua non* of duckling rearing.

This greatly simplified food was kept almost constantly before them. The very young ducklings were fed five times daily. Their left-over food was collected at each feeding time and given to the older ducklings, which were fed three times a day.

We were almost disappointed that feeding had been simplified down to such a monotonous level, so, just to make things more interesting, we threw into their ponds a little tepe (pronounced taypi). This was a food I came across in Portuguese East Africa on one of my duck-hunting trips. Either the word is Portuguese or it is Kaffir, but it stands for the millions of tiny shrimps, fishes, and crabs which the natives net from the sea. They spread their catches on the beaches where they are soon dried by the blistering heat. Undoubtedly fish so dried in the rays of the sun is greatly superior as a food to that which is dried in hot ovens.

We used to import many sacks of tepe through a friend in Beira. It cost, I think, about £2 a sack, landed. I forgot to add that the Portuguese eat it with relish. It is usually curried with rice. We really got it as an aid to rearing Longtail and Harlequin, who did eat it as long as it remained a novelty to them.

One would think that this form of protein and the lime contained in the shells of the little crabs must be beneficial, the roughage too. Certainly the ducklings did very well with it—and without it.

If, after the war, anyone would like to try tepe, I should be glad to try and get him some.

We never had to coax fresh-water ducklings to feed when they were first put out. Bright-tinned very shallow baking tins were used, and the meal lightly scattered on them. Ducklings very soon picked at individual particles of food on the shining tin, and probably when the biscuit is pinked by being mixed with blood it makes the particles more attractive.

For the first two or three days the tins of food were always put against the edges of the little ponds, where the ducklings were more likely to discover them. Afterwards they were placed away from the water because ducklings always drag their food into the water, and so foul their ponds, if they get the chance.

The same system was used successfully for the young of Mergansers, Goosanders, and Smews, but in their case tiny pieces of raw lean beef were given instead of biscuit meal.

There was only one fresh-water species that did give trouble to feed,

and that was the little North American Ruddy Duck. The first brood was reared on maggots so successfully that we jumped to a too hasty conclusion and judged them to be easy to rear. So that, in the rush of the busy rearing season, we paid no special attention to the next lot, but fed them the same as ordinary fresh-water ducklings. They all died. Only then did we realize to what extent these little duck are tied to the water. Instinct tells them they must dive for their food, as they did for the maggots, it was beyond their understanding to feed off the land, however close the food was to the water.

Bantams were nearly always used as foster mothers. They were tethered in the middle of one end of each pen so that they could not drive their broods into a corner where they would tread on them. They had no coop, but sloping roofs protected them from rain and sun. Their droppings were collected each day. They were taken away from the ducklings in about ten days if the weather was fine, and we were always glad to see them go as being possible sources of infection.

Mr. Yealland and Dr. Derscheid have proved that ducklings can be hatched by incubator and reared by artificial brooder. This is indeed a milestone. My brother and I once hatched a few eggs in an incubator. The resultant ducklings were given to a bantam, but their down absorbed water like sponges when they went on their pond. After twenty-four hours' repose in the incubator after hatching their down was dry and brittle, and they died. But that was a very incomplete test, I admit, and now, after Mr. Yealland's success, I am looking forward to having another try.

After the ups and downs of our early years of duckling rearing we believed we had discovered all the necessary requirements for success as regards rearing full broods and the saving of labour. Briefly they are these :—

1. A separate immovable pen containing a little pond for each brood.

2. The pen to be made of wood, as a protection from winds, and to give shade. The sides to be sufficiently high to make a wire-netting top unnecessary.

3. The floor of the pen to have a foundation of brick rubble and a top layer of sand to provide warmth and quick drainage.

4. The pen to be without a coop but with a sloping roof two feet wide at one end.

The size of the pen and pond depends on how large a scale the owner wishes to go in for duck breeding, or on how much he is prepared to spend.

My brother and I wanted to farm fairly large numbers of duck, so we had two hundred and one of these pens made, in three rows of sixty-seven pens. It worked out that each pen was twelve feet long by

four feet wide by three feet high. A brick canal, four feet wide, ran down the centre of each row. At one end was a tap, which was kept running throughout the rearing season, and at the other was the overflow. A small grid with the bars arranged horizontally, so as to hold up the minimum amount of surface rubbish, was let into each wooden side of every wooden pen. These grids were at water level, so that all surface grease from the bodies of the ducklings was run off. This is a vital necessity.

Under their foundations of brick rubble the three rows of pens were adequately piped, so that drainage was perfect. However torrential the rain the pens never became waterlogged.

The wood the pens were made of was elm as some of it, of course, had to be laid in the water to partition off the ponds, and we were told that elm lasts longest in water.

The whole structure of the pens could easily be dismantled and put together again. The advantage of this was that several pens could be run into one. It was our practice to put broods of the same species in adjoining pens, so that when they were weaned from the bantam the intervening wooden boards were removed and all the ducklings benefited by having an uninterrupted stretch of water to swim up and down.

We were always very careful not to mix broods of different species. If you rear two or more species together they are very likely to cross-breed later on. That is not surprising. It needs little imagination to realize, for example, that a Carolina duckling reared among Mandarins would probably grow up believing itself to be a Mandarin.

At the end of each rearing season the brick canals were drained and cleaned, and the sandy floors of the pens were dressed with agricultural salt to cleanse and to destroy weeds. Then all the boards were replaced and the canals were half-filled. And, with an eye always to the next rearing season, a little duckweed was thrown on to the ponds which, snug in their protection from the cold winds, gave it every encouragement towards an early increase, so that there should have been a thick green blanket on each little pond, early the following spring, to greet the early ducklings. I say "should" and there would have been did not odd full-winged Mandarins and Carolinas from the lake return to visit their old nurseries before the trees were in leaf again.

It is with great regret that my brother and I have to inform readers of the AVICULTURAL MAGAZINE that, as a result of the war, the collection of waterfowl at Walcot Hall has practically come to an end.

* * *

BREEDING OF THE PINK-FOOTED GOOSE IN CAPTIVITY IN THE U.S.A.

By Clarence L. Sibley

Many years ago, possibly forty, or maybe more, my father had a small collection of wild waterfowl at a place in New England where we spent our holidays, as our home was in a large city. I believe father was the first to breed the Black Swan in this country.

On my father's death, the collection of birds was dispersed, but one Goose named " Mandy," a lame Pink-foot, acquired years before from a dealer, was given to a near-by farmer. Mandy had never shown any sign of nesting, and had appeared to like human companionship more than that of her own kind. A year or two after she had been in the farmer's flock she mated with a young barnyard gander, and a year or two later (I found out afterwards) she laid and incubated infertile eggs. I knew nothing of this until 1936, when I was motoring near our old summer home, and stepped in to see the farmer. He still owned Mandy, and told me that she had laid eggs on two or three occasions, but there were never any young. I asked him if he would sell her, and he was willing, so I bought her and mated her that autumn with a wild-caught (I assume) gander acquired from a dealer. I already had two pairs of Pink-foots in my collection, which had never shown any inclination to nest.

In the spring of 1937 Mandy and her mate (both pinioned birds) made a scrape in the ground, and Mandy sat in it, pulling rubbish and leaves around her on two or three occasions, but no eggs were laid, or if they were vermin of some sort got them. I never found any trace of shells or broken eggs, so think none were laid. In 1938 this pair nested and laid five eggs, four of which were fertile and hatched under a fowl, and all were raised. In 1939 no eggs were laid. In 1940 only two eggs were laid, one hatched, and the gosling was reared to maturity. In 1941 a young female, reared from the old pair in 1938, mated with a Greylag male and three hybrids were reared. Mandy and her mate nested again, and three young were reared. A young female given to Mr. John Deeter, of Worcester (the gosling reared in 1940), was mated with an old male, and the pair nested both in 1942 and this season, but Mr. Deeter's conditions were not good, and no young were reared. In 1942 Mandy did not nest, and died later in the season, possibly from old age, as she must have been 30 years old or more. However, two of her daughters nested and we reared six young. This year (1943) we have only two, as Crows were very troublesome and spoiled many eggs. Also there was a great deal of fighting among the nesting Geese because we had to crowd them to conserve labour. Of the young birds we have sold

or given away, only those of Mr. Deeter have nested, so far as I know. I think it the result of improper care or surroundings. Incidentally, we still have one of the two pairs of Pink-foots we had when we acquired Mandy, and they have never shown any disposition to nest. I think I must have owned them a dozen years or more.

It is interesting to note how some individual birds are more inclined to nest than others. I have had a pair or two of the black and white form of the Spur-winged Goose in our collection for quite a number of years, although they are not particularly attractive and have rather nasty dispositions. A few years ago I gave an unmated female to a man near by who had a male, and he kept them in a really tiny enclosure, apparently as unsuitable as one could imagine. Yet the pair has yearly nested and produced young, while none of their progeny, reared in confinement and very tame, has condescended to do so under far better conditions.

I have found that many of the foreign Geese seem more disposed to nest with us, than some of our own American species. Bernicles are very prolific, but our own closely related Cackling Goose breeds with difficulty, only an occasional female getting to the point of laying eggs. Yet I sent some Cackling to Mr. Laidlay, and within a year or so of the time he got them, they were nesting for him. Similarly, the Greater Snow Goose does not breed readily, yet I sent a pair quite late in the season a few years ago, to Mr. Spedan Lewis, and within two weeks of the time he received them, they were nesting. Quite extraordinary for any waterfowl, it seems to me.

Incidentally, our Pink-foots are true *brachyrhynchus*. I know of no breeding records for the species in this country other than those I have mentioned, although records of this sort have been so loosely kept in this country that it is possible nesting and rearing may have occurred at some other time. A Mr. Pelham, near New York City, had young of these some twenty or more years ago, although I could not ascertain whether they were pure-breds or possibly hybrids with domestic Geese, and have never been able to check definitely on this. Before the war, Pink-foots, very wild, could commonly be gotten from the bird dealers, apparently newly-netted birds. Such birds can only be expected to breed under very good conditions after many years in captivity.

* * *

THE RED-BREASTED MERGANSER (*Mergus serrator*) AT LILFORD

By A. F. Moody

On several occasions since 1930 I have found no difficulty in rearing the young of the Merganser from wild-taken eggs. The latter when none too fresh take about 29 days to incubate under a domestic hen. The young on hatching are rather weak upon the legs ; they soon, however, learn to run quickly and may be induced to eat earthworms, fragments of fish, rabbits' flesh, and liver. Later they will partake of meal bread, etc., but so far as my experience extends, fish and pieces of animal food seems the correct diet for them. These young grow rapidly, and begin to feather at 15–16 days old. The females can always be distinguished by their smaller size. Indications of a crest is visible at 5 weeks, and I have observed the white shoulder feathers of certain males beginning to appear at 5 months old.

The behaviour of hand-reared Mergansers is that they are remarkably tame, and although they spend much of their time on the water they are ever ready if at all hungry to leave the water and follow one about, or rather precede one by a few inches around the enclosure. Great care has to be exercised at these times to avoid stepping on them, but immediately they are fed they return to the water. In all their movements they are wonderfully quick ; they run swiftly on land, while on or beneath the surface of the water they are almost stoat-like in the way they twist, and far outpace the various Goldeneye, Scaup, etc., who share their pond.

One curious habit they have is that if hungry, they commence running on the surface of the water to meet one. They then dive with remarkable swiftness for pieces of food thrown, or if this is not forthcoming it is but a matter of seconds before they are over the pond's bank and around one's toes. The species has not bred with us, but I have observed adult birds pair and show other indications of nesting.

They do fairly well in captivity, but in the interest of the wild bird I will refrain from dwelling upon the Merganser's enormous appetite, mentioning only that for the size of the bird's gullet they can swallow quite large fish and numbers of them.

* * *

THOUGHTS UPON SEA DUCKS IN CAPTIVITY

By Major Gavin Maxwell

I believe that to most aviculturists who have specialized in the *Anatidæ*, the true sea ducks have eventually appeared as the summit of ambition. Yet to the fastidious there must remain something æsthetically unpleasing in the conditions under which even the most painstaking aviculturist has so far housed this group. I may possibly lay myself open to an accusation of unscientific approach when I say that my fondness for these birds has its roots in a deep and abiding affection for the surroundings in which they are familiar to me. The satisfactory establishment of this ecological normal appeared to me to present such insuperable difficulties that my own collection which I believe now to be the most complete of the wild Geese, includes no representatives of the sea duck group.

Since 1939, however, I have become increasingly determined to found, at some future date, a collection of the sea ducks comparable to that of the Geese. To do this to my own satisfaction, I have reached the conclusion that an attempted *reproduction* of the ecological normal can never be satisfactory and that a section of the natural habitat—not, of course, geographical, but physical, must be enclosed. Several of the more famous of the British collections of wildfowl have included more or less isolated examples of some of the rarer sea ducks. Messrs. Maclean and Wormald kept (and may, for all I know, still keep) a specimen of the King Eider ; Mr. Anthony Rampton kept at South Lake a Smew ; a Steamer-duck eked out a dreary and smoke-grimed existence at the London Zoo ; Scoters and Longtails apparently throve under more favourable conditions at Walcot. Eiders have been kept with varying success in several collections. But to me, and I think to many others, there was in every case a jarring note, almost a mental shock. Eiders and rhododendron bushes, Smews and pampas grass, King Eiders and azaleas, Longtails scrambling for food amongst a bizarre bevy of Mandarins—all are pathetic and unseemly paradox. I was determined that I should not condemn my own personal ambition—Steller's Eider—to a background so far divorced from reality.

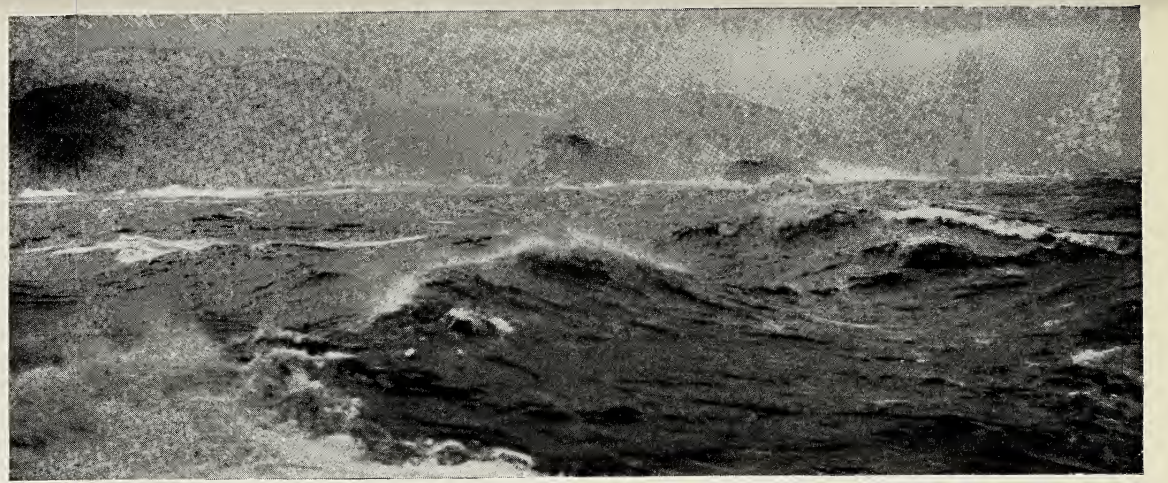
Perhaps I should say at once that I have never kept Steller's Eider in captivity, and that as far as I am aware it has never been captive in any collection, either public or private. I make this clear now, lest I should lure the reader through this manuscript under false pretences. In 1939 I made an expedition to Scandinavian Lapland which I intended to be exploratory, for a collecting expedition the following year. That second expedition was, of course, frustrated, but is still projected.

The main object in 1939 was *Anser erythropus*, the Lesser White-fronted Goose, of which I did succeed in bringing back a pair, leaving other young goslings to be reared and fetched in 1940. Steller's Eider was secondary and, since I had not fulfilled my own requisites for the housing of sea ducks, was exploratory and photographic only. However, a close acquaintance with Steller's Eider—the most beautiful of all the sea ducks—confirmed my determination to keep them under natural conditions. I discovered that the actual catching of the bird would be a comparatively simple matter, though the simultaneous catching of a number of Scandinavian Eiders would be unavoidable, even if the intention were not present. There were also numerous other sea ducks—Longtails being extremely common, King Eiders less so but usually visible, and I encountered one pair of Velvet Scoters.

The Longtails and Scandinavian Eiders I intended, on the projected second expedition, to rear under hens and import at a half-grown stage. Steller's Eider I intended to catch in pre-eclipse plumage, and maintain under natural conditions until post-eclipse, both to furnish additional data as to the plumage change and to avoid dietetic troubles during that period.

Whether Steller's Eider actually breeds in Scandinavian Lapland has long been a subject of dispute and contention. Personally, I have little doubt that it does so, but proof acceptable to the ornithological world has so far been lacking. The bird is usually present in considerable numbers during the summer, and inconclusive evidence of its breeding has been furnished since the middle of the last century, culminating in the finding of downy young by Bolam (1924). Bolam was a reliable field naturalist, and it is almost inconceivable to anyone familiar with the two species that he could, as was subsequently suggested, have mistaken Scandinavian Eiders for Stellers. My own acquaintance with Steller's Eider was briefer than Bolam's, yet I was confident that I could distinguish at great ranges the females of the three species—Scandinavian, Steller's, and King Eiders. There is a slight similarity between the females of the King Eider and Scandinavian, but Steller's is completely unlike either.

I have not, at the present time, access to my notes, but I think that during the summer of 1939 there were between 40 and 50 Steller's Eiders regularly appearing upon the short stretch of coast and estuary which I was working. Inland is mile after mile of rolling ground bearing tundra vegetation, sprinkled with lakes varying in size from a mile or more in length to mere puddles, and often surrounded by treacherous bogs. Whether or not there were nests of Steller's Eider somewhere in this waste I cannot say, though on more than one occasion I saw females flying inland. Had there been only a few nests it is improbable that I should have found them.



 [*Gavin Maxwell*

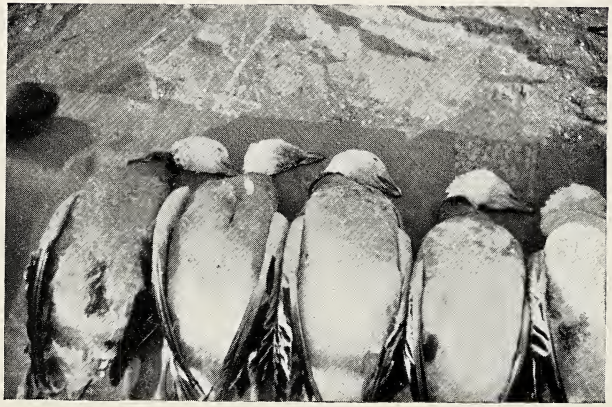
WINTER HABITAT OF STELLER'S EIDER

 [*Gavin Maxwell*

SCANDINAVIAN EIDERS IN JUNE

Copyright] [*Gavin Maxwell*

STELLER'S AND SCANDINAVIAN EIDERS IN LAPLAND



Copyright] [*W. A. Peters*

BLUE SNOW GEESE

From observations of Steller's Eider, Scandinavian Eiders, and others, I formed a clear mental picture of the site requisites for the future collection. These must be—

(*a*) a natural supply of food, which implies ;

(*b*) tidal water, with a minimum central depth of 2 fathoms at high water, boulder shore for at least part of the way, and rocky islands—if possible one large and heather-clad.

(*c*) a freshwater stream, which can be dammed higher in its course to form,

(*d*) a freshwater pond.

The mental picture thus called up immediately suggests the west coast of Scotland, and to it I turned my attention in the search for a site. I have now found several alternative sites which fulfil the minimum requirements, and I hope that, other things being equal, the collection may be started not very long after the war.

* * *

VARIATION IN COLOUR OF BLUE GEESE

By C. L. Sibley

The accompanying photograph was kindly sent me by Mr. W. A. Peters, of Kingston, Ontario. It shows part of his bag of Blue Geese (or, as you call them, Blue Snows), and was taken to show the variation in colour among wild-shot birds of this species.

These were taken at Hannah Bay in the southern part of James Bay, during the fall migration, when hundreds of thousands of Blue, Lesser, and Greater Snow and Canada Geese, as well as many species of ducks find it a paradise for feeding and resting. Many species breed there in large numbers.

There are millions of acres of salt and brackish marshes as flat as a table, with great quantities of vegetation suitable for waterfowl food.

It has long been known that there is much variation in plumage colour among adult Blue Geese. Some never achieve the pure white head and neck, which so strikingly sets forth their grey-blue body plumage, but always retain more or less blackish markings, much as though they were still just emerging from juvenile plumage. Others have considerable areas of white on the belly and upper breast, and Mr. Peters' photograph well illustrates this variation. All the specimens shown were adult birds, and so arranged as to show the great variation in belly and breast markings.

* * *

FULL-WINGED TREE DUCKS

By John Yealland

It is a pity to pinion such waterfowl as can be relied upon to stay well without interfering with others in the collection, and there must be many species that could safely be kept full-winged.

The pinioning itself is a very unpleasant operation, unless it is done when the duckling is only a few days old, and the disfigurement is in some cases sadly conspicuous.

Most Ducks must be even more handsome in flight than on the water : they must be much better able to save themselves from natural enemies and, it is reasonable to suppose, must be more healthy than pinioned ones.

Even among the migrants it might prove satisfactory in the case of mated pairs to pinion the female only.

One would, of course, need to be careful in the choice of subjects, choosing only those that would not either fight or hybridize with birds in other enclosures, and a range of Duck aviaries, which would in any case be useful for many purposes, would be necessary for the confinement of young full-winged birds and newly caught wild ones.

In the collection at Sterrebeek there were six species of Tree Ducks, and all, if I remember correctly, were full-winged.

The only ones that proved a failure were the White-faced (*Dendrocygna viduata*) ; there were four or five of them, and all disappeared together in the autumn and were never heard of again.

The Black-billed and Red-billed (*D. discolor*) flew a little, but never left their enclosure : the Javan (*D. javanica*) I do not recollect ever having seen in flight, but the Wandering (*D. arcuata*) and Fulvous (*D. fulva*) were often on the wing visiting other enclosures, but never leaving the park, and it was nice to see them and to hear their curious whistling flight.

They did not interfere with other birds, but we thought they may have destroyed the flowers of water-lilies.

It would, of course, be unwise to conclude that these five species are good stayers : our experience of them, however, suggests that they might be.

During the winter of 1938–39, there came a bitter wind and a spell of extremely cold weather, so that within a matter of hours the temperature fell from that of an average mild winter day to some 32° F. of frost—the coldest weather, I was told, since the winter of 1917.

The Javan was soon killed by the cold, and so were the Wandering and one Fulvous. The Black-billed were not killed but had their legs so severely frost-bitten that they had to be destroyed, and only the Red-billed and one Fulvous were unharmed.

Many of the really hardy Ducks were soon in distress, and we had to bring a large number of the birds into two rooms used for rearing ducklings, and to maintain heat there in order to prevent the water from freezing ; but, unhappily, it was not possible to catch up the agile Tree Ducks in time.

It is interesting to compare our experience of the effect of severe cold on the Tree Ducks with the effect of perhaps not quite such severe weather during that winter and the next on those at Leckford, where, I was told, none was lost.

It may be that ours would have survived had not the temperature fallen so suddenly ; they lived in a fairly sheltered place, but the slowly flowing water quickly froze over.

The position at Leckford, though very much more open and comparatively bleak, had the advantage of swiftly flowing water, which probably did not freeze, while the banks were covered with dry sedge and other riverside vegetation from which a resting bird might derive some degree of warmth.

* * *

GEESE AND OTHER BIRDS AT SUNNYFIELDS FARM, CONNECTICUT

By Clarence L. Sibley

These notes are being written in the crowded city of Washington, mecca for everyone connected with the war's winning, including those with a very inconsiderable and unimportant part like my own. As I do not have access to my notes, these observations will have to be from memory, and mine is not entirely flawless. However, possibly they will be as accurate as might otherwise be, for my usual " notes " consist oftentimes of hurried scrawls on envelopes or such bits of paper as are present in my jacket when making the rounds of our birds, and although I have every intention of having them properly entered and recorded for future reference, they often get no further than the original scrawl. How envious I am of those with orderly and scientific minds whose observations are always so complete and properly indexed and tabulated !

If an intelligence test were made of our birds and animals, I feel sure that wild Geese would be well up at the top. They conduct their affairs with foresight and apparent logic, and are models of domesticity. Geese are birds which may be allowed to hatch and rear their young, with the expectation that they will make a good job of it and end the season with a healthy, happy brood of well grown offspring. As much cannot be said for many of the species aviculturists attempt.

This spring, in spite of lack of the usual feed stuffs, and insufficient and inadequate care, our Geese seem to be doing as well, or possibly a bit better at breeding than usual. One very good thing about Geese in war time is that with ample pasture for grazing they can fairly well maintain themselves without precious and rationed grains. Through the winter our Geese have had cabbage, chopped alfalfa hay steamed overnight, apples and mangel wurzels, and smaller than usual amounts of precious grains. In addition, it has been interesting to see them, on the warmer days in winter when patches of brown, dried grass would appear from under the melted snow, tugging at grass roots and possible embryo shoots as though they were nectar.

Thus far this present spring the following Geese have nested with us, and so far as I know, most have given us fertile eggs : Greylag, White-cheeked, Cackling, Bernicle, Ross, Blue, Greater Snow, Lesser Snow, American Whitefront, Tule, European Lesser Whitefront, Bluewinged, Egyptian, Hutchins (now called by the systematists " Lesser Canada "), Barhead, Wild Chinese. We no longer keep a breeding pair of Canada Geese, as they are extremely quarrelsome, and we usually have a couple of unmated females to represent the species. For the first time in some years our Pinkfoots are not breeding.

For some reason in this latitude the lovely little Orinoco Goose does not nest until very late in the season, August and September. They are not hardy with respect to cold, so it is something of a scramble to get the young reared to a point where they will winter safely.

In ordinary seasons we would have a brood or two of Cereopsis well grown by now, but we now lack a breeding pair. At one time we had twenty-one of these interesting (but devilish and pugnacious) Geese. When the war took our men we could no longer keep small separate yards with a pair or a brood of Cereopsis in each, so all were disposed of except a breeding pair, their two current young, and an extra and unrelated gander. A fox killed the breeding female, and the two young proved to be males, so we were left with four males and no female. A female secured later has thus far not deigned to breed. This sad little tale illustrates the fact that in aviculture we are never entirely sure of our stock, for a mischance may easily jeopardize our breeding stock of a species which has bred so well as to appear safely established.

In connection with Pinkfoots, Mr. Berry wrote that they were seldom bred in confinement in Europe, and was surprised that in listing the Geese which had bred for us we spoke very casually of breeding our Pinkfoots. Possibly it's one of our failings that until we have succeeded in inducing a species to breed for the first time

(with us) that first breeding looms large in importance. Yet once, having bred a species, we often consider it " old story " afterward.

We have an odd mesalliance among our Geese, about which I may have written previously. A pair of Spurwing Geese (the black and white variety) were quartered with some Cranes and miscellaneous birds in an aviary built upon the foundations of a former tennis court. (Why do tennis courts tend to become aviaries eventually when bird-lovers own them ?) Across a public road and in a ten-acre fenced field, quartered with several other breeding pairs of Geese, an apparently devoted pair of Andean Geese were kept. One day, without any warning, we found Mrs. Andean outside the wire of the old tennis court, making violent love to Mr. Spurwing. How she had, being pinioned, gotten out of the field where she lived surrounded by a six-foot high fence, we have never been able to fathom. She was put back, and promptly the next morning she was back at the tennis court chattering to Mr. Spurwing. This went on with no apparent response from Mr. Spurwing for some time, but finally his masculine ego must have succumbed to so flattering a display of devotion, and he responded. Removed to another Paddock, Mrs. Andean promptly set upon her spouse and probably would have seriously injured him had we not removed him. He, poor chap, was too bewildered to resist. Kept apart for several weeks, Mrs. Andean refused to eat, and walked up and down her fence until the feathers of her breast were entirely worn off. She finally got into such a precarious state of health that we allowed her outside, when she immediately made for the tennis court and started wooing her erstwhile love, Mr. Spurwing. Thinking it might save her life, we put them together, and immediately Mrs. Andean started to thrive. We have seen the pair mating and they are a most devoted couple, but it is impossible to think that fertile eggs could be produced by this mismated pair. It does mean, however, that until we obtain another female we can report no success with Andean breedings or Spurwings.

A rather extraordinary thing happened a few years ago. We had never succeeded in getting our Spurwings to nest. A female was sent to Mr. Clarence Crandall at Groton, Conn., who already had a male. The birds were kept in a small, and most inadequate pen, yet the following season the pair reared ten fine youngsters to full maturity, and for good measure a second clutch of eggs was laid and hatched late in the autumn. Each season thereafter, in spite of what seemed most unsuitable conditions, at least one brood was reared. It makes one feel that in all species of birds some individuals will persist in breeding, no matter how much the odds are against them.

We lack breeding pairs of many of our Geese, one or the other of the pair having been lost, with no chance to replace the birds, due to the lack of importations because of the war. One species which

has done well for us is the Barhead. Last season a two-year-old Barhead Goose laid three clutches of eggs, nearly all fertile, and a fine lot of young were reared. I think there were 17 eggs in all.

Multiple broods are not confined to Geese, however. This season a pair of Manchurian Cranes (saved from an importation of eleven, the last birds we received from Japan before the war) laid their two eggs quite early in the season, and although the female sat upon them assiduously, a late frost evidently spoiled them for they failed to hatch, although fertile. I wrote them off for the season. Yet some time later this same pair nested again with the usual two eggs, and as these appear to be fertile, I hope with the better weather we are now having, they will hatch, and the young be reared.

Several years ago we sent a young pair of White-necked Cranes to Mr. Henry Berolzheimer, of Chappaqua, N.Y. They were nest mates, and we supposed them male and female. Last spring Mr. Berolzheimer informed us they were both females, as both had laid. Having an extra male, we suggested that we send it to him, to mate with one of the females, which was promptly done. Imagine our surprise when a couple of weeks later he reported that the birds had paired at once, the female had laid another pair of eggs, and was sitting. From that nesting two fine stalwart young were reared, and I understand that this year another pair of young has been hatched. Evidently, if a first nest is destroyed, Cranes, as well as other birds, will nest a second time. We find that most Geese will, if the first clutch of eggs is taken to be hatched by a foster mother, produce a second clutch of eggs the same season.

Two or three years ago a pair of Greater Snow Geese made a nest and laid two eggs. Then a vicious Whooper Swan in the same enclosure destroyed the nest and eggs. Because it was not feasible to move the Swans, the Greater Snows were moved to another breeding enclosure. The following day they had another nest made and an egg laid. Some time in the following night, something (we thought a weasel) attacked the female and made a wound in her head and neck, and she suffered loss of much blood. She was extremely weak, but in a few days was put back with her mate. Two or three days afterwards we were amazed to see her going through all the motions of scraping out a nest under a low bush, and on investigation later found she had laid an egg. Keeping constant watch against marauders, we left the pair and a clutch of five was laid, and all were hatched. The following year this pair of birds was sent to Mr. Spedan Lewis, and within a couple of weeks after their arrival had nested for him in their new home. I consider that particular pair of birds one of those which would nest under almost any conditions, as mentioned above.

These notes are very rambling without any coherence, but it is

possible they may be of some interest to Goose lovers, and so they are submitted for the Waterfowl Number, which I am sure, many fanciers of Waterfowl look forward to most eagerly each sesson. Aviculture is an avocation of peace, so may we all do our share to bring about that desirable state of affairs in the shortest possible time.

* * *

OBITUARY

THOMAS HENRY NEWMAN

The Avicultural Society has lost a valued member by the death, which took place in April last, of Mr. T. H. Newman, who became a member in 1900. In 1904 he was appointed Honorary Business Secretary, a post he held with efficiency until 1916, and for many years he served as a member of the Council.

Newman was born near Worcester in 1876 and lost his parents when he was quite young. He spent part of his early childhood in Italy. He was fond of travel and visited most European countries as well as North Africa. From an early age he was devoted to birds, his special favourites being the Columbidae, and when he went to live in Wembley he built extensive aviaries for the accommodation of this group of which, at one time, he had a remarkably fine collection. His close studies of his birds enabled him to contribute many excellent and informative articles to our Journal.

In the number for April, 1904, he wrote " On some Turtle-Dove Hybrids and their Fertility ". In September, 1906, writing on " The Burmese Collared Turtle Dove ", he discusses the origin of the so-called Barbary Dove, and concludes : " There can be no longer any doubt that it is descended from the pretty little Rose-grey Turtle Dove (*T. roseogriseus*) of North Africa." In September, 1907, he writes on " The Half-collared Turtle Dove, *Turtur semitorquatus* ", and in 1908 on " The Madagascar Turtle Dove, *Turtur picturatus* ".

In October and November, 1908, under the title " Nesting of the Partridge Bronzewing Pigeon, *Geophaps scripta* ", Newman contributes a very interesting article upon this Ground Pigeon in which he not only goes thoroughly into the history of the species but records his observations on its nesting habits. In the following year we find him writing upon another rare and interesting Ground Pigeon, Bartlett's Bleeding-heart Pigeon, *Phlogoenas crinigera*, of which a very excellent coloured plate is given. He succeeded in breeding this fine Pigeon.

In 1910 we find articles by him on *Turtur decipiens* and the White-throated Pigeon, *Columba albigularis*, both of which bred in his aviaries, as well as " Notes from North-West Africa ", in which he made a five week's tour in 1909.

In the number for July, 1921, Newman returns to the subject of the Rose-grey Turtle Dove and gives further proof that it is indeed the true wild ancestor of the Barbary Dove. He did not like the present tendency to change the names of genera that we have all known for so long, any more than most of us do. He writes : " Unfortunately we are now forbidden to use *Turtur* in this connection, since it must be applied to the little African Amethyst- and Emerald-spotted Doves formerly known as *Chalcopelia*, which sounds like a riddle—when is a Turtle-dove *not* a Turtle-dove ? The answer to which, I suppose, would be, when it is a *Turtur*, for no one is likely to call the species of *Chalcopelia* Turtle-doves."

He also contributed to Volume III of *Aviculture* exhaustive articles on " The Bronze-winged Doves and Pigeons ", " Ground Doves and Pigeons ", and " The True Pigeons or Columbidae ".

In all his writings Newman showed his thorough mastery of his subject and a knowledge of the literature appertaining thereto. He collected a very fine ornithological library as well as a splendid collection of bird drawings. For over forty years he faithfully served the Avicultural Society and in his Will he has bequeathed his beautiful Library to the Avicultural Society and his collection of coloured and other drawings to the Zoological Society.

Mr. Newman's Library

One of the terms of the bequest of this Library to the Avicultural Society was that it should be properly and permanently housed and maintained, and as the Society possessed no permanent home, it seemed at first uncertain whether the bequest could be accepted ; but now the Zoological Society has kindly agreed to accommodate the books in its Library where Members of the Avicultural Society can consult them even though they may not be Fellows of the Zoological Society, so long as they satisfy the Librarian that they are Members of the Avicultural Society. It may, however, be some weeks before the Library is transferred to its new home.

D. S-S.

* * *

NOTES

London Zoo Notes

The collection of birds in the Small Bird House in the London Zoological Gardens has just been enriched by the following British birds :—

Great Spotted Woodpecker (*Dryobates major anglicus*), pair.
Yellow Bunting, pair.
Lesser Redpoll, pair.
Hedge Sparrow, pair.
Blackbird, pair.
Starling, pair.
Goldfinch, pair.
Greenfinch, 2 pairs.
Chaffinch, ♂.

Hopes that the pair of Queen Alexandra Parrakeets would repeat their breeding success of last Spring have been destroyed. They duly went to nest, but the female, unfortunately, died as the result of her efforts to lay a soft-shelled egg. There are still four of these magnificent birds in the collection—the two young of last Spring and two adults, both the latter are, however, males.

One of the Senegal Parrots recently stolen from the Parrot House was recovered within a few days from a pet-shop. The proprietor bought it in good faith from three boys who said that the brother of one of them had brought it home from abroad, and that the feeding difficulty forced them to sell. There is no news of the second bird.

The Society has purchased a small private collection of Parrakeets consisting of two pairs Redrumps, one pair Stanleys, three Rosellas, one Many-coloured, and one Green-winged King. All are now housed in the flights attached to the Parrot House.

Arrivals at the Small Bird House :—

Hawfinch, ♂ ♀, Jay ♂ ♀, both pairs—according to the labels—aviary-bred.

Arrival at the Parrot House.

Bourke's Parrakeet ♂.

Deaths in the Parrot House—

24th May. Kea, cause of death uncertain, but probably an accumulation of fat round the heart. Had been in the Gardens since 1939.

6th June. Scaly-breasted Lorikeet ♀, as the result of egg-binding. Female parent of the young one reared last year.

Feeding Note—

The Lorikeets in the Parrot House are eating lettuce with great gusto.

A. A. P.

* * *

CORRESPONDENCE

THE IMPORTANCE OF THE LECKFORD COLLECTION AND THE FUTURE OF PHEASANT KEEPING

It is a long time since I wrote my last article on Pheasants. Tragopans was then my subject. I have been encouraged to write again since reading Mr. Lewis' interesting article in the May–June No. A.M. I paid a visit (not the first) to his aviaries a short time ago. His aviaries are about the last word, the best I have ever seen. I have from time to time seen a few aviaries in this country, and I have invariably been very disappointed. They are usually much too small, with little cover, and I am sorry to say, untidy and dirty. It is a real education to go and see Mr. Lewis' aviaries, and of course the Pheasants in them. There is a magnificent collection at Leckford. I spent all too little time there. Travelling is no pleasure these days. All those keen on Pheasants owe a debt of gratitude to

Mr. Lewis, who is trying his best to keep the Pheasant flag flying at this critical time.

No Pheasants, of course, are being imported so we have to rely on our own breeding to prevent fancy Pheasants becoming extinct in this country. And not only in this country but in Europe. I believe most of the Continental aviaries have been destroyed. It was of course a tragedy of the first order when Mons. Delacour for the second time lost all his birds, when France was overrun. I bought most of my Pheasants from him, including all the rare species.

My collection, which was one of the best in the country, has sadly dwindled. On leaving Yorkshire in February to come and live in Hampshire I was obliged to sell many of my Pheasants, owing to smaller and fewer aviaries and transport difficulties. It was no light task to catch, pack, and remove for a 300 miles journey. I moved about forty birds in two separate journeys by night. I never lost a bird, and strange to relate, my Rheinhardt cock which has a really enormous tail, never broke a feather. I never expected any fertile eggs this spring, as I caught my birds when some of them were actually displaying. Nevertheless, my Chinquis, which lay in March, have proved as fertile as ever. I now have five strong chicks. One pair of Temminck Tragopans has three strong chicks. All four eggs hatched. One died of pneumonia. Amhersts, Silvers, and Elliots hatched, but the latter were mostly unfertile this year.

Referring to Mr. Lewis' remarks in the *A.M.*, I am all in favour of letting Pheasants rear their own chicks if they want to. Don't be discouraged if your hen fails to sit one year, she might quite likely sit the next, and prove the best of mothers. Chinquis and Tragopans and Amhersts are splendid mothers. But keep strangers and dogs away from your aviaries. Pheasants are not sociable birds.

I hope all Pheasant lovers will do their utmost to keep the flag flying. Happier days are coming, and perhaps sooner than we dare hope.

C. Scott Hopkins, F.Z.S., F.B.S.A.

White Cottage,
New Milton,
Hants.

SATIN BOWER BIRDS

On reading Mr. Hirst's letter on the colour procedure of the Satin Bower Bird—made from notes he made on a captive-bred specimen, I would like to add some observations I have made on one in the collection of birds at the Chicago Zoological Park at Brookfield, Ill.

In May, 1934, the Society received from the Taronga Park collection (Australia) five Satin Bower Birds. Of these, two were males in full colour, and the remainder were apparently females. These three were alike in their olive-green plumage and dusky beaks. In 1937 we noticed that one of these green birds was indulging in the same antics as the male, displaying, jumping about, etc., but it always performed before a male, and the male before it. Two years later (February, 1939) we noticed for the first time that its beak was changing colour to the pale greenish hue of the adult male. Also on this date we observed a solitary black feather on the left breast. On 6th June, 1939, we saw that the left central tail feather (upper side) was deep black.

From then on there was a very slow colour change (increase of black feathers) until August, 1939, when we saw that the lower edge of crown, ear-coverts, upper back, wings and tail were black. There was scarcely any other change until July, 1940, when the rapid growth of the black feathers was evident. By the end of July, 1940, the bird was almost entirely black with olive colour only on face, nape, upper mantle, and lesser coverts. In August of that year it was scarcely distinguishable from the adult males. The age of the bird on its arrival here was unknown, but it had been in captivity six years and three months before its adult livery was completed. The time of change actually dating from July, 1939, to August, 1940, with greatest development in the last month of that period.

Karl Plath.

2847 Giddings Street,
Chicago,
Illinois.

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POST-MORTEM EXAMINATIONS CANCELLED UNTIL FURTHER NOTICE

[K. A. Norris

Hen Kookaburra (*Dacelo gigas*).

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ATTEMPTED BREEDING OF KOOKABURRAS

By M. D. England

Although the story ends in tragedy it may be of interest to record details of the attempted breeding in the spring of 1943 of a pair of Kookaburras (*Dacelo gigas*) at Aston Clinton, Bucks. The original " pair " was handed over to me by Mr. K. A. Norris, of Purley, when increasing national duties made it impossible for him to keep his fine collection together.

The " cock " was an old bird which he had kept for a number of years in his bird-house, and which had seen a good deal of public life at the shows and as a broadcasting star. The other bird was immature, and had been chosen as the most likely hen from a large consignment. As the story becomes somewhat involved from a sex point of view it will be convenient for the moment to refer to them as the old bird and the young.

As received, the old one had a brilliant blue rump and the young a brown one. While in my possession the latter moulted twice, the first time gaining a blue rump, and the second time reverting to brown. While it was brown peace reigned in the aviary, but during the blue phase the old bird persecuted the young one, and on several occasions was only just prevented from committing murder. The clipping of one wing resulted in an unfriendly armed neutrality. Immediately after the brown rump reappeared peace was restored. This apparently confirmed our previous belief that the rump is blue in cocks and brown in hens.

Things did not look very promising from a breeding point of view, so through the kindness of the authorities of the London Zoo the bird of undecided colour was exchanged for a " hen " which had never shown any traces of blue in the rump. The newcomer was much smaller than the old bird and was introduced with some misgivings, as by this time the clipped wing had grown again. However, there was no hostility ; in fact for a while they took no notice of one another, apart from an occasional mutual " laugh ".

In the middle of April the smaller bird was seen carrying a piece

of meat about, all the while making a cackling noise. A few days later she was seen attempting to feed the old bird, who would have none of it. It was very funny to see a dainty morsel being poked all round the other's beak, even into the eyes, without any response or encouragement, until one day more by luck than judgment a piece got jammed into the base of the unwilling recipient's beak. There it stayed for a long time, and was eventually swallowed. This broke the ice and feeding became frequent. Had we then an example of that unusual occurrence, the regular feeding of the cock by the hen?

Soon after this mating was observed, " both ways round," showing that this species does occasionally attempted reversed coition. Two nesting barrels were provided, one upright and the other on its side. Each had an entrance hole about 5 inches square, and 3 or 4 inches of crumbled rotten wood on the bottom.

They were ignored, and the smaller bird bored through a 1 in. elm board in an attempt to excavate a nest. Discouraged from this it tunnelled into the earth, and made quite a respectable hole, but later returned to the elm board. In order to stop this once and for all I placed one of the barrels in front of the hole, and they took to it at once.

On 1st May an egg was laid, *by the old cock!* So at last we can call them she and he, and dismiss the idea of blue for cock, brown for hen. A second egg appeared two days later. Meanwhile the hen had begun intermittent sitting, and she started in earnest after the second and last egg. From the first she was relieved twice daily for about thirty minutes by the cock. As far as it was possible to see the hen never came off until the cock flew to the hole and " cackled ". When he thought she had been off long enough he sat in the entrance and called to her.[1]

This usually had the desired effect, but on at least two occasions within the last week of incubation the eggs were left for considerable periods . . . two days before hatching the nest was not visited by either bird between 1.30 and 5 p.m., and when I carried the hen on soon after five the egg was of course quite cold. (The other egg disappeared on the twentieth day, leaving no trace whatever. I can think of no other explanation than that an oologist found the temptation too great. Most egg-collectors have so little resistance to temptation that entering someone else's aviary and taking *only one* egg would not stimulate their embryonic consciences at all.)

However, the chilling was not disastrous, for on the twenty-third day the egg was chipped, and on the morning of the 24th it hatched.

[1] I see that I have been guilty of " humanizing " the action of a bird, a thing which I am very ready to criticize in others. I have left it as it stands because bird lovers won't notice it, and biologists will forgive it now that I have pointed it out. May I without giving offence express the hope that one day more aviculturists will become ornithologists?

The youngster was incredibly ugly ; it was downless and of a dull flesh colour. This quickly turned to a dirty grey as exfoliation of the " skin " began to take place. This peeling was very extensive, and even at one time became alarming. Lack of moisture in the nest probably had something to do with it.

On the belly, all over the part on which the bird rested when its legs were powerless, was an area of considerable thickening of the stratum corneum. Unlike the physiological (and for that matter pathological) callous found on man, which is usually indefinite in outline, this had a distinct line of demarcation. It is presumably of use as a protection against the hard and lumpy " nest ". It became less as the legs gained strength.

Immediately after hatching both parents spent most of their time in the nest together, and continued to do so for the first fourteen days, after which they took it in turns, leaving the youngster alone for increasingly long periods. At three weeks it must have been uncomfortably large to brood.

A large metal tray was placed on the ground in which was kept a supply of small live food . . . gentles and pupæ, earthworms, spiders, mealworms, beetles, etc. Although the parents ate these themselves they showed not the slightest inclination to feed their offspring with them, but presented the unfortunate beast with large lumps of horse-flesh, with which, of course, it could do nothing. So we had to try hand-rearing . . . we fed it, the parents kept it warm. And in spite of this curious arrangement the youngster thrived. It gave us some anxious moments during the first few days . . . it became so constipated that its latter end turned into a balloon, and it naturally began vomiting. A combination of castor oil, Epsom salts, and abdominal massage eventually did the trick . . . so suddenly that the result was positively shattering. The distention returned once or twice, and was aggravated by the vent becoming caked with " mud " formed from the wood-dust in the nest. Thereafter the unfortunate infant had to have his seat bathed in warm water daily to remove the crust before he could relieve himself. This dust in the nest was made by the parents ; while they were brooding they spent their time pounding the rotten wood into a powder. I can only think that this was connected with nest sanitation, for several times I saw them bury the fæces of the youngster in the dust, after eating what they could get hold if. At nine days old feathers began to sprout, and they grew quickly. And so they should, for the amount of food which he consumed was incredible, and taxed to the utmost the resources of the garden, which was not only stripped of all small living things above ground, but was dug and re-dug many times for subterranean creatures.

All in vain, for on the twenty-second day he died. He was apparently in bounding good health immediately before death, and a searching

post-mortem examination revealed no cause. What is left is now in the British Museum (Natural History). The bereaved parents immediately went into a heavy moult.

It only remains to pay tribute to the untiring efforts of my wife and of Miss Wyld, an enthusiastic friend, whose duties during these somewhat hectic weeks ranged from worm-digging to baby-bathing.

Some other time, perhaps.

Summary and Notes

Dacelo gigas.—Laughing Kingfisher, Kookaburra, Laughing Jackass.

Habitat.—Open forest, parks, gardens, etc., of East and South Australia. Introduced West Australia and Tasmania.

Aviary.—About 20 ft. by 10 ft. by 8 ft. 6 in. high. Earth floor, with rocks and sink for water.

Sexing.—Study of this has led to me the conclusion that it is impossible to sex these birds with certainty by plumage. Although the episode of enmity between two birds occurring when one moulted from brown to blue rump would appear to indicate that the colour of the rump is a sexual distinction, this is not always so. With the kind help of Mr. A. H. Bishop, of the British Museum (Natural History), I was able to examine not only all their skins of *Dacelo gigas* and related birds, but all the books on the subject in the library at the Tring Museum.

The books helped not at all. Some, wrongly, state that a blue rump indicates a male, and a brown a female. Others are inconclusive or do not mention the point. Of the skins all that I can say is that they led me to the belief that a blue rump indicates a female, and a brown a male. (Only one male in the collection showed faint traces of blue in certain lights.) This was borne out by the arrival during our investigations of two birds which had just died in captivity, and which needless to say were cut open with enthusiasm ! It was also of course confirmed by my pair. Two pairs now in London Zoo have been carefully watched during " courtship ". In each case the brown-rumped bird fed the blue-rumped. This of course is not conclusive proof, as feeding of the cock by the hen does occur in some species, though as far as is known only in those in which sexual roles, except of course fertilization and laying of eggs, are reversed. It is possible that the colour of the rump is governed partly by age and locality.

Other possible distinctions are the blue in the wings and the colour and the barring of the tail. The first is more connected with physical condition and angle of light than with sex, and the second is inconclusive. One can only say that the brown in the tail of the female is

rather more rufous. The base of the bill appears somewhat broader and more " solid " in females.

Display and Courtship.—Of display in the accepted sense I saw none. They became rather more vocal than usual, and the " cackling " referred to below was used. The male fed the female assiduously. Several attempts at hole-boring were made by the male, and it was he who was first seen to enter the nest eventually adopted. Attempted reversed coition was seen.

Voice.—Although it is obviously dangerous for anyone without Australian field experience to venture an opinion, it appears to me that the " laugh " has but little sexual significance as between one bird and its mate, except possibly as an emotional bond and a sexual stimulant. In captivity it is uttered at all times of the year with equal enthusiasm by two birds of the same sex, by a pair, or by a mixed collection ; and fear, anger, and a " community feeling " will act as a stimulus. But although not of great sexual significance to the pair concerned, coition or attempted coition on their part will put every other Kookaburra within range into a positive frenzy of excitement causing them to laugh so much and with such abandon that one expects cerebral hæmorrhage to supervene. This incidentally may be witnessed, and heard, at the London Zoo. (The laugh, not the hæmorrhage !) There is no doubt, however, that the urge to laugh is intensified at dawn, at dusk, and on fine warm days ; but this is hardly the place for a discussion on the " etiology " of bird song. At any rate it is not the laugh but another sound, uttered at first by the male, and later by both sexes, which is closely associated with the breeding season. This is a noise very difficult to express on paper, which I can only describe as a series of clucks running into each other, getting at moments of excitement more rapid until it develops into a cackling " e-ýak-e-ýak-e-ýak ". A similar sound is uttered by some birds at the beginning and end of an extra-enthusiastic laugh.

Breeding.—In barrel with 5 in. square entrance hole, 3 feet above ground. Eggs laid in depression in crumbled rotten wood.

Eggs.—Two. White, imperfect oval, about Stock Dove size. One day interval between laying. Dipped in warm water daily during last week of incubation.

Incubation.—Period twenty-four days. By both sexes, chiefly female. Both in nest at night. Male genuinely broods, unlike some species which only " play at it ", moults slightly on the breast, and has " inflammatory " patches.

Chick.—Born naked. Pale " flesh " colour. Feathers showing at nine days. Right eye opened at seventeen days but closed again on eighteenth. Left opened at nineteenth day, and both open twenty-first day. Grew with amazing rapidity. From three days old uttered

persistent querulous cry for food, not unlike that of Magpie of same age.

Food

Parents.—Food killed and/or pulped by beating against perch or stone. Cock also does much pulping by a " chewing " action ; he is able to move mandibles laterally in relation to one another in a way I have not seen before.

Raw horse-flesh, beef, rabbit, rats, mice, starlings, house sparrows, small nestling birds, fish heads, whole sprats, whitebait, gudgeon and roach, snails, slugs, earthworms, frogs (small toads given in error caused troublesome enteritis), beetles, spiders, white butterflies, and small insects of many kinds. Raw meat dipped in bone-, fish-, or meat-meal. Prior to laying dipped in lime-flour.

In order to increase chances of breeding an attempt was made to give vitamin E by means of very finely chopped pea-nut, but this was largely returned undigested in the " pellets ".

Young.—For first three or four days parents stood over youngster and appeared to be attempting to feed by regurgitation. A few drops of almost clear viscid fluid were all that was seen to pass. Otherwise fed by hand. Gentles, chopped earthworms, spiders, many small insects, and later, small pieces of raw flesh.

* * *

MORE ABOUT BIRDS IN TAHITI

By Eastham Guild

Since 1931 it has been my pleasure to import, acclimatize, and liberate birds from other tropical and semi-tropical countries. Up to 1940 I have liberated some 9,000 in all, comprising about fifty-four kinds, and it has given me great pleasure to make the following survey at the present time particularly as their care and artificial feeding has been more or less sketchy the past four years due to existing conditions.

In the first place I have been very fortunate in the fact that a friend has been here the past four years to make observations and take notes for me. Mrs. Bergman has done a splendid job and part of the findings which follow are from her notes.

On my return here the 24th January the birds had been without artificial feeding of any kind for about four months, but I had brought back seed mixtures with me and immediately started my feeding station, and inside of two days there were eleven species represented at feeding time, which has since increased to fifteen at the present time, and I feel sure that as time goes on more will return.

The Western Bluebirds are not here at the present time. They were first liberated in August, 1938, most of them disappearing, but one pair staying on and breeding for three consecutive years, their young always disappearing when it came time to migrate, finally the old birds did likewise, but have returned each year in October to occupy their old nest box and rear new families. Where they spend their time in the interim I have no idea.

According to my observations I figure that twenty species are without doubt established here, the list includes Tanagers, Sugarbirds, Quail, Pheasants, Finches, Waxbills, and Orange Bishop Weavers, these to my knowledge have nested more than one season and reared their young to maturity.

There are eleven other species that I have reason to believe have gone up the valleys and on the sides of the mountains, and no accurate survey of them can be made, but I feel that of these eleven some will have undoubtedly been able to survive and reproduce. This list includes Mountain Bluebirds, Lazulie Buntings, Diamond Doves, Gouldian, Zebra, and Long-tailed Grass Finches, Pekin Robin, Anna Hummers, Pygmy Nuthatch, and various Tanagers. Most of the above with the exception of the Gouldian Finches (900 liberated) were liberated in such small numbers that it would be most difficult to trace them unless they had chosen to confine their activities to my property.

This is the end of the breeding season here, and I feel that this year has been a very successful one. It is an especially gorgeous sight to see the many Crimson-backed Tanagers and the Orange Bishops when they bring their young to the feeding station.

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NOTES ON THE NESTING OF SNOW BUNTINGS IN CAPTIVITY

By G. T. Kay

Snow Buntings may have nested in captivity before, may even have been reared by a bird fancier in a cage in a matter of days, but it has taken me over twenty years to rear two young birds of this species, and I required an aviary with a ground area of 220 sq. yd. to do it in. As a youngster I had an ambition to see Snow Buntings nesting and tried them in various small enclosures without result. Later on I had an aviary built with a ground space of 18 ft. by 6 ft. in which I had a pair for over two years, but no attempt to nest was made. This aviary was doubled in size and given, what I thought to be, good nesting facilities, with no better results. I again decided to double the size of the aviary, and that year I had the satisfaction of seeing a nest being made in a hole in the wall. Four eggs were laid and the birds hatched, but they died in a day or so. During the short life of these young birds the hen very anxiously searched for some sort of insect food which she was evidently unable to find, or at least in sufficient quantity. I tried her with mealworms, small caterpillars, etc., but she would have none of these. For three or four years the same thing happened : a nest was built, birds were hatched and died in a day or two. I tried to hand rear the young one year, but could not make a job of it. It seemed clear to me that a larger ground area was required to produce sufficient insect life and I decided to cover in the greater part of my garden with wire netting. The ground space enclosed was 220 sq. yd., mostly under grass but containing a few bushes and flower plots. At this stage the old hen died, probably of old age as I had had her for about eight years. During the winter of 1940–1 I caught a few birds from a flock and picked a likely looking pair and released them in this large aviary. The only other occupants were a pair of Orange Weavers and a pair of Australian Quail. Snow Buntings take a long time to settle down in captivity, and there was no attempt at nesting during the summer of 1941. However they nested the following year and reared two young birds, and I propose to give the story in detail as I have been informed that the occurrence is possibly unique.

Outside the periods of migration and nesting these Buntings are rather lethargic in their habits, at least they are so in an aviary.

During the last week of March, 1942, both my birds began to get a bit lively. Evidently the migratory instinct was stirring them. Every fine evening throughout April and May they were very active ; flying round and round almost without ceasing. I judge from this that these birds migrate at night as they were normal throughout the

day. On overcast, rainy, or stormy nights there was little or no activity, but on fine nights with a clear sky the birds kept flying round continuously except for short rests of a few seconds' duration. This went on certainly after midnight and probably well into the small hours. In a corner of the aviary I built an erection of bricks and stones loosely to resemble a scree. It had a cavity about 3 feet from the ground which I considered suitable for a nest and so constructed that it could easily be examined from time to time.

At this stage neither of the birds paid any attention to the erection.

On the 28th May I noted that the cock had stopped flying round at night but the hen still kept going. The cock had evidently " arrived " at his territory, and I noticed next morning that he had commandeered the nesting site and was keeping the Weavers away from that corner of the aviary. During the following days the cock was very busy going out and in through the nest entrance and often carried nesting material, but never made any attempt to build anything. At this stage his attempts to lead the hen towards the nest were very obvious, but never once would she pay any attention either to him or to the nest. On the evening of 12th June the hen had stopped her nightly activity, and on the morning of the 13th she was seen carrying nesting material, and had made a foundation in the prepared cavity. By the 18th the nest was complete and contained two eggs on the 20th. On the 22nd there were four eggs and on this date the hen commenced to incubate. She did all the incubating.

Two young birds were hatched on the 3rd July, the other eggs proving to be infertile. Both parents were now extremely active in feeding the young. They were fed in the early stages, so far as I could see, entirely on winged insects, caught mostly in the air, but occasionally on the ground. Later on I noted that an occasional leather jacket or slater was fed to them. Neither parent would look at mealworms, small earth worms, maggots, green caterpillars, or bluebottle flies. The young birds were fledged on the 19th, that is they then left the nest and were able to fly about a bit. In the matter of a few days they were strong on the wing.

Unfortunately this tale has a sad ending. One young bird died during the moult in September and the other died in December. Both old birds died during the spring of 1943. I have no doubt that these deaths were due to the fact that I was unable to get feeding of the right sort, and the type of food on which I had fed them was unsuitable.

If any of your readers know of this Bunting nesting in captivity it would be of considerable interest to have details of the occurrence.

* * *

NOTES ON A SMALL COLLECTION

By Frances E. Matthews

Last summer I was offered a pair of Western Blue Birds quite unexpectedly. It was a great pleasure as I had hankered to possess them for some time. They have a special advantage. They can be easily fed—seed shortage does not affect them. But above all there is their special charm. They occupied an aviary on the lawn surrounded by trees (the latter give harbourage to many birds, some of them we should like to be without). The Bluebirds proved themselves strong and hardy during a cold spell in November. They are delightful to watch, rapid in flight and elusive—just a flash of blue in two shades in the sunlight. Then they come to earth and show their breasts coloured to her richest shades.

Unfortunately a shock through an unknown cause deprived me of the lovely cock. Now I long for the day when I can provide his little hen with a mate. A pair of Gouldians insisted on making a nest in the winter, but they reared only two birds. Lack of some essentials in the Gouldians' diet, combined with climatic changes, have retarded breeding this spring.

Now, as we believe with the poet, that " Hope shall brighten days to come and memory gild the past ", we bravely scatter upon the earth in rows, portions of every seed we possess and trust that frosts and a lack of rain will not quench our hopes of a return.

My Turquoisine hens are inhabiting nests, while their mates with the detached air of the man who said " Barkis is willin " look on. They seem likely to breed if conditions permit. I am finding that small groats are acceptable to them when the usual seed is dry. The groats are a good supplement. The indoor birds have maintained fairly good form in spite of reduced rations and substitutes. The African Grey Parrot (hen) and the Shama vie with each other in the amount of noise they can produce. When the Shama's vocal effort is of the Indian love lyric description the " Grey " remarks " O what a lovely song ! " but, if it resembles some of her own loud contributions, you can hear her say, " Quiet ! " and, as noise continues, " Quiet ! " and then " *Be quiet !* " with emphasis. To help out the Parrot's menu boiled barley and rice pudding are much appreciated—just a spoonful.

The little Zebra Finch (just eight years old) flies everywhere helping or hindering folk. If put in my pocket, out he comes nothing daunted and perches on my wrist. If I call, " Tomtit, do you want to help ? " he flies from the next room at top speed. He repays marvellously the trouble spent on his hand-rearing. His chief diet is yellow millet. When it is lacking he lets you know, and " won't be happy till he gets it ".

May, 1944.

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NOTES ON THE BREEDING OF THE EMPRESS OF GERMANY'S BIRD OF PARADISE IN CAPTIVITY

[Reprinted from *Zoologica*, New York Zoological Society, vol. xxviii (Part 3), 6th December, 1943.]

By Prince K. S. Dharmakumarsinhji of Bhavnagar

Foreword by Jean Delacour

Birds of Paradise have exerted a strange fascination ever since men have known them. This is not surprising, as their beauty and showiness cannot be surpassed. They have been eagerly sought by aviculturists, as well for public zoological gardens as for private aviaries.

Nearly all the many different species have been obtained from their native haunts in and around New Guinea and kept in Europe, in America, in India, and elsewhere. So far, however, none had ever been bred in confinement. Eggs had been laid, and as recently as the last two years the pair of Long-tailed Birds of Paradise in the New York Zoological Park have nested repeatedly, but no further results followed.

Prince Dharmakumarsinhji is the first aviculturist to have met with complete success. A young Empress of Germany's Bird of Paradise has been reared in his aviary. He must be heartily congratulated for such an achievement, more so for having noted so carefully all the observations he has made on this outstanding event.

On receiving a telegram from Mr. Shaw Mayer in May, 1939, to the effect that he was passing through Bombay on his way to England with a collection of tropical birds, including many species of Birds of Paradise, I wired to my friend, the Inspector of Aviaries of His Highness the Maharaja Sahib of Bhavnagar, to go to Bombay. I was then at Mussoorie recovering from ill-health ; had I been well I could not have resisted seeing this marvellous collection of Oriental birds as it passed through India. Within a few days I was informed that the Inspector had bought a pair of *Paradisea apoda augustævictoriæ* and a male of the Lesser Superb Bird of Paradise (*Lophorina superba minor*), and that they were on their way home to Bhavnagar.

On arrival the pair was set free in His Highness's Palace aviary in a suitable cage facing west, the cage having an interior room higher up if they required more seclusion. The roofing was of tiles with a good 45-degree slope. Below the tiles was wood. Surrounding the aviaries were large trees so that the cages kept cool during the heat of the day. Moreover, the evening sun could only penetrate at a late hour. This environment evidently suited them very well.

In the season during which the birds arrived they began moulting

rapidly, and there was nothing specially interesting except that they slowly became accustomed to the special diet that is given to our Indian birds, which I shall later mention.

The following spring, at the beginning of February, 1940, the male bird showed signs of display and started calling vigorously. The call is a harsh *wauk wauk wauk wauk wauk* continued, as described by different ornithologists concerning the Greater Bird of Paradise. This call is repeated often during the day and is the general call; there are many others that the bird emits. As the hot weather approached the male was seen displaying. My assistant, the Aviary Inspector in whose charge I had entrusted the birds, mentions that he saw the male displaying as follows: "He lowered his head, drooped his wings, and erected his plumes above his back. Sometimes the plumes were not completely erected, however. All this could be seen through the first cage. I had a glimpse of him while he was moving from side to side, hopping on his favourite perch—a horizontal piece of straight wood 1 inch thick and 3 feet long."

I was unfortunately not able to witness the full display as described by my assistant.

Suddenly during the next month, April, 1940, the male commenced shedding his beautiful plumes and to my astonishment they were all discarded within a fortnight. It was then that we noticed that he showed signs of real courting, chasing the female and calling in tones which varied from gurgles to grunts. It was his custom to lower his head at the same time, emitting short grunts as he approached the female. These gestures appeared to be his true courting. The particular grunt that he emitted then resembled the sound of a motor-bicycle horn. The courting took place in the early hours of the morning and after the new food was put in the cage, which was at 10 a.m., and also during the quiet hours of the afternoon.

During the middle of April the female was seen picking up nesting material. Hence an old crow's nest was put on a branch erected inside the cage. Twelve days later the female had constructed a cup-shaped nest of coconut fibres and new leaf stems inside the crow's nest and we found that she had started incubation on a single egg.

The hen bird was very regular, sitting tighter as the days advanced, leaving the nest two to three times a day and only coming down to feed, refresh herself, and preen her feathers.

After the 25th day of incubation the hen bird became very irregular, and on the 28th day I could not resist seeing the egg again and examining it. Most unfortunately the egg was found to be infertile. I now have it in my collection; its measurements are: length, 3·65 cm.; middle, 2·65 cm.

During the month of November, 1941, I moved into my own house, Dil-Bahar, where I had special aviaries constructed to suit my birds

and where I took over the pair of Birds of Paradise. Here I devoted most of my time to making notes at the commencement of the breeding season. Out of the four cages facing east the second from the south I selected for the pair. All of the cages were of equal size, but the interior was coloured differently, and there was no extra room as in the palace aviaries. The two middle cages are closed in on three sides with net windows and have a venetian type of window at the back of the wall for ventilation. The front is wire netting with a door for each cage. The cage in which the Birds of Paradise were kept (cage No. 2) is furnished with plants (crotons), dry perches of teak wood laid horizontally, and an old stump of a tree with branches put here and there. A cemented watercourse passes through all the aviaries to supply fresh running water for drinking and bathing.

The food of the birds has been virtually unchanged since they came into my aviaries. It consists of papaya, bananas, and chogo, which latter is a mixture of flour, eggs, meat, and ghee made out of butter. Live food is also given, including grasshoppers, mole-crickets, and locusts. I find that the birds relish this mixed diet and thrive on it. The breeding of my pair would indicate an adequate diet.

Throughout the winter months the male was calling, although not as vigorously as in February and March. The diversity of calls that he emitted was extraordinary, varying in strength in different degrees and rather difficult to describe. Nevertheless I was able to notice that the male had definitely a peculiar call during the real courtship or rather during the height of love-making. This call was a short syllabled, horn-like sound as mentioned before. There was also another peculiar call that seemed similar to that of our India Tree-pie ; this also was heard only during the breeding season. The former love call is generally emitted at the approach of the female or when close to her. Moreover, it was the male's daily habit to bow his head from side to side, then suddenly jerking it up like a Mallard Drake and shaking it in pride.

During the entire month of March the male bird was calling incessantly throughout the day, but no special display was to be seen except at the end of the month when he was heard emitting his peculiar courtship grunts. At this time both birds were very shy, especially the female, which had a very acute sense of danger and vigilant eye-sight. The latter was indicated when I was in the habit of looking from the adjoining aviary (No. 3) to see if I could catch the male displaying or luckily happen to see them mating. In order to do so I had drilled two small holes through the cement sheeting on the sides of the aviary. The two holes were 3 feet apart and the size of a ·22 calibre rifle bullet hole. From here I could observe from time to time the male coming down to feed, taking his daily bath in the early morning and dancing about on the branches. After taking his

dip he would dry himself on his perch, preening his beautiful plumes. The hen bird would also bathe but not so regularly as the male. This may have been because she could perceive me through that minute hole and catch any slight movement that I made. She was very wary and became more suspicious toward the direction of the holes. However, it does not seem unusual among these birds to be suspicious, for in the dense jungles of New Guinea there must be many of their enemies lurking close by. Moreover they are birds that normally prefer absolute seclusion among dense foliage.

While the male had his own courtship and display I noticed also that the female seemed very active. She would exercise in a peculiar manner which coincided with the display of the male. She would leave her perch, fly toward the open side of the cage, and make one or two short circles and return. At first I imagined this to be merely the usual exercise. But making further observations I noticed that it was a part of the pro-breeding display, if one may call it so. She would sometimes fly around the male in this manner too. This latter behaviour overcame my doubt.

The female Bird of Paradise had a habit of moving from one side to the other on a branch, often turning completely round and flipping her wings as do Crows. This behaviour of wheeling, as I might call it, is also to be seen among Babblers. They are very cautious birds and do not alight on the ground if they can help it. This characteristic is so pronounced that they will climb down a branch, lower the head, take a drink, go up again, and fly to their perch. When coming down to feed they will fly to a slender branch of a bush, alighting invariably in a horizontal fashion. Then they wheel about as they climb down with one foot above the other, see that there is no danger, and then come down to feed. I have seen the female scale an old trunk of a tree not unlike a Woodpecker looking into the crannies for insects.

During April, although the climate became a little warmer as the south-east winds began to blow, there was a cool breeze coming from over the sea. This seemed to stimulate the birds immensely. The male started his displays. Hopping on his branch, with both feet simultaneously, he would jump up 1 or 2 inches, as it seemed ; in springing himself up he would also move his wings rapidly. Then he would fly to another branch, do the same, and return. He would also hop from side to side on his favourite perch, lowering his head from one side to the other and making his courtship grunts. This kind of display lasted fifteen days from 5th April to 20th April. During the second week of April, after the 17th, the hen bird was for the first time seen picking up a stem of lucerne in her beak and carrying it towards nest No. 2, an old crow's nest composed of bits of wire, which had been placed in the north-east corner of the aviary about a month before.

This was the first sign of nest building. The south-east winds continued.

On 21st April the male was not calling as much as usual. The next day I arranged to put creepers, lucerne, and fibres for nesting material into the aviary. New material was given each day, but the female preferred the lucerne, flying to nest No. 2 and depositing the succulent stems untidily. Many of them dropped out of the nest, while some were not even properly arranged. The building procedure continued every day, but only in the morning hours between 9 and 10.30 o'clock. Some creepers fell down each day while new ones were roughly put on the nest. As the days advanced only a few remained on the nest. This type of haphazard nest building went on until 27th April when everything ceased and there were no signs of picking up of material. By this time only a few stems of lucerne that had fixed themselves in the wire nest remained. Whether the hen bird had become suspicious or whether she was bluffing was a question to be answered later. However, I kept a close watch and found that the male bird was again calling vigorously and was seen chasing the female.

On 6th May I was spraying water with my hose-pipe into the cages because of the tremendous heat. It was my habit to spray the casuarina branches that screened part of the south and west walls at the back of the aviary. I did not notice the hen bird move as she regularly did from behind the screen. However, a few minutes later when I had stopped spraying she flew out of the casuarinas and she perched on a branch in the front part of the cage. She immediately started drying herself, and having done so at once flew back to her usual resting place. In spite of this new observation, which I then took to be quite natural, I passed the cage to water the others.

Two days later, on 8th May, my aviary boy reported the nest and a single egg of the Paradise Birds among the casuarina branches. His suspicion had been aroused because the hen bird was not to be seen in the cage and on investigating in the casuarina screen he eventually flushed the bird off the nest. I confirmed his statement by seeing the egg by means of a small mirror fastened to a cane stick. The nest was a regular cup shape and was placed between the stems of the thickest clump of branches. It was quite invisible from outside. A glimpse of the hen bird could be seen from the adjoining aviary, but only if the place were pointed out to one. Such was the cunning of the female which had ingeniously avoided our attentions and had surreptitiously built her nest. From 8th May I took particular care and put down my notes.

The hen bird would come down from the nest to feed and clean herself three or four times a day and would remain out from five to ten minutes on each occasion. The male kept fairly silent and never interfered, only making his grunts and gurgles when the hen left her

nest. I could generally tell when the female had left the nest by the male making his love calls. On 17th and 18th May the hen was very hard set. On 20th May one of my female dayal birds got into the cage and caused a little trouble before I could remove her. Actually I opened the first cage window so that she could return, but I found by doing so a pair of Spreo Starlings entered the cage too. However I managed to entice them out except for a Spreo which was so obstinate as not to leave the cage.

The next day, 21st May, at 2 p.m. I found near the front of the cage an empty egg shell which I at once recognized as that of the Bird of Paradise. The first thought that gripped me was that the Spreo Starling had done the mischief, for often they have swallowed and destroyed the eggs of other birds. The next instant I was in the cage with my mirror to examine the nest and to my delight I saw a little chick, an absolutely pink little thing lying on its side. At once I had the Spreo removed. Counting the days from 8th May the incubation period evidently was thirteen days, but I am inclined to think that the egg was laid earlier—probably on 6th May, so that the incubation period would be fifteen days. However, this is a point to be confirmed when better chances afford.

The hen brooded the chick most of the time and started feeding it, as I noticed, at midday. The feeding procedure was extremely interesting. Grasshoppers were put down. She would select one 1 or 2 inches long, take it to a near branch, then fix it in her claws and start removing its legs, then its wings, and finally would swallow it whole. Seeing that there was no danger she would fly to the nest and regurgitate the food into the mouth of the young.

After four days the hen bird would take two grasshoppers at a time and regurgitate them both into the mouth of the nestling, one by one. During the next week large grasshoppers were given as well as locusts. These the hen apparently preferred to the smaller ones. In this case also she would take a locust or large grasshopper and proceed with it in the usual manner, removing the legs and wings and also the intestines. The latter were cleverly removed. Then piece by piece she would swallow the soft abdomen and lastly the head, which evidently was an edible portion of the body. However, there was one special peculiarity that I marked about the parent bird during the feeding ; that was that she fed the young only twice at each feeding time. This seemed to me very strange. However, when the nestling was ten days old she would take two or three small grasshoppers and swallow them entire at a time, and would regurgitate them out one by one. She would only bother herself to remove the legs and wings in the case of larger insects. After each feeding the hen picked up the excreta of the chick, which she swallowed in the manner of many other birds during their parental care.

During the first week I started with only three feedings, one at 9 a.m., the second at noon, and the third at 4 p.m. During the second week I increased the feedings to five, at 7.30 and 11 a.m., 2, 4, and 6 p.m., and continued the same until the young left the nest. The number of insects varied at each feeding. When large insects were given the number was usually small—thus, five or six large insects or as many as twenty small ones.

The voice of the chick could be heard at a distance of 10 feet when it was one week old, and at 15 days the chattering was audible at 30 feet.

The temperature in the shade on 3rd June registered 110 degrees F. This was at the hottest part of the day. The heat was intense, especially on the roof and inside despite two layers of cement sheeting with a 1 in. air space. On Friday, 5th June, there was a distressing scene, the nestling falling to the ground. Fortunately it escaped injury. Why it should have fallen seemed a mystery, but I later concluded it was a result of activity induced by the extreme heat and the lack of ventilation near the nest.

At the end of the first fortnight the tender wing feathers were clearly visible, the pectorals were merely hairs, and the tail feathers were starting to grow. The nestling was handled with care and was returned to the nest. It croaked once or twice while on the hand. The legs were still colourless and white. The iris of the eye was lead grey. During this period of intense heat the nestling fell out of the nest again, but since there was straw on the ground it did not sustain injury and was returned to the nest.

On the 8th, 10th, and 12th June I took photographs of the parent bird feeding the nestling.

After 10th June the temperature dropped and it varied from 105 to 107 degrees F.

The male bird took no part in parental care, but on the contrary became quite a nuisance at times. In fact he seemed rather hen-pecked. The female would fly at him and claw him if he ventured too near the nest. The male became sluggish, and would sit placidly on his usual perch in the corner opposite the nest. He was removed as the young got older, as a safety measure.

To give a more detailed description of the nest, it was cup-shaped and measured $4\frac{1}{4}$ inches wide and $3\frac{1}{2}$ inches deep. It was composed mostly of casuarina leaves and creepers of Jacaramontsia, which has a beautiful blue flower. There were, however, a few coconut fibres. The height from the ground was 7 ft. 4 in., and the nest was situated in the south-west corner of the cage.

On 21st June the nestling was able to fly out of the nest. It was fully fledged and looked very much like its mother except that the nape was not so lightly coloured as in the parent bird. The eyes were

different and the legs lighter in colour. It would fly behind its mother for food, and slowly started to feed on its own.

During the entire period of parental care the hen bird emitted a call that I had not previously noted. It was an alarm call, sounding like *Kurr Kurr Kurr*, resembling the call of some of the larger Woodpeckers. This call was only heard during the period of parental care and was quite different from the call the female ordinarily emitted. Her call does not vary as much as that of the male, but is shriller.

[On 28th April, 1943, Prince Dharmakumarsinhji wrote Dr. A. Wetmore, of the Smithsonian Institution, as follows] :

" My adult male *Paradisea apoda augustævictoriæ* suddenly died on 17th February, although a week before he was seen courting, and I had every hope that the pair would breed successfully again.

" I had been surprised when my cage boy reported that the adult hen was showing signs of nest building. This was on 7th March. The situation of the nest this time was in the adjacent corner or N.W. direction of the aviary among the casuarina branches. I promptly inspected the place and could not ascertain it as a nest, although I had seen the hen bird sitting there quite often and breaking leaves. Ten days later nest building commenced in the usual slow manner on a dried bush of a Duranta situated in the front part of the aviary. Creepers with their blue flowers hanging on their stems were placed on the bush each day until active nest building took place on 20th and 21st March, and a complete cup-shaped nest was built. Moreover, on 22nd March the hen started incubating a single egg. The nest was composed of creeper and pieces of coconut fibre with a bit of string and was lined inside with casuarina leaves. The height from the ground was 3 ft. 7 in.

" Incubation was very regular. She would not stir even when the cage boy went in regularly to clean the cage and put down the food. On 14th April I took the egg, which I believe was addled, while it was still being incubated most regularly. For the next few days the adult hen bird could be seen perched on the nest with a mournful air. After that she began destroying the nest completely. Let me hope that the young bird of her previous nesting will turn out to be a male."

NEWS FROM FOXWARREN PARK

By Alfred Ezra

Although I have got rid of a good many birds on account of the difficulty of feeding them, I still have a fair number of Parrakeets left, which are fed principally on buckwheat, tares, and oats. This year I have reared the following successfully : Four Lutino Ringnecks and five Queen Alexandra Parrakeets. I had the misfortune to lose my lovely old Blue Alexandrine Parrakeet. He was the only one who reared a good many blue young ones for me, and his loss is most regrettable. I had him here since 1923, and my brother had him in India for four years, so he was at least 25 years old—not a bad age for an Alexandrine Parrakeet. He bred me my last blue one last year. I am sorry I now have only one Blue Alexandrine—a cock bird, but I still have a good many blue breds. Unfortunately they are such bad breeders, and my chances of establishing the blue variety are not very promising. My other loss was my last Humming Bird—the Violet-eared (*Petasophora iolata*) which I have had over six years, and I am afraid he was the last Humming Bird in England. A good many Mandarin and Carolina Ducks were bred by the full winged birds who still stay here in spite of the bad food and dirty water in their little pond. The river being very low the ram does not work, with the result that the water is almost black and has a nasty odour. I have bred four Stanley Cranes and two White-necked Cranes in the orchard, as well as three Ruddy-headed Geese in the animal enclosure and a good many Black-shouldered Pea-fowl. On the whole I don't think I have done too badly under great difficulties.

I still have a few Tigrine Doves at liberty, and they always nest in the garden. A very few jungle fowl left, and I am afraid they are dying out as I have had no fresh birds turned out for change of blood. The nicest birds of all and the most interesting are my Chukor Partridges. Two years ago I had about fifty of them, and they always stayed in the garden by the house and were very tame, coming right up to me to be fed. They always flew to the top of the house to roost every night. Last year they seemed to disappear and this spring I counted only seven birds, but about the end of July I was overjoyed to find one hen with 14 chicks and another with 8 chicks. They are all very tame and look so pretty feeding with the Pigeons. As they are a fair size now, I am hoping they will all be reared. Of all my birds at liberty I like my Chukors the best.

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BREEDING THE AUSTRALIAN BLACK-BREASTED PLOVER

(Zonifer tricolor)

By Sydney Porter

Being in Egypt in the early months of 1939 and meeting a very voluble and unsecretive member of the Egyptian Secret Service, I got a general résumé from him of what was in store for us in the latter part of that fateful year. My loquacious friend predicted almost to the very date when the hostilities would commence and estimated their duration to be at least five years. Acting on his advice I hurried home, dispensed with those birds which were more or less dependent on meat and fresh fruit, laid in a store of food for the others which I hoped would carry us over the five lean years, firmly resolved to buy no more birds for the duration, and finally settled down to wait events.

But resolutions, like treaties, are often broken in war-time. From time to time certain very attractive birds were offered to me which I found very difficult to resist buying. Such was a pair of Australian Black-breasted Plovers, purchased in the early months of 1943.

A local bird dealer phoned me up one day and said that he had a pair of small ground birds—waders he thought they were—black and white and brown, with red on their heads—and named a very reasonable price. I racked my brain but could think of no wader with red on its head so I asked him to send them along to see what they were. On arrival they turned out to be a couple of very handsome Plovers and thinking they seemed vaguely familiar I turned up Mathew's *Birds of Australia* and found they were the Black-breasted Plovers from that country.

They were not in too good a condition and had obviously been fed on corn alone, for at that time very few people I think had any soft food left ; fortunately I had a little and upon this and mealworms they quickly improved and in a few weeks had completely moulted.

The presence of red on the head is due to a couple of light scarlet wattles which start from each eye and meet over the beak. In colour the birds are a fawnish-brown with a purplish-bronze gloss above and a black cap, the rest of the plumage being an arrangement of black and white, and the beak and the skin round the eye a pale lemon yellow. The sexes seem exactly alike except that the cock appears to wear a pair of short white trousers or pantaloons which reach his knees !

They proved to be quite the tamest pair of birds of that type I have ever had but, though they would come up to one's feet for a mealworm, they would never take it from one's fingers, not through fear but, I

rather think, because they could not see the food when held above the ground.

The birds were kept for a time with a pair of Argus Pheasants in a fairly large aviary, but owing to the grass being long they never seemed very comfortable. After a month or two we moved them into a smaller aviary containing a bachelor Satyr Tragopan.

The first indication of anything happening was in December, 1943, when I found the hen looking very sick one morning. We caught her up and placed her in a heated bird room. The next morning we found her looking perfectly fit with an egg in the same compartment ; she was kept in for a day or two but the noise made by the two birds calling each other was so loud and incessant, all night and day, that we soon had to put the hen back in the aviary again, when there was a very affectionate re-union.

The egg laying went on for quite a while, each time the hen looking so ill that we caught her up and put her inside. However, in February a nest was built, a scrape in the earth lined with gravel. There seemed to be a kind of display in which the cock ran round quickly flinging stones over his back to a distance of several feet. Two eggs were laid in the nest which was in a very exposed position in the aviary.

February lived up to its tradition and after one particularly long spell of damp rainy weather, we found the remains of the eggs far away from the nest ; rats also got into the aviary, but only small ones which could get through 1 in. wire netting as this was sunk to several feet below the surface of the ground. I don't know whether it was the inclement weather or the rats which were to blame.

Soon afterwards the birds made another attempt ; this time the nest was made by the side of the aviary and near a path which was very frequently used ; however, we covered the side of the aviary between the nest and path with canvas. This clutch also consisted of two eggs. After the birds had sat most assiduously for about three weeks, we had another period of wet weather and after one particularly bad night, we found the eggs again broken, this time with traces of young birds on the shells.

Taking to heart the old adage, the third time pays for all, the birds started again. Very sensibly they made their third nest under the shelter of a glass light placed on the top of one corner of the aviary, but unfortunately near to the door of the shed where the Tragopan spent his siestas ; every time he went in or out the cock Plover would attack him and end up by hanging on to his tail, though the Tragopan was at least half a dozen times his size !

The first egg was laid on the 29th April, there were four eggs this time and the birds commenced to sit on 3rd May. Owing to the presence of a pair of Temminck's Tragopans in the next aviary the cock Satyr indulged in an almost ceaseless display and few birds have

so many and such spectacular displays. Two of these displays which we called the " fluttering " and the " creeping " displays seemed to disturb the Plovers most. The former consisted of leaps several feet into the air with a very loud whirring of the wings. In the latter, the bird crept round the aviary like a cat stalking its prey, then seeming to go into what appeared to be an epileptic fit he would suddenly spring up, his back at right angles to the ground, his pale blue horns sticking out from his head, his huge spectacular brillant blue and pink bib extended over and covering his breast, his head feathers extended in all directions, looking like something quite unbirdlike and out of the realms of utter fantasy, and would rush at the Tragopans in the next aviary. All the time the cock Plover would be standing near to the sitting hen and if the Tragopan came close he would hang on to its tail, not that it had any effect. Another source of disturbance was a pair of Azure-winged Magpies in an adjoining aviary who had a nest of eight eggs and who upon the slightest provocation kicked up the most ear-splitting din. The screeching alarm notes of these birds were a sore trial to the Plovers' nerves.

The only time the birds were really disturbed was when a small black and white terrier puppy came in sight ; then the cock would immediately leave the eggs if he were on them, and rush round the aviary making a terrible noise, trying to get at the dog.

Fortunately we had fairly dry and warm weather this time except for a storm of tropical intensity which occurred about 48 hours before the eggs hatched. Not even several hours of deafening thunder with almost continuous flashing of lightning which made one wonder at first if a second " Blitz " was descending on us, accompanied by a torrential downpour, deterred the determined birds from their efforts at reproduction.

On the afternoon of the thirty-third day from the laying of the first egg the youngsters hatched. I had almost given up hope and thought the eggs must be infertile. When I looked at the birds, the cock, who was at the time sitting on the eggs, was fluffed up to about twice his normal size and the hen was sitting about a foot away facing the cock. Suddenly I saw a tiny chick pop out from under the cock bird and make its way on very unsteady legs towards the hen who raised herself up to receive it. In a few hours the chicks were running about, very unsteadily, picking up particles of earth and swallowing them. Even then if I went into the aviary, on the parents uttering the alarm note, the youngsters would at once scatter in different directions and squat down flat on the earth, becoming almost invisible. The parents would not hesitate to attack any one who entered the aviary.

The varying periods of incubation in different species are very puzzling. One wonders why such small birds as Plovers should take a month to incubate their eggs, large birds such as Cranes, Bustards,

etc., take even less time, while Crows equal or larger in size to Plovers should only take about half the time ; yet on the other hand a tiny bird like the Stormy Petrel takes about forty days.

The young ones were a speckled sandy buff and black, the whole of the underneath parts pure white, there was a black band on the nape and below this a wide white collar. Being ill I did not see them for a week and was rather surprised to find that they had grown very little in the seven days though they were very active and strong on their legs. They fed mainly on the stock food enriched with powdered short-bread biscuits and chopped hard-boiled egg, they also had a supply of gentles and mealworms and were very fond of the latter.

The cock Tragopan was closed up for the first week in case he should tread on the chicks and squash them, but this was hardly necessary as the male Plover took good care to keep him out of the way.

Only three of the eggs hatched, the fourth being bad though the parents stayed on it for two days after the last of the three chicks hatched.

After the first fortnight the chicks grew very rapidly and by the time they were six weeks old they were the size of their parents. The cock bird meanwhile was most assiduous in his care of the young ones. If any danger threatened he would shepherd them into the shelter and then hurry out again to meet the trouble, or if one entered the shed when the young ones were inside and the cock outside, he would rush in and take up a very threatening attitude. Throughout the whole business the cock seemed to take a far more enthusiastic interest in the proceedings than the hen. During the incubation period, if one approached the aviary and neither of the birds were sitting, the male would rush to the nest and cover the eggs with a " touch them if you dare " attitude.

At six weeks of age the young ones were a mottled sandy buff with the parts which are black in the adult a darker mottled colour though the white parts were their normal colour. At this stage as from the age of three weeks the young ones ran about with incredible rapidity.

On the 12th July the hen laid again, this time four eggs. As a precaution against the excessive rain which we were having at that time, we stuck four thick canes into the ground round the nest and placed a sheet of glass on the top. This the birds in no way resented.

The Australian Black-breasted Plover had been bred several times shortly before the outbreak of this war. Firstly, I think, by Lord Lilford, secondly by the London Zoological Society, and thirdly by Herr Neunzig in Germany who wrote a detailed article in the Magazine for 1940.

The following notes on the wild life of this bird are extracted from Mathews' *Birds of Australia* :—

" These sprightly little birds are dispersed over the whole of Eastern

Australia. I have met with them on the vast plains of the interior as well as on the sea shore ; they are birds of a very sprightly and active nature and carry themselves in a very elegant manner when travelling rapidly over the ground their broad pectoral band showing up in great contrast to the white belly.

" These birds are lovers of the open low grassy plains of the inland country of all the states and are to be seen in the cultivated wheat fields where they do much good by eating injurious insects, etc. They often go in small flocks in search of their food taking flight at the approach of their enemies as they are very timid. They make long flights across country and are sometimes seen flying very high in the air uttering their well-known clunking note. . . . They are very fond of the common black cricket which does so much damage to grass and stock feed generally, they are therefore the friends of the settlers.

" When sheep come along, perhaps being driven, the driver will sometimes wonder why the sheep stop and then split into two flocks and go off in different directions. If the drover is a keen observer he will know what is the matter. The sheep have come up to a Plovers' nest and the bird instead of jumping up and flying off does a very simple thing, it extends one wing on to the ground and the stiff feathers make a rustling noise. The sheep stop dead and perhaps either all run round one way or split into two flocks leaving a clear space in which the bird and nest are quite safe."

* * *

NOTES FROM TARONGA PARK

By Robert A. Patten, B.V.Sc., Superintendent and Curator, Taronga Park Trust, Sydney

I have been frequently asked of late how we are faring with our collection of birds during the present difficult times through which we are passing. Perhaps I had better pen a few notes from the land of " down under ".

Like most Zoological Gardens, we have our trials and tribulations. Fortunately, the attendance figures are excellent. This is naturally very encouraging.

The procuring of suitable foods and labour is certainly a problem that at times tests the stoutest heart. The depletion of trained personnel mainly owing to enlistment in the fighting forces has thrown a tremendous responsibility on the management, so hard work is the order of the day. One must exercise every care in maintaining the collection, as new exhibits are almost unprocurable.

Naturally at a time like this, a very important factor is the breeding

and raising of young stock. The breeding results of some of the principal birds during the 1942–3 seasons may be of interest to our bird lovers.

Red-sided Eclectus Parrots (*Lorius pectoralis*).—These birds did extremely well—we now have several breeding pairs, and during the 1943 season successfully raised ten young. As pointed out in my article written in AVICULTURAL MAGAZINE of September, 1939, we find it safer to remove to the hospital the young birds when fully fledged, and hand-feed them. Our experience is that the parents are inclined at this stage to neglect them, in their anxiety to go to nest again.

We have, during the last four years, bred a considerable number of Eclectus Parrots, enabling us to transfer birds to both Adelaide and Melbourne Gardens, as well as selling quite a number to private aviculturists in various parts of New South Wales and Victoria. In one aviary we have six pairs, and the inquiries for them are now very keen.

Crimson-winged Parrakeets (*Aprosmictus erythropterus*).—This pair successfully raised five young this year and three last year. I secured the parents from a grazier in Western New South Wales four years ago, and, strange to say, during the first year when placed in the breeding aviary they would not use the nesting logs, but laid on the ground in the retreat behind the flight. Three young were hatched, and all were subsequently killed by the male before they were advanced sufficiently to fly. Fortunately, during the last two years, the birds have settled down and used the logs with satisfactory results.

Scarlet-chested Parrakeets (*Neophema splendida*).—Two breeding pairs of these beautiful Parrakeets have done very well ; ten young in 1942 and eight in the 1943 season. We find here at Taronga Park that, unless one is very careful, the nesting logs become infested with red mite, with unfortunate results. Consequently, at the end of the breeding season we are always very careful to put the blow lamp both inside and outside the nest logs, and again before they are to be erected for the following season. These glorious birds are a great help for exhibition in these days when it is almost impossible to procure any stock from abroad.

Turquoisine Parrakeets (*Neophema pulchella*).—Three youngsters were raised in 1942 and six in 1943. These beautiful little Parrakeets, that appeared to be on the wane some few years ago, seem to be on the increase now as quite a number of aviculturists are successfully breeding them.

Bourke's Parrakeets (*Neopsephotus bourkeii*).—During 1942 we were only successful in raising one young bird, but the following season three were added to the collection.

Barraband's Parrakeet (*Polytelis swainsonii*).—These birds have bred very well with us for a number of years. A fine breeding pair has

been very prolific, generally bringing forth four or five youngsters. However, they missed during the 1942 season, but raised four beautiful young again last season—1943.

Queen Alexandra's Parrakeets (*Northipsitta alexandrae*).—Two pairs of these birds both failed to reproduce during the last two seasons although in both 1940 and 1941 each pair raised three fine young birds. The old birds are in fine plumage, and it is hoped that next season we may be presented with some more of these beautiful creatures.

Elegant Parrakeet (*Neonanodes elegans*).—These birds breed very freely with us. In most cases they generally raise four young, and as they move freely in the flight, are always fairly attractive in their aviary.

Many-coloured Parrakeet (*Psephotus varius*).—During the past two seasons these birds have successfully raised four and five young. They are a very attractive exhibit, and seem to do well in our breeding aviaries which have a flight of 25 feet and admit plenty of sunlight.

Kuhl's Ruffed Lory (*Vini kuhli*).—We were very fortunate some five years ago to receive a number of these glorious Lories, but it was not until the 1943 season that we were fortunate enough to have a pair go to nest. This naturally gave us a real thrill, as we had high hopes of breeding them, and you can imagine my feelings when the head bird keeper reported that two young were hatched during late April. Unfortunately, I went down at the time with an attack of undulant fever. On my return from the hospital I was dreadfully disappointed to learn that the young had been abandoned by the parents, and thrown out of the nest. These lovely little Lories are the envy of all who view them, and naturally we are leaving no stone unturned to try and get them to reproduce. I would like to be able to obtain some of the giant bamboo for nesting ; but unfortunately the war has placed out of bounds, for the time being, the source of supply.

Forsten's Lorikeet (*Trichoglossus forsteni*).—These birds successfully raised four young in 1942, and two the following season. After experimenting with various types of nesting material we found our birds preferred to nest in hollow logs placed in an upright and perpendicular position.

Green-naped Lorikeet (*Trichoglossus hæmatodus hæmatodus*).—Some six years ago we managed to procure three pairs of these rather rare and lovely birds. Up to the present time we have had no success with them as far as breeding is concerned. For the last three seasons they have laid, but on each occasion the eggs have been clear. These birds are fine aviary exhibits, and like the Solitary Lorikeet, hang from the roofs of their flights, particularly after showers, displaying their very attractive plumage.

Solitary Lorikeet (*Phigys solitarius*).—The 1943 season again favoured

us with these beautiful gifts of nature. Two pairs went to nest, and each raised a young one. I am pleased to report that both are doing well and developing into fine birds. As we are the only Gardens in Australia exhibiting the Solitary Lorikeet, we are naturally hoping for future successes to enable us to transfer some to the Zoos in other States.

Red-collared Lorikeet (*Trichoglossus rubritorques*).—These birds have multiplied well in the breeding aviaries. We now have quite a number on hand for transfer to other Australian Gardens. A number of Red-collared Lorikeets placed in a suitable aviary always attract plenty of admirers.

In regard to other than parrot-like birds, the Pigeons have bred very well, particularly the Torres Strait (*Myristicivora spilorrhda*), Nicobar (*Calœnas nicobarica*), and the New Guinea White-breasted (*Phlogœnas jobiensis*). A pair of Picazuro Pigeons (*Columba picazuro*), which we obtained from a Sydney aviculturist three years ago, bred for the first time last season.

A few years ago we forwarded to an Indian Zoo our main pair of breeding Brush Turkeys (*Alectura latami*), in exchange for Pheasants. However, a pair of young birds we had on hand bred last season and raised eight fine birds.

One of the greatest thrills we had last year was when a pair of White-plumed Birds of Paradise (*Trichoparadisea gullielmi*) went to nest. These birds laid two eggs—red streaked and blotched on a white background. The nest was made in some tea tree branches we placed in the aviary retreat. It was a very flimsy and primitive type of nest. However, a large privet bush growing in the flight protected the nest from view, making it difficult and almost impossible to see unless one entered the aviary. The eggs were successfully hatched, but next day one of the young was found dead on the ground, apparently having fallen from the nest or been pushed out by the hen. Two days later the same fate befell the other young bird. It also was found on the ground, and although it was still alive and placed back in the nest, it soon died. All the Paradise Birds at the Park were brought down from New Guinea more than ten years ago, and were in the adult stage when captured.

* * *

NOTES

Sex Determination

Some of us may remember that when we were young we were amused, and more than a little mystified, by a little "novelty", sold for about sixpence, known as a "Sex Indicator". This somewhat resembled a small glass fountain-pen filler containing a spiral of wire which, suspended on a thread over an object, indicated by the manner in which it swung whether it was male or female. If suspended over a woman's hand, for instance, it described a complete and continuous circle, if over a man's

it swung in a straight line backward and forward. It was said to act equally well over cats, dogs, rabbits, pigeons, etc. Similar little gadgets are, I believe, still to be obtained from shops specializing in the sale of jokes, tricks, novelties, etc., but anyone can experiment with an ordinary needle and thread. A simple test can be made in the following manner : thread a needle with about 18 inches of thread ; take the ends of the thread between thumb and forefinger and let the point of the needle hang about $\frac{1}{8}$ inch from a silver coin, say a half-crown. Now take hold of the bird or animal to be tested with the other hand, and if it is a male the needle will swing *across* the coin, but if a female it will swing *round* the coin. Several types of pendulum are employed by experienced dowsers—and this *is* a form of dowsing—one of the most popular being whale ivory.

Of what interest is this to aviculturists ? Simply that a very considerable degree of correctness has been attained in experiments in the sexing of eggs and day-old chicks. Hence it is reasonable to suppose that with practice aviculturists should be able to determine the sex of some of our more difficult species. Here would seem to be a vast field for experiment.

It might be mentioned that the British Society of Dowsers has a membership of over 500 and publishes a quarterly journal, *Radio-perception*. The Hon. Secretary, Lieut.-Col. H. M. Edwards, D.S.O., York House, Portugal Street, London, W.C. 2, is only too willing to be of every assistance.

ARTHUR A. PRESTWICH.

* * *

CORRESPONDENCE

THE EJECTION OF PELLETS BY PASSERINE AND OTHER BIRDS

May I invite the attention of aviculturists to a short paper under the above heading which I contributed to the August *British Birds*. It is common knowledge amongst ornithologists that predatory birds such as Hawks and Owls throw up the indigestible portions of their food in the form of pellets, and it is also fairly generally known that the habit is shared by the Rook, the Heron, Gulls and at least some Waders. But with regard to Passerine birds and various other groups recorded information is extraordinarily meagre. There seems little doubt that all insectivorous Passerines eject the chitinous hard-parts of their prey, if not always as pellets at least in a more fragmentary form, but the number of species in which it is positively recorded is quite small and the act of ejection is very rarely observed in nature. For many common birds no information is available and in other cases where the bare fact of ejection is recorded it is not known whether it is regular or exceptional. I must refer those interested to the original communication for further information, but I should like to commend the matter to the attention of aviculturists, since it is one on which they should be in a position to provide valuable evidence. Though my primary object is to obtain data about wild birds under natural conditions, evidence obtained from birds in captivity would also be most useful, and I should be very glad to receive any such information from any of your readers with reference to any birds other than Hawks, Owls, and the Common Heron. The particulars should be as precise and complete as possible, stating the exact species referred to and any other relevant details that can be given, such as frequency of ejection, variation in quantity or character with different types of food, and description and measurement of typical pellets or, better still, sample specimens, which should be carefully packed in tissue paper or cotton-wool in a tin or strong cardboard box. Though I am mainly concerned with European birds, information about birds from any part of the world would be acceptable.

B. W. TUCKER.

9 MARSTON FERRY ROAD,
OXFORD.

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Photos by] [*K. F. Rowhen.*

TRUMPETER SWANS AT RED ROCK LAKES REFUGE, MONTANA.

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THE FATE OF THE TRUMPETER SWAN

By J. Delacour

Of the seven existing species of Swans, the Trumpeter is the largest. Leaving aside the two smaller southern species, the Black from Australia and the Black-necked from South America, it surpasses in size and strength the other five northern species. To give a rough idea of it the average wing length of the Trumpeter is 665 mm., while that of the popular, semi-domestic Mute Swan is 590 mm. In shape and behaviour the latter bird is, of course, quite distinct. The two other White Swans of Europe and Asia, the Whooper and Bewick's, and the two American species, the Trumpeter and the Whistler, are closely allied and have the same general appearance. They cannot raise their wings in anger as the Mute and Black do ; they hold their neck straight most of the time, and they have a resounding, bugle-like voice, varying in intensity, but, generally speaking, of a similar quality.

It is a curious, but by no means a unique fact, that each continent should possess two such closely related species. At first sight one would be inclined to consider them all as subspecies of the same species. But the breeding ranges of the Whooping (*Cygnus cygnus*) and Bewick's (*Cygnus c. bewicki* and *C. c. jankowskyi*) overlap. Those of the two American forms, however, do not, the Whistling Swan (*C. columbianus*) nesting in the north of Alaska and Canada, while the Trumpeter (*C. buccinator*) lives and breeds in the interior of the western United States and British Columbia.

From a strictly systematic point of view the Trumpeter, the Whistler, and the Whooper could possibly be considered as three subspecies of the same species or, at any rate, as forming a superspecies. Or the Trumpeter and the Whooper may be two subspecies of the same species, as also the Whistler and the Bewick's. As it is impossible to decide, the safest course is to call these Swans four species, very closely related.

To give an idea of the relative size of all these birds it can be pointed out that their average wing measurements are as follows :—

Trumpeter .	665 mm.
Whooper .	604 mm.
Whistler .	550 mm.
Bewick's .	526 mm.

The other principal differences in these Swans is the presence, extent, or absence of a yellow patch on their bill. Generally speaking the Whooper has the basal two-thirds yellow ; the Bewick's only one-third ; the Whistler has a small yellow mark on the sides, near the forehead ; and the Trumpeter has a wholly black bill. Unfortunately many Whistlers lack the yellow spot and it is often very difficult to distinguish them from Trumpeters. On the whole Trumpeters are a good deal larger and have a heavier bill and a longer neck, but between a small Trumpeter and a large Whistler there are few obvious differences. Some of the latter have a wing of 580 mm., while some specimens of Trumpeters have it as short as 530 mm. In such cases the only sure character is the voice—much deeper in the Trumpeter, and if the bird is dead and can be dissected the shape of its treachea, or windpipe, is a certain proof of its identity. In the Trumpeter it makes a vertical loop over a lump on the breast-bone (sternum), and emerges through a separate opening. In the Whistler this loop does not exist, and there is only one hole for the entrance and exit of the windpipe.

The Trumpeter is a rather sedentary bird compared to the other three which nest in the far north and winter comparatively far south, being truly migratory. The Trumpeter travels only in search of open water and food. In other words it breeds as far south as it can and winters as far north as possible, while the other three species do exactly the reverse.

These life habits have been almost fatal to Trumpeters. In former days they ranged all over the centre of western North America, from British Columbia to California, east to Manitoba, Minnesota, Iowa, Missouri, Arkansas, and Colorado. It was supposed even to reach the coast of California and the Gulf of Mexico. But it seems unlikely that the species ever went so far, and more probably black-billed Whistlers have been erroneously recorded as Trumpeters.

Because of these more or less sedentary habits which resulted in their nesting and wintering in areas which became settled by man when the country was opened up Trumpeter Swans were sooner slaughtered than the other species, which up to these days, have enjoyed relative security at least in their breeding grounds in the North. The Whistling Swan, now adequately protected, is still extremely abundant, but the Trumpeter is making its last stand in

the wilds of British Columbia and in a few protected spots in Montana (Red Rock Lakes) and Wyoming (Yellowstone National Park). It has disappeared from all other parts of its former range.

Some years ago there were supposed to be a few hundred birds in British Columbia and under sixty in the United States. To-day the position is a little more hopeful. Thanks to the establishment of the Red Rock Lakes Refuge, their last stronghold, there are some 180 birds in it to-day as well as about fifty in the Yellowstone. No really accurate census of the Canadian birds has yet been taken, but 500 is their estimated number. In Montana, however, their increase has been slowed up during the last few years, and the Fish and Wildlife Service (Department of the Interior) of the United States Government is trying to remedy this regretable state of things. Having recently been appointed a collaborator of the Service, and acting as an adviser, I have inspected in May, 1944, the present haunts of the Trumpeter Swans, and possible locations where the birds could be established.

The following extracts of my report will give an idea of our present project to propagate and save the species :—

" According to instructions from the Director of the Fish and Wildlife Service, dated 2nd May, 1944, I arrived at Portland, Oregon, on 16th May and left the next day in the company of Mr. Leo L. Laythe, Regional Director, for the Malheur Lake Refuge, where we arrived on the same day and stayed until 19th May.

" We inspected different spots in the Refuge which could be favourably used for the establishment under control of young birds and of breeding pairs of Swans.

" On the 20th we visited the Elk Refuge, Jackson, Wyoming, where three Trumpeter Swans have been introduced, but so far have not attempted to breed, the odd bird probably interfering with the other two. Furthermore, their sex remains unknown. We also inspected spots where breeding pens could be established later on.

" From 21st May to the 23rd we were at Red Rock Lakes Refuge, where we observed a number of Swans and gathered much valuable information from the Manager, Dr. Ward M. Sharp, and his fellow workers. It appears that the breeding Swans have no difficulties in rearing their broods, that they are not appreciably disturbed by predators, and that it is easy, as it has been proved in the past, to capture young Swans before they can fly, during the late summer.

" It is proposed that all cygnets captured (half of the 1944 crop) will be deposited at Malheur Lake, in a large pen encircling several acres of open water, eminently suitable for the purpose. Mr. Laythe and I have given to Mr. J. Scharff, Manager of the Refuge, all the necessary instructions for their installation.

" A large number of young Swans, under three years of age, can be kept together there. In two years' time suitable pens for breeding

pairs will be built and the birds separated. I advise that not more than six pairs should be kept at any one Refuge, in the beginning, in order to divide the risks. Such pairs could possibly be established at Malheur Lake, Elk Refuge, Ruby Lake, Camas, etc. . . .

" Conditions necessary to ensure the success of the project are as follows :—

" 1. Captive birds must be housed far enough away from localities where wild Trumpeter Swans live as the latter would fly in and attack the captive birds.

" 2. There must be some open water during the coldest weather.

" 3. Each pen should be set in a ' natural ' and sheltered spot so that each pair of birds feels at home. It should include one acre of water and one of land as a minimum.

" 4. Trumpeter Swans, particularly the chicks, suffer from the summer heat. They must be housed in places where the summer is cool. Winter temperature is unimportant.

" 5. Pens must be free of the danger of botulism.

" 6. Waters where snapping turtles occur are unsuitable for the purpose of breeding all wildfowl.

" 7. Pens must be vermin-proof, and predators, both mammals and birds, must be controlled in the neighbourhood.

" Under such conditions breeding successes are certain as it has been proved in Holland, France, and England during fifty years. Trumpeter Swans become adult at the age of three years, and they will usually breed when four or five years old if they are submitted to favourable conditions and treatment. Once started they become regular breeders.

" In the United States the Trumpeter Swan population at present is just over 200, roughly speaking, and that is a dangerously low level. Like all large birds breeding in an inhabited country they would soon disappear in a purely free and unprotected state and, in fact, they have only survived through artificial help. There is no prospect that sufficiently extensive suitable wild conditions can ever be restored. Thus it is imperative to compensate man's encroachments by appropriate measures such as winter feeding and controlled breeding.

" A comparatively small proportion of the present population is now breeding, about 20 per cent, and many birds remain long unmated. This is probably caused by the scarcity of available nesting sites. Old mated pairs are extremely jealous and savage during the breeding season, they keep to themselves a large territory and younger birds are unable to appropriate any. The only remedy is to remove some of the young birds and give them a chance to breed elsewhere.

" Their introduction in a free state into another refuge has proved a failure so far and should be discontinued in its present form. A better method is to breed them in captivity and, later on, to stock suitable

areas with the young produced, under special management. Also, the fact that a number of breeding birds exist under control in different refuges will avert forever the threat of the extinction of the species. That Trumpeter Swans respond readily to reasonable captive conditions has been proved in Europe."

As many of our readers will remember Trumpeter Swans have been very successfully kept and reared in Europe in the past. The late F. E. Blaauw bred some regularly since 1902, and long before they nested successfully in France and in England. There is a record as early as 1873. At the time of the dispersion of the Blaauw collection in 1937 there were still sixteen Trumpeters at Gooilust, four being hatched the same year. They all went to Woburn Abbey, where the late Duke of Bedford already had, if I remember correctly, four specimens. I hope that these rare birds still live and that they have since increased in number. They are the only ones in Europe.

In the course of years many young birds reared at Gooilust were disposed of. I acquired several as early as 1919, and others were sold later on to different zoos and parks, even to America, where four were purchased by the New York Zoo, while others went to the Kellog Sanctuary in Michigan.

It is therefore very probable that a good number of breeding pairs will have been established within a few years in America. I intend to do all I can towards this end, the only safe method to save from extinction this most remarkable species, the largest of all Anatine Waterfowl.

Appendix

At the end of August and early in September I was again at the Red Rock Lakes Refuge, in Montana.

The last census made showed the existence of 169 adult and 62 young Swans, a satisfactory increase certainly due to better management and heavier winter feeding.

Two cygnets have been hatched and reared without difficulty by broody hens, from wild collected eggs, according to my instructions. The robbed pair, however, did not nest again as hoped.

We quickly captured twenty cygnets on the shallow, weed-filled lakes. They are easily run down in a boat. The sight of the flying adult birds was magnificent, and they were not unduly disturbed, remaining in the vicinity during the operation.

The cygnets, six to ten weeks' old, proved fearless and tame from the beginning. They started feeding on green food, bread, and wheat as soon as they were released in a small pen with a pool.

The 700 miles' journey to the Malheur Lake Refuge, in Oregon, took three days, and was successfully effected in a lorry fitted with especially built crates, each containing two birds.

On arrival the cygnets were rested in a pen for twenty-four hours, then pinioned and placed in a large enclosure including a 3-acre pond fed by strong springs, where they will remain until they reach their third year.

A visit to the Yellowstone National Park showed that the Trumpeter Swans just hold their own there. They number now forty-four adult and eleven young birds. Too many nests are destroyed and too many cygnets are killed by predators. Steps will be taken to obviate these dangers in the future.

* * *

EXPERIMENTS ON COLOUR PREFERENCES OF THE SATIN BOWER BIRD

By Arnold Hirst

Having for the past ten years given considerable time to the study of the Satin Bower Bird in captivity and in the process achieved the distinction of being the first to have bred and brought to maturity a splendid male specimen of this wonder bird, I feel that my observation on many biological and other matters relating to this species may be taken as authoritative. It therefore occurred to me on reading the reference to the colour preferences of these birds in the notes of the May–June issue of the *Magazine* that it may be helpful, space permitting, to give the result of a series of tests that I made in 1941 at the request of Mr. J. A. Marshall, R.A.O.U., who was inquiring at the time into several aspects of the birds' economy including their colour preference and the order in which it entered into their decorative schemes.

There were six tests in all carried out with the young bird, which being then only in his fourth year had not undergone his colour change which occurred some eight months later.

For the purpose the following cards were used, each being 3 inches in length by $\frac{3}{4}$ inch wide and divided into the following colour groups.

Card No.	1	$\frac{3}{4}$ Blue	$\frac{1}{4}$ Red
,,	,, 2	$\frac{1}{2}$ Blue	$\frac{1}{2}$ Red
,,	,, 3	$\frac{3}{4}$ Red	$\frac{1}{4}$ Blue
,,	,, 4	$\frac{3}{4}$ Grey	$\frac{1}{4}$ Red
,,	,, 5	$\frac{1}{2}$ Grey	$\frac{1}{2}$ Red
,,	,, 6	$\frac{1}{2}$ Green	$\frac{1}{2}$ Red
,,	,, 7	$\frac{1}{2}$ Yellow	$\frac{1}{2}$ Red
,,	,, 8	$\frac{1}{2}$ Blue	$\frac{1}{2}$ Yellow
,,	,, 9	$\frac{1}{2}$ Blue	$\frac{1}{2}$ Green

It should be mentioned that in carrying out these tests I varied the placement of the cards in the following order :—

	Test.	*Order of Selection.*
No. 1.	Scattered	Nos. 1, 2, 8, 9
„ 2.	In row not in numerical sequence	„ 1, 9
„ 3.	In row in numerical sequence	„ 1, 2, 8
„ 4.	Reversed in numerical sequence	„ 1, 2, 9
„ 5.	In form of square	„ 1, 3, 9, 8
„ 6.	In form of square but with numerical arrangement varied	„ 1, 8, 9

In collecting the cards it was observed that although no single card was taken, and all were collected and carried together to the bower, No. 1 was found in every instance to be the bird's first choice. It may be of further interest to add that although the hen bird revealed a definite interest in the cards, and also collected several in each test, they were invariably carried only a short distance away and dropped. Whether or not this was due to the fact that before her arrival the colour range had been so narrowed down by the male bird who was always the first on the scene, it is not possible to say, but there was nothing to indicate that she was half so deliberate and discriminating in her approach and choice as the male.

Summarizing these tests on a percentage basis it will be seen therefore that the score of each card was as follows :—

			%
Card No. 1	¾ Blue	¼ Red	100
„ „ 2	½ Blue	½ Red	50
„ „ 3	¾ Red	¼ Blue	16·6
„ „ 4	¾ Grey	¼ Red	nil
„ „ 5	½ Grey	½ Red	nil
„ „ 6	½ Green	½ Red	nil
„ „ 7	½ Yellow	½ Red	nil
„ „ 8	½ Blue	½ Yellow	66·6
„ „ 9	½ Blue	½ Green	83·3

Having completed this series of tests with the immature male it was a matter of considerable interest to me to observe the reaction of the adult male to the same stimulus which on comparison with that of the young bird was found to be remarkable, as the following extract from my records discloses.

Time . 10 a.m.
Weather . Calm and sunny.

For each of the tests the cards were placed some distance from the bower, but where the actions of the birds could be clearly observed.

In the first test the cards were scattered within the compass of a couple of square feet. Immediately following my withdrawal Cards Nos. 1, 8, and 9 were picked up by the male and carried together to the bower.

For the second test I placed the cards in this arrangement :—

6
4
3 5 1 2 7
8
9

On this occasion two visits were paid, the first resulting in Nos. 1, 2, 8, and 9 being carried *together* to the bower.

On the second visit, following a short display before the female in the adjoining aviary while holding Card 8 in his beak, the bower being so situated that this was possible, Cards Nos. 3, 5, and 6 were carried and deposited with the others.

In the third test the cards were placed numerically in line resulting in Nos. 1, 2, 8, and 9 being again taken. The old hen now appeared for the first time and collected Nos. 3 and 4, which she carried a little distance away and deposited on the ground.

In the fourth test the cards were placed in a circle. Again the blue bird made two visits, collecting Nos. 1, 2, 8, and 9 on the first and Nos. 3, 5, and 7 on the second occasion.

It was here noted that while making his first selection—which on every occasion was with *greater deliberation than in the case of the young bird*—the female again visited the cards, but apart from causing the male to stage a short display before taking off with the cards, nothing was observed in her actions to suggest more than a mild interest in the cards that remained.

In the fifth test the cards were again scattered, and being called to lunch I left them until three o'clock in the afternoon when on my return it was found that all the cards had been removed ; Nos. 1, 2, 3, 7, 8, and 9 being placed about the bower, and 4, 5, and 6 *together* on the ground some little distance away, suggesting to me that the male, having made his choice, left the others to be later gathered by the female and dropped.

Reduced also to a percentage basis the result of these tests works out as follows :—

	%
Cards Nos. 1, 8, and 9 .	100
,, No. 2 . . .	80
,, ,, 3 . . .	60
,, ,, 4 . . .	nil
,, Nos. 5 and 7 . .	40
,, No. 6 . . .	20

There can I think be little doubt from the foregoing that these birds have a definite preference for blue in their decorative schemes, but whether this colour attraction is indicative only of their artistic genius or is associated also with their breeding habits I am unable

to say. It would appear, however, from my experience that there is nothing to support the theory which has been advanced that the exteroceptive stimuli provided by either blue or blue green has some influence on the normal breeding of the birds, as I have never until the occasion of the test referred to provided my birds with any coloured ornaments, yet without them the hen has regularly laid and hatched her eggs.

* * *

AN AVIARY IN WARTIME

By Guy Falkner

I am afraid this article will be extremely dull as I have so few birds, like most aviculturists these days. Possibly the most beautiful birds I have are a pair of Edward's Pheasants—when not in full light they appear a dull dark blue, but in sunlight are quite lovely. A dark shining blue with the feathers of the shoulders tipped with a sort of peacock green and black, white crest, red legs, and a face the same colour. The hen is rather like a Silver Pheasant hen but much smaller ; they are in fact small birds, and compared to my Golden Pheasants are about the same size. They have to me a strong likeness to Vulturine Guineafowl in their rather drooping-looking tails and quick movements. I am bound to confess no one else sees the slightest resemblance ! My Amherst Pheasants need no description for everyone knows them. They are both very tame—the cock remarkably so. He is the only Pheasant I have ever known who roosts in his house from choice. All Pheasants prefer to roost in the open as a rule. The next aviary has a pair of Silver Pheasants, a very fine cock and most pugnacious, the hen rather a " down at heels " lady with apparently bunions. She is no beauty and reminds me of a dreary " char ", though she has great personality and is a good hostess, inviting me to share any " extra " I give her by picking it up and calling to me as if I were a chick. Alas ! I have passed my fiftieth birthday so am well past the chick stage. I cannot with any fairness to her pretend that I want mothering. I restrain myself from sharing a battered piece of bread and turn my back. Next come the Golden Pheasants : the hen a modest creature dressed in the usual brown, inclined to hide her head in a rosemary bush when spoken to. Her husband, on the other hand, is a most forward cad dressed in the usual flashy clothes of his tribe and willing to " show off " to my gumboots or even a cock Blackbird—anything does for him to show off to, lowering his hood and wing he runs round in a series of quick rushes, reminding one of a beetle in a jar. Then come a pair of Rosellas, a red Rosella

cock and a Mealy hen—lonely birds both. The hen still rather shy but the cock tame enough to feed from one's hand. Pieces of one's finger may be taken instead of cake if he has a "liner" on him—a rather surly chap who prefers to keep himself *to* himself. Next in the aviary is a single young Bronzewing Pigeon as yet undecided (as far as I can see) whether to put on boys' or girls' clothes, but, from one minute yellowish feather on "its" forehead I gather it will put on an Eton collar. It is very tame and will readily sit on one's hand—so tame in fact that when cleaning its aviary out if it has to be moved it saves time to pick it up and put it on a perch where you want it—out of the way—it will then remain there "until called for". My experience of Doves and Pigeons has been that Bronzewings are extremely tamable. Most of the Doves and Pigeons appear to enjoy dashing about and battering their heads against the wire directly one goes into their aviary so it is better, if one can, to get them as very young birds and tame them before they are turned out. This enables one of taking a sporting chance of catching a glimpse of them now and again. If they are not tame I find that one never sees them, being of a bashful disposition they retire to the bushes in their aviary directly they see you, and they invariably do so before you see *them*. Next are a pair of Barbary Doves of no interest to anyone except myself. Apparently, judging by people who come to look at my birds, they invariably stalk past them as if they were bad smells instead of really lovely birds—which they are—at least I think so! They are very useful if one has a collection of Doves, both as "fosters" and as a steadying influence over the foreign Doves and Pigeons. They are always almost stupidly tame, and tameness is a catching disease in an aviary, but not half so catching as I could wish it to be! Next comes my star turn, a Rothschilds Grackle, a lonely white bird with black tips to his flight feathers and tail, a greenish blue beak and legs, and bright cobalt blue skin round his eyes. This bird is a most curious mixture of great tameness and affection—and extreme nervousness. I doubt if I shall ever be able to let him loose with any safety in the garden. Certainly I could not if I were not there. He loves coming on my shoulder and exploring my hair for titbits—so far an extremely unproductive "field"—but he lives in hopes apparently for he never tires of it. Everything has to be turned over and inspected, but the moment any stranger appears or an aeroplane or Hawk goes over he is off like lightning, and it takes sometimes half an hour before he gets his nerve back. For this reason I think it will never be safe to let him loose like most of my other birds. I got him a hen Starling thinking he would like company. He will have none of her and treats her with utter disregard. I think if after the war I can get him a Javanese lady his heart may warm to her, and I live in hopes that if I can procure her from a friend in Java, that I may yet hear small Javanese voices coming

from a hollow log ! The last of my birds is a Leadbeater Cockatoo who's voice is a great deal larger than her heart. So far she has, I must confess, given me a fair share of the latter, but more, far more, than I want of the former, and I am sorry to say she practises her high notes all day and without the slightest encouragement. She lives very well on a war-time diet of soaked field peas, oats, and buckwheat, and I am sorry to say enjoys bread and butter *and* does well on it, and in spite of this fattening diet has shown no signs of wishing to disrobe herself, which if one can believe " the authorities " would instantly make her discard every feather on her bosom. She flys about where she likes and is extremely active and has unfortunately a most unusual hobby for a woman—a love of carpentering, which I am afraid has led to quite a nice plain gate-leg table being rapidly turned into a " barley sugar twist " leg—or legs. This carpentering must stop. Bitter alloes she positively dotes on—can anyone suggest a cure ? I doubt it. I must again apologize for this extremely dull article about the few birds I now have in the aviaries. I only wish that fellow members who have any birds left would write an article on them so that it may enable us to know what birds have survived on war-time rations. That in itself would be of great interest. Though on second thoughts perhaps one could not mention " tail wheat " in the same breath with Pheasants ! To my mind the worst part of aviculture are the aviaries. One cannot disguise wire, though this, if painted black, shows more of the birds and less of the wire. Aviaries are ugly—there is I think no denying *that.* Were I a millionaire or even on nodding terms with my bank manager, I should have built the aviaries of stone with stone roof, the flight supports would also have been stone like a pergola, and through the flights would have run a small artificial stream flanked with rocks and small bog plants. As it is my aviaries are frankly hideous—luckily well away from the garden. I have tried to disguise them by painting the wire black as before advised, also the woodwork is stained dark brown and the corrugated iron roof also dark brown—almost black. Over the roof I am training quick growing roses and honeysuckle which thank heaven are now on the most intimate terms and doing their best to strangle each other. The aviaries themselves are planted with bay, box, yew, buddleia, rosemary, and various tall ornamental grasses. Iris, potentilla, and lavender, etc., the plants which climb up the supports are thornless (almost) roses, clematis, and various honeysuckle. The flights are covered with coarse gravel several inches deep, which helps to keep them well drained. I have covered the woodwork as much as I can, fed the plants on what they are supposed to like, and now I propose to sit back and let nature take its course. From the way they are growing the birds will shortly be encased in a jungle—which after all is what most birds like.

Since writing this article one of my birds has decided to become a boy instead of a girl. The Bronzewing Pigeon has definitely let down her skirts and put up her hair, and Mr. Lewis has very kindly given me a husband for her. The Cockatoo has decided to become a boy—and has—so, after all perhaps the carpentering seems more natural to a man—but I could dispense with his hobby all the same !

* * *

THE WESTERN BLUE BIRD

By John Nicholson

A pair of these most beautiful birds came into my possession in the winter of 1939 through the kindness of Dr. Amsler. For the benefit of those readers who have not access to the Avicultural Magazine of May, 1937, the following is a brief description : *Male*—Crown to tail, including face and throat, is deep intense blue. A rather indefinite collar of chestnut extends backwards from the breast and flanks which are a rich chestnut red. The abdomen is dull blue. The female differs only from the Eastern variety in having a greyish throat and the lower abdomen is greyish blue instead of white.

These birds were bred in 1939 and were fully coloured when they came into my possession. I had been informed that they were very hardy, and this was fully borne out by the fact that these birds were wintered in an unheated wooden hut and, as most readers are aware, this was one of the coldest ones the North of England has experienced for the past fifty years. Despite the intense cold they remained perfectly healthy and always enjoyed a bath when opportunity arose. Since the disappearance of ants' eggs, dried flies, beef dripping, and honey these birds have had to exist on a mixture of toasted stale bread, crushed up and moistened with grated carrot. Maggots and mealworms were freely provided.

In the spring of 1940 the Bluebirds were given their breeding quarters, which consisted of a portion of a large hut on to which was built a wire netting aviary some 10 feet in length, 9 feet in breadth, and 8 feet in height. A nest box of the type which is usually given to Budgerigars was used. It was fixed in a corner of the aviary near the roof and faced north. The birds were not long in making investigations, and within a week a nest had been built chiefly of hay, a little moss, and a few feathers. Five eggs were laid and incubation period was fourteen days. Four young were hatched, and all emerged from the nest when three weeks old. Sexes are easily distinguished in nest feather. They were reared principally on maggots with only a few mealworms daily : cockroaches were also given. Nothing else in the way of their staple soft food was ever taken to the nest.

Unfortunately this is not a very good district for ants' eggs, and the young birds had to make the best of maggots and a few mealworms. They were feeding for themselves within a week. Incubation is carried out by the female, the cock paying frequent visits to the nest to give the hen whatever form of live food is available. A second nest was soon commenced and the young were caught up and housed by themselves. The result of the second nest was rather disappointing. Two young were hatched and reared from a possible five fertile eggs. Three eggs were addled, probably on account of bombing and gunfire. The two young ones from this second nest were found dead one morning after a night of a vivid display of searchlights, bombing, and gunfire. Up to the time of writing similar methods of feeding have been adopted in the rearing of Bluebirds. I have had very bitter experiences in using other birds as foster-parents. In 1942 I had a Robin's nest in my garden which was as I thought ideal. It was in a tin which I had placed in a hawthorn bush. The Bluebirds and the Robins were both hatched within a day of each other. The young Bluebirds were placed in the Robin's nest and the young Robins taken out. A trap cage was placed on the ground in the close proximity of the nest. The two trap doors were fastened back and a daily supply of maggots was provided in the trap cage. These the Robin soon found, and seemed to delight in the convenience. All went well and the young ones were fed well by the Robins. This I could see in my leisure time as the nest was only about 25 yards from my aviary. Alas ! When the young were eighteen days old we had a very bad storm and the rain simply flooded the tin and the young were found dead the following morning. Last season a Spotted Flycatcher's nest was used in a similar manner to the Robin's with the exception that eggs from the Bluebirds were placed in the nest. Unfortunately the Flycatchers refused to incubate the eggs, probably due to the fact that the stage of incubation was at a more advanced one than their own eggs. This season has been disappointing up to now. Only two young were hatched and reared in the first nest, and I have been unfortunate in losing these through some wasting disease. On leaving the nest they were perfectly healthy, and were very strong on the wing the second day. However, within a week they were dead. Mealworms were not the cause of the trouble as they had very few indeed. Maggots were the great standby, and maybe some which had been consumed were unclean. At the time of writing the Bluebirds have completed a nest, and I have also found a pair of Spotted Flycatchers have almost completed a nest in a little wicker basket placed on a poplar tree. Should both birds lay about the same time I think I shall be inclined to give the Flycatchers an opportunity of rearing the Bluebirds. I should like to be able to devote more time to my Bluebirds. Keeping and rearing insectivorous birds is not quite the ideal thing for a busy pharmacist.

WHISTLING SCHOOLBOYS

By Sir Godfrey Davis

I was living in the Forest Hut which was part of one of those boarding establishments in the Himalayas to which, during these years of war, those in search of health and rest have perforce had to resort. But the Forest Hut was some 300 yards away from the establishment proper ; the path was stony and uphill and during the rains it was very wet and muddy, so that the Forest Hut was assigned to children, nurses, ayahs, and dogs. I was, however, permitted to live there, and a pair of Whistling Schoolboys had built their nest upon one of the wooden rafters supporting the roof. The nest was a large deep cup of moss, sheltered by the roof, placed against the wooden wall of the hut, all snug and cosy and protected from the rain. The parent birds had a two-way entrance, in and out, between the nest and the end of the rafter, on which rested the sloping roof. Altogether it was a most cosy situation ; indeed I have found birds in the Himalayas very ready to take advantage of houses provided by man. Cinnamon-backed Sparrows will nest in crevices in the wooden huts. I have seen a pair of Hodgson's Wagtails and a pair of the lovely White-capped Redstarts nesting in crevices in the roofs of huts.

The four young Whistling Schoolboys were well grown and feathered when first I saw them. They looked like large dark Starlings with yellow beaks. The parent birds, when they came to feed them, had resting places convenient for themselves and me as the casement windows were kept open and the parent birds would generally perch upon the top of these opened windows before they flew in to feed their young.

I can best describe the Whistling Schoolboy as a large size purple Blackbird, or so they seemed to me, with strong yellow beaks and strong black feet. They have what I would call two aspects, the tame and the wild. The tame aspect is when the birds work the lawn like Blackbirds, in the rain, pulling out the hapless worm, or when they perch without fear on a fallen wicker chair. The wild aspect is when the bird pounces, like a Shrike, upon one of the small lizards, a variety of skink, which abound among the stony outcrops, smashes its soft body with its powerful bill, carries the mangled remains to its young, and thrusts the poor dead thing down a very live, yellow, and capacious gullet. Indeed, when I watched the parent birds feed their young, more often than not it was one of these small lizards that was brought, and quickly it disappeared down one of the wide-open beaks. I also saw large green caterpillars, grasshoppers, and earthworms brought, and once one of the parent birds brought,

hanging from its beak by the tail, a young vole, with fur dark as any mole. These voles abound here and work much devastation in the gardens so that the malis or local gardeners have to smoke them out.

The parent birds used to start to feed the young at daybreak. Just when day was breaking I used to hear movements in the nest, the fluttering of wings and the low murmurings of the birds ; the nest was full to overflowing with the four young birds, and often it seemed one would fall out as it fluttered clinging to the edge ; but it would always manage somehow to scramble back into the safety of the nest. Then I would hear the loud cries of the young, the sound of one of the parent birds perching on the window frame, the short flight up to the nest, and the return flight, after one of the young was quickly fed, either by the way the bird had come, or forward through the space between the rafter and the roof into the freedom of the garden.

I came to live in the Forest Hut on 7th August. On the morning of 17th August when I awoke and looked up at the nest the birds had flown. The parent birds must have enticed the young out of the nest in the very early morning, when all was quiet, and children, nurses, ayahs, and dogs were all asleep, down to the safety of the tall fir trees, by the mountain stream.

The Whistling Schoolboy is reputed to make a good pet, but I do not think all birds are suitable to cages, and I should hesitate before I took one of these birds from its wild setting of great grey boulders, mountain streams, and towering firs and put it in a cage. I have seen one in good condition in a cage upon a houseboat. The cage was 2 feet square, dome-shaped, with a base 6 inches high and a wire frame upon the floor to keep the feet of the bird clean. The boatman was fond of his bird. Others I have seen were less fortunate ; young birds, obviously caught when they had left the nest, and kept in small dome-shaped wicker cages, the lovely tail and wings cut to fit the cage, and being fed on lumps of mutton. I doubt if one survived this primitive treatment, for I have seen no adult birds in cages hanging in the bazaar as do Calandra Larks, a popular and happy pet of the Kashmiris in Srinagar and, indeed, upon the houseboats. Though one knows the mortality of young birds in a state of nature is very high it seems a shame to rob these lovely birds of their chance of life beside the mountain streams where I have seen them perched upon the great grey boulders over which the spray of the falling torrent splashes, or singing, perched among the tall firs in the early morning, their wayward song which gives them their common name. Up and down the scale the whistling song goes, wild and inconsequential.

A RARE BABY CRANE

By Lee S. Crandall
(General Curator, New York Zoological Society)

(Reprinted by permission from *Animal Kingdom*, September–October, 1944)

In all the history of the Zoological Park, up to 1944, only two young Cranes, both of the same species, have been reared here. These two were White-necks, one in 1916, the other in 1943. Cranes of several other species—Demoiselles, Paradise, and Sandhills—have nested here, but always unsuccessfully. These negative results are in accord with almost world-wide experience and lend weight to the impression that Cranes are difficult to breed in captivity. Actually, this thought is only a half-truth, for once a young Crane has been hatched, its parents may be trusted to rear it, almost to a certainty. The real difficulties all come before the hatching of the young.

In the first place, Cranes are finicky as to mates and the purchase of a male and a female by no means insures a breeding pair. Once this difficulty has been overcome, it is necessary to provide a secluded area, as large as possible, with enough grass and other cover to ensure a supply of the earthworms, grubs, and insects with which the parents feed their offspring. If it is hard to find a breeding pair of any kind of Cranes, it is harder still to find an area, especially in a public park, where they may be expected to breed successfully.

The Wattled Crane, of eastern and southern Africa, is one of the very rarest of the group. Our first example was received in 1937, and we were pleased enough to find him a fine, tame young bird, in perfect condition. We never hoped to see another one, but in 1940 a second bird arrived from Africa. This one was noticeably smaller than the first, and it was fairly evident that we now had a pair.

The supposed male had become savage with maturity, as Cranes are likely to do, and we kept the two in adjoining enclosures, to give them an opportunity to become acquainted. When the gate in the partition fence was finally left open, a battle immediately followed, and the birds were separated with no little risk to life and limb. Actually, the better part of a year passed before we finally got them to live together in peace.

In the spring of 1943, the birds were liberated in the African Plains " Annex " an area of several acres, in company with assorted Zebras, Aoudads, Hartebeests, etc. Early in June two eggs were laid at the edge of a rainwater lagoon and our hopes were high. However, they were soon ended by a period of drought which left the nest high and dry, so that the eggs were soon trampled under numerous hooves.

By the spring of 1944, the male Crane had become so savage that we considered him unsafe in a mixed collection, and the birds were

placed by themselves in an adjoining corral measuring perhaps one hundred yards square. Here they were almost completely isolated from public view, but there was compensation in the likelihood of breeding. This worked out as we had hoped, and on 20th June a single egg was laid. This was incubated closely, and on 26th July a wobbly, reddish-brown chick emerged, establishing an incubation period of thirty-six days.

During their early lives, young Cranes are fed entirely by the parents, and during this period will pick up nothing for themselves. There was an abundance of natural food in the now overgrown enclosure, and after the first few days, the chick began to come to the feeding place with the old birds, to receive choice morsels of raw fish, horse-meat, and game food. At the age of two weeks the young bird was seen to feed for itself, and from that time on, it has grown with amazing rapidity.

If this youngster is safely reared, as there is every reason to believe it will be, it appears at least as far as published records go, that it will be the first of this rare species to be bred in captivity. The only previous record involving the species is that of a hybrid between a Wattled Crane and a " Canadian " reared in England in 1911.

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AN EARLY ACCOUNT OF SOME OF THE PERCHING BIRDS IN THE SCAMPSTON COLLECTION

By A. F. Moody

(*Continued from p. 67*)

Ruby-throated Warbler (*Calliope calliope*)

A pair received 1913. Female killed by an accident a few months later. Male still living, January, 1916.

Appearance.—A sprightly Robin-like creature ; the male differing from the female by possessing a brilliant ruby coloured throat patch.

Habits.—Very Bluethroat-like in behaviour ; the present species in confinement, hops about in a confiding manner, is ever on the look-out for insects, and gives one the impression of being a cheerful and easily managed Warbler.

Voice.—Male possessed of a pleasing song.

Hardiness.—Apparently possessed of a robust constitution : our example wintered satisfactorily in a sheltered outdoor aviary, when shut into a closed wooden shed, during severe weather and at night.

Common Nightingale (*Luscinia megarhyncha* Brehm.)

We have had this recognized favourite do well here when treated as house cage birds during the winter and given the range of a garden aviary during the milder months. The species appears tolerably easy to maintain in health, but the more exercise and natural food (insects, etc.), that can be allowed the better. If anything, the species has been wintered more satisfactorily, and without artificial heat when given the same liberty and protection as the last species.

Eastern Nightingale (*Luscinia luscinia*)

A somewhat larger, paler, and longer tailed form of the common Nightingale, of which a female prior to 1915 thrived here for some years.

Habits.—Differed chiefly in behaviour from the common form by a curious and oft repeated Wagtail-like movement of its long tail.

Breeding.—When associated with the male Ruby-throat already referred to, nested and sat upon unfertile eggs on three occasions ; the first instance being when a nest was commenced upon the ground on 11th June, 1914, and completed four days later, when the first egg was laid.

Nest.—A rather untidy structure composed of coarse dead grass interwoven with last year's beech leaves, and lined with finer material, including rootlets and a very small quantity of hair.

Eggs.—Three in number, slightly larger and paler coloured than those of our English bird.

Persian Nightingale (*Daulis golzi*)

A darker and more rufous form of our English bird, of which one example at least, during recent years, has been represented.

Habits, requirements, etc.—The same as the type.

Shama (*Kattacincla macroura*)

Two or three Shamas kept, including a fine male, for some years.

Appearance, etc.—A species too frequently kept to need description or praise. I may state, however, that it is a charming bird, possessed of a powerful rich warbling voice which renders it additionally attractive.

Requirements, Habits, etc.—The Shamas requirements appear to be a roomy cage, or, if possible during the summer months, a sheltered and well bushed outdoor aviary.

It delights in thick undergrowth, but under whatever conditions it is kept, I would recommend it being provided with a variety of perches, and to have means of escaping the direct rays of the sun. In fact, although exceedingly tame, the species seems naturally retiring, and is very fond of hiding in dark holes or corners and from such retreats not

infrequently surprises a passer-by, by suddenly reappearing and bursting into full song.

Hardiness.—Always wintered here as house cage birds.

Blue Bird (*Sialia sialis* Linn.)

A species first acquired during the spring of 1911, and continuously represented for some years.

Appearance.—A charming Robin-like species about the size of a Skylark, the male being chiefly remarkable for his handsome blue upper parts, chestnut breast, pleasing song, and peculiar mellow call-note.

Habits, etc.—A delightfully pleasing and, except when nesting, peaceable bird in an aviary.

Hardiness.—Thrives upon the usual soft bill fare, but appears to require protection from frost, the young birds proving somewhat delicate.

Breeding.—A species which nests readily in confinement, young having been reared here on more than one occasion.

Breeding Habits.—As giving a fair idea of the breeding habits of the Blue Bird in confinement, I give in detail some notes taken at the time of the breeding of our first pair, which although only recently imported and received as late as 13th April, succeeded in rearing two young during the summer of 1911. The nesting site chosen, being in this, as in later instances, a wooden box about 7 inches square, with an aperture in the front large enough to admit the bird, affixed to the wall of their aviary at a height of some feet from the ground.

Building operations, after a brief courtship, commenced on 29th June, the entire framework of the nest being constructed between the hours of 10 a.m. and 4 p.m. The nest, which on completion looked very like a Robin's was finished on 2nd July. On the 4th the first egg was deposited, to be followed by three others, on three successive days. These in appearance were very similar to Wheatear's eggs, being plain, unspotted, and of a delicate greenish-blue colour. Incubation in this instance lasted eleven days, and the young on emerging from the shell, as far as could be observed owing to the semi-darkness of the box, might be described as of a flesh colour sparsely decorated with tufts of sooty down and with a gape of sulphur yellow showing indications of smoky streaks on the roof of the mouth. They remained in the nest until the seventeenth day, and on leaving differed considerably from their parents by showing only a limited amount of blue on their upper parts, and being spotted (young Robin-like) with pale or whitish spots. Both parents shared the duties of building, incubation, and the feeding of the young, the latter duty being rendered comparatively easy for them by a continual provision of wasp grubs, gentles, etc.

Development.—Of the maturing of these youngsters which proved to

be a pair, I have notes that indications of a change of breast plumage (small reddish side patches) began to appear at forty-five days old, the blue back a fortnight later.

Pekin Robin (*Liothrix lutea*)

For the greater part of the year 1911, we included in the collection a pair of these quite inexpensive yet pleasing little birds.

Habits.—The habits of the species (except perhaps when nesting) are too well known to need description, so I will simply state that the Pekin Robin is a suitable subject for either cage or aviary, and apparently a free breeder, and an excellent doer in captivity.

Breeding Habits.—During May, in a large and well shrubbed outdoor aviary, this pair were given an opportunity of nesting. They commenced operations on the 15th instant by carrying material into a dense yew bush. Four days later the nest, which was deep cup shaped, and from the fact of its being partly suspended from overhanging twigs, almost basket-like in appearance, was completed. It was, like others which were subsequently built, composed (with the exception of an odd last year beech leaf or two) entirely of soft, dead, sedgy grass. The eggs in each case, three in number, were rather large for the size of the bird, and of a form and colour closely resembling large and richly marked Greenfinch's eggs. Incubation taken part in by both parents lasted twelve to thirteen days, and the young which on feathering were generally duller and more green than the adults, left the nest on the fourteenth day. Both parents also fed the young, and if approached, were very excitable at the nest.

Food.—These young were reared largely upon wasp grubs, gentles, etc., and the adults, with the addition of mixed seed, appeared to thrive upon any good insectivorous mixture.

Hardiness.—Appeared to require protection from frost.

Great Reed-Warbler (*Acrocephalus arundinaceus* Linn.)

A single example possessed for about a year.

Habits, etc.—A bird that in the aviary evinced a great disinclination to be observed, but apparently thrived when fed upon the usual insectivorous mixture used here.

Hardiness.—Was supplied with artificial heat during the colder months.

Alpine Accentor (*Prunella collaris* Scop.)

Several kept.

Appearance, etc.—Roughly speaking, may be described as large Hedge-sparrows.

Food.—Various seeds, an occasional mealworm, and a daily allowance of any good insectivorous mixture.

Hardiness.—Very hardy and easy to maintain in health. Our

examples appeared to have all the protection they required when wintered with access to an open-fronted shed.

Bearded Reedling (*Panurus biarmicus* Linn.)

Several pairs, at different times, kept.

Appearance and Habits.—A peculiar tawny coloured little bird, chiefly remarkable for its long tail and restless habits, also by the rather striking black cheek-patch or moustache of the male.

Constitution.—Once established may be said to be fairly good doers in confinement. When newly imported are liable to fits, and easily affected by any sudden change of food, temperature, or surroundings. Requires the greatest care in transferring from a dealer's cage to the aviary.

Breeding.—The species nests fairly readily, but owing chiefly to having our established pairs broken by cats or Owls, our greatest success remains with a young bird which some years ago left the nest before it could fly, and after some days succumbed to cold and hunger through the parents neglecting it on deciding to nest again.

Nest.—A partly domed structure composed of dead grass, etc. In captivity the species will take possession of a box (affixed to the wall) or add to a Blackbird's nest previously stuffed into a natural or hanging bush.

Eggs.—Rather large for the size of the bird. About six in number, white, and ornamented with numerous short dark lines or streaks.

Incubation.—Twelve days.

Hardiness.—Allowed plenty of exercise and given access to evergreen bushes, established specimens winter satisfactorily out of doors.

Food.—Great eaters of maw seed. Our Bearded Reedlings thrived chiefly upon this seed and a small quantity of insectivorous mixture.

Crested Tit (*Parus cristatus* Linn.)

Appearance, Habits, etc.—A sprightly active little bird easily separated from the other British Tits by its ornamental crest.

Food and Hardiness.—Our one example appeared hardy enough, and when kept in a large aviary throve for a considerable period upon such insects as it could procure, the fragments which were thrown from a pan by some waders, and the hemp and sunflower from a seed mixture placed there for other birds.

Japanese Red-sided Tit (*Parus varius*)

Several included in the collection.

Appearance, Habits, etc.—From what I recollect, may be described as Red-sided Great Tits with habits and requirements similar to that species.

Food.—Various nuts, seeds, an occasional mealworm, and daily allowance of insectivorous mixture.

Breeding.—The present species did not produce eggs, but a single example confined by itself built what appeared to be a typical Tit's nest in a small box.

NUTHATCH (*Sitta cæsia* Wolf.)

A bird which we have never tried to keep for any length of time. The species, however, appeared to thrive in captivity when fed upon a diet consisting of beech mast, monkey nuts, hemp, sunflower seed, and an occasional mealworm.

As a wild bird in the district, the Nuthatch prior to about 1900 held a precarious foothold here, both as a resident and breeding species. The severity of certain winters, however, appears to have thinned them to vanishing point, and I may state that the eight or ten examples which we procured from the South, kept for some weeks or months until in good order, were liberated with an idea of re-establishing the species in the neighbourhood—an experiment which probably proved futile.

WALLCREEPER (*Tichodroma muraria* Linn.)

A pair which had been reared in Switzerland, received July, 1913, both died before November, 1914.

Appearance.—A soft feathered, rather fragile little bird, possessed of a peculiar wavering butterfly-like flight, and chiefly remarkable for its fine crimson wing patch, and the very curious manner in which by a jerky opening and closing of the wings it is almost continually exposing and hiding the same.

Habits.—Very confiding, our Wallcreepers in a small aviary seemed ever pleased to see one. They took an immense amount of exercise, occasionally perched in the ordinary manner, and were quite at home upon the ground. They spent, however, by far the greater proportion of their time zig-zagging a course up the almost vertical face of some artificial rock work, and for the sake of the natural food obtained, diligently overlooking a fresh log, piece of bark, or decaying post which we supplied almost daily (these as they became exhausted were taken out and with a view to accumulating a fresh crop of insects for future use, were laid flat in a damp shrubbery). The species, in addition to a peculiar trilling note, occasionally uttered a few sweet warbling notes in the form of a pleasing song, slept in a hole, and proved, if somewhat delicate of constitution, without doubt the most interesting of any small soft-bill kept here.

Sexual Difference.—Male, from memory, somewhat larger and brighter coloured than the female.

Hardiness.—Quite hardy as regards dry cold, these examples appeared well suited when kept in an ordinary garden aviary and shut into a suitably furnished and well lighted shed at night.

Food.—Apart from a tendency to gouty feet, thrived when fed upon a

small quantity of the prepared insectivorous food, a daily allowance of mealworms, and such natural insect food as they could obtain from the frequently renewed decaying material already referred to.

Special Requirements.—A sun-loving, rock climbing species which, to be happily confined, appears to require plenty of space, a sunny situation, and opportunities of clambering about an almost vertical cliff-like arrangement of rough artificial rock work.

Cause of Death.—Large and continuous eaters, one of these examples on receipt suffered from swollen feet, a condition which in the end apparently accounted for both. Would probably have been better without the mealworms.

(*To be continued.*)

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NOTES

Breeding Successes in New Zealand

In a letter just received from Mr. G. Rowland Hutchinson, the Secretary of the New Zealand Avicultural Society, he tells me that the following birds have been bred in his Auckland aviaries during the last few years, and the results published in the Society's *Bulletin*. They are of great interest, and should interest aviculturists here.

1. Blue Honey-Creeper, *Cyanerpes cyaneus*, Bred twice in succession.
2. Giraud's Oriole, *Icterus giraudi*. Bred several years in succession.
3. Crimson-backed Tanager, *Ramphocelus dimidiatus isthmicus*. Bred several years in succession.
4. Yellow-rumped Tanager, *R. icteronotus*. Bred each year for about five years.

I have no records now, but believe that the three last are all new, but that the Honey-Creeper has been bred twice before, in Japan in 1928 and in the U.K. a few years later (? Mrs Drake).

E. H.

Notes on Cockatoos and Parrakeets

Maybe it was the temptation of the bamboo growing outside, but the cock of my pair of Leadbeater's Cockatoos did not let aviary wire stop him, and although this is 16 g. 1 in. chain link, he chewed his way out. Like the Prodigal Son he returned, but when I joined the Marines I was afraid to leave them so let a friend have them. In a few months they reproduced their kind, and as my wife missed them so much we acquired the youngsters. I learned afterwards that nothing stronger than 1 in. chicken-house netting was used for the breeding aviary !

This is a beautiful species and should be encouraged, so if any member has had similar fortune I should be pleased to exchange a youngster to keep the partners unrelated. Has any member any actual experience of breeding Bourke's or Red-rumped Parrakeets on the colony system, or at least with more than one pair per enclosure ? I have found each kind agreeable with softbills and Finches and not destructive to vegetation. This may be no secret but I feel sure some are not aware of this : a great virtue as it allows for fully planted aviaries, pleasing alike to the eye and to the birds.

I have experimented with small Finches in Parrakeet flights—so far with no adverse effects. The small birds add variety and live exclusively on the champings of the seeds made by the larger birds.

Concerning Lorikeets—Red-collared and Swainson's in particular—it appears to me that although eminently suitable to outdoor aviary life, better breeding results are obtained in cages. Would members please confirm or contradict this please ?

Common marigold, at any stage of growth, is much appreciated by Parrakeets.

H. J. Indge, F.Z.S.

CORRESPONDENCE

COLOURATION OF KOOKABURRAS

I was much interested in Mr. M. D. England's very entertaining article on the attempted breeding of Kookaburras, but rather mystified by his final conclusion that " At least we can call them he and she, and dismiss the idea of blue (rump) for cock, brown (rump) for hen ".

In a true pair of the common Australian Kookaburra (*Dacelo gigas*), the plumage is entirely brown, brownish-grey, and white, the only touch of blue being in the lower wing-coverts.

There are, however, at least two distinct though closely related species : *D. cervinus* and *D. leachi*, both of which have been imported. These two are much alike except that the former is lighter coloured than the latter. *D. leachi* is probably the better known, and one of its trivial names is the Blue-rumped Kingfisher or Kookaburra.

Myself I cannot help thinking that " the old bird " which, because of its blue rump, Mr. England had always supposed to be a cock, was really a hen of *D. leachi*, in which the rump in *both* sexes is blue, the cock's tail being dark blue the hen's brown—while the cock obtained from the Zoo was the common Kookaburra, *D. gigas*.

As to the young bird, which, starting with a brown rump, achieved after a moult a blue one, then after a further moult so surprisingly reverted to brown, I can only suppose that—like the youngster Mr. England so nearly succeeded in rearing—it was a hybrid and just couldn't make up its mind ! Unless, of course, a pure-bred young *gigas* really does normally undergo this extraordinary double change, from dull to bright, then back to dull again. Possibly one of our Australian members could enlighten us ?

EDWARD BOOSEY.

BRAMBLETYE,
KESTON, KENT.

COLOUR CHANGE IN SATIN BOWER BIRDS

I was interested to read Mr. Karl Plath's remarks in July–August issue of the Magazine on the colour change which he observed in one of several Satin Bower Birds which were received by the Chicago Zoological Park, Brookfield, Ill., in 1934, from the Taronga Park, Sydney, Australia, as it would seem to entirely refute the four year immature colour phase noted by me. On this point, however, it is interesting to note what Mr. Fley, Director of Sir Colin McKenzie's Sanctuary, Victoria, has to say in writing on the 24th February last, to the Editor of the *Australasian*.

" He " (referring to me) " has contributed some valuable observations on the development of the male Satin Bower Bird and since the article by me appeared in the *Australasian* of the 27th December, 1941, I read an account of his conclusions published in the *Victorian Naturalist*. Since then, too, a young male Bower Bird in our collection (received as a fledgeling), has changed over to its satin-blue colour, bearing out the four year immature plumage phase noted by Mr. Hirst. The youngster that I described in the *Australasian* of the 27th December, 1941, has now entered upon its third year of life, and naturally it is not yet possible to tell its sex."

It is probable, I suggest, that the colour change noted and referred to by Mr. Plath was delayed beyond the normal period of transcoloration owing to environmental and other circumstances to which the birds were subject.

ARNOLD HIRST.

335 KENT STREET,
SYDNEY, AUSTRALIA.

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[J.S. denotes Jubilee Supplement.]

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AVICULTURAL MAGAZINE

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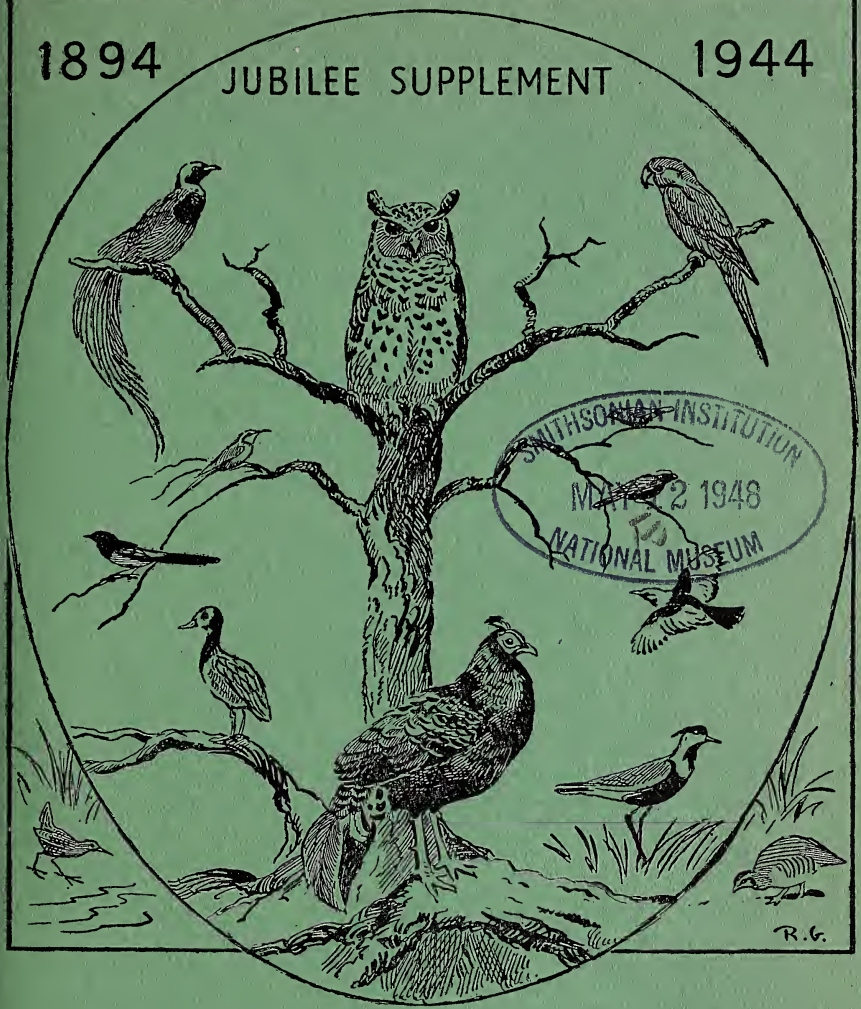

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Top figure : Black-throated Mango Humming Bird.
Anthracothorix v. violicauda.

Lower : Swallow-tailed Humming Bird.
Eupetomena macroura.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE

AVICULTURAL SOCIETY

JUBILEE SUPPLEMENT. **NOVEMBER, 1944**

FIFTY YEARS OF AVICULTURE

By Alfred Ezra

As President of the Avicultural Society, I would like to take this opportunity, on the occasion of the Society attaining its fiftieth anniversary, of sending a special message of appreciation to all members for their support and help. We enjoy the proud position of being the oldest Avicultural Society in the World, and if we look back over the past fifty years and trace the great development in the art of bird-keeping, the spread of interest and the links that have been formed with the peoples of many nations, we have reason to feel gratified for the part our Society has played in achieving this. If a comparison is made in the number of species which are now successfully kept and bred in captivity with those within the scope of aviculturists fifty years ago, the advance made is no small one. In the early numbers of The Avicultural Magazine such birds as Finches, Parrots, Waxbills, Doves, and Cardinals were the main subjects of interest. To go back still further, C. S. Simpson, in an article published in 1896 entitled "Aviculture one Hundred Years Ago", gives some idea of aviculture in those days, and is further evidence that the advance in the past five decades has been far more rapid than that made in the previous century. Transport facilities have helped a great deal and, in addition to this, some really first-rate collectors have come forward and introduced many species, the keeping of which was not dreamed of formerly. One may specially mention Walter Goodfellow, A. E. Pratt, Wilfred Frost, F. W. Shaw Mayer, and C. S. Webb. In 1896 David Seth-Smith first drew attention to the possibilities of waterfowl keeping, which was replied to by an informative article by J. Lewis Bonhote on this subject. The development and interest in waterfowl keeping is one of the most striking of any branch of aviculture, and this is dealt with in a special article in this number. Up to the last war the keeping of Pheasants

was confined to comparatively few species, but from that time the progress made with this family has been so great that a special Society, "The Ornamental Pheasant Society" was founded.

Among the larger birds the Cranes have been very popular with those possessing the facilities for keeping them, among the rarest being the Wattled, Stanley, the Hooded, and Manchurian Cranes. Of the Parrot tribe many rarities have been imported in recent years, including the nearly extinct Island forms, such as *Amazona imperialis*, *A. bouqueti*, and *A. guildingii*, from the West Indies, and some of the scarcer Australian Parrakeets such as the Queen Alexandra, Turquoisine, and Scarlet-breasted, as well as several very charming Lorikeets. The Queen Alexandra was reputed to be very difficult to breed in captivity, but has done so regularly in my aviaries for the last twelve years. It is within the last thirty years that the blue variety of the Budgerigar has been produced and freely bred. In my own aviaries I have established a lutino variety of the Indian Ring-necked Parrakeet, of which I have had over thirty specimens, and have also bred some half-dozen examples of the blue variety of the Indian Alexandrine Parrakeet (*P. nipalensis*).

Birds of Paradise were very little known to aviculturists when our Society was founded, but since then many species have been imported and kept with success, both by private aviculturists and at the London Zoological Gardens. In 1907 Walter Goodfellow arrived from a collecting trip in New Guinea with many rare birds, including three species of Paradise Birds, the first of a series of importations of these and other rare Papuan birds by famous collectors for Mrs. Johnstone, the late Sir William Ingram, Bart., the late E. J. Brook and others. In 1908 there were no less than ten species of Birds of Paradise at the Zoo, and since those days I myself have had many.

At the time our Magazine was started no one dreamed of keeping Humming Birds in captivity, but when no less than 20 of these arrived at the London Zoo on the 27th May, 1907, aviculturists began to consider the possibility of successfully keeping these feathered jewels. None of that first consignment, brought home with great care by Captain A. Pam, lived for many weeks, due to lack of knowledge of their requirements at that time, but success has been achieved since 1914 when I acquired one. A dealer in Germany telegraphed to me to say that he had sent me five Humming Birds, and asked me to go and meet the small cargo boat in the Thames. Needless to say, I was thrilled at the idea of owning a live Humming Bird and rushed off to the boat at once. I had great difficulty in boarding it, but did so eventually with the help of a rope ladder. I was taken into the cabin, where I saw a small cage with five almost dead Humming Birds, not even strong enough to perch, but huddled up together on the bottom of the cage. I told the man in charge that I did not want birds

which were in such a hopeless condition, but as he had taken so much trouble I gave him five pounds and took one home. By a good fire in the bird room, I warmed four very soft handkerchiefs, and then proceeded to wash the bird in warm water into which I had put a few drops of brandy. When wet, the bird was no bigger than a bumble bee. After getting all the sticky stuff off, I dried him in the warm handkerchiefs, and put him into a large cage. He at once started humming, and fed on the wing. The wretched condition he was in was due to his having been fed with a twig on sugar and water, which ran all over his feathers and made them quite sticky and hard when dry. The other four birds were acquired by some other people, but only lived for a couple of days. I had no more trouble with this bird, and he moulted out perfectly twice, and was shown in wonderful condition at the International Cage Bird Show in 1914. A very good coloured drawing of this lovely bird, by Roland Green, appeared in our Magazine in 1915, on page five. My second Humming Bird was the Garnet-throated, *Eulampis jugularis*, which was sent to me from France in charge of a friend. I met my friend at Victoria Station, and rushed home with the precious bird. When I unpacked the small cage in which it travelled the bird appeared absolutely lifeless, and, as far as I could make out, quite dead. I was standing by a fire and admiring his lovely colours, when I suddenly felt his heart beating. Taking him quite close to the fire, the bird, who was only torpid from the cold, soon recovered, and after a sip or two of his food, into which I had put a couple of drops of brandy, was as active as ever, and never gave me any more trouble. This bird was also shown at the International Cage Bird Show in 1914 in perfect condition. I had him for two years, when I stupidly let him out of my window, and never saw him again. Since then I have had over a dozen species of Humming Birds. I lost one Garnet-throated in 1943, a bird I had kept in perfect condition for just over eight years. The last one I lost this year was a Violet-eared Humming Bird (*Petasophora iolata*), which I had kept for over six years. These birds live longer than one imagines. Of course they were all adult when imported, so I do not know how old they were before they came to me. I have always found Humming Birds much easier to keep than several of the insectivorous birds ; as long as they are kept fairly warm and clean, their food not allowed to go sour, and given plenty of exercise by being let out in a room, they are no trouble. Among the most difficult insectivorous birds I have kept were three White-fronted Bee-eaters (*Melittophagus bullockoides*), from South Africa, which I kept in show condition for seven years, and some beautiful Natal Pigmy Kingfishers (*Ispidina picta natalensis*). Let us hope that we may see many more of these lovely things in the years to come.

CONGRATULATORY MESSAGES

From HENRY G. MAURICE, C.B., *President of the Zoological Society of London.*

" In accordance with a resolution of the Council of the Zoological Society of London, at their meeting on the 20th September, 1944, I have great pleasure in sending the Avicultural Society their warm congratulations on the occasion of the Fiftieth Anniversary of its foundation.

" The Council have always watched with interest and admiration the work of the Avicultural Society and have been impressed by the progress made, through its valuable activities, in the advancement of knowledge of the conditions necessary for keeping live birds in healthy and contented captivity. The Council, accordingly, desire me to convey to the Society their sincere good wishes for its continued prosperity."

From FAIRFIELD OSBORN, *President, New York Zoological Society.*

" During the forty-eight years of its existence, the New York Zoological Society has drawn extensively for assistance, and even for inspiration, upon the resources of the Avicultural Society. Not only has the AVICULTURAL MAGAZINE been the court of last report, so to speak, when information not to be found elsewhere was needed, but innumerable relationships of the pleasantest variety have been established with the members of the Avicultural Society.

" With these thoughts in mind, we are happy to extend our congratulations to the Avicultural Society upon its completion of fifty years of successful service and of outstanding contributions to the art of aviculture. It needs no prophet to foretell that the future of your institution will be as bright and as full of accomplishment as has been its last half-century. We extend our congratulations and best wishes."

From THE AVICULTURAL SOCIETY OF SOUTH AUSTRALIA.

" The members of the Avicultural Society of South Australia send greetings and congratulations to the Avicultural Society on the occasion of the Jubilee of what they all regard as their parent society. They take this opportunity of expressing their admiration of the way in which the members of the Society have succeeded in carrying on the study of aviculture during the years of unprecedented difficulty occasioned by the war and, in addition, offer their congratulations on the high standard maintained by the Magazine, the arrival of which marks a red letter day in the life of every subscriber. Our members trust that in the years of peace, which all hope are near, the bond of affiliation between our two societies will continue to the mutual benefit of both."

From THE AVICULTURAL SOCIETY OF NEW ZEALAND.

Intimation had been received from the Secretary of the Avicultural Society of New Zealand that a contribution to the Jubilee number of the AVICULTURAL MAGAZINE and a message on the Society's attainment of its 50th Anniversary were being forwarded. Unfortunately these failed to arrive but the following telegram, which epitomizes the warmth of feeling existing between the two Societies, has been received :—

" Editorial lost enemy action. Secretary in Services. Greetings Jubilee English Society particularly London South England Members. Avicultural Society. Auckland."

* * *

AVICULTURAL ENTENTE CORDIALE

By JEAN DELACOUR

Since the sixteenth century and the days of the Renaissance, the north-west of Europe—England, France, and the Low Countries—has led both in the love of animals and plants and the art of caring for them. This has remained true till our very days. The ruin and devastation which these fair lands have recently been suffering at the hands of a ruthless foe, wiping out the work of many patient and skilful generations, may handicap a quick recovery and cause a temporary setback, but the day will come when the gentle arts of gardening and animal keeping will flourish again there, as bright as ever.

Birds have always been general favourites and have been successfully kept and reared elsewhere. The greatest successes, however, have always been met with in Western Europe. The comparative mildness of the climate, together with a degree of wealth and prosperity due to the fertility of the soil and the industry of the inhabitants, have no doubt reacted favourably and made possible there what was too difficult in other countries. Not only had people better means but perhaps also a broader interest in aviculture.

In France, bird-keeping started early. To give only two instances, I will first mention the portrait drawn by La Bruyère in his " Caractères ", during the seventeenth century, of Diphile, the bird lover : " Diphile commence par un oiseau et finit par mille . . ." as it starts. Later on, another famous example was that of the Marquise de Pompadour, who owned a wonderful collection of foreign birds, many of which were used by the great Buffon for his studies.

I am not, however, trying to write a history of aviculture. I want only to recall a few episodes of a happy past, and the memory of some bygone friends. I started with birds so early that my avicultural experience runs back to over forty years. At five, I already possessed a few. At twelve, I had three large outdoor flights, prettily laid out and planted as miniature gardens, inhabited by a couple of hundred native and foreign small birds. At fifteen, my collection was really large and contained rarities. When Villers-Bretonneux was finally destroyed in 1918, I had built more than one hundred elaborate steel-framed aviaries, a large gallery with many fixed indoor cages, and several large enclosures and ponds. There were two thousand birds, ranging from Ostriches to Humming Birds. They were all lost.

After this first bird disaster, Clères was promptly organized to accommodate a new collection. From 1920 until 1940, it probably contained the richest series ever gathered together, and hundreds of rare young birds were reared each season. But their stories have so often appeared in this Magazine that I shall not make any further mention of them. I should only like to state that it was really an Anglo-French collection. The curator and several of the keepers were English; many birds had been brought over by British collectors, and during these twenty years I used to spend a great deal of my time in England.

After more than four years, I somehow still cannot realize that it is all a thing of the past. I shall never cease to regret the loss of such an accumulation of feathered treasures.

However, let it be but a happy memory. To-day, I have come back to where I stood when I was five years old. I personally own two birds: a roller Canary in my bedroom, and a very good Shama, a present of a kind friend, Mrs. E. Erlanger, which enlivens my charming office at the Bronx Park. As I write, he sings delightfully.

The New York Zoo collection, it is true, is excellent; I have rearranged the cages to suit my taste, and I admit that it is the best possible compensation for the loss of my own birds, now all killed or dispersed. Still, nothing can ever replace them.

In the Western Europe of pre-war days, so rich and prosperous that we can hardly now remember it, there was a great many aviculturists, big and small. I came to know most of them and some became my best friends. Amused by my incredible juvenile enthusiasm, they were most generous and helpful to me. A great deal older than I was, almost all have now left this world, some of them many years ago. Others, unfortunately, lived long enough to see the horrors of the last war, and a few have witnessed the beginning of the present abomination.

Few of these pre-war amateurs' collections lasted over the war of 1914–1918. Those which did not disappear were greatly reduced, as

either the health or the means of their owners had been shattered. But new enthusiasts soon appeared on the scene, and during the next twenty years, aviculture in France and in England reached a peak which it had never before attained. Hundreds of rare species never seen before found their way to our aviaries, mostly thanks to the skill of private collectors such as Messrs. Cordier, Frost, Shaw Meyer and Webb. New techniques were developed to keep and breed difficult species. Let us hope that we shall see days of similar prosperity after victory, conditions will certainly be very different, but, in some aspects, they may offer certain advantages.

At the time of my first efforts, the Avicultural Society was already the bird-amateurs' headquarters in England, while the Section d'ornithologie de la Société Nationale d'Acclimatation was its counterpart in France. I joined them both early. In these days, the link between them was mainly provided by Pierre-Amédée Pichot, a delightful and learned gentleman of the old school, who in his youth had been the companion, then the private secretary of the Prince Imperial. He had been for many years the editor of the Revue Britannique in Paris, always keeping close connections in England. All his life—he died just after peace had been restored—he acted as a liaison agent between nature lovers of the two countries, a tradition which I carried on after him. He was keenly interested in zoos and in falconry. A charming writer, he contributed numerous papers and a few books, in a popular and light vein, where humour never interfered with scientific accuracy. Pierre-Amédée Pichot kept a small, but choice collection of mammals and birds in his country house near Paris, and his garden also contained interesting plants.

At Corbie, in Picardy, two miles from Villers-Bretonneux, lived Eugène Boullet, a local banker. He had been badly crippled at the age of twenty and remained very lame all his life. He was the perfect type of what the French philosophers of the eighteenth century used to call " un curieux de la Nature ". He was a great authority on butterflies and had gathered an excellent collection which, in 1905, he presented to the Paris Museum, continuing to work on them and supplying the necessary money for their maintenance. Every other winter he would visit some interesting part of Europe, North-Africa, the Near East, or India, bringing home with him birds, plants, and other objects of interest, as well as excellent series of photographs.

To my child's eyes, Eugène Boullet's house was the very representation of Paradise ; in its spacious rooms he kept a few pet birds such as Sugar-birds, Fruit-sucker, Parrots, Doves, and Mynahs. All were incredibly tame and often allowed to fly about fearlessly. Attached to the house was a large conservatory where palms, ferns, and other exotic trees had been planted. The three acres of grounds, in spite

of their small size, contained all one could wish to see : a formal garden, a wild garden, a rock garden, a water garden, all full of rare plants and beautifully kept. Several greenhouses were artistically arranged ; there were three full of orchids, one in which the season's indoor flowers were displayed in turn, and another one especially built for a *Victoria regia* and other water plants. Tropical fishes were found everywhere, in the pools and in special tanks as well.

In the grounds, birds were conspicuous. Flamingos lived among the water-lilies and a good-sized pond was fenced in and inhabited by Black-necked and Black Swans, as well as by Geese and Ducks. There were Crown and Demoiselle Cranes, Screamers, Scarlet Ibises, and many others. A large and high flight, built over a stream, 60 feet long, was full of small waders, Pheasants, Starlings, Troupials, Weavers, and other foreign birds. It was all done with great taste and kept with infinite care.

I used to go to Corbie as often as I could. I loved to see all these marvellous things, to learn something about them from their owner, and I always brought home from my visit a plant, a fish, or a bird. What fun !

Eugène Boullet was a good naturalist and a most kind, affable man. He greatly encouraged me at the start. In 1918, Corbie was irreparably damaged and he lost the whole of his collections. He was then 72 years of age. He moved to Cantelen, near Rouen, where a friend put at his disposal a small chateau with a 30-acre walled-in park. He at once made new gardens, built new orchid and *Victoria regia* houses and kept a few birds. He was as keen as ever until he died in 1923.

Eugène Boullet had many English friends and some of our older members certainly remember his charming personality.

Charles Debreuil was another prominent figure among the nature lovers of those days. I was introduced to him by Eugène Boullet when I was seventeen. At Melun, twenty-five miles south of Paris, he possessed a most amusing place, made of several different gardens, connected by tunnels under streets, extending from the town to beyond its borders, of well over one hundred acres. There were many rare plants and trees, fishes, mammals, and an excellent collection of Pheasants, Doves, Parrakeets, Cranes, and Waterfowl. He was particularly keen on Rheas, which he raised every year.

A witty and amusing man, Charles Debreuil was for three decades the life and soul of the Société d'Acclimatation. Till 1914, he had had a very happy life, but he was hard hit financially by the war and therefore obliged to reduce his collections, particularly his birds. In 1940 he still was at his house at Melun, where he had been born, when at the age of 80, he was thrown out by the invading Germans. It was too much for him and he died soon after, in bitterness and sorrow.

He had been most generous and helpful to me when I started bird-keeping, giving me many Rheas, Pheasants, and other birds.

Georges Hermenier was also one of my inspirers. Having made a large fortune in Indo-China, he had settled down at a fine place, the Chateau des Sables, at Draveil, ten miles south of Paris. He built there huge and luxurious pheasantries and pens, and gathered an amazing collection of game-birds, Waterfowl, Cranes, Ostrichs, Cassowaries, Emus, and Rheas. He reared many, a part of which he presented to me. After the war started, Georges Hermenier, in very poor health, became discouraged and broke up his collection. He died sadly a little later on.

These four men had a very great influence on my vocation as a bird-lover and naturalist. I could enumerate many more who had fine collections and who were very successful, but it would take too much space

Of the post-war aviculturists in France, I must mention Mme. E. Lecallier who, up to a few years ago, possessed remarkably large and fine collections of all sorts of birds and some park animals near Elbeuf. She always had British keepers, and was widely known in England. I believe she is now in retirement in Brittany, her animals and birds having been destroyed in 1940.

M. A. Decoux, also well known in England, deserves special mention. When retreating, in June, 1940, I stopped at his place, Géry, near Limoges, and the next day, Mr. F. Fooks and his family, by pure luck, joined me there. We parted the following day, both on the road to exile, and neither of us have since seen Clères, where we had worked so hard for twenty years. Until 1943, M. Decoux wrote me, regularly, astonishingly outspoken letters on the situation in France. He had managed to keep almost complete his beautiful collection of Parrakeets, Doves and small birds, but since the total invasion of the country by the Germans, I have received no news from him. I pray all is well. For thirty years M. Decoux's collection has been one of the world's best of the smaller birds, and he was extremely clever and successful in breeding rare and delicate species. Let us hope that he will get through the present ordeal with his birds, although this can hardly be expected.

In England, two of my oldest and most intimate friends are alive and well to-day, Mr. Alfred Ezra and Major Albert Pam. For so many years we have been in such close and constant contact, that it seems fantastic that we have not been able to meet since 1940. However, letters go and come—and we may soon be together again. Others, unfortunately, are no more, such as the late Duke of Bedford, the late Duchess of Wellington, and Gerard Gurney.

A unique place remains in my heart for the memory of one of the dearest of all, one whose influence in my younger years has been permanent: Hubert Delaval Astley. His great affection, which

I wholly reciprocated, can never be forgotten, and after twenty years he lives to-day in my memory as vividly as ever. A more artistic, humorous, tasteful and, at the same time, a more upright, kind and generous man never existed. We agreed so perfectly on everything that notwithstanding a difference of thirty years in age, I can say that, in those days, Hubert Astley was my closest friend. He kept many birds very successfully, and wrote about and sketched them most cleverly. His company was a constant delight. Every year he spent some time with me at Clères, which he helped much to organize and I paid numerous visits to Brinsop, his lovely estate in Herefordshire. When he died in 1925, after a long and cruel illness, I lost a friend whom I shall miss as long as I live.

Before 1914, there were two great amateurs in Belgium, Robert Pauwels and Ivan Braconnier, both gone now. They both were excellent friends to me as was M. Franz Blaauw, in Holland, whose collection was shared by the late Duke of Bedford and myself after his death in 1936.

I have mentioned my oldest friends who have successfully played their part in the promotion of aviculture. Fortunately, younger ones exist to-day, who have already done much, and will still accomplish more in the future, such as Messrs. Spedan Lewis, R. and N. Stevens, and S. Stokes in England ; F. Edmond-Blanc, l'Abbé A. Dancoine, and G. Béraut in France ; J. M. Derscheid in Belgium, and many others. They will form the nucleus to which newcomers will be added, in great numbers, I hope. They will all reconstitute an Avicultural Entente Cordiale. As in the past, I trust that I shall be able to act as a liaison agent between them, and this time include in the ring American aviculturists.

May we have, before too long, more of these delightful gatherings such as the visit of nearly a hundred French bird amateurs to England in 1936, and the still stronger British attendance at the Ninth International Ornithological Congress at Rouen in 1938 !

* * *

LINKS WITH AVICULTURE IN CEYLON

By W. C. Osman Hill, M.D., F.Z.S.

Although possessing several different types of climate, each in its own way suitable to the rearing of a wide variety of birds, and, taken altogether, probably capable of supporting almost every species suitable for life in captivity, yet the exponents of aviculture in Ceylon have been, and are, extremely few. Except for the occasional owner of a single Parrot or Mynah, aviculture appears to be limited to a few Europeans and persons of partly European descent. Although superficially interested in birds in a childishly curious way, the Ceylonese know little or nothing about the wonderful avifauna of their own country and nothing at all of exotic forms. Many of them, like the native population of other tropic lands, find companionship in captive animals ; but, as elsewhere, the knowledge of the requirements of their captives is singularly inadequate. The usual small, dark wire cage, or even worse, a cramped, home-made affair, with closely-set wooden slats instead of bars, is an all too common sight hanging from the windows of the boutiques or native shops. Within these abortions, unfortunate Mynahs, Bulbuls, and Parrakeets—even the rare and beautiful Layard's Parrakeet—eke out a short and miserable existence. Many have been the Layard's and Blosson-heads that I have personally rescued from such fate.

Apart from my own collection, which, as far as birds are concerned, is almost limited to Parrots, both local and exotic, but which on occasion has housed such forms as Hornbills, Brown-headed Gulls, various Pheasants, a Sandpiper, and some small Finches, the larger collections in Ceylon can be numbered on the fingers of one hand. I would specially mention the collection at the Dehiwela Zoological Gardens just outside Colombo. This, however, has been adequately described in this journal as recently as 1943 by Yvonne Burn, so I need go into no detail here. I would, however, like to mention its predecessor, the fine collection of local birds housed, once upon a time, in the gardens attached to the Colombo Museum. Here, at any time, could be seen all the common Bulbuls, Magpie-Robins, *Chloropsis*, Mynahs, Doves, Parrakeets, and Quail, besides a wide variety of waterfowl such as Spoonbills, Ibises, Pelicans, and a goodly array of Owls ,of which the Fish-Owl (*Ketupa ceylonensis*), the Collared Scops Owl (*Otus bakkamoena*) and the Brown Wood Owl (*Strix indranee*) were all long lived. Diurnal birds of prey were also well represented in the shape of White-bellied Sea Eagles (*Haliaëtus leucogaster*), various Kites and the Serpent-eagle and Hawk-eagle (*Spilornis cheela* and *Spizaëtus* or *Limnaëtus cirrhatus*). Among the less commonly represented species of particular interest aviculturally were the Indian pitta (*Pitta brachyura*) and the White-breasted Kingfisher (*Halcyon*

smyrnensis). The latter actually went so far as to rear a brood of youngsters in a mixed aviary, which must be one of the first records for any Kingfisher in captivity. Unfortunately the Museum collection was broken up three years ago when the Japanese scare led to a hasty evacuation of the rest of the Museum from Colombo. A few remnants only were rescued and transferred to the Dehiwela collection where many of them still reside.

Of private collections, the only one of any size is that of Robert Wilson, a planter of Meddegodda—a delightful locality in the central hills at over 3,000 feet altitude. Though rainy, the climate there seems suitable for many birds that thrive indifferently in the low-country. This is especially the case with the Pheasants, of which the collection under notice boasts of Golden, Amherst, Ring-necked, Reeve's, Swinhoes', Silver, Blue Fireback and Eared, as well as Jungle Fowl, Spur-fowl (*Galloperdix bicalcarata*), and Peafowl. Mr. Wilson's aviaries are fine, well-built structures, some of them having over 60 feet flight space. Besides a wide variety of Parrots, of which the collection is specially rich in Australian species, it also boasts a fine group of Laughing Kingfishers (*Dacelo gigas*). To this enthusiast has also belonged the credit of breeding the Whistling Teal (*Dendrocygna javanica*) in his aviaries.

A feature at one time much commented on by travellers to Kandy was the collection of live animals kept by Sir Solomon Bandaranaike at Veyangoda, 24 miles along the Kandy road from Colombo. Though consisting mainly of local mammals, a few of the commoner birds, including some imported species, were frequently to be found there. I remember having seen Wood-owls and Purple Coots on the occasions when I have called there, as I have often done, thanks to Sir Solomon's kindness, when on my way up-country. But, largely owing to feeding difficulties and the impossibility of obtaining materials for the maintenance of cages in a reasonable state of repair, the war has brought about a sad deterioration in Sir Solomon's exhibits.

Among those who have kept smaller collections or have owned particularly interesting individual birds I would mention Aubrey Weinman, Frank Loos, G. M. Henry, L. Fradd, and Mrs. B. Andree.

Aubrey Weinman, alas now a prisoner in Japanese hands, was at one time librarian at the Colombo Museum, and in that capacity was responsible for the care and maintenance of the collection of live animals kept there. To him was largely due the credit for the amazing results recorded from that institution, i.e. before he joined up early in the war. He was a keen lover of birds and had a very fine private collection of Shamas, Parrakeets, Cockatoos, and such gems as Orioles, *Chloropsis* (Jerdon's, Hardwicke's, and Golden-fronted), and even such difficult feeders as Flycatchers. Australian, Malayan, and Indian birds were his strongest representatives.

F. E. Loos kept a somewhat similar, but smaller, collection to the preceding, and, I believe, still does. Many have been the jaunts, before the war, that he and I with our mutual friend Weinman used to take to Colombo harbour to buy up all the avian rarities we could find on the ships coming from Australia, Malaya or, very occasionally, Madagascar. Frank Loos was particularly fortunate in being the possessor at one time or another of Madagascar Weavers (*Foudia madagascariensis*), of several exotic Grackles including one huge but noisy fellow of unidentified species from New Guinea, of a Malayan Turquoise Fairy Blue-bird (*Irena turcosa*) and a pair of Kundoo Orioles (*Oriolus oriolus kundoo*). He also had, at one time, a large number of Waxbills, a Peter's Spotted Fire-finch (*Hypargo niveoguttata*) and a lovely pair of Rainbow Buntings (*Passerina leclancheri*) besides the more usual aviary types such as Gouldian's, Bicheno's, and so on. One thing about Loos' birds was their extraordinary tameness. Even his Budgerigars could talk ! Loos's greatest enemy was the common cat, of which he literally caught dozens in their nocturnal attacks on his birds.

The finest Paradise and Pintailed Whydahs I have ever seen were those kept by my friend Leonard Fradd at Matakuliya, almost on the sea front at the mouth of the Kelani river. Many of the commoner Weavers were also in Mr. Fradd's collection, but he had many misfortunes from incompetent garden-coolies who, as all local aviarists find out sooner or later to their cost, are adepts at leaving aviary doors wide open ! I have myself lost innumerable birds, usually rare specimens like Bourke's Parrakeets, for instance, that, even if the offending gardener were fined all his wages for the rest of his lifetime could not repay the value of the lost bird. Other enemies of the Fradd collection, now unfortunately almost liquidated thereby, have been bees and pariah dogs. The former slaughtered his fine pair of Red-collared Lorikeets (*Trichoglossus rubritorquis*), whilst the dogs broke into his aviaries during the night and killed all his Peafowl.

Mr. George Henry has never kept any sizable collection, but is an adept at rearing, educating, and taming individual birds. His favourites are the local accipitrines. He has been very successful in training Kestrels and several smaller hawks to return to the wrist in true medieval style. Another exceedingly tame bird of his was a young White-breasted Kingfisher, and I hear that his latest acquisition is a specimen of the rare and beautiful *Cissa ornata* or Ceylon Magpie.

I mention lastly Mrs. B. Andree of Negombo on account of her rare faculty of caring for and success in breeding some of the smaller waterfowl. Her greatest and most imposing feat is the culture of the beautiful Indian Purple Coot (*Porphyrio poliocephalus*) the results of which have brought her several prizes at local shows.

From the foregoing it is evident that lovers of birds have rare and valuable opportunities for pursuing their pleasures in Ceylon, but that all too few avail themselves of the facilities offered. Many might, justifiably perhaps, be deterred by the toll taken by the innumerable internal and external parasites which, in any tropical climate, are ever lying in wait to claim their victims—a fate which is spared captive animals in temperate climates, for the cold winter kills off the parasites' eggs. Others are appalled, no doubt, by the delinquencies of the type of labour one has to contend with, or the depredations of cats, dogs, and rats of various kinds that either filch the bird's food or disturb their nesting by themselves annexing all available nest-boxes for their own families. But troubles of some kind await all aviarists. True they may be particularly galling in the tropics at times ; but, provided one devotes a reasonable amount of one's own time and personal care to the captives, the results in any final reckoning constitute, in my opinion, adequate reward.

* * *

AVICULTURE IN AMERICA

By Lee S. Crandall

Aviculture in America has made giant strides in recent decades and no one unfamiliar with its growth could possibly divine the fact that until the turn of the present century it was practically non-existent.

A search through the memories of early childhood reveals little of the bird-keeping practices of the day. Robins and Bobolinks were widely kept ; Mockingbirds were the privilege of the wealthy. Bobolinks were kept in cloth-topped bow-cages, similar to those used in Europe for Larks. Robins (*Turdus migratorius*) were popular in butchers' shops—I can recall hearing that such birds were commonly fed on bits of raw meat and did not do as well as those kept in homes and fed on cooked beef. This bit of early avicultural lore is still largely practised here.

In those days, too, there was an extensive trade in birds for the European market. Trapping of favoured species was widely practised, and really involved techniques were developed for the capture, at various seasons, of Bobolinks, " Blue Robins," Rose-breasted Grosbeaks, Indigo Buntings, and Purple Finches. Years ago, I knew many of these trappers and even made frequent field excursions with them. I still have a feeling of amazement at the intricate methods that had been evolved, suited exactly to the habits of each species. The coming of the Audubon Laws not only put a stop to this practice but choked the beginnings of the avicultural impulse in its infancy. The old bird trappers have long since disappeared and with them has gone their hard-won lore. The keepers of birds, forbidden to cage familiar

native species, have at last turned their attention to songsters of other lands.

Pheasants and waterfowl have been kept extensively in America since very early days. Admirers of birds of these groups have been legion and through the years many excellent collections have been built up and many fine breeding records established.

Aviary birds, on the other hand, have made much slower progress. In the first decade of the present century, I can recall only two collections of consequence in private hands. These were established by Mrs. F. F. Thompson, of Canandaigua, New York, and Mr. C. C. Worthington, Shawnee-on-Delaware, Pennsylvania. Both these early collections came to the New York Zoological Park on the deaths of their owners. Later, Mr. Wm. H. Browning, first President of the Avicultural Society of America, Mr. Kenyon V. Painter of Cleveland, Ohio, and our late dear friend, Peo M. Maresi, of Scarsdale, New York, all built up collections of distinction.

My own introduction to avicultural science came in 1908, when I discovered the then short file of the AVICULTURAL MAGAZINE in the library of the Bird Department of the New York Zoological Park, then under the Curatorship of William Beebe. I read the volumes straight through and have never missed a number since, even though the row is now considerably longer ! The magazine has been guide and mentor to American aviculturists since its inception. It was definitely instrumental in the formation of the Avicultural Society of America in 1927 and even though we now have an excellent monthly publication of our own, nothing can entirely replace the AVICULTURAL MAGAZINE.

A scanning of its volumes brings memories of many friends, some no longer among us, others separated only by an expanse of war-torn ocean. In the course of years, I have enjoyed the friendship of many charming British aviculturists : David Seth-Smith, Albert Pam, Alfred Ezra, Stephen Stokes, John Frostick, His Grace the Duke of Bedford, Dr. E. Hopkinson, Miss Chawner, Miss Knobel, and very many others, all, happily, still carrying on. Of those who have passed, I well remember Wesley T. Page, avicultural rebel, Major Boyd Horsbrugh, Hubert D. Astley, and Frank Finn.

I cannot close without mention of Jean Delacour, French by birth but definitely British in his avicultural proclivities. No better liaison agent could be imagined for the future amalgamation of the interests of the three nations most influential in bird culture.

War struck at a moment when international relations in our chosen field were reaching a climax of common interest never before achieved. There can be no doubt that when peace has come again, we shall go on to even greater accomplishments, in a world where ease of communication will facilitate renewal of old friendships.

THE GROWTH OF THE AVICULTURAL SOCIETY

By Arthur A. Prestwich

November, 1894. Indeed a Red Letter Month in the annals of aviculture, for in that month appeared the first number of the Avicultural Magazine, 20 pages, price 6*d*. The Avicultural Society, founded in the October with a membership of fifty-two, was well and truly under way. It was a somewhat hazardous venture, as there were already in existence two not very successful societies with more or less similar objects, namely, the United Kingdom Foreign Bird Society, founded in 1890, and the Cage Bird Club, 1893. But such was its success that by the end of the first year the membership figure had risen to 175. Neither the U.K.F.B.S. nor the C.B.C. ever really got going, and in the middle of 1895 the former handed over its slight assets and amalgamated with the Avicultural Society, and the C.B.C. faded away in the following year ; thus the Society was left with a clear field.

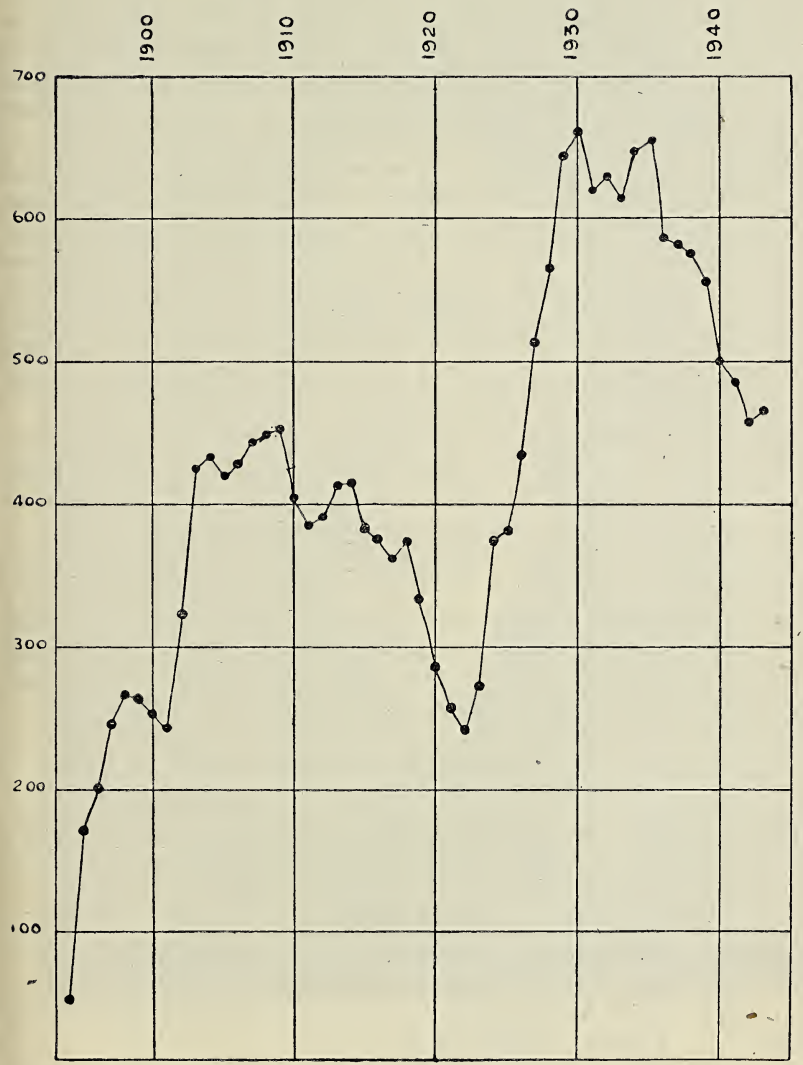
Naturally the Society had teething troubles, but the membership steadily increased, until at the beginning of the century it stood at 263. Meanwhile, the Magazine had improved almost beyond recognition. Then, in 1902, Mr. Seth-Smith began his first term as Editor, and really showed what could be done. It will suffice to state that the volume for 1903 consisted of 431 pages and 12 coloured plates by Grönvold and Goodchild. The succeeding five or six years were great ones for the Society, with the high level of the Magazine fully maintained and membership ever on the increase, till 1909 saw 451 names on the membership list. During the next few years the number fluctuated slightly until at the outbreak of the Great War it stood at 414. As could be expected, during the next four years membership dropped somewhat, but only down to 376. The post-war slump, however, shook the Society to its foundations.

In January, 1923, membership had fallen to 240, production costs were almost prohibitive, and the finances of the Society were " in the red ". The position was indeed critical, and the Society was only saved from extinction by the united generosity of the then Council members, who subscribed liberally to put the Society on its feet again. From then the Society has never looked back.

In 1901, the Foreign Bird Exhibitors' League, founded in 1898, widened its scope and altered its title to the Foreign Bird Club. For twenty-three years the Club was in more or less friendly rivalry with our Society. In 1924, the death of the Editor, Mr. Wesley T. Page, coupled with stress of the times, influenced the Council of the F.B.C. to accept the invitation of the Society to amalgamate.

Another step forward was in 1928, when affiliated membership

THE AVICULTURAL SOCIETY
1894–1944



GRAPH RECORDING THE NUMERICAL STRENGTH OF THE AVICULTURAL SOCIETY. FIGURES REPRESENT THE TOTAL AT THE END OF EACH YEAR.

was opened to members of overseas avicultural societies—those of South Australia (Adelaide), Western Australia, Victoria, and New Zealand availed themselves of the offer.

The outbreak of the present war found a membership of 576 (including 97 associates), since then there has been a drop of a little more than 100. What conditions will prevail after the end of this war we cannot foresee, but that " all in the garden will *not* be rosy " is a certainty. Members are urged to bear in mind past lessons, and to do everything possible, both now and should a slump unfortunately come, to assist the executives of the Society.

Many probably do not realize the enormous amount of work involved in keeping the Society flourishing, and maintaining the regular publication of the Magazine in these troublous times. So do relieve the Editor of at least one of her worries by simply inundating her with material. I venture to suggest that Miss Barclay-Smith will not mind in the slightest ! And please lighten the labours of the Secretary by keeping subscriptions up to date. Miss Knobel delights in sending receipts and enrolling new members, but she positively detests sending out " reminders ".

When I glance at my fifty volumes of the AVICULTURAL MAGAZINE, and recall the very great pleasure I have derived from them, I am profoundly grateful to the officers of the Society and to the many contributors who have made their production possible.

Finally, I would remind readers that we most fortunately have two Original Members still with us—James Cooper and John Frostick ; and one who joined in December, 1894, our indefatigable Editor for some twenty-one years, known throughout the broadcast listening world as " The Zoo Man ", Mr. David Seth-Smith. Long may the Society flourish and enjoy lasting halcyon years.

* * *

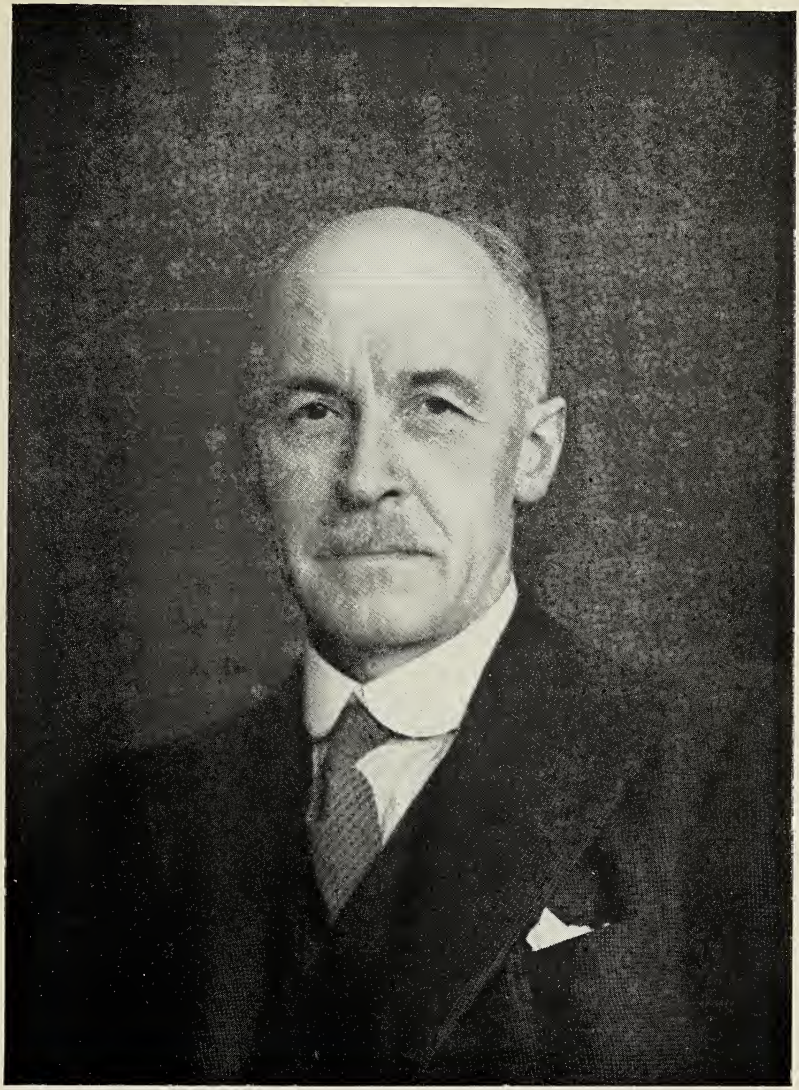
OFFICERS OF THE AVICULTURAL SOCIETY PAST AND PRESENT

PRESIDENTS

1894–1895	The Countess of Bective.
1896–1920	The Hon. and Rev. Canon Dutton.
1921–1925	H. D. Astley, M.A.
1926–	A. Ezra, O.B.E., F.Z.S.

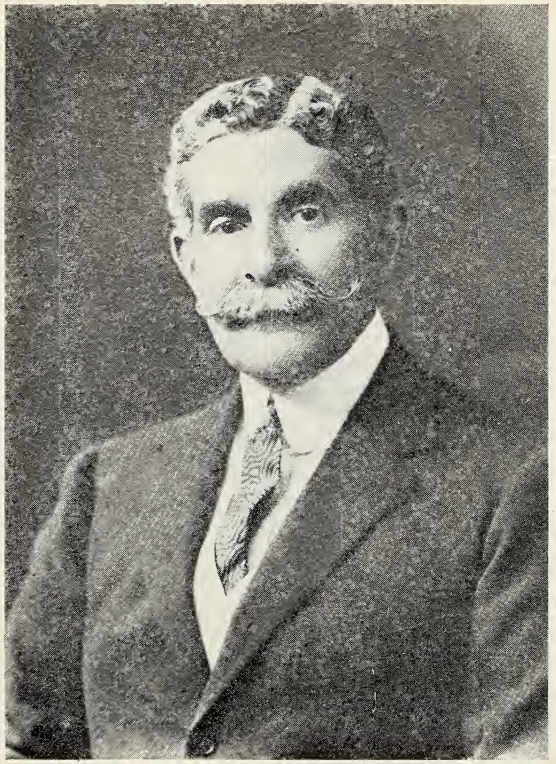
SECRETARIES

1894–1896	Dr. C. S. Simpson.
1896–1899	H. R. Fillmer.
1899–1901	J. Lewis Bonhote.



David Seth-Smith

Editor 1901–1909
1920–1923
1925–1934



Alfred Ezra, O.B.E.

Treasurer 1917–1919
President 1926–

Miss E. Maud Knobel

Hon. Secretary and Treasurer } 1923–

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1904–1909	T. H. Newman.
1904–1916	A. G. Butler, Ph.D.
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1897–1899	O. E. Cresswell.
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1901–1906	W. H. St. Quintin.
1913–1917	B. C. Thomasett.
1917–1919	A. Ezra, O.B.E., F.Z.S.
1919–1920	L. Lovell-Keays, M.R.C.S., L.R.C.P.
1923–	Miss E. Maud Knobel, F.Z.S.

Editors

1894–1896	Dr. C. S. Simpson.
	H. R. Fillmer.
1896–1899	H. R. Fillmer.
1899–1901	O. E. Cresswell, M.A.
1901–1907	David Seth-Smith, F.Z.S.
1907–1908	David Seth-Smith, F.Z.S.
	A. G. Butler, Ph.D.
1908–1909	David Seth-Smith, F.Z.S.
	Frank Finn, F.Z.S.
1909–1910	Frank Finn, F.Z.S.
	J. Lewis Bonhote, M.A.
1910–1912	J. Lewis Bonhote, M.A.
1912–1917	H. D. Astley, M.A.
1917–1919	Graham Renshaw, M.D., F.R.S.E.
1920	Graham Renshaw, M.D., F.R.S.E.
	R. I. Pocock, F.R.S.
	David Seth-Smith, F.Z.S.
1921–1923	David Seth-Smith, F.Z.S.
	R. I. Pocock, F.R.S.
1924	The Marquess of Tavistock.

1925	The Marquess of Tavistock. David Seth-Smith, F.Z.S.
1926–1934	David Seth-Smith, F.Z.S.
1935	The Hon. Anthony Chaplin. Miss E. F. Chawner.
1936–1938	Miss E. F. Chawner.
1939–	Miss Phyllis Barclay-Smith, F.Z.S.

* * *

THE PROGRESS AND DEVELOPMENT IN ORNAMENTAL WATERFOWL KEEPING

By A. F. Moody

In attempting a brief and what I fear is a very incomplete summary of the keeping of ornamental waterfowl in general, it is perhaps safe to assume that Swans and other members of the family Anatidæ, together with Peacocks, etc., were kept in very ancient times. Solomon, we gather, in addition to his 900 wives and concubines, also kept Peacocks and perhaps other birds. That very early etching or wall painting of the Geese of Medum, supposed to be of the period 3,000 years before Christ, depicts pairs of White-fronted, Grey-Lag, and Red-breasted Geese. The evidence this gives in support of aviculture is that the picture was of Egyptian, and the Red-breasted Geese of Siberian origin, and it is very doubtful if an artist of that period would ever have become familiar enough with the bird to reproduce it accurately unless from birds kept in captivity.

In 1661 many kinds of Waterfowl were introduced to the waters of St. James's Park by Charles II. Referring to this interesting bird sanctuary in her book, *Ornamental Waterfowl*, the Hon. Rose Hubbard in 1888 writes. " . . . It is under circumstances such as these that waterfowl look best and do best, while it is interesting to remember that the St. James's waterfowl are a matter of history. First introduced by Charles II (1661), whose pleasure it was to feed the Ducks and play with his dogs, they were here bred in great numbers, as were also a variety of other animals, including roebucks, red deer, antelopes, etc. It would appear that St. James's Park at that period became, as Mr. Hare expressed it, ' a kind of Zoological Garden for London.' We gather from the writings of Evelyn that wicker baskets which are at this time in use on the Continent as nesting-places for the smaller fancy ducks, were then employed for the same purpose in England, as may be seen by the following curious extract from this author :—

" 9th February, 1664. I went to St. James's Park where I saw various animals. . . . The park was at this time stored with numerous

flocks of severall sorts of ordinary and extraordinary wild fowle, breeding about the Decoy, which, for being neere so grette a City, and among such a concourse of souldiers and people, is a singular and diverting thing. . . . There were withy-potts or nests for the wild fowle to lay their eggs in, a little above ye surface of ye water."

Around 1764 water birds were kept at Osterley Park in the county of Middlesex, one species of Crane at least being recorded as having been reared there before that date.

It is difficult in these busy war-time days to follow the trail more closely, but taking a long leap from late Georgian to early Victorian times we learn that the waters of St. James's Park were still being used as now as a pleasaunce and sanctuary for the keeping of rare and uncommon species of waterfowl. Paris also, at this time I believe, specialized to some extent in the Anatidæ.

Prior to 1851, when the Knowsley Collection was dispersed, the 13th Lord Derby owned a beautiful collection of waterfowl there, which I understand occupied about 80 acres of water and was maintained at a cost of several thousand pounds a year. Later in the same century the formation of the Waterfowl Club, under the secretaryship of Mr. W. R. Ryly, of Kendal, gave a filip to the fancy or rather the study, as did the excellent handbook on ornamental waterfowl by the Hon. Rose Hubbard published in 1888. During more modern days, in addition to the London Zoo, which at one time devoted considerable care to waterfowl, the best of the collections in this country, and most of which I have seen, was that at Woburn, established by the late Duke of Bedford. There amidst a unique and beautiful natural setting the birds enjoyed the most ideal conditions under which this group could be kept. Many, of course, were full winged, and all, I should imagine, were happier and better fed than when in the wild. Other collections not so extensive or perhaps so favourably situated, but still intensely interesting, were Lord Lilford's in Northamptonshire, started in 1860, and Mr. W. H. St. Quintin's and the late Sir Henry Boynton's, both of East Yorkshire, and probably begun in the eighties. About this time also, or later, Mr. F. E. Blaauw, who kept waterfowl for fifty years or more, did much with his fine collection of waterbirds at Gooilust in Holland, breeding such rare Geese as Emperor, Abyssinian, Blue-winged, Andean, and the Sandwich Island Goose ; the latter he kept going for thirty years. Several small Continental breeders were also extolling the merits of waterfowl breeding in that country and in Belgium, a source from which a portion of the young stock annually offered for sale in this country originated. The late Lord Grey of Falloden, who purchased his first waterfowl in 1884, had also many tame and interesting wild fowl, whilst Sir Richard Graham, Bt., experimented on a larger scale with British Ducks at Netherby in Cumberland.

In still more recent times, although the Woburn and the Lilford birds continue to exist, others have entered the field, and prior to the present war choice and extensive collections have been formed by Mr. Alfred Ezra, O.B.E., at Foxwarren ; Mr. Delacour in Normandy ; the late Sir Philip Sassoon, Bt., at Trent ; the Stevens brothers at Walcot, ; Major Maxwell ; Lieut.-Commander Peter Scott, and others. Messrs. McLean and Wormald, R. and N. Stevens, J. Spedan Lewis, J. C. Laidlay have done much towards importing and breeding new species, and although some have commercialized their undertakings have, I feel sure, made this a secondary consideration.

In America the late Mr. J. V. de Laveaga's collection of waterfowl, which had taken many years to build up, numbered at his death some few years ago, nearly 100 species. These eventually, owing to the efforts and generosity of certain American ornithologists, found their way into the W. K. Kellogg Bird Park, owned I believe by the Whittier Ornithological Academy, a Californian enterprise formed, I understand, for educational purposes and for combining aviculture with the protection and perpetuating of rare and vanishing species. There are others in America who are keenly interested, such as Mr. C. L. Sibley, who owns a progressive and valuable collection at Sunnyfields Farm, Wallingford, Conn., U.S.A.

In Australia and New Zealand members of our own Avicultural Society are in touch with affiliated members of those countries who are keen supporters of the cult.

To give the devil his due there were many admirers of waterfowl in Germany. It is almost unthinkable, however, that a people who could assemble such æsthetic beauty as was to be seen at Carl Hagenbeck's Tierpark, Stellingen-Hamburg, could twice within one lifetime plunge the world in misery. Be that as it may, the arrangement of the waterfowl ponds, etc., at Hamburg were a credit and a pattern to any public institution of that nature.

As to the species of waterfowl kept during the periods mentioned, one or two such as the Sandwich Island Goose (*Nesochen sandvicensis*), which at one time bred fairly regularly, has disappeared. The Marble Duck, too (*Anas angustirostris*), once plentiful, both at Lilford and at Scampston, are, like the Andaman Teal, which once bred at this Zoo, absent from every collection. Others, including the Red-breasted Goose (*Branta ruficollis*), almost unknown except for the few received at Woburn in 1911 and 1913, are now common property and beautiful specimens are owned by many. The American Wigeon (*Anas americana*) appeared about 1908, and the Falcated Duck (*A. falcata*) about 1916. Both bred at Scampston at once, and for years most of the latter, in England at least, were direct descendants of three birds received by Mr. St. Quintin in the year named. The same applies to the

Chestnut-breasted Teal (*A. castaneum*) brought from Australia by Mr. Seth-Smith in 1909, and bred by him for the first time in England at the Zoo. The Common Golden-eye (*Bucephala clangula*), once plentiful in captivity, owing to a disinclination to breed and to certain restrictions in their importation, is now rarely represented, whilst the larger and more handsome Barrow's Golden-eye (*B. islandica*), unknown in confinement until first hatched by myself, with the Harlequin (*Histrionicus histrionicus*) in 1911, have now been reared from wild taken eggs by several, and the former bred by two or three. Since then, chiefly owing to the efforts of Messrs. McLean and Wormald, R. and N. Stevens, J. C. Laidlay, P. Scott, Captain Howard, and others, many at one time rare wildfowl have been more or less established. The rarest of these is perhaps that Antarctic species, the Kelp Goose (*Chlœphaga hybrida*) which, although represented in the Zoo in 1868, and attempted by Mr. Blaauw with a single specimen in 1911, is perhaps yet not thoroughly understood, and has only recently been satisfactorily kept for lengthy periods by both Mr. Delacour and by Mr. Spedan Lewis. Another great rarity once represented at Lilford is the Pink-headed Duck (*Rhodonessa caryophyllacea*), several of which have done well with Mr. Ezra, as have also that curious and fascinating little diver the Madagascan White-backed Duck (*Thalassornis leuconata*). Mr. Alastair Morrison has been instrumental in adding to our ornamental waterfowl by collecting with others the beautiful Puna Teal (*Anas versicolor puna*), a distinct species resembling a larger and more handsome edition of the well known Versicolor Teal, and a pair or more of which now thrive and breed at Leckford. Messrs. Stevens, I believe, have been responsible for firmly establishing the African Red-billed Duck (*Anas erythrorhyncha*), and amongst many have put into circulation from their beautiful park at Walcot the Southern Pochard (*Nyroca erythrophthæma*), White-winged Wood Duck (*Asarcornis scutulata*), Chinese Swan Goose (*Cygnopsis cygnoides*), the Hottentot and the Cape Teal (*Anas punctatum* and *A. capensis*), not to mention the strikingly handsome Radjah Shelduck (*Tadorna radjah*).

Mr. Porter also gave waterfowl keepers pleasure by bringing over a few of the very rare New Zealand Brown Duck (*Elasmonetta chlorotis*), a species which was once kept by the late Mr. Bonhote, but has long since disappeared. Mr. Wormald, I believe, first sponsored or introduced the lordly Canvas Back (*Nyroca valisnerea*), the American Redhead (*N. americana*), and the Ring-necked Duck (*N. collaris*), the first two of which are firmly established, the third still a rarity. Across the Channel, too, much good work has been done by Mr. Delacour, Dr. Derscheid, Mr. Schuyl, and others. Dr. Derscheid was specially successful with Icelandic Ducks, and until war put a stop to such activities was experimenting with Scoters, a branch of the sea ducks about which there is still much to learn.

Of other species not mentioned Eiders, I believe, were first started by Mr. St. Quintin in 1886, who with the help of one or two infusions of new blood, carried on a breeding strain for many years, the direct descendants of two young birds reared in the Orkneys.

Of other old friends the Red-crested Pochard (*Netta rufina*), always an ornament to any gathering of wildfowl, still carries on and breeds wherever it is allowed to do so. The same more or less applies to the gorgeous coloured Mandarin and Carolina (*Aix galerienlata* and *A. sponsa*), both of which, wherever conditions are suitable, are specially decorative when allowed the full use of their wings. Another old timer more soberly clad is the Chilian Pintail (*Anas spinicanda*). As regards comparative newcomers several species of Mallard have come to stay as I hope will the beautiful Red or Argentine Shoveller (*Spatula spatalea*), the Cape Shoveller (*S. capensis*), the Madagascan White-eye (*Nyroca innotata*), and several others, including the Grey Teal (*Anas gibberifrons*) and the Maned Goose (*Chenonetta jubata*), both at one time very rare in this country.

Upon the charm of waterfowl keeping I will not dwell. No piece of water, however picturesque, is complete without some form of animal life. A pond without Ducks I have heard it said is like a garden without flowers. I love flowers and like to know them and to master their cultivation. Wildfowl, however, have the additional merit of being all true species not enlarged or hybridized by man, but just as God, nature, or the passing of the ages made them. There is also a wonderful diversity in the form and colouring of the 150 species or so available. Their wants also for the most part are simple, and wearing their most spectacular colouring during the most dreary months of the year may almost be referred to as the flowers of winter.

The chief qualifications of an ornamental Duck to some of course, and particularly to children, is that it should eat bread and come quite near to take it. To the ornithologist and the lover of nature things are very different, each species, in addition to its quaint colour scheme, habits, and gracefulness of form, represents an inhabitant of some portion of the earth's surface, and a link in some particular genus or family. These in many cases may have only previously been read about, and it is indeed a privilege and an education for those who cannot travel or explore to have, as it were, the earth at their feet in this respect, and at close quarters become acquainted with some of the many aquatic forms of bird life which it would otherwise be impossible to see. For this reason, in addition to private enterprise which so far has been the most successful in this respect, I most sincerely hope that in this new heaven upon earth which is to come those responsible for the formation of our public beauty spots (parks, etc.) will, in addition to providing still life, an inanimate restful beauty only (flowers, etc.), where circumstances allow, make adequate

provision for waterfowl (real semi-natural conditions), and avoiding the many mongrel Mallards so often seen on public waters show the species only, and give more people an opportunity of seeing the real thing.

As to recent literature concerning waterfowl many interesting and instructive articles by various writers have from time to time appeared in the AVICULTURAL MAGAZINE. J. C. Laidlay's book, *The Care and Propagation of Waterfowl*, published in 1933, has also been much appreciated, whilst my own small effort, *Waterfowl and Game Birds in Captivity*, published a year earlier, I consider not wasted if it has encouraged even one beginner to take up this fascinating and wholesome study.

* * *

BIRD FEEDING THEN AND NOW

By ALLEN SILVER, F.Z.S., F.R.H.S.

When Miss Barclay-Smith requested me to contribute something for this issue relating to the subject of bird foods, I confess that I regarded the task with some apprehension.

One felt that it was impossible to interest fellow members after the manner of the late Edward Bunyard in his work on *The Anatomy of Dessert*, because excepting in certain cases it appears that flavour has little to do with birds' likes and dislikes, and secondly, after many years practical use and test of very varied food substances, together with the manufacture and commercial handling of such material, one's personal opinions are with increasing years liable to become anything but dogmatic.

Before making any comment with regard to the immediate past I felt compelled to refresh my memory by going much farther back.

Taking the remote past into consideration with the present, one is compelled to arrive at the conclusion that the changes which have taken place with reference to substances employed in bird feeding are not so very great. I well remember a talk with an elderly individual rich in experience as to the commercial side of livestock foodstuff, but no bird keeper. He listened patiently to me, and then tersely summed up the matter by remarking, " Well, Silver, all it amounts to is Grease and Meal ! "

On the other hand, during the last fifty years, due to improved transport, etc., many things unfamiliar to our grandparents became readily available. Bird keepers tested them out on their birds, and in due course their usefulness and convenience in this direction became apparent. During this period in particular a wider interest in living birds arose beyond that of the mere house pet or rare curiosity. This

in turn brought about the publication of weekly and monthly papers and magazines dealing wholly or in part with aviculture in its various branches. The circulation of information contained therein enabled many to take up a recreation without the uphill work experienced by the pioneers. It may be remarked, however, that although the commissariat department is an important feature of bird keeping, it is not the only item conducive to success. Blame is often attached to foodstuffs which may have little to do with disaster in a number of instances. Unless a bird is in a condition to make use of good food due to an impaired constitution often irreparably damaged when acquired, it cannot respond to good or suitable feeding.

Infections and maladies are generally very obscure, and cannot always be diagnosed, even after death. In some cases ill effects proceed rapidly, in others gradually, and generally they cannot be remedied through nourishment or medicaments.

In a wild state, birds are compelled to subsist upon whatever is available in season, their regimen is one of change. In many cases such food is only obtainable under conditions of great activity, coupled with disturbance, interference, and excitement. According to the particular species food has to be rapidly gulped down as caught, or quickly shelled and swallowed. When under control in cage or aviary, the opposite is the case, excepting perhaps in certain mixed collections of birds. In consequence, more birds become unwell from an excess of nourishment than from the lack of it. To procure many of the items which form the food of birds in a natural state, is both inconvenient and impracticable, and curiously enough many of them do not necessarily suit the bird when confined so well as other items which are customarily provided. It is therefore natural that man from the earliest times has employed foodstuffs for them from materials (1) either consumed by himself, (2) used for domestic animals, (3) items prevalent and easily obtainable in his immediate vicinity and obviously acceptable to his birds.

It is not without interest to hark back to the time of Francis Willughby (edition enlarged and translated by John Ray, 1678), in order to see that birds were fed in those days not so very differently to modern methods. Canary, rape, hemp, flax, poppy, millet, lettuce, and panicum seeds were well known and used. Oats, "off-corn wheat," "spelt," [1] ant eggs, spiders, mealworms, gentles, maggots, seem to have been employed. Bread or meal constituted the main cereal base of food used for insectivorous birds, and egg and meat (raw and cooked) made up the chief protein content. There seems to be no mention of milk or snails.

The usual advice as to cleanliness and the prevention of injury

[1] Spelt = *Triticum sativum spelta*, a race of wheat with loose ears and triangular grains.

in the case of " buckish " birds is quaintly elaborated. A sort of preserved paste for storing is mentioned, together with its method of preparation. It consisted of bean meal, sweet almonds (blanched and pounded), honey, etc., and after cooking was passed through a sieve and stored in jars. Doubtless quite good food for some birds. During that period, round and about 1799, and onwards, Bechstein's methods loomed large in European aviculture of the period, and in addition to the seeds and foods employed during the earlier period, we find the more prevalent use of salads (cress, cabbage, and lettuce leaves), fruits, and berries (juniper, service, whitethorn, elder), nuts (walnut, hazel, and palm), fir seeds and beech mast. Grated raw carrot came into use as did biscuit, sponge cake, milk, cheese, curds, potatoes, raisins, buckwheat, barley, groats, lentils, rye, vetches, peas, sunflower, poppy, and their meals were also employed. Much amusement may be obtained from a perusal of *Cage and Chamber Birds*, wherein one encounters advice and guidance not exactly deficient in humour, such as : " The Chaffinch may be made to sing by whistling Yach ! yack ! and stroking it on the neck," or with reference to that hardiest of Thrushes (*Turdus merula merula*) in short the Blackbird anent which the author remarks : " It is, however, a tender bird, and would not live long on a diet of bran and water."

At a later period, 1823, Sweet (Robert) in his account of the genus *Sylvia*, appeared to largely employ bread crushed hemp, and raw meat, and so we pass on to my grand parents' days, when various insectivorous birds were very similarly fed and given in addition egg and raw and cooked meat, and a " German Paste " concoction consisting mainly of coarse pea meal crushed and whole oil seeds, honey and lard, which was cooked, cooled, and stored in jars. Quite a good food for some birds, but unsuited to others. A Dee Bartlett, during his long service (1851–1897), as Superintendent of the Zoological Gardens, enjoyed an almost unique scope for the exercise of avicultural feeding experiments. Here we see employed in addition to those items already tabulated, figs, dates, bananas, grapes, cod-liver oil, meat extract, pears, grapes, poultry biscuit meals, oil-cake, rice, pea nuts, shrimp, preserved and dry fruit, and the more extensive use of salad ingredients in mixed food.

All the customary seeds and cereal grains were employed, together with Indian corn (maize) and its meal, but the seeds of sunflower seem not to have been then used to any extent.

The more rapid and frequent transport of commodities, together with development of new industries, brought to Europe not only many previously expensive fruits and foodstuffs, but large varied and regular consignments of seeds and grain for use in the mills of both cereal and oil crushing establishments. An age of manufactured human and animal foodstuffs had commenced. Lubricants were needed in

increasing quantity, and the use of soap for many purposes had increased. All these things became increasingly commonplace, and the avicultural commissariat department after due tests, became considerably enlarged, and modified thereby. It should be realized that unless these things were needed in bulk for more important purposes it is unlikely that they would be readily obtainable for birds.

The most outstanding feature during the last fifty years has been an improvement in the methods of conveniently feeding insectivorous birds, and latterly the use of invalid and baby foods in conjunction with meat extract, preserved and condensed milk, and honey supplied in a liquid state, particular to Sugar Birds (*Dacnis* and *Coereba*), Hummers, Sunbirds, some Tanagers and Quits, Honeyeaters, Lories and Lorikeets, and Hanging Parrots, etc.

Due to the increased manufacture of biscuits for human use and for dogs (which included poultry biscuit meal in a kibbled state), together with the importation of Mexican and Chinese " Dried Flies " and Daphnea, Finnish ant cocoons, Italian silkworm pupæ, etc., which were in bulk employed for game, fish, and poultry feeding, there arose further scope for the bird keeper to test and employ such items as bird food. The increased manufacture of meat extracts provided meat fibrine for poultry and dog feeding, and incidentally another food ingredient for the bird keeper. Confectioners and bakers employed in increasing quantities egg and milk in a preserved state, and thereby made available yet two other substances which might be used for birds.

The real art in employing the things just mentioned was concerned with their mixing in suitable proportion, the correct addition of roughage, and their miscibility when prepared for use with water or carrot raw and grated, or incorporated with rice or potato.

One of the noticeable features in the use of food containing chitinous and fibrous matter for insectivorous birds is that they can cast pellets better than when fed on other matter. It is just as necessary for a Shama, Redbreast, or Wood-swallow Shrike to cast a pellet as it is for an Owl or a Kingfisher.

During the 1914–18 war, bird keepers were not so incommoded as during the present one. At the very commencement both shipping and cereal and grain stocks in warehouses immediately came under the control of the Government. When the stocks of those smaller grains were exhausted, it was only natural in the common interest that nothing was imported other than grain and seeds required for food, lubricants, etc. Anything not needed for the war effort was rightly outside the pale. Gradually land came under control as to cropping, and this was not allowed to be occupied for growing anything but cereal and food crops under specific regulations as to their disposal. All grain and meals were soon under similar regulations, and rationed

out for utility and working livestock only, under permit by voucher and coupon. Traders and merchants became mere custodians and distributors, and during the later periods prohibition of the growth of both buckwheat and canary seed here were embodied in an order. Later the sale of linseed except for seed and medicinal purposes came under an order, so that only quantities purchased previous to the date of the order could be sold. All bulk not needed for seed could only be sold to seed crushing and oil making concerns. In spite of all this, with a little initiative, it has been possible to cater for the needs of most species kept, other than those which would only accept canary or millet seed as food.

Insectivorous birds, Canaries and European Finches, some exotic Finches, Budgerigars and Parrot-like birds have thriven on substitutes. I have never bred stronger and better young Parrakeets than those from birds living on 90 per cent to 95 per cent buckwheat, getting otherwise the roots and leaves of dandelion and milk thistle (whole plant). These included Bourke's, Rosellas, Lutino Ringnecks, and Stanley's. Unpaired birds including Cocktaoos, Parrots, Crimson Wings, Barrabands, Cockatiels, etc., have been similarly fed.

* * *

NOTABLE MEMBERS IN THE EARLY DAYS OF THE SOCIETY

By David Seth-Smith

It is difficult to believe that half a century has passed since, in November, 1894, I was handed a proof of the first number of a new journal, to be entitled the Avicultural Magazine, by my old friend, J. B. Housden who, thereupon, put my name up for membership. That first number contained a list of the original members, fifty-two in number, of whom very few remain to-day though, I am glad to say, we still have our old friend John Frostick, a familiar figure at every bird show of note and a well-known judge, who we hope to see at many more of these gatherings in the future. Many more joined the new society as soon as its existence became known, and the numbers went up rapidly.

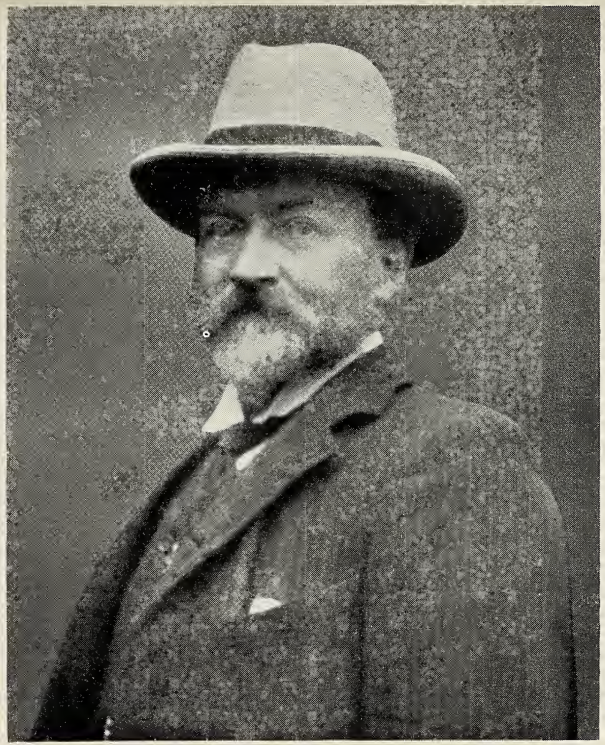
Looking through the first two or three volumes, one's memory takes one back to happy times spent with very good friends one made amongst those early members ; friends who have now left us, but who one remembers as though it were yesterday that we last met.

The Society may be said to have been born in Brighton, for there its Magazine was printed and there its chief founders lived. Dr. C. S. Simpson, a medical practitioner, was its first Secretary ; he was a busy man who found relaxation in watching and tending his birds. I remember lunching with him and Mrs. Simpson and being shown

his bird room, where he had some fine Ornamented Lorikeets, Cuban Finches, and, no doubt, many others that I have forgotten. He contributed many articles to the Magazine in its early life. His friend, Horatio R. Fillmer, a solicitor in Brighton, was Treasurer, and a very active worker and writer for the Society. These two keen enthusiasts together edited the first two volumes. I came to know Fillmer well in those days, but had not seen him since then until, a few years ago, Dr. Hopkinson drove me over to Hassocks where we found our old friend, living in well-earned retirement, and very interested in his garden. The only other member I knew in Brighton in those days was W. Swaysland, the bird dealer, who nearly always had something of interest, especially from South America, in his shop in Western Road, and was always pleased to discuss birds and dispense his knowledge of their requirements. Later he moved to Queen's Road, where I visited him whenever I chanced to be in Brighton.

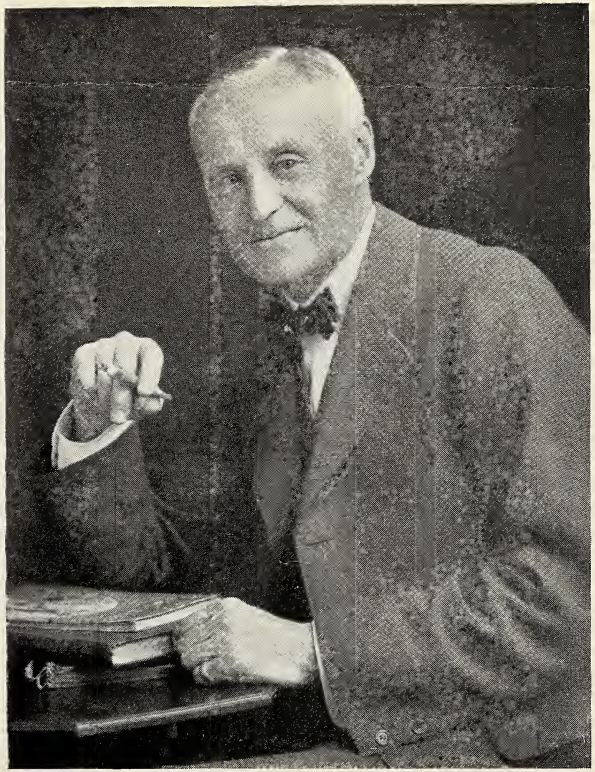
Simpson and Fillmer were strongly supported in their work for the Society by others in London and elsewhere. There was Arthur G. Butler, of the Entomological Department of the British Museum, who took up aviculture as a hobby. His scientific training stood him in good stead and for many years he contributed articles to the Magazine, served upon the Council, and gave valuable help and advice to members. I often visited Dr. Butler at his home in Beckenham, where we discussed avicultural subjects and he showed me his birds, some of which were in cages in the house while others lived in a large open aviary in his garden. He was a familiar figure at the Crystal Palace when a bird show was being held, an occasion upon which aviculturists from all parts of the country were wont to meet. Butler's death in 1925 was a great loss to aviculture.

The name of Reginald Phillipps is closely associated with the early years of the Society, for he was a prolific writer and aviculturist of long experience. His exhaustive articles, often running into two or three numbers of the Magazine, are well worth reading to-day, for they show intensive observation of the intimate ways and habits of the birds dealt with. He lived in a very ordinary London house with a small back garden in West Kensington, but part of the house and the whole of the garden were converted into an aviary, a back room, which most people would have used as the dining-room, forming the inner or sheltered part, while a room in the basement formed a splendid observation post for all that went on in the garden. Many rare birds inhabited that garden, and many were his successes in breeding species never before bred in captivity. It was there that he bred that gem, the Australian Blue Wren (*Malurus cyaneus*) and the handsome Regent Bower Bird (*Sericulus chrysocephalus*). I remember many very pleasant visits to his house and the abounding hospitality



Arthur G. Butler
Hon. Secretary 1904–1920
Editor 1907–1908

Horatio R. Fillmer
Treasurer 1894–1897
Hon. Secretary 1896–1899
Editor 1894–1896



Hubert Delaval Astley

President 1921–1925
Editor 1912–1917

J. Lewis Bonhote

Hon. Secretary 1899–1901 ; 1921–1922
Treasurer 1899–1901 ; 1906–1913 ; 1921–1922
Editor 1909–1910

of both Mr. and Mrs. Phillipps. There it was that I first met Hubert D. Astley, of whom more anon. Reginald Phillipps died in 1915, a great loss to our Society.

W. Herbert St. Quintin was one of the original members, and at his charming home, Scampston Hall, Yorkshire, kept a fine collection of birds of many kinds, though specializing in the larger species such as Bustards, Cranes, Ravens, and Waterfowl. Ably assisted by Mr. J. Moody, still a valued member of our Society, his breeding results, under ideal conditions, were numerous, and his articles and annual reports on the doings of the Scampston birds always of much interest. St. Quintin was a great naturalist and observer of all that took place amongst the wild creatures around him as well as those under his control, and few excelled him as a botanist. He kept a careful diary of Nature's happenings throughout the seasons, and regularly exchanged his experiences with those of his great friend Meade-Waldo in the South, with whom he often stayed.

O. E. Cresswell's name appears in the original list. At his home, Morney Cross, Hereford, he lived the life of a highly respected country gentleman and Justice of the Peace. Always devoted to living creatures, he was specially fond of birds, and possessed fine aviaries in which he kept a variety of species, but rather specialized in Parrakeets and Doves. He took a great interest in the Magazine, writing many articles and editing Volumes VI and VII. I think he died in 1908.

James B. Housden was well known to a large number of our Members for, in spite of his advanced years, he was a regular attendant at the delightful gatherings which, by the kindness of the President, were held annually at Foxwarren Park before the war. At one time he kept a large number of birds at his house at Sydenham, which it always delighted me to visit in those days. He was a great exhibitor of foreign birds at the Crystal Palace shows, and took many prizes some thirty or forty years ago, though in recent years he contented himself with a few favourite old Parrots and Cockatoos.

In the second list of members, corrected to 1st November, 1895, appears the name of Joseph Abrahams, at one time a celebrated dealer in rare foreign birds. Every aviculturist of those days knew the old gentleman in his shop in George Street, East, a few doors from another famous dealer in wild animals, A. E. Jamrach. Beside selling wonderful birds and a celebrated brand of flaked yolk of egg to feed them on, Abrahams was always ready to give advice to beginners in aviculture. I remember A. G. Butler used to say that he had learnt a very great deal from the teaching of Joseph Abrahams.

C. P. Arthur, of Melksham, was interested in all of the Parrot family, and acknowledged to be a great specialist in Budgerigars which were far less common then than now. He always took numerous prizes at the leading bird shows, and wrote in our Magazine : " Some

persons doubt about an aviary being made to pay, but I find breeding Budgerigars can be made very profitable with proper management." Many others have since followed Mr. Arthur's example.

The name of Hubert D. Astley first appears in the list of members published in November, 1895. He was then a young clergyman, very interested in natural history, particularly birds, of which he kept a good many even in those days, and was to become in later years one of our leading aviculturists, occupying the posts of President of the Society and Editor of the Magazine. He married Lady Sutton and for a good many years lived in her beautiful residence, Benham Valence, Newbury, where he built a number of splendid aviaries. Later, on the coming of age of Lady Sutton's eldest son, Sir Richard Sutton, he and his wife lived in a very charming home in Herefordshire where equally fine aviaries were built and a wonderful collection of birds kept. Besides being a successful and experienced aviculturist, Hubert Astley was a most charming person, greatly missed by a large circle of friends when he died in 1925.

J. Lewis Bonhote joined the Society in its early days, when he was an undergraduate at Cambridge. He was especially interested in British birds and a prominent member of the British Ornithologists' Union. He kept a number of birds, specializing in Waterfowl, Waders, Hawks, and Eagles, and made some valuable experiments in hybridizing the various species of Ducks. For some years he was Honorary Secretary and Treasurer of our Society, and, for a time, Editor of the Magazine.

The Honourable and Reverend F. G. Dutton, later known as Canon Dutton, a typical example of the ideal and charming country parson, was vicar of the beautiful village of Bibury in the Cotswolds. His hobby was Parrots, and he kept quite a number and knew all there was to know about their habits and treatment. For several years President of the Society, he regularly attended meetings of the Council, delighting the members by his geniality. He died in 1920.

A very different type of country clergyman was the Rev. C. D. Farrar, vicar of Micklefield, in Yorkshire. He possessed very large aviaries, and was successful in breeding many rare species of which he contributed to our Magazine accounts full of wit and humour.

Frank Finn, at one time Deputy Superintendent of the Indian Museum, Calcutta, became well known to our members on his return to this country. He was an authority on birds of all kinds, but especially those of India. He had a wonderful memory and great knowledge, though he was not always successful in applying it to the best advantage. For a short time he edited the Magazine.

In the 1896 list, the name of E. G. B. Meade-Waldo first appears. A country gentleman with large estates, he was a great naturalist and most interesting person. He had travelled a good deal, and spent much time in North Africa, on the birds of which he was an authority.

He was very keen on bird protection, but saw no harm in the keeping of birds in aviaries for at Stonewall Park he kept and bred various Owls, Hawks, Sandgrouse, Desert Bullfinches, Quails, and others. He was an authority on hawking, and one of the introducers of the Little Owl into this country. He has been blamed for this, but the investigations undertaken by the British Trust for Ornithology have proved that the bird does far more good than harm. For many years he served on the Councils of the Zoological Society, R.S.P.B., and Avicultural Society, and his contributions to our Magazine were always instructive.

Among our most useful members of the past was Miss R. Alderson, who joined the Society in 1896, served on the Council for several years, and occupied the post of Honorary Business Secretary which she only relinquished on account of ill-health shortly before her death in 1919. She had many kinds of birds, but her favourite group was the Doves and Pigeons, of which she kept a number of species with great success.

Bernard C. Thomasset, who joined the Society in 1896, was a fine all-round naturalist, and although he never kept a large number of birds, was very successful with those he did, especially Gouldian Finches of which he bred a large number. He served on the Council for a number of years, and his death in 1942 was a severe blow to his many friends.

Aubyn Trevor-Battye, who joined in 1898, was another delightful person, and a great naturalist, who had travelled a good deal, especially in Arctic regions, and written some excellent books. Like his cousin, Meade-Waldo, he was an all-round student of nature, both zoology and botany, and a walk with him in the country or even round his beautiful garden was a great treat. He wrote a good deal in our Magazine, his articles entitled " Jottings on Common Indian Birds " in 1915 being a type of his attractive style. He served for some years on our Council as well as that of the Zoological Society, his death occurring in 1922.

Captain Boyd Horsbrugh, of the A.S.C., joined the Society in 1898. Having spent some years in South Africa, he was particularly interested in the birds of that country, and his many interesting contributions to our Magazine deal with these. He was promoted to Lieut.-Colonel in the first world war, but was later invalided out of the Army and died in 1916.

I have mentioned some of the principal members of the Society in its early days, members who did most of the work in forming the Society, and who I was privileged to know, some of them intimately ; but there were others who I did not know, but who also helped, and to these we would also record our grateful thanks whether they have passed on or are with us still.

THE PLACE OF AVICULTURE IN ORNITHOLOGY

By Phyllis Barclay-Smith

Has aviculture paid its full contribution to the science of ornithology as envisaged fifty years ago by the original Secretary and Treasurer of the Avicultural Society? In the first number of the Magazine published in November, 1894, C. S. Simpson and H. R. Fillmer wrote :—

" One of our chief objects will be to endeavour to bridge over the gulf which exists between the lover of live birds and the scientific ornithologist—we believe that each has much to learn from the other. We want to infuse a little science into the bird-keeper, and to interest the cabinet ornithologist in the habits of birds. . . . A word as to our name. It seems desirable and even necessary to invent or acclimatize a word which shall denote ' a person interested in the keeping and breeding of birds ' and Aviculturist (being analogous to Horticulturist) will do perhaps as well as another. If anyone will suggest a better we shall be glad to adopt it—till then we beg to subscribe ourselves Aviculturists."

This aim of the founders of the Society was further emphasized by Dr. A. G. Butler in an article " Scientific Aviculture " published in the April number, 1898 :—

" All hobbies, to be really interesting, should add something to the sum of general knowledge ; in other words, should make some new facts known to mankind.

" It has been forced upon me lately, by the questions put to me by scientific workers in other branches of zoological study, that aviculturists are doing far less than they might do towards helping their brethren the cabinet-ornithologists. As a class they seem to think that if they have succeeded in breeding a bird not previously reared in captivity in this country they have done all that mankind is entitled to expect at their hands.

" When a man has been fortunate enough to succeed up to this point the cabinet-naturalist has a right to expect far more from him ; for if he merely records the bare fact, he has indeed been fortunate (and men will doubtless praise him who does good to himself), but he has nevertheless fallen short of that which he ought to have done, and has neglected a golden opportunity of imparting knowledge.

" To know a bird thoroughly it must be studied in both sexes and at all ages ; and this, alas (in spite of the indefatigable zeal of such men as Dr. Russ) has been done in very few of the numerous species which exist on the earth's surface ; and not in anything like all of even the commonly imported species.

" The aviculturist has it in his power to correct the errors which even careful travellers and cabinet-naturalists have, from time to time, undoubtedly made—respecting the young plumage, or the sexual plumage, the seasonal changes, and the senile plumage, of various species ; he has his birds before him from year's end to year's end ; he is interested in their habits, in their dances, songs, courtships, nest-buildings, and method of feeding their young ; he tells us about these things, all of which give us pleasure to read about, and perhaps enable some of us to follow in his footsteps ; yet, more often than not, the recital of these items adds little or nothing to the sum of facts already recorded in European works.

" On the other hand, every new item made known to the world is a distinct gain to mankind ; in that it assists in the great scheme of education, in which, whether we recognize it or not, we are all interested.

" The first duty of the breeder is to describe the nest, the eggs, the time of incubation, and the nesting plumage of every species reared by him, provided that it has not already been thoroughly done by some previous breeder ; then the date at which the young leave their nest should be noted, in order to decide how long this infant plumage is retained ; and the change to the adult plumage should be carefully studied. . . .

" . . . Many of our members may perhaps think to back out of their responsibilities, on the ground that they have no aviaries but only a few small birds in cages. Now I will tell them what they can do if they only have a pair of common Avadavats in a cage.

" It is well known that this commonest of all Indian Waxbills is incessantly changing its plumage throughout the year, but nobody has ever made a careful study of these changes ; nobody knows whether they are produced by complete or partial moults, by growth of colour in the feathers themselves, or how long each phase of colour is permanent. It is certain that at some time or other there must be a complete moult, perhaps once, perhaps twice in the year, it is certain that the bird which at one time is in full breeding plumage resembles a hen at another time ; resembles all kinds of comical mixtures between male and female plumage sometimes, and at other times does not remind one of either sex. A carefully dated diary describing the metamorphoses of this common bird would be a boon to science and if undertaken by several independent workers would do much to clear up the mystery which enshrouds this little Waxbill."

Aviculture had already played an important part in the deliberations of the First International Ornithological Congress held in Vienna in 1884 ; true the interest centred round the origin and breeding of domestic poultry, Pigeons, and Pheasants, but it formed one of the only three sections of that Congress. Other prominent features of the meeting were an exhibition of birds in the Hall of the Horticultural Society and a visit to the collection of birds at the Imperial Palace of Schonbrunn. At the Second International Congress held in Budapest in 1891 aviculture was not specifically mentioned in any section, but two papers were given at general meetings ; a comprehensive and illuminating account on the nest and juvenile plumage of foreign birds in captivity by Dr. Karl Russ and " Volksswirtschaftliche Bedeutung der Geflugelzucht in Ungarn ", by Professor Eugen v. Rodiczky. At Paris in 1905 aviculture was given a good deal of attention, and when the President proposed that the fourth section should be divided into two sub-sections, viz. (1) Protection of Birds and Sport, (2) Acclimation and Aviculture, Monsieur H. Voitellier objected to this and stated that a third sub-section should be organized purely for aviculture, and won his point. A good deal of interest was again focussed on Pigeons and domestic poultry, but the progress in aviculture was evidenced by the photograph contributed by Monsieur Marco de Marchi and published in the Proceedings, of a Humming Bird (*Chlorostilbon splendidus*), perched on a wineglass. This bird was taken in Cordoba on the 20th December, 1898, and died in Milan in 1899 after five months of captivity. Another interesting paper on " L'enseignment Avicole et ses Avantages " was given by Don Salvador Castello y Carreras. In London, 1905, a section was allocated solely for aviculture, and at this Congress two well-known British Aviculturists contributed papers, J. Lewis Bonhote on " Some Notes on Hybridizing Ducks ", and D. Seth-Smith on " The Importance of Aviculture as an Aid to the Study of Ornithology ". Mr. Seth-Smith stressed the many ways in which aviculture could amplify and assist the work both of the purely scientific ornithologist and the field naturalist, quoting

as examples the discovery made by E. G. B. Meade-Waldo as to the method used by the Greater Pintailed Sand-Grouse in obtaining water for its young, the information obtained from the study of Tinamous in captivity, and the valuable observations made on the breeding habits of many species.

In 1910, in Berlin, interest so far as aviculture was concerned had swung back again to the domestic poultry angle, but two outstanding papers were contributed, one on " Biology, Ethnology, and Psychology of the Anatidæ ", by Dr. Oscar Heinroth, and another, by Magdela Heinroth, on " Observations on Seldom Kept European Birds ". Magdela Heinroth had an exceptional and amazing capacity for handling and rearing wild things, both mammals and birds, and her successes were outstanding. In her paper she describes her experiences with many species and including such birds as Swift and Dipper.

When the International Ornithological Congresses were resumed in Copenhagen in 1926 Aviculture was placed in the same section as Bird Protection, but no paper was contributed. Four years later, in Amsterdam, in 1930, Aviculture was not even mentioned at all, but in Oxford in 1934, when it appeared again in the same section as Bird Protection a paper was presented by Monsieur Jean Delacour on " The First Rearing of Pittas in Captivity ". In Rouen in 1938, though the President of the Congress was an aviculturist, Aviculture did not play any large part. Four papers were contributed but no special section was allocated to this subject. From the above brief survey it would appear that, on the whole, aviculture's importance, so far as International Congresses are concerned, has waned and yet the material which could be contributed to the general knowledge of ornithology has increased a hundredfold during the last fifty years. The aims of the early aviculturists can be only too well fulfilled, and aviculture, as has been proved, can usefully serve as a link between many branches of ornithology. It has been argued that the behaviour of birds in captivity differs to that in the wild, but with the great progress in bird keeping and the conditions as near perfect as possible which have been achieved, the possibilities of observations on display, courtship, breeding, and nesting habits are illimitable. In his book *The Life of the Robin*, one of the most striking studies of bird life published in recent years, David Lack obtained much information from observations of Robins in aviaries.

Invaluable contributions to research on genetics have been made by the breeding of varieties of Budgerigars and the experiments being carried on by P. W. Teague in the breeding of Gouldian Finches will undoubtedly be of the greatest scientific purport. In his articles on the " Breeding Psychology of Geese " John Berry has shown the possibilities of this perhaps most entrancing of all branches of ornithology, and many more instances of the great value of aviculturists'

work could be quoted. To the anatomist and those studying bird plumages, particularly nestling down, aviculturists can be of the greatest assistance, but the amount of " wasted " material which has either been buried, cremated, or placed in the dustbin when it would have been so welcome in the museum spirit jar is deplorable, and Zoological Societies cannot be excluded from this indictment. This lack of co-ordination of effort and opportunity cannot, however, be placed at the door of aviculturists alone, ornithology has been kept far too much in cut and dried sections and lack of understanding has prevented the general pooling of knowledge and resources which can only achieve the aim all have in common—the better knowledge of bird life in all its aspects. This state of affairs has, however, been changing rapidly during recent years, and oologists, photographers, bird protectionists, sportsmen, and collectors of bird skins are less inclined to regard each other with unmitigated suspicion. In his articles on " The Preservation of Water-fowl and Aviculture " (*Avi. Mag.*, March and September, 1939) Dr. J. M. Derscheid pointed out the great opportunities of preserving some of the vanishing bird species of the world which have got beyond the recognized methods of preservation and which are subject to adverse conditions beyond human control by " maintaining them and increasing their numbers by methodical breeding in captivity ". A striking example of this theory is the project for the propagation and maintenance of the Trumpeter Swan in America, which is now being carried out by Captain Jean Delacour for the Fish and Wild Life Service of that country.

There is no doubt whatever that aviculturists have done much for the common good of ornithology, but in addition to the pleasurable occupation which it is undoubtedly is, can it be hoped that in the future far more papers of detailed observations on bird behaviour, breeding and nesting, plumage changes, song, and psychology will be forthcoming, that Aviculture will be a prominent feature in the deliberations of Ornithological Congresses, that a closer link-up with museum workers will be instituted, and that when my successor comes to write a similar survey on the Society attaining its centenary it will be a record of the ever-increasing value of aviculture to science, and that the definition of aviculture as given in the *Oxford Dictionary* to-day, " rearing of birds—bird fancying," will have been changed to " the scientific study of birds in captivity " ?

* * *

MEMORIES OF HAPPY DAYS

By Maurice Amsler, M.D., F.Z.S.

This number of our Magazine will, I trust, open with a note of rejoicing and triumph at the growth from strength to strength of the Avicultural Society, until it now celebrates its 50th birthday. None the less one cannot help regretting that this jubilation comes at a time when our doings are a mere shadow of what we remember in pre-war days. It is perhaps for this reason that I pen these notes with a certain feeling of sadness, perhaps even of regret that I myself, being so much older than our Society, can never expect again to see a return of those good old days. Gone are the times when importation of rare and new birds were an almost monthly event. No longer will we receive telegrams from old Hamlyn or from Chapman saying, " Am sending you pair of so-and-so on approval." How seldom were those " so-and-so's " returned to the vendor. It was an exciting adventure to be at one of these bird shops when an important consignment arrived from abroad and to be able to take one's choice of the best and healthiest.

During my 30 years of medical practice, I managed in my spare hours to derive unbounded pleasure and interest from my birds and garden, and I often asked myself which of these two I liked the better ; even now I cannot answer that question, but under the present conditions I do feel fortunate that I had two strings to my bow. There are certain landmarks and red-letter days in my past life which I propose to touch on, although most of the facts have been mentioned, but almost certainly forgotten, in past numbers of the Avicultural Magazine.

The first notable achievement was the nesting and partial rearing of young by the Golden-fronted Fruitsucker (*C. aurifrons*). In all, three clutches of two eggs were laid and from each one youngster was hatched. My nearest attempt to complete success was a chick of twelve to fifteen days of age. This event took place in a small aviary in a sunless back garden and although the following year my family of birds and I moved to much better surroundings, I never again so nearly succeeded with this species. The sexes are difficult to recognize and like so many other softbills true pairs will often fight to the death in the off-season. This was my experience with the Blue-headed Rock Thrush (*Monticola cinchloryncha*), perhaps the most lovely of all that beautiful genus. My cock killed at least three wives and in order to avoid financial ruin I gave him to the Zoo where he lived for an incredible time, ten years at the very least, during which he doubtless learned to regret his evil deeds.

Mr. Astley's charming account of his tame Blue Rock Thrush

(*Monticola solitaria*) in " My Birds in Freedom and Captivity " fired me with the desire to breed this species, a feat which had been accomplished abroad but not in Great Britain. When on a plant hunting expedition in the Maritime Alps I saw several males in cages and also flying wild in the mountains.

The natives usually refused to part with their birds or else asked a quite impossible price. Finally on the day of my departure I encountered several boxes of live birds at the hotel entrance, one of which contained a pair. As these appeared to be quite lively and fit, as far as I could see in a dark box, they at once became mine. I suppose this is what is meant by " buying a pig in a poke ", for on breaking my journey at Clères where Mons. Delacour kindly lent me cages in which to place my two birds, we then discovered that the hen was really a Pied Rock-Thrush and practically useless to me. But as Mons. Delacour had a hen Blue Rock Thrush and as he wanted a hen Pied all was well and the following year I successfully reared young from this pair. One of these, a very fine male, was given to Mrs. Astley and lived for many years at Brinsop.

My love of Thrushes gave me many heartaches and disappointments chiefly on account of intermarital fighting and murders, but among my successes may be numbered the Orange-headed Ground Thrush (annually for many years), the American Robin or Migratory Thrush, and that little gem the Hermit Thrush. Of all the Thrushes the last-named were the only ones I could keep together during the whole year—possibly because they are not true Thrushes. The Common Song Thrush, with the Blackbird and the Missel Thrush, all of which I bred successfully, were no exception to this drawback.

It was in 1912 that I won my first medal by breeding the Hooded Siskin (*C. cucullata*). This was my first attempt and was obviously beginner's luck for although I have had many pairs since those days I have never succeeded again though I have bred scores of hybrids between the male Siskin and domestic Canaries, one cock producing over thirty mules in one season. My first medal had the usual effect so often seen in young aviculturists and I looked around for species that had not previously been bred. Among these, two native birds suggested themselves to me—the Crested Tit and the Great Tit ; the former of these two is not an easy bird to come by, is difficult to keep for long in captivity, and almost impossible to sex. Anyhow I never succeeded in inducing my Crested's to nest but the Common Great Tit was a simple matter. I caught a pair in the spring, they reared me six young in their first nest, won me a medal and were also the means of my breeding many birds later on in a state of semi-liberty.

We all know how confiding all the Tits are, especially in the winter months when food is scarce, I was therefore much surprised when I first turned this pair into a small aviary to find them the wildest birds

I had ever kept. Nevertheless they soon took to a Berlepsch nesting box and before long the hen was obviously sitting. During the whole of incubation the cock remained as wild as ever and the hen was seldom seen. One morning there was a transformation scene, both birds treating me as their greatest friend and almost taking the mealworms from my hand ; the reason was obvious but I could not resist a peep into the nest-box which sure enough contained six young, all of which were reared and liberated when quite independent. The old pair went to nest again almost immediately.

As soon as the hen was steady on her eggs I opened the aviary door by day and closed it in the evenings usually after dark. Again the hatching of young was made obvious by the birds' tameness, but now they followed me all round the garden and even into the house ; in fact I remember one occasion when we had six people to tea who were greatly entertained by the constant visits of my Great Tits who helped themselves to bread and butter and the almonds and raisins from our cake. None of these luxuries were then rationed or " on points ", so everyone was happy and pleased.

Shortly after this I picked up a pair of Orchard Finches (*Phrygilus fruticeti*), a rather handsome Bunting-like bird with an attractive little trilling song. As I looked at the birds in the dealer's shop I had a feeling I could certainly breed them. This proved easy and was another " first-timer ". I gave away the young as soon as I saw the parents were about to build again and once more I gave them complete liberty when the young were hatched. Although the hen had not much use for me, but busied herself collecting insects, chiefly greenfly, the cock showed quite wonderful intelligence in recognizing me at a great distance. In those days I frequently returned to lunch after doing my rounds in Eton College via the South Meadow on to which my garden abutted. It was quite impossible for me to get home without my being spotted by the cock, who knew that I usually had a box of mealworms in my pocket, and he would frequently meet me when I was still sixty to eighty yards from home, though as far as I know he never approached anybody else. These South Americans appeared to be perfectly hardy and I hope their end was a happy one, for the following spring I liberated them in Windsor Forest.

The foregoing were thus the first lessons in breeding birds at semi-liberty, a method which I think I have now practised more than most people.

Other species which have successfully reared young in this manner are Green Cardinals and American Robins and there are doubtless many other cases which could be successfully tried. But it will be noticed that all the birds I have mentioned are either insectivorous or at any rate inordinately fond of mealworms when breeding. In other words the mealworm is the bait which brings them home.

It has always been a surprising fact that many more have not succeeded in breeding that charming bird the Shama either at total or partial liberty ; indeed this confiding bird with all its attributes of grace, song, and hardiness has ever been a shy breeder. Nests are readily built, eggs laid and incubated, but what percentage of chicks is reared to maturity ? In my own experience about one in a hundred, and the fault is usually attributable to the ardent love of the male who is ever anxious to start another nest and for this reason has a nasty habit of robbing the nest of its callow young which he is wont to deposit in various parts of the aviary. My only real successes have been achieved by caging or removing the male when the young were a few days old. My attempts at giving the parents their liberty when the young were hatched ever ended in failure or catastrophe, one or other bird would stray or the excitement of liberty caused them to neglect their young.

One definite cause which I have observed at least twice is that they appear to lose the instinct of finding a good sheltered spot if sleeping out, which the cocks are prone to do. A heavy storm of rain so drenches the poor bird that he either dies of cold or, being quite unable to fly, falls a ready prey to the many forms of vermin with which the world abounds. Of these rats are the commonest and most hateful. Such then has been my experience, but I should dearly love to try once more if I could get another pair of Shamas.

This naturally leads me to the delightful Blue Robin whose doings I have reported, perhaps *ad nauseam*, in these pages, but I have the conceit to consider myself an expert on the breeding of these birds at partial liberty. My first pair came to me in 1926 as a very generous but unmerited present from the Zoological Society. From this pair and an unrelated hen given me by a friend I reared sixty young by fair means and foul in the course of three or four years. The first year only produced one young bird, a cock, though nearly a score were hatched. I soon found that in my aviaries, at any rate, young were easy to produce but very difficult to rear, they were either neglected when quite young and all died by degrees during the first ten days or so ; occasionally several left the nest and were so neglected that they also died off.

The following year I was tempted to try " semi-liberty ", but dared not take the risk with birds which are very strictly protected and so difficult to procure.

I have found that Bluebirds will almost always lay again exactly ten days after their clutch of four to six eggs is removed and that the normal number laid is about 20 in a season. It occurred to me to try the common Redbreast as a foster parent and although there is not room in these notes to go into full details, it is interesting to note that—

1. The Redbreasts will readily incubate Bluebirds' eggs, which are much larger than their own and not speckled but clear sky blue.

2. That they do not appear to be disturbed if given eggs just about to hatch even though their own are almost " new-laid ", and vice versa they will carry on for many days even though their own eggs are actually chipping.

3. They rear the Bluebirds without any hesitation and produce large healthy young birds, who are ready to leave the nest about the 16th–17th day.

My method was to trap the Redbreasts and take the young at a fortnight and to put the whole family in a large cage with an unlimited supply of gentles, mealworms, and fresh ants' eggs. As soon as I found that the young were self-supporting, I would return the two Redbreasts to their old home after ringing both, and by this means I have been able to know that I once used the same pair twice in one season.

These methods sound very simple but there is always " the fly in the ointment ". One of the old birds may meet with an accident and its mate will then probably desert ; more frequently the nest is disturbed and the young thrown out, the culprits being small boys, rats, cats, Magpies, and even mice, in the order given. None the less I built up a good colony of Bluebirds and was prepared to give my parent Bluebirds their liberty during the third year, and on the whole everything went well, although I always had a *mauvais quart d'heure* when I first opened the aviary door for a pair which had never before been liberated. On one occasion the whole nest of young died during the night for some mysterious reason, and when I opened the aviary in the morning the parents came out, took no interest in their nest-box, and finally disappeared ; it was then that I looked into the nest and discovered the cause of their departure. This escaped pair I traced to a place about three-quarters of a mile away some six weeks later. Both birds and a family of young had been seen feeding in his garden by a cottager whose description of both adults and young ones was so accurate that there could be no question as to their identity. I spent a good deal of time near that garden with a call-bird and traps but never saw a sign of my escapees.

The following spring a full-plumaged cock was seen by a nurse at the Eton College Sanatorium, again her description left no doubt as to the species.

I mention this happening to show that in this particular case this bird did not migrate as is usual with Bluebirds and that he came through what was a fairly severe winter.

There is yet a fourth method by which I managed to rear five of the best and strongest youngsters I have ever seen. During the liberty of one particular pair I noticed that the male took much interest in a

large nest-box which was hung in my garden for wild birds, actually in the hope of attracting a Wryneck. When this pair had finished off their young and were about due to lay again I took an opportunity of letting the male out alone, keeping the hen shut inside their aviary. He at once flew to his coveted nest-box and began to call to his mate who joined him as soon as I allowed her to do so. They quickly built and laid but I made it a rule never to give them either insects or soft food anywhere but inside their aviary ; by this means I had a certain control over their movements and when the five young were almost ready to fly it was an easy matter to catch both parents in their aviary and to transfer them and the box of young into a cage. I always took this last precaution for I am certain that in a cage the young are less likely to be neglected after leaving the nest than if they are flying about even in a small aviary.

The foregoing remarks apply to the Eastern Bluebird (*Sialia sialis*), but since coming to Kent I have had the good fortune to own a pair of the Western species, *S. mexicana occidentalis*, thanks to the generosity of Mr. Ezra and Mons. Delacour. These birds I also bred at semi-liberty but since coming to the country my results have, much to my surprise and disappointment, been far less successful than when I lived in a small town. Owls and other predatory creatures are naturally more numerous in rural districts and I have noticed a very large percentage of tragedies here with the young of wild birds, and perhaps most frequently of all in the case of the common Robin who is so fearless and confiding that its nest is very easily located.

There are four species of insectivorous birds whose reproduction I have striven for without more than partial success, and I now realize that that success will never be mine. The first is to my mind the gem of all softbills, the small Robin-like Arctic Bluethroat.

I must have owned at least three pairs, but only once did I succeed in maintaining a pair through the winter and spring in sufficiently good condition to warrant any hope of breeding. This pair actually finished a nest and then the hen mysteriously disappeared. She may have been killed and carried away by a mouse or have died a natural death, such a tiny mite could easily be overlooked even in a small aviary.

Mons. Plocq, a Frenchman, used to catch these birds on their migration through France and appeared to keep them in good condition without difficulty, but this man was an avicultural genius who could even hand-rear and keep Swallows.

The other birds I referred to were the three species of Niltava. Both the Greater Niltava (*N. grandis*) and the Lesser Niltava (*N. macgrigoriæ*) built nests but were never really fighting-fit. The much commoner Rufous-bellied Niltava (*N. sundara*) never showed any inclination to breed. These last three species had they hatched

young would have been good subjects for liberation, but my experience with them as also with certain other of the more delicate softbills was that they often suffered from a poor feathering of the flight quills and also at times from a brittleness of the quills themselves which made flight an effort and breeding a most unlikely event.

There may have been something amiss with the diet, my home-made soft food erred on the side of simplicity which I now realize was a false economy.

But aviculture is an expensive hobby ! Have you ever asked yourself how many good books or how many permanent trees and shrubs you could buy for the money you have spent on birds, almost all of which are now, alas ! only distant memories ?

* * *

EDITOR'S NOTE

In the ordinary course of events the attainment of the Avicultural Society's 50th Anniversary would undoubtedly have been celebrated with due festivity—scientific and social. However, things being as they are, the only method of marking this important milestone in the Society's history is the publication of a Jubilee Supplement, here presented.

This Supplement has not come into being without many trials and setbacks, the first and most formidable being the definite and final refusal of the Paper Controller to the request for a special ration of paper for the purpose. But with careful saving of pages here and pages there over the past twelve months, and reaping the benefit of the policy we have always maintained of keeping well within the margin of the ration in order to build up a small reserve, sufficient paper was available and the Paper Controller gave permission for the Jubilee Supplement to be printed from these " savings ". Other difficulties and delays have occurred, one of the most regrettable being the loss by enemy action of the article written by Dr. Ranston of the Avicultural Society of New Zealand, an article which would have been particularly welcome and without which the Jubilee Supplement is certainly incomplete.

In conclusion, I should like to thank all the contributors to this Supplement, many of whom could ill afford the time to write their articles, for without them there would have been no Supplement at all, and to Messrs. Stephen Austin, who despite shortage of staff, shortage of supplies, and the many other worries which harry the lives of printers in these days, have done their utmost to produce proofs as speedily as possible, and whose standard of work, particularly that of the compositors, has been maintained at their high peacetime level, which in the sixth year of war is no mean achievement.

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Clark, Mrs. G. T., F.Z.S. ; " Maidsmere," Nr. Bromsgrove, Worcestershire. (June, 1942.)
Clements, O. E., L.D.S., R.C.S. (Eng.) ; 15 Mercers Road, Holloway Road, N. 19. (March, 1938.)

CLEUGH, ROBERT (President of the South African and Foreign Wild Bird Club) ; 6 Beaufort Street, Troyeville, Johannesburg, Transvaal, South Africa. (May, 1938.)

COATES, Sir EDWARD CLIVE, Bart. ; 14 Sussex Square, W. 2. (June, 1929.)

COHEN, SAUL C. ; 165 Broadway, New York 6, New York, U.S.A. (Dec., 1942.)

COLHOUN, Major J., M.C. ; Grian-Iach, Londonderry, Ireland. (March, 1929.)

COOKE, Mrs. M. E. ; 1 West Terrace, Richmond, Yorkshire. (June, 1936.)

COOPER, JAMES ; Killerby Hall, Scarborough. (*Orig. Mem.*)

COTTERELL, Sir RICHARD, Bart. ; Garnons, Hereford. (April, 1928.)

COWLEY, H. ; The Manor House, Bubbenhall, Coventry. (Jan., 1926.)

COX, C. M. ; Quinan and Cox (Stock and Share Brokers), 115 Pitt Street, Sydney, N.S.W., Australia. (Oct., 1940.)

COX, Mrs. B. ; Marshwood Manor, Bridport, Dorset.

CRANDALL, LEE S. (Curator) ; New York Zoological Park, 185th Street and Southern Boulevard, New York City, U.S.A. (Aug., 1938.)

CULLEN, Miss D. H. ; Cross Keys House, Sevenoaks, Kent. (April, 1937.)

CURA, L. & SONS ; Water Lane, Hemel Hempstead, Herts. (Sept., 1928.)

DABNER, P. L. ; 56 Arkwright Road, Sanderstead, Surrey. (Sept., 1939.)

DALLOW, J. ; 13 Hillingdon Road, Stretford, Manchester. (Rejoined.)

DANCOISNE, Abbé H. ; 28E Régiment Régional 5[1] Cn, S.P. 390, France. (July, 1932.)

DARLING, P. STORMONTH ; Gorseheath, Gerrards Cross, Bucks. (June, 1928.)

DARNTON, Mrs. ; Sissinghurst Court, Cranbrook, Kent. (April, 1932.)

DAVIS, GODFREY, I.C.S., F.Z.S. ; The Ridge, Bath Island, Karachi, India. (Aug., 1927.)

DAVIS, H. H. ; Little Stoke, Patchway, Bristol. (July, 1941.)

DAWSON, Mrs. ; Alpha Cottage, Bull's Green, Knebworth, Herts.

DE PASS, GERALD V. ; The Old Kennels, Satwell, near Henley-on-Thames. (April, 1930.)

DE PLEDGE, Miss BERYL ISABEL ; "Polars," Newport, Isle-of-Wight.

DECOUX, A. ; Géry-près Aixe, Hte. Vienne, France. (April, 1917.)

DELACOUR, Capt. JEAN, F.Z.S. ; Stanhope Hotel, Fifth Avenue, 81st Street, New York, N.Y., U.S.A. (April, 1916.)

DENNIS, Mrs. H. E. ; Holme Manor, Pulborough, Sussex. (March, 1903.)

DERSCHIED, Dr. J. M. ; "Armendy," Sterrebeek, Belgium. (Aug., 1935.)

DHARMAKUMARSINHJI, Prince Saheb of Bhavnagar State, India. (Re-joined.)

DOOLY, THOMAS L. S. ; Whimbrel, Kirklake Road, Formby, near Liverpool. (Jan., 1924.)

DOUGLAS, R. J. ; 94 Cathedral Road, Cardiff. (1944.)

DOXFORD, Mrs. ; Lindeth Howe, Windermere. (Oct., 1937.)

DULANTY, Captain BRIAN H. ; Fisheries Cottage, Chorley Wood, Herts. (June, 1939.)

DUNMORE, OSCAR E. ; 22 Kingsway Road, Leicester. (Oct., 1922.)

DUNSTER, Captain J. E. ; Bucklebury Village, near Reading, Berks. (July, 1930.)

DUYZEND, W. C. ; Koppelwig 151, Huize, "Casarca," Zeist, Holland. (March, 1927.)

EAVES, W. L. ; Wycliffe, Danford Lane, Solihull, Warwickshire. (April, 1936.)

ELLIOTT, F. S. ; 31 Kelvin Road, Ipswich, Suffolk. (Nov., 1925.)

*ELLIS, RALPH ; 2420 Ridge Road, Berkeley, Calif., U.S.A. (April, 1935.)

ELPHICK, GEORGE ; 118 Harley Street, W. 1. (April, 1926.)

ENGLAND, M. D., M.I.S.Ch. ; Blenheim Cottage, Aston Clinton, Bucks. (Sept., 1942.)
ENGLISH, W. L., M.B. ; High Street, Haslington, Crewe. (Oct., 1931.)
ENGLEBACH, Docteur PIERRE ; Siem Reap (Cambodge Indochine).
EVALD, Dr. ; Sonderborg, Denmark. (March, 1935.)
EVANS, Miss JOAN ; 8 South Eaton Place, S.W. 1. (Jan., 1929.)
EZRA, ALFRED, O.B.E., F.Z.S., M.B.O.U. ; Foxwarren Park, Cobham, Surrey. (1912.) (*President.*)
EZRA, Sir DAVID, Kt., F.Z.S., M.B.O.U. ; 3 Kyd Street, Calcutta, India. (June, 1912.)

FALKNER, GUY ; The Old Forge, Fossebridge, Cheltenham. (Rejoined.)
FARQUHAR, Mrs. ; The Cottage, Gaddesby, Leicestershire. (Dec., 1935.)
FLOWER, Major STANLEY S. ; Old House, Park Road, Tring, Herts. (Dec., 1940.)
FOOKS, F. E. ; Bakenham Lodge, Englefield Green, Surrey. (Jan., 1926.)
FOOKS, H. C. ; Address unknown.
FOSTER, H. F. B. ; Faskally, Pitlochry, Perthshire. (April, 1937.)
FROSTICK, JOHN ; 26 Minster Precincts, Peterborough, Northants. (Rejoined.)
FURNER, A. C. ; Oakdene, Whitaker Road, Derby. (Oct., 1929.)

GARCKE, Mrs. C. ; Ditton Meads, Pinkney's Green, Maidenhead, Berkshire. (June, 1916.)
GARDENER, A. H. ; 21 Kingsland Road, Strathfield, near Sydney, N.S.W., Australia. (June, 1941.)
GARDNER, ERIC ; (Executive Engineer) General Offices B.B. & C.I. Railway, Churchgate, Bombay, India. (March, 1935.)
GARGAN, A. ; 267 Clontarf Road, Dublin, Ireland. (Nov., 1943.)
GARRETT, ROBERT ; Ballynichol, Comber, Co. Down. (April, 1933.)
GLENISTER, A. G., F.Z.S., M.B.O.U. ; The Barn House, East Blatchington, Seaford. (June, 1928.)
GLOVER, PERCY H., F.Z.S. ; Broadlands, Fareham, Hants. (June, 1931.)
GODDARD, Mrs. ; The Cottage, Buckland, Faringdon, Berks. (Feb., 1923.)
GOLDER, H. G., F.Z.S. ; Hon. Secretary and Treasurer, Norwich Alliance All. England C.B.d., 37 Crown Road, Norwich. (June, 1931.)
GOODALL, A. W. ; 182 Birchfield Road, Widnes, Lancs. (March, 1933.)
GOODHEART, L. McCORMICK ; Address unknown.
GOODWIN, TOM ; 4 Riverview Road, Ewell, Surrey. (Rejoined.)
*GOSSE, Mrs. JAMES ; 9 Park Terrace, Park Side, South Australia. (July, 1923.)
GRANT, FRANK ; Parklands, Stoughton Lane, Evington, Leicester. (Feb., 1935.)
GREENING, VALENTINE ; 8 St. Georges Square, South Belgravia, S.W. 1. (Dec., 1942.)
GROVES, Hon. Mrs. McGAREL ; Battramsley House, Lymington, Hants. (March, 1917.)
GUBBAY, Mrs. MAURICE ; Foxwarren Park, Cobham, Surrey. (Feb., 1928.)
GUILD, EASTHAM ; P.O. Box 56, Papeete, Tahiti. (May, 1936.)
GULBENKIAN, C. S. ; Ling House, 10–13 Dominion Street, E.C. 2. (Dec., 1908.)
GURNEY, Miss DIANA ; North Runcton Hall, King's Lynn. (July, 1927.)
GUY, CHARLES P. ; Trevose, Mill Lane, Wednesfield, Staffs. (Sept., 1942.)

HADDEN, NORMAN G. ; Underway, West Porlock, Somerset. (Jan., 1939.)
HAGGARD, V. D. ; Zoological Gardens, Adelaide, South Australia. (June, 1941.)

HALLSTROM, E. J. L. ; 462 Willoughby Road, Willoughby, N.S.W., Australia. (Trustee.) (July, 1943.)

HALVERSON, A. W. ; 5705 West Erie Street, Chicago, Ill., U.S.A. (April, 1937.)

HAPPE, PAUL ; 44 Avenue Eng Plasky, Bruxelles, Belgium. (Aug., 1935.)

HARE, Dr. TOM, M.D., B.V.Sc., M.R.C.V.S. ; 529A Finchley Road, London, N.W. 3. (Sept., 1942.)

HARMAN, Miss KNOBEL ; " Lindeth," Peaslake, Surrey. (Sept., 1928.)

HARVARD UNIVERSITY ; Museum of Comparative Zoology, Cambridge, Mass. U.S.A.

HAWKE, THE HON. MARY ; Oakfield, The Lane, Partridge Green, Sussex. (Rejoined.)

HENDERSON, Miss OONA, F.Z.S. ; Hurst Close, Bracknell, Berks. (Sept., 1934.)

HENRY, B. R., M.B., B.Ch., D.P.H. ; Four Winds, Comber, Belfast. (1944.)

HIGHAM, WALTER E., F.R.P.S., F.R.G., F.Z.S., M.B.O.U. ; The Oaks, Clayton-le-Dale, near Blackburn, Lancs. (Jan., 1934.)

HILL, Professor W. C. OSMAN, M.D. ; c/o Anatomy Department, New University Buildings, Teviot Place, Edinburgh. (Dec., 1939.)

HINDLE, Prof. E., F.R.S. ; 91A King Henry's Road, N.W. 3. (1945.)

HIRST, ARNOLD ; P.O. Box 262DD, Sydney, N.S.W., Australia. (April, 1929.)

HIRST, ROBERT S. ; Swincliffe House, Gomersal, near Leeds. (Rejoined.)

HOLLAS, Mrs. K. E. ; Parsonage Farm, Highworth, Wilts. (Oct., 1922.)

*HOLLOND, Miss GLADYS M. B. ; Great Ashfield House, Bury St. Edmunds, Suffolk. (March, 1930.)

HOLLOWAY, JACK ; 59 Holyrood Gardens, Stag Lane, Edgware, Mddx. (Nov., 1943.)

HOPKINSON, EMILIUS, C.M.G., M.A., M.B.Oxon., D.S.O., F.Z.S. ; Wynstay, Balcombe, Sussex. (Oct., 1906.)

HORNE, DOUGLAS PERCY ; Audley Lodge, Addlestone Park, Surrey. (Sept., 1928.)

HOUSDEN, Major E. F., M.C., T.D. ; Hillside, Harrow-on-the-Hill, N. (Jan., 1934.)

HOUSDEN, Dr. LESLIE ; Caldecotts, Church Square, Basingstoke, Hants. (March, 1933.)

HOVELL, S. ; 29 Wood Lane, Long Sutton, Lincs. (June, 1942.)

HUGHESDON, V. C. ; Brooke House, 17 O'Connell Street, Sydney, N.S.W., Australia. (Oct., 1940.)

HURLBURT, Dr. W. E. ; Vineland, Ontario, Canada. (June, 1939.)

HUTCHINSON, Miss ALICE ; address unknown. (Aug., 1907.)

ILES, GERALD ; Zoological Gardens, Belle Vue, Manchester, 12. (Jan., 1940.)

INDGE, H. J., F.Z.S. ; Trimstone, Thorpe, Nr. Chertsey, Surrey. (June, 1940.)

ISENBERG, A. H. ; Box 88, 647 Runnymede Street East, Palo Alto, California, U.S.A. (Aug., 1926.)

JANSON, CHARLES WILFRED ; Eagles Nest, Offley, Hitchin, Herts. (Sept., 1942.)

JARDIN ZOOLOGICO DE BUENOS AIRES ; Buenos Aires, Argentine. (Feb., 1940.)

JARVIS, Miss I. F. ; The Old Manor, Salisbury. (Aug., 1930.)

JOHNSTON, ROBERT PERCY ; West House, Wigton, Cumberland. (March, 1925.)

JONES, C. BUCKINGHAM ; Dibrugarh, Assam. (Feb., 1938.)

JONES, F. T. ; Lower Peover, Cheshire. (Oct., 1933.)

JONES, S. B. ; 265 Northway, Maghull, Nr. Liverpool. (Sept., 1934.)

JONES, W. A. ; 54 Stockwell Park Road, S.W. 9. (Feb., 1933.)

Kay, G. T. ; 51 St. Olaf Street, Lerwick, Shetland Isles. 1944.)
Kemp, Robert ; 5 Rose Hill, Lostwithiel, Cornwall. (March, 1926.)
Kerr, J. Ernest ; Harviestoun, Dollar, Scotland. (March, 1927.)
Kewley, Mrs. M. A. ; Old Court House, Whitchurch, Aylesbury, Bucks. (Sept., 1910.)
King, Harold ; 80 Bedale Road, Sherwood, Nottingham. (Rejoined.)
Kinsey, Eric C. ; Box 76, Manor (Marin County), California, U.S.A. (Aug., 1936.)
Knobel, Miss E. Maud, F.Z.S. ; 86 Regent's Park Road, London, N.W. 1. (Aug., 1916.) (*Hon. Mem., Hon. Secretary and Treasurer.*)
Kreydt, Robert V. ; 1205 Putnam Street, Olean, N.Y., U.S.A. (Jan., 1942.)

Laidlay, J. C. ; Lindores, Fife, Scotland. (April, 1929.)
Lake, George D. ; Audrey, Burghfield Common, Mortimer, Berks. (Sept., 1937.)
Lamb, A., Mount Pleasant, Hexham, Northumberland. (1945.)
Lambert, Miss Lesley Douglas ; Beeston Hill, Leeds 11. (Jan., 1937.)
Langham, Sir Charles, Bart. ; Tempo Manor, Co. Fermanagh, Ireland. (July, 1932.)
Law, Dr. Satya Churn, M.A., Ph.D. ; 50 Kailas Bose Street, Calcutta. (1919.)
Lawrence, F. W. ; 44 Park Avenue, Bush Hill Park, Enfield, Mddx. (July, 1943.)
Lax, J. M. S. ; Southfield, Crook, Co. Durham. (Jan., 1930.)
Lewis, J. Spedan, F.Z.S. ; Leckford Abbess, Stockbridge, Hants. (Sept., 1924.)
Livermore, John W. ; 130 East End Avenue, New York City, U.S.A. (June, 1941.)
Lodge, George E. ; F.Z.S., Hawkhouse, Upper Park Road, Camberley, Surrey. (May, 1923.)
Louwman, P. W. ; 4 Teylingerhorstlaan, Wassenaar, Holland. (Aug., 1936.)
*Low, Dr. G. Carmichael ; 7 Kent House, Kensington Court, W. 8. (May, 1939.)
Lowe, Rev. J. R. ; The Vicarage, Coln St. Aldwyn, Fairford, Glos. (June, 1927.)
Lyon, Capt. the Hon. Michael ; Glamis Castle, Glamis, Forfarshire. (May, 1927.)

McCance, David ; Strand Town, Belfast. (July, 1932.)
McCarthy, D. ; 47 Cedar Avenue, Christchurch, Hants. (1944.)
McDowall, Kenneth of Logan ; Port Logan, Wigtownshire. (Sept., 1938.)
McGill University ; Redpath Library, McGill University, 3459 McTavish Street, Montreal P.Q., Canada.
McLintock, Miss M. H. ; The Grove, Catton Grove Road, Norwich. (July, 1927.)
McMillan, Dr. A. ; New Romney, Kent. (March, 1930.)
McMorran, Reginald George ; Woodstock, Upper Court Road, Slough, Bucks. (May, 1943.)
Macklin, C. H., M.R.C.S., L.R.C.P., F.Z.S. ; 23 Church Street, Ampthill, Beds. (May, 1923.)
Mairaux, E. (Ingénieur Agronome I.A.G.) ; 41 Rue de la Ruche, Bruxelles, Belgium. (July, 1929.)
Malisoux, Ivan ; Beez, Namur, Belgium. (Feb., 1936.)
Mansfield, Rt. Hon. The Earl of ; Logie House, Methven, Perthshire. (1944.)
Marsh, E. G. ; Cuckoo Paddock, Nempnett, Blagdon, Nr. Bristol. (Sept., 1935.)
Marshall, E. ; Hillside, Cadewell Lane, Shiphay, Torquay. (Oct., 1941.)

MARTIN, A. ; 27 Yoxall Road, Shirley, Nr. Birmingham. (Oct., 1930.)
MARTIN, H. C. ; Las Cãnas, 44*b* Coper's Cope Road, Beckenham, Kent. (Jan., 1897.)
MASON, Miss EVA INGLIS ; Peppercorn Cottage, Burton, Christchurch, Hants. (Aug., 1934.)
MASSER, PETER ; The Spinney, Coundon, Coventry. (Nov., 1943.)
MATTHEWS, Mrs. W. M. ; Sarsdenfield, Camberley, Surrey. (May, 1935.)
MAXWELL, C. T. ; 1 Shardcroft Avenue, Herne Hill, S.E. 24. (Dec., 1908.)
MAXWELL, P. H. ; The Salvation Army Red Shield Club, 28 Euston Square, London, N.W. 1. (Oct., 1929.)
MAXWELL, Capt. GAVIN, F.Z.S., F.R.G.S., M.B.O.U. ; Arisaig House, Arisaig, Inverness-shire. (Aug., 1941.)
*MAXWELL-JACKSON, Miss M. ; Percy House, Scotton, Knaresborough, Yorks. (Jan., 1913.)
MAYER, F. W. SHAW ; Wulfruna, 8 Wandeen Avenue, Beecroft, N.S.W., Australia. (Aug., 1922.)
MEESER, F. C. S. ; P.O. Box 4993, Coronation Building, 23 Simonds Street, Johannesburg, South Africa. (July, 1937.)
MERTENS, MARCEL (Inginieur) ; Hotel du Commerce, Saint Laurent du Sape, Ordêche, France. (April, 1938.)
MEYER, JOHN D. ; c/o Berol Lodge, Chappaqua, N.Y., U.S.A. (Sept., 1938.)
MILLIGAN, H. ; Upper Manor Farm, Leckford, Stockbridge, Hants. (March. 1937.)
MITCHELL, HAROLD A. ; 130 Broomhill Drive, Broomhill, Glasgow, W. 1. (Jan., 1943.)
MOODY, A. F. ; Lilford, Oundle, Peterborough. (July, 1926.)
MOORE, ROBERT T. ; RR. No. 1, Box 28*a*, Pasadena, California, U.S.A. (July, 1928.)
MORRISON, A. ; St. Mary's Ridgway Road, Farnham, Surrey. (Jan., 1932.)
MOUNTAIN, Capt. WALTON ; Groombridge Place, Kent. (Feb., 1923.)
MURPHY, JOHN (District Commissioner) ; Kisumu, Kenya Colony. (Oct., 1932.)
MURRAY, JAMES GIBBES, M.R.C.V.S. ; Glyn Iddens, Leddington, Ledbury, Herefordshire. (1945.)

NEWMARCH, C. T., F.Z.S. ; Gamage's Ltd., Holborn, W.C. (Aug., 1915.)
NICOL, HAMISH, F.R.C.S. ; 18 Christchurch Hill, Hampstead, N.W. 3. (Jan., 1926.)
NICHOLSON, JOHN ; Estaholme, Fairfield, Stockton-on-Tees. (Nov., 1943.)
NIGHTINGALE, Capt. F. B., F.R.I.B.A. ; 13 Cranley Place, S.W. 7. (Dec., 1933.)
NORCROSS, HERBERT ; Normanhurst, 22 Mount Road, Middleton, Lancs. (March, 1930.)
NORDHOFF, CHARLES B. ; Hope Ranch, Santa Barbara, Calif., U.S.A. (Aug., 1937.)
NORRIS, KENNETH A., F.Z.S. ; Elmstone, Highfield Road, Purley, Surrey. (June, 1939.)

OBERHOLSER, Dr., Curator of Ornithology ; Cleveland Museum of Natural History, 27 Seventeen Euclid Avenue, Cleveland 15, Ohio, U.S.A. (Re-joined.)
OSTREHAN, CLEMENT ; Kington Rectory, Worcester. (Jan., 1928.)

PALMELLA, His Excellency The Duke of, Portuguese Ambassador ; 103 Sloane Street, S.W. 1. (1944.)
PAM, Major ALBERT, F.Z.S. ; Wormleybury, Broxbourne, Herts. (Jan., 1906.)

Pape, Mrs. A. M. ; Forest Lodge, Binfield, Berks. (Oct., 1937.)
Partridge, W. R., F.Z.S. ; Larches, near Fladbury, Pershore, Worcestershire. (April, 1934.)
Pearse, Mrs. ; Channel View, Bembridge, Isle of Wight. (Rejoined.)
Peat, Roderick M. ; 11 Ironmonger Lane, London, E.C. 2. (June, 1940.)
Phillips, C. P. ; Swans Nest, Dorchester-on-Thames, Oxford. (Nov., 1940.)
Phipps, Mrs. ; c/o Standard Bank of S.A., Commissioner's Street, Johannesburg, South Africa. (Jan., 1935.)
Pickford, Randolph John ; Etherley Lodge, near Bishop Auckland. (Feb., 1903.)
Pitt, W. S. ; Wildwood, Silverdale Avenue, Walton-on-Thames, Surrey. (March, 1934.)
Plath, Karl ; 2847 Giddings Street, Chicago, U.S.A. (July, 1924.)
Poltimore, Lady ; Court Hall, North Molton. (Jan., 1926.)
Porter, Sydney, F.Z.S. ; The White Gates, 149 Stenson Road, Derby. (April, 1920.)
Potter, Bernard E., M.B., M.R.C.S., L.R.C.P., F.Z.S. ; 69 Wimpole Street. (March, 1914.)
Potter, W. H. ; Whetherill, Fitzillian Avenue, Harold Wood, Essex. (July, 1926.)
Prestwich, Arthur A. ; Chelmsford Road, Southgate, N. 14. (Rejoined.)
Princeton University Library ; U.S.A.
Puddle, F. C., V.M.H. ; Bodnant Gardens, Tal-y-Cafn, Denbighshire. (May, 1940.)
Pugh, M. C. ; 29 Monnow Street, Monmouth. (May, 1943.)
Pye, Miss L. ; High Street, Haslington, Crewe. (March, 1938.)

Quebec Zoological Garden ; Charlesbourg, P.Q., Canada. (Nov., 1940.)
Quincey, R. S. de Q. ; The Vern, Bodenham, Hereford. (April, 1913.)

Rankin, Major Niall, F.R.C.S., F.R.P.S., Scots Guards ; House of Treshnish, Calgary, Isle of Mull, Argyll. (May, 1943.)
Rampton, A. ; South Lake, Woodley, Berks. (Dec., 1935.)
Raven, William Henry ; 29 Cavendish Road, E. ; The Park, Nottingham. (Dec., 1939.)
Rawnsley, A. H., Sqd. Leader, R.A.F. ; "Yeadon," 108 Ainsdale Road, Western Park, Leicester. (Jan., 1943.)
Reventlow, Axel ; Inspektar, Zoological Garden, Kobenhavn F., Denmark, (Jan., 1928.)
Ripley, S. Dillon ; Division of Birds, U.S. National Museum, Washington, D.C., U.S.A. (Sept., 1937.)
Risdon, D. H. S., F./Lieut. ; "Remura," 130 Green Lane, Northwood, Middlesex. (Jan., 1934.)
Roberts, Miss Ida ; Aberfeldi, Davey Street, Hobart, Tasmania. (*Hon. Mem.*)
Robertson, Dr. A. R. ; Dickinson's Building, Voortrekker Street, Vereeniging, Transvaal, S. Africa. (July, 1943.)
Rudkin, Francis H. ; R.I., Box 31, Fillmore, California, U.S.A. (May, 1902.)
Rumsey, Lacy ; 23 Rua de Serpa Pinto, Villa Nova de Gaya, Oporto, Portugal. (April, 1919.)
Ryan, Sir G. E. ; Address unknown. (June, 1931.)

Salter, Lt. John ; c/o Dr. John W. Salter, 724 North Golden West, Temple City, California, U.S.A.
Schmidt, Paul ; Senta, Yugoslavia. (March, 1934.)
Schuyl, D. G. ; Kralingscheweg 332, Rotterdam, Holland. (Jan., 1914.)

Scott, A. H. ; Blissford Pool, Fordingbridge, (March, 1934.)

Scott-Hopkins, Capt. C., F.Z.S., F.B.S.A. ; White Cottage, New Milton, Hants. (July, 1928.)

Secor, Sgt. Ward J. ; 32281498 Flying Controls, 405 Fighter Group, A.P.O. 141, U.S. Army. (May, 1943.)

Seppings, Lieut.-Col. J. W. H., F.Z.S. ; c/o Lloyd's Bank, Ltd., Cox & King's Branch (G.3), 6 Pall Mall, London, S.W. 1. (Sept., 1907.)

Seth-Smith, David, F.Z.S., M.B.O.U. ; " Brabourne," Poyle Road, Guildford, Surrey. (Dec., 1894.) (*Hon. Mem.*)

Shakespeare, Walter ; Sefton, St. George's Hill, Weybridge. (Aug., 1926.)

Shand, Dr. W. Paterson ; 10 Wilson Street, Derby. (Dec., 1940.)

Shearing, A. P. ; The Aviaries, Foxwarren Park, Cobham, Surrey. (Dec., 1931.)

Shearman, Charles Stuart ; " Malverno," Foreign Bird Farm, Pinetown, Natal, E. Africa. (1944.)

Sheffield City Librarian ; Central Library, Sheffield. (June, 1941.)

Sherbrook, William ; The Old Vicarage, Tadworth, Surrey. (April, 1931.)

Sherriff, A., F.Z.S. ; Edge Hill, 8 Ranulf Road, N.W. 2. (March, 1923.)

Shertson, William S. ; Otley Hall, Ipswich, Suffolk.

Sibley, C. L. ; Sunnyfields Farm, Wallingford, Conn., U.S.A. (Jan., 1934.)

Silver, Allen, F.Z.S. ; Birdsacre, Llantarnam, Mon.

Simpson, H. W. ; 6 Barry Road, Stonebridge, Willesden, N.W. 10. (Nov., 1924.)

Simpson, Mrs. M. K. M. ; 98 Pittencrieff Street, Dunfermline, Fife. (May, 1937.)

Simson, Capt. Rupert, O.B.E. ; The New Inn, Kidmore End, nr. Reading. (July, 1932.)

Slade, G. J. ; Shenley, 21 Wilton Crescent, Southampton. (Feb., 1915.)

Smith, W. Proctor, F.Z.S. ; Bexton House, Knutsford, Cheshire. (Nov., 1917.)

Southport Corporation, Curator of ; Hesketh Park, Southport. (Jan., 1904.)

Sparrow, Flight Lieut. G. M., J.P. ; Radleigh House, Village Road, Enfield, Mdx. (1944.)

Spinks, M. M. ; Tetherstones, Doddington Ridge, near Wellingborough. (Aug., 1940.)

Sprawson, Professor Evelyn, M.C., D.Sc., M.R.C.S., F.Z.S. ; Cranford, Welcomes Road, Kenley, Surrey. (June, 1923.)

Spurway, N. B. ; Delamere, 325 London Road, Leicester. (April, 1923.)

Squire, E. O. ; Basmead Manor, St. Neots, Hunts. (June, 1939.)

Stark, J. ; Woods Cottage, Haddington, East Lothian, Scotland. (Jan., 1924.)

Steinbeck, J. W. ; P.O. Box 832, Concord, California, U.S.A. (March, 1939.)

Stevens, Howard J. ; Croyland Abbey, Wellingborough, Northants. (1944.)

Stevens, Ronald ; Walcot Hall, Lydbury North, Shropshire. (Rejoined.)

Steyne, Alan N. ; The Foreign Service, Department of State, Washington, D.C., U.S.A. (Sept., 1932.)

Stigand, Mrs. Pearsall ; Antica Casa Colonica, 19 Via Augusto Baldesi, San Gervasio, Florence, Italy. (Dec., 1932.)

Stokes, Capt. H. S., F.Z.S., M.B.O.U., M.C. ; Longdon, Rugeley, Staffordshire. (Oct., 1922.)

Strombi, Miss Dora A. ; Eastbank House, Brechin, Angus. (Rejoined.)

Stromgren, Carl ; Box 742, Newton, Iowa City, U.S.A. (Nov., 1943.)

Suggitt, Robert ; Suggitt's Lane, Cleethorpes, Grimsby. (Dec., 1903.)

Sutton, Peter ; 14 St. John's Road, Tunbridge Wells. (Feb., 1939.)

Sweetnam, Rev. Preb. J. E., F.B.S.A. ; The Rectory, Enborne, Newbury, Berks. (Feb., 1931.)

Sykes, John ; Whitehouse Cottage, Inveresk, Musselburgh, Midlothian. (Jan., 1912.)

Taronga Zoological Park Trust ; Mosman, Sydney, Australia. (Aug., 1913.)
Taylor, H. J. C. ; Encliffe Crescent, Sheffield. (1944.)
Taylor, John George ; St. Annes, Park View, Toll Hill, Castleford, Yorkshire. (1944.)
Teague, P. W. ; Lybrook, Broadway, Worcestershire. (June, 1930.)
Tennant, Hon. Stephen ; Wilsford Manor, Salisbury. (April, 1926.)
Thomas, F. E. ; " Edendale," Creswick Road, Springfield Park, Acton, W. 3. (Oct., 1931.)
Toronto University, The Bursar ; R.O.M. Zoology, Museum Building, University of Toronto, Toronto 5, Ontario, Canada.
Travers, Mrs. J. ; Windmill Cottage, Mayfield, Sussex. (Dec., 1903.)
Tunesi, A. W. ; Elmside, Vicarage Road, Sunbury-on-Thames, Mdx. (Feb., 1939.)
Turner, H. B. ; Malverleys, near Newbury. (April, 1928.)
Turner, Philip W. ; Arley, near Coventry, Warwickshire. (Jan., 1942.)
Turner, Walter ; 15 Sutherland Road, Chatswood, N.S.W., Australia.
Tyebjee, Abde Amirudin Shalebhoy ; Malabar Court, Ridge Road, Malabar Hill, Bombay, India. (Rejoined.)
Tyser, Mrs., F.Z.S. ; Gordonbush, Brora, Sutherland, N.B. (Jan., 1934.)

Underwood, H. ; The Wheatsheaf Hotel, Burton-Joyce, Notts. (Jan., 1939.)
Undy, Edward Joseph ; 3 Batley Road, Wakefield. (May, 1940.)

Valentine, Ernest ; 7 Highfield, Workington, Cumberland. (May, 1899.)
Van der Oije, Baron Charles Schimmelpenninck ; Oosterland Manor, Oosterland, Isle of Duiveland, Zealand, Holland. (Sept., 1939.)
Vane, E. N. T. ; Ridgeway, Joel Park Estate, Joel Street, Pinner, Middlesex. (March, 1937.)
Venning, H. C. ; Hillfield, Vicarage Road, East Sheen, S.W. 14. (Jan., 1927.)
Vierheller, Geo. P. ; St. Louis Zoological Park, St. Louis, Mo., U.S.A. (March, 1928.)

Waller, H. ; Kittsbury, 64 St. Julians Farm Road, West Norwood, S.E. 27.
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Watkins, T. R. Holmes ; Oronsay, The Ellipse, Griffithstown, Mon. (Rejoined.)
Waud, Capt. L. Reginald, F.Z.S., M.B.O.U. ; Bradley Court, Chieveley, near Newbury. (May, 1913.)
Webber, Leonard C. ; P.O. GM. RAN, Flinders Naval Depot, Crib Point, Victoria, Australia. (June, 1935.)
*Weber, Orlando F., Junr. ; 22 East 82nd Street, New York, U.S.A. (Jan., 1937.)
Wenke, Francis L. ; 115 N. 20th Street, Olean, N.Y., U.S.A. (Jan., 1942.)
Werner, Mrs. Marie ; Farmleigh, Stillorgan, Co. Dublin. (1944.)
Wharton-Tigar, Mrs. N., F.Z.S. ; The Highlands, Manston, Nr. Ramsgate. (July, 1932.)
*Whitley, Herbert, F.Z.S. ; Primley Hill, Paignton, S. Devon. (Sept., 1923.)
Whitmore, G. E. ; 168 High Street, West Bromwich, Birmingham. (July, 1935.)
Wilkins, A. ; Rendcombe, Chesham, Bucks. (April, 1930.)
Willford, Henry ; San Souci, Havenstreet, Ryde, Isle of Wight. (Nov. 1907.)
Williams, Sidney, F.Z.S. ; 19 Beechdale, Winchmore Hill, N. 21. (Oct., 1905.)

Wilson, Alec M. ; Middlemoor, Presteigne, Radnorshire. (Oct., 1939.)
Wilson, And., F.Z.S. ; 233 Argyle Street, Glasgow, C. 2. (April, 1927.)
Witting, R. C. ; " The Gables," West Horsley, Surrey. (July, 1937.)
Wood, J. A. (Quantity Surveyor) ; 68½ Pitt Street, Sydney, N.S.W., Australia. (Oct., 1940.)
Wood, Mrs. Muriel ; 8 Lambolle Road, N.W. 3. (July, 1927.)
Woolf, Dr. E. B. ; 6th Floor, Pasteur Chambers, Jeppe Street, Johannesburg, South Africa. (Oct., 1940.)
Workman, William Hughes, F.Z.S., M.B.O.U. ; Lismore, Windsor Avenue, Belfast. (May, 1903.)
Wormald, Hugh ; Newton House, Elm Ham, SO, Norfolk. (Rejoined.)

Yealland, John ; 1 Cemetery Road, Binstead, Isle of Wight. (July, 1934.)

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Rules of the Avicultural Society

As amended, November, 1930.

1.—The name of the Society shall be THE AVICULTURAL SOCIETY, and its object shall be the study of Foreign and British Birds in freedom and in captivity. Poultry, Pigeons, and Canaries shall be outside the scope of the Society. The year of the Society, with that of each volume of the Society's Magazine, which shall be known as the AVICULTURAL MAGAZINE, shall commence with the month of January and end on the 31st December following.

2.—The Avicultural Society shall consist of Ordinary and Honorary Members, and the latter shall be restricted in number to six, and be elected by the Council.

3.—The Officers of the Society shall be elected, annually if necessary, by members of the Council in the manner hereinafter provided, and shall consist of a President, one or more Vice-Presidents, a Secretary, an Editor, a Treasurer, an Auditor, a Scrutineer, and a Council of eighteen members. The Secretary, Editor, and Treasurer shall be *ex officio* Members of the Council.

4.—New Members shall be proposed in writing, and the name and address of every person thus proposed, with the name of the Member proposing him shall be published in the next issue of the Magazine. Unless the candidate shall within two weeks after the publication of his name in the Magazine, be objected to by at least two Members, he shall be deemed to be duly elected. If five members shall lodge with the Secretary objections to any candidate he shall not be elected, but the signatures to the signed objections must be verified by the Scrutineer. If two or more Members shall object to any candidate the name of such candidate shall be brought before the Council at their next meeting, and the Council shall have power to elect or to disqualify him from election.

5.—Each Member shall pay an annual subscription of £1, to be due and payable in advance on the 1st of January in each year. New Members shall pay, in addition, an entrance fee of 10s.; and, on payment of their entrance fee and subscription, they shall be entitled to receive all the numbers of the Society's Magazine for the current year.

6.—Members intending to resign their membership at the end of the current year of the Society are expected to give notice to the Secretary before the 1st of December, so that their names may not be included in the "List of Members", which shall be published annually in the January number of the Magazine.

7.—The Magazine of the Society shall be issued on or about the first day of every month, and forwarded, post free, *to all the Members who shall have paid their subscriptions for the year ; but no Magazine shall be sent or delivered to any Member until the annual subscription shall have reached the hands of the Business Secretary or the Publishers.* Members whose subscriptions shall not have been paid as above by the first day in November in any year shall cease to be Members of the Society, but may be readmitted, at the discretion of the Council, on payment of the annual subscription.

8.—The Secretary, Editor, and Treasurer shall be elected for a term of five years, and, should a vacancy occur, it may be temporarily filled up by the Executive Committee (see Rule 10). At the expiration of the term of five years in every case it shall be competent for the Council to nominate the same officer, or another Member, for a further term of five years, unless a second candidate be proposed by not less than twenty-five Members of at least two years' standing, as set forth below.

In the November number of the Magazine preceding the retirement from office of the Secretary, Editor, or Treasurer, the Council shall publish the names of those members whom they have nominated to fill the vacancies thus created ; and these members shall be deemed duly elected unless another candidate or candidates be proposed by not less than fifteen Members of at least two years' standing. Such proposal, duly seconded and containing the written consent of the nominee to serve, if elected, in the capacity for which he is proposed, must reach the Secretary on or before the 15th of November.

The Council shall also publish yearly in the November number of the Magazine the names of those members nominated by them for the posts of Auditor and Scrutineer respectively.

9.—The Members of the Council shall retire by rotation, two at the end of each year of the Society (unless a vacancy or vacancies shall occur otherwise) and two other Members of the Society shall be recommended by the Council to take the place of those retiring. The names of the two Members recommended shall be printed in the November number of the AVICULTURAL MAGAZINE. Should the Council's selection be objected to by fifteen or more Members, these shall have power to put forward two other candidates, whose names, together with the signatures of no less than fifteen Members proposing them, must reach the Hon. Secretary *by the 15th of November.* The names of the four candidates will then be printed on a voting paper and sent to each Member with the December number of the Magazine, and the result of the voting published in the January issue. Should no alternative candidates be put forward, in the manner and by the date above specified, the two candidates recommended by the Council shall be deemed to have been duly elected. In the event of an equality of votes the President shall have a casting vote.

If any Member of the Council does not attend a meeting for two years in succession the Council shall have power to elect another member in his place.

10.—Immediately after the election of the Council that body shall proceed to elect three from its Members (*ex officio* Members, not being eligible). These three, together with the Secretary, Treasurer, and Editor, shall form a Committee known as the Executive Committee. Members of the Council shall be asked every

year (whether there has been an election of that body or not) if they wish to stand for the Executive, and in any year when the number of candidates exceeds three there shall be an election of the Executive.

The duties of the Executive Committee shall be as follows :—

(i) To sanction all payments to be made on behalf of the Society.

(ii) In the event of the resignation of any of the officers during the Society's year, to fill temporarily the vacancy until the end of the year. In the case of the office being one which is held for more than one year (e.g. Secretary, Editor, or Treasurer) the appointment shall be confirmed by the Council at its next meeting.

(iii) To act for the Council in the decision of any other matter that may arise in connection with the business of the Society.

The decision of any matter by the Executive to be settled by a simple majority (five to form a quorum). In the event of a tie on any question, such question shall be forthwith submitted by letter to the Council for their decision.

The Executive shall not have power

(i) To add to or alter the Rules ;

(ii) To expel any Member ;

(iii) To re-elect the Secretary, Editor, or Treasurer for a second term of office.

It shall not be lawful for the Treasurer to pay any account unless such account be duly initialed by another Member of the Executive.

It shall be lawful for the Secretary or Editor to pledge the Society's credit for a sum not exceeding £50.

Should a Member wish any matter to be brought before the *Council* direct such matter should be sent to the Secretary with a letter stating that it is to be brought before the Council at their next meeting, otherwise communications will in the first place be brought before the Executive.

A decision of a majority of the Council, or a majority of the Executive endorsed by the Council, shall be final and conclusive in all matters.

11.—The Editor shall have an absolute discretion as to what matter shall be published in the Magazine (subject to the control of the Executive Committee). The Secretary and Editor shall respectively refer all matters of doubt and difficulty to the Executive Committee.

12.—The Council (but not a committee of the Council) shall have power to alter and add to the Rules, from time to time, in any manner they may think fit. Five to form a quorum at any meeting of the Council.

13.—The Council shall have power to expel any Member from the Society at any time without assigning any reason.

14.—Neither the office of Scrutineer nor that of Auditor shall be held for two consecutive years by the same person.

15.—The Scrutineer shall not reveal to any person how any Member shall have voted.

The Society's Medal

RULES

The Medal may be awarded at the discretion of the Committee to any Member who shall succeed in breeding, in the United Kingdom, any species of bird which shall not be known to have been previously bred in captivity in Great Britain or Ireland. Any Member wishing to obtain the Medal must send a detailed account for publication in the Magazine within about eight weeks from the date of hatching of the young, and furnish such evidence of the facts as the Executive Committee may require. The Medal will be awarded only in cases where the young shall live to be old enough to feed themselves, and to be wholly independent of their parents. No medal can be given for the breeding of hybrids, or of local races or sub-species of species that have already been bred.

The account of the breeding must be reasonably full so as to afford instruction to our Members, and must appear in the AVICULTURAL MAGAZINE before it is published or notified elsewhere. It should describe the plumage of the young, and *be of value as a permanent record of the nesting and general habits of the species*. These points will have great weight when the question of awarding the Medal is under consideration.

In every case the decision of the Committee shall be final.

The Medal will be forwarded to each Member as soon after it shall have been awarded as possible.

The Medal is struck in bronze (but the Committee reserve the right to issue it in *silver* in very special cases) and measures 2½ inches in diameter. It bears on the obverse a representation of two birds with a nest containing eggs, and the words " The Avicultural Society—founded 1894 ". On the reverse is the following inscription : " Awarded to [*name of recipient*] for rearing the young of [*name of species*], a species not previously bred in captivity in the United Kingdom."

The Council may grant a special medal to any member who shall succeed in breeding any species of bird that has not previously been bred in captivity in Europe.

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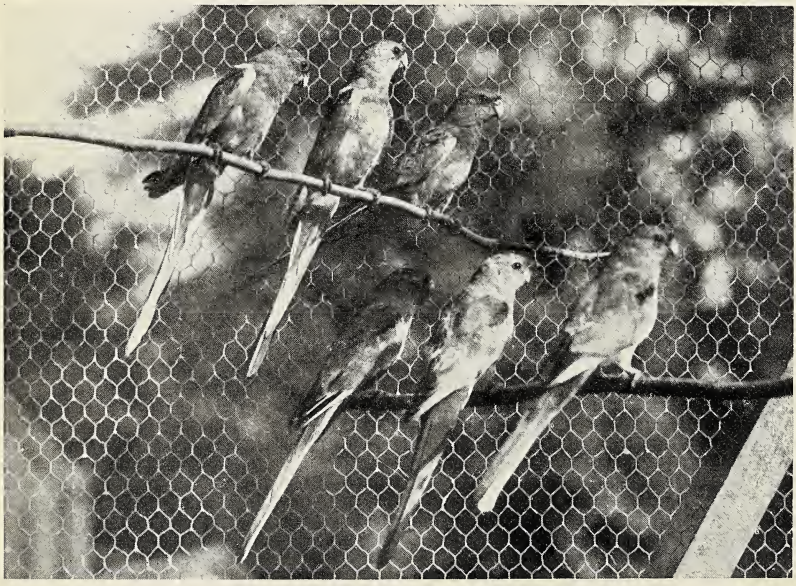
Pair of Rosella Parrakeets.



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Family of Young Many-colour Parrakeets.

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1944 BREEDING SEASON AT KESTON

By Edward Boosey

Generally speaking the 1944 breeding season at Keston has not—with one or two exceptions—been a particularly successful one, chiefly owing to the flying bombs. (I utterly refuse to call them " Doodle Bugs ", it makes them sound such jolly light-hearted affairs, which they certainly are not !) As I do not wish to be a Bomb Bore, I will merely remark that our farm is situated 14 miles south-south-east of London and leave the rest to the reader's imagination.

Fortunately these infernal machines did not make their bow to the public until—if I remember rightly—about Midsummer's Day, by which time most of the young Parrakeets had already hatched. Had they started coming over in the spring I feel pretty certain the series of deafening " crumps " and explosions which ensued would have had the most devastating effect on the sitting hens, and even if they were not frightened off their nests their eggs would have probably been addled. This, in fact, is just what did happen to the Canaries, which were in the middle of their second round, most of their first broods having been killed by the late frosts. In many cases the hens had obviously been frightened off their nests at night, their newly hatched broods dying of exposure as a result.

Undoubtedly the most spectacular results among the Parrakeets were achieved by the Mealy Rosellas. These consist of three pairs : The old breeding pair and a three-year-old son and daughter of theirs, mated together ; also a last year's son and daughter similarly mated. Between them they reared twelve young ones. The old pair five, the older young pair four, and the youngest pair (themselves less than twelve months old at the time) three.

I was much interested in these unexpectedly good results, because I don't suppose we should ever have made this in-breeding experiment in peacetime, when fresh blood, though difficult enough to get, was not entirely unobtainable. These results strikingly bear out what Mr. Whitley told me years ago with regard—if I remember rightly—to his in-breeding experiments with Pigeons. He maintained, firstly, that brother and sister matings are probably much commoner in a wild state than is generally supposed. (Incidentally I believe this is

considered to be almost invariably the case among Cranes.) Also that the great essential was to start with absolutely perfect specimens, since while such perfection would tend to be enhanced in their offspring, so, too, would any undesirable traits they might chance to possess. Myself I should say that quite 90 per cent of the firmly rooted prejudice against in-breeding, even for one generation, is due to people trying to breed from the offspring of faulty parents, with the usual disastrous results. I think if anyone wanted to defend in-breeding as a policy, they could make out quite a good case historically, because, when all's said and done, I suppose the Dynasty of the Ptolemys—in the person of Cleopatra, Queen of Egypt—provides the final and most perfect vindication of a practice of in-breeding on a particularly intensive scale !

Personally I do not favour in-breeding for the sake of it, but, on the other hand, if I had a fine hen of a particular species, I would far rather mate her to an equally fine cock that was related to her than to an inferior specimen, simply because he was not.

Common Rosellas did only fairly well, an old pair of Golden-mantles rearing a nice brood of four. A newly acquired hen (a rather " utility " specimen of typical wartime quality) mated to one of our young cocks reared one, while a young hen bred here last year mated to an eight-year-old cock whose original hen had died, laid at least twenty eggs, but refused to sit, for which one could hardly blame her as there was scarcely room left in the nest-box !

Two old pairs of Stanley's reared respectively four and three, and a pair of last year's young ones did not go to nest.

A large number of young Redrumps, including two yellow cocks, have been reared, but Many-colours were a disappointment, the old pair hatching four out of seven eggs, but letting the young die when about a week old, while two young hens mated to a green and a yellow cock Redrump did not attempt to breed. I had hoped to repeat last year's success when numerous young Many-colours were reared by making the old pair lay three clutches, the first two of which were foster-parented under Redrumps, which were extremely successful with them, the third being hatched and reared by the parents themselves. Unfortunately, however, this year the old pair were so late in going to nest that no Redrumps were then at the right stage to take their eggs.

Blue-fronted Amazon Parrots were another disappointment. Both were bred here, the hen in 1939 and the cock two years later. Last year, as the old breeding hen Amazon had died during the winter, we mated the old cock to his daughter, who laid four eggs and sat well, but the eggs were clear. Incidentally this provides the answer to the much-discussed question as to how old the larger Parrots have to be before they will go to nest. Our young hen, though given every

opportunity to do so, made no real attempt to breed until she was four years old.

This year she was mated to her brother—a particularly fine and brightly coloured specimen—and laid three eggs, upon which they *both* (which is unusual) sat for weeks. Unfortunately again the eggs were clear. We are very anxious, as soon as possible, and before she gets tired of laying and incubating unfertile eggs, to try her with an unrelated cock, and should be very glad to hear from anyone who has a cock Blue-fronted Amazon for disposal.

A pair of Roseate Cockatoos which have bred regularly for years past, did not go to nest, and two of their youngsters kept from last year both turned out to be hens. The vivid intensity of their pink breast colour would certainly lead one to suppose at first glance that they were cocks, but, according to the eye test, they are undoubtedly hens.

A sad tragedy has been the death of our last two Splendid Grass Parrakeets—both of them cocks—and also of the pair of Rose-breasted Grosbeaks, which were the sole remaining occupants of my planted aviary. Sad as these losses are, I think one is inclined to forget how very ancient most of one's birds are becoming. After all, this interminable war has been going on now for over five years, which is a big slice out of the life of a small bird. The hen Grosbeak—bred here about seven years ago—died of egg-binding, and I must have had the cock for at least ten years if not longer. Then, again, both Splendids were bred here some time before the war, so they were probably at least eight or nine years old.

Just before the two Splendids died, however, they produced hybrids which, as far as I know, have never been bred before, and which turned out to be of far more than usual interest. Failing a mate of their own kind, each of the cock Splendids was mated to a young hen Elegant, and in both cases one young hybrid was reared, both old cocks, strangely enough, dying before their young ones were fledged. The two hybrids are a pair, but the interest centres chiefly in the cock, for he, to all intents and purposes, appears to be none other than that rarest of all the Grass Parrakeets, *Neophema chrysogastra*, the Orange-bellied ! By that I mean, of course, that his appearance tallies to the most astonishing degree with the written descriptions of the Orange-bellied.

He is mainly bright green above and a paler yellowish green on the upper breast, the forehead has a wide band of dark and paler blues, and these colours also decorate the shoulders and the lower edge of the wings. His most conspicuous feature, however, is, of course, the patch of brilliant reddish orange on the centre of the abdomen. The hen much resembles a hen Splendid, and both take chiefly, as to size and vivacity, after their father's family. We intend to try and breed from

them, and it will be interesting to see if they are fertile, though I rather doubt it, as the hybrid Turquoisine × Bluewings, bred here before the war, were sterile. These, on the other hand, while very handsome, were obvious hybrids and in no way resembled any other known species of Grass Parrakeet. The breeding of this hybrid so closely resembling another separate species has made me more than ever keen to prove or disprove my pet theory that a Many-colour × Hooded hybrid would be indistinguishable from a Paradise Parrakeet! Unfortunately we parted with the last of our Hooded Parrakeets at the beginning of the war, and I expect it will be a long time before we shall succeed in obtaining any more.

At the beginning of the season we still had our fine breeding pair of Lutino-bred Ringnecks, which always produced one young Lutino in each brood of four. Unfortunately this year the hen, aided and abetted by the cock, became desperately anxious to go to nest almost before January was out, but I thought it seemed hopeless to give them a nest-box so early. Shortly afterwards, to my great sorrow, and without the slightest warning, the hen suddenly scalped her husband. Fortunately, however, we were able to replace him at once by his unmated brother, yet though the hen seemed quite pleased with her new husband, and they paired frequently, she refused to do more than play at going to nest, and shortly afterwards dropped into a moult.

The pair of true Lutinos again reared one very fine young one. They hatched two, but as I expected, let the other one die. For each of the past three seasons they have reared an only child, and I feel sure if they were human beings they would be the sort of parents who would sacrifice everything to send their boy to Eton!

Much to our delight we have at long last succeeded in getting a mate for our cock African Grey Parrot. The unique value of the latter lies in the fact that whereas so many people possess Greys which they will tell you they "feel sure" are cocks, this bird's sex is proved, and, moreover, he is almost certainly the only Grey who (when in the possession of his former owner) actually fathered a short-lived nestling in an aviary in this country.

When the hen arrived she proved to be a very nice bird and healthy, though—as usual—cage-cramped. She spent the first three weeks in a cage next to the cock's, so that they could have a chance of getting used to each other, and then I transferred her to a large cage about 5 feet long, and a few days later, rather in fear and trembling, put the cock in with her, having previously taken the precaution of providing food and water pots at each end of the cage.

At first he treated her to a glassy stare, then hurried along the central perch and proceeded to attack her. She promptly fell off the perch, and I had half a mind to remove him. However, these sparring matches became more and more half-hearted on his part, as I think

it soon dawned on him that the hen's beak was quite as powerful a weapon as his own.

At first if she was given a tit-bit the cock tore along the perch and wrenched it away from her amid agonized yells of protest from the wretched female ! However, eventually they settled down and not long after I saw them sitting on the same perch, though the hen still took the precaution of keeping a safe distance between them.

In April they were transferred to an outdoor aviary furnished with a hang-up wooden nest box, as well as one of the grandfather-clock type, and also a natural log. At first the hen took no interest in any of them, but the cock seemed much taken with the grandfather-clock box. On one occasion when the hen had, at least, condescended to sit on top of the latter, the cock hurriedly disappeared inside, after which the sounds of much excited scrabbling about, fluffing of his feathers, and asthmatical coughing ascended from the depths. At frequent intervals he poked his head out of the hole and, looking up at his wife, implored her to " come on ! " Finally, as she continued to sit there like a graven image, the cock's patience became exhausted and he hurriedly climbed to the top of the box and endeavoured to knock her off it.

Soon after, they were observed to have become very friendly, " locking " beaks affectionately, and the cock always proferring any tit-bit he was given to his wife for her to have a bite. It was at about this time that the hen first began to take an interest in the hang-up box, after which both spent an increasing amount of time together inside it. Finally the hen disappeared from view and was, I think, fairly obviously sitting, but unfortunately this did not happen until about the middle of October. As the cock's former young one perished through his going to nest, though with a different hen, at exactly the same unsuitable time of year, it rather looks as if Greys may prove to share with Brown's and Hooded Parrakeets the maddening habit of moulting all the summer, and going to nest in late autumn.

Now, as I write (12th November), the hen has appeared again, coming off the nest once or twice a day, while the cock has begun paying increasingly frequent visits to the nest, remaining inside for a considerable time. Sometimes I dare to hope they've got young ones ; at any rate, they have both become excessively ferocious in defence of whatever the box may contain. However, I am getting too old to indulge much, nowadays, in over-optimism, and in any case I know only too well how clever some pairs of birds are at making you think they are rushed off their legs feeding an enormous brood, and when you look in the nest-box you find just nothing at all—not even an egg !

Finally, with regard to Budgerigars, as we were forced to let our stock of these birds become considerably depleted we decided to try

and gradually build it up again, and this year have kept most of our young ones.

I do not pretend to be a Budgerigar colour variety expert, and for that reason perhaps my views will tend to be less biased by mere novelty as distinct from beauty. Personally I think that Opalines, with the exception of the Opaline Green, are curious rather than beautiful ; that the white-winged Blues, particularly cobalts, are the most striking, and that the Yellow-faces (Tricolours) are much the most beautiful, possessing as they do a combination of all the Budgerigar colours in a very lovely and delicate grading.

Personally I—in my ignorance—had always supposed that a blue sport of a green bird was one lacking the yellow pigment, that a green bird's yellow sport was one lacking the blue pigment, and that an albino was a bird lacking both. Apparently, however, it has now been found possible to breed a Budgerigar with a blue breast, a yellow instead of a white face, and possessing almost every shade of colour between.

What an incredible number of colour varieties have already been achieved with Budgerigars, and what enthralling vistas lie ahead for the person who shall be the first to breed a yellow Barraband or a blue Many-colour !

Appendix

We have at last had an opportunity of looking in the nest-box of the African Grey Parrots which I mentioned in the above article on the 1944 breeding results at Keston.

I said in my article that I should not be particularly surprised to find that the nest contained nothing at all. However, as it turns out, neither our best hopes nor our worst fears have been realized. The box contained only a single egg, but that egg contained a young Grey Parrot ! The hen sat very tight and all had evidently gone well with the embryo for about the first fortnight of its development, then it had died, probably owing to the cold.

This result might appear more disappointing than it really is to those who have never tried to breed the larger Parrots. To anyone who has attempted this difficult task, however, the mere fact that the egg was fertile is extremely encouraging. We now know that, after many years of endeavour, we at last possess a true pair of successfully mated Greys, and therefore provided they can be induced to breed at a sensible time of year there seems no reason why they should not rear their young ones as successfully as our Blue-fronted Amazons did.

Prospective breeders of Parrots are faced with numerous difficulties, most of which we have encountered at one time or another. To mention but two of them : Firstly the person who—probably after years of fruitless searching—manages at last to assemble what he fondly hopes

to be a true pair of Greys, finds, more often than not, that the moment they are put together they evince an instant, rooted, and life-long dislike for each other. If, on the other hand, things progress more favourably, even to the point of eggs being laid, the odds are about ten to one against their being fertile. The reason for this is obscure, but having watched the strange " goings-on " of various pairs of the larger Parrots at mating time, I can only suppose it is because their parents were either too lazy—or, perhaps like some human parents, too embarrassed !—to make them fully acquainted with " The Facts of Life."

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THE BREEDING IN CAPTIVITY OF THE NARETHA OR LITTLE BLUE BONNET PARRAKEET

(*Psephotus narethæ*)

By H. Manfield, Head Bird-keeper, Zoological Gardens, Adelaide, South Australia.

It is with great pleasure that I have to record the breeding of the Naretha or Little Blue Bonnet Parrakeet (*Psephotus narethæ*) at the Adelaide Zoological Gardens. This charming little Parrakeet is found in the south-eastern portion of West Australia, and was not discovered until about the year 1921 on the great East–West railway line, well known for its 300-mile stretch of straight line. The first specimen was, I believe, found in captivity at a camp of railway workmen at a little siding named Naretha, by a collector employed by the late H. L. White, a very well-known ornithologist. In the year 1936 the late R. R. Minchin secured what we thought were a true pair, out of a small consignment of six birds which were at a dealer's shop in Adelaide, for £5 the pair, if my memory serves me right. Dr. Alan Lendon and Mr. S. Harvey also each obtained a pair from this little consignment. At first they were generally believed to be delicate, as Mr. Harvey's pair and Dr. Lendon's hen did not survive long, but since then they have proved to be fairly hardy in captivity. Soon after getting our pair they were turned out in one of our standard breeding aviaries, and supplied with a hollow log about 3 feet long and 6 inches in diameter, but no notice was taken of this, as they always appeared very timid and retired into their shelter whenever anybody approached the flight. In the year 1938 we obtained four more of these birds in order to see if we could persuade a pair of this rare species of *Psephotus* to settle down and breed, but nothing happened until 1939, when one pair (the original, we think) started to fight and

chase the others about very wildly ; it was then decided to remove all but the pair that had taken charge. Unfortunately the four birds taken out did not do too well in mixed company, and two died later, just appearing to get very thin and weak. Returning to the original pair, nothing further of interest happened until August, 1941, when one day I noticed the hen coming out of the entrance hole in the log. I at once placed a little more decayed wood in the hollow, and about a fortnight later, early one morning, I noticed the pair coming out of the log together and getting very excited. Later the same evening I noticed the cock bird feeding the hen, so our hopes were raised once again. In the third week in September the hen disappeared in the log. I was afraid to look—would I disturb her if she had laid, or had she died in the log ? This went on for a few days, until one day I was relieved to catch the pair feeding together. I hurried to the door to have the usual peep in the log, but before I could get anywhere near the hen flew quickly to the log and disappeared, so that I was still unable to find out what had taken place. Each time I caught her off the nest and hurried in she would always prove too quick for me. At last my patience gave way, and I took the log down and had a peep, a thing most bird-keepers are unable to resist sooner or later ; the hen just moved enough to allow me to see the eggs, which were four in number and like those of all other Parrakeets, white in colour. All went well, and a little later the cock bird became very tame and every time I passed the enclosure he seemed as if he wanted something. I immediately started giving extra greens, such as seeding grasses and silver beet, which he ate readily, and, as most bird-keepers know, this is a good sign that young have made their appearance. The pair kept me in suspense for about twelve days, until I heard the usual voices telling me all was going well. I then had my first glance at my first young Narethas, three young ones and one infertile egg. The parents both fed the young, and at the age of about thirty days the first young left the log ; two days later the second left, and four days later the third appeared. All looked in perfect feather and closely resembled the hen, except for the white beak, which is horn colour in the adult.The food supplied was one part of canary seed, half part of pannicum, half part of sunflower, and a little hulled oats. Green food consisted of seeding grasses, lettuce, thistles, and silver beet. The enclosed part of the aviary is of the lean-to type, 5 feet square, and the flight is 15 feet long, 5 feet wide, and 7 feet in height. As far as I can ascertain, this Parrakeet has not been bred in captivity in Australia before, and strangely enough this pair have not made any further attempt at breeding since. I have not heard of this species having been imported into England, but I do know that a German dealer who visited Australia in February, 1939, sent a consignment of six pairs out of the country.

PARRAKEET BREEDING IN AUSTRALIA SINCE THE WAR

By Lt.-Colonel Alan Lendon

Not the least of my problems when I had to leave for overseas at six days' notice in 1940 was the disposal of my collection of Australian Parrakeets, and I count myself extremely fortunate that my friend Mr. H. Manfield offered to look after my collection in his spare time, and has continued to do so for the past four years with great success, as will be seen from the following notes. The breeding results have all been recorded, but in some cases the actual number of young reared has been mislaid or overlooked, so that a few approximate figures will be given. My accommodation during the period under review consisted of twenty-one breeding compartments, and a single large aviary which accommodated those birds that could not be given separate cages and in which a certain number of casualties from fighting inevitably occurred. I personally saw very little of the breeding activities, as, until my posting to Adelaide in January, 1944, just at the conclusion of the 1943 season, my visits home had been for short periods in August, 1942, and April, 1943. Now, to deal with each species individually.

Cockatiels were not considered worthy of a cage to themselves, except for a brief period at the end of 1942 when they promptly reared a family of five. Barrabands and Rock Pebblers have both proved disappointing. Each have looked like going to nest on occasions, but neither pair has produced eggs. Queen Alexandra's have been characteristically inconsistent. In 1940 absolutely no sign of nesting occurred. In 1941 five very fine young were reared, while in 1942 eggs were laid but were thrown out of the log. In 1943 there was no activity at all. King's behaved rather like the Barrabands and Rock Pebblers, appearing interested on occasions but going no further. Crimson-wings, on the other hand, followed Queen Alexandra's closely in their results. 1940 was a blank, then in 1941 two good young were reared. In 1942 a number of eggs were laid, but none were hatched, and in 1943 the hen succumbed to egg-binding and her mate died soon after. I brought a nice pair back from Queensland with me, and although the cock is not yet mature I am hoping for results this season.

Passing now to the Rosellas, neither Crimsons (Pennant's) nor Adelaides were considered worthy of segregation at any stage. Yellow Rosellas have not yet been bred in South Australia, and although my hen was exchanged in 1942 no results have been obtained. This season I have lent my cock bird to a friend, who last season bred hybrids from an Adelaide cock and a Yellow hen. Green (Tasmanian)

Rosellas have been given several opportunities, but without result. Paleheaded (Mealy) Rosellas have been disappointing. The hen, one of my own breeding in 1938 or 1939, mated to an unrelated cock, has laid rather large clutches each year, but whether the eggs are infertile or she fails to sit adequately is not clear. Northern (Brown's) are no longer represented in my collection, much to my regret. My old pair, which reared three fine young in 1939, only succeeded in rearing one from the first clutch in 1940 and the second lot were all infertile. Later that year both were killed when they succeeded in getting into the Twenty-eights' cage next door, and so far they have not been replaced. Eastern Rosellas have never been considered worthy of a compartment to themselves. I had a hen of the Golden-mantled subspecies before and during the early years of the war, but she died shortly before I succeeded in obtaining a cock bird in Queensland. Western (Stanley) Rosellas did no good until a new hen was obtained early in 1943 to replace the old hen who had died. Shortly after laying had occurred the cock died, but the hen carried on single-handed and reared three fine youngsters.

Passing on now to the Australian Ringnecks, Mallees (Barnard's) never got as far as eggs, although the same pair had an aviary to themselves throughout the years under review. My original success with the Cloncurry Parrakeet late in 1939 has been recorded in the Magazine and since then they have never looked back, rearing three young from each of two nests in 1940, 1941, and 1942. Early in 1943 the cock bird succeeded in getting into the next door compartment and succumbed as a result of injuries sustained in the ensuing fight with a pair of Mealy Rosellas. I was fortunate enough to secure another unrelated cock bird rather late in the 1943 season and three fine young were reared from the first nest, but the second clutch proved infertile. The pair of Port Lincolns which had reared four good young in 1939 did nothing in 1940, laid and broke the eggs in 1941, and again did nothing in 1942. The hen died early in 1943 and was not replaced. Twenty-eights did nothing whatsoever, although segregated, and the cock died in 1943. The hen Pileated, which had deserted her half-grown young in 1939, died early in 1940 and was not replaced until 1942. The newcomer laid that season but refused to incubate, and in 1943 did not even lay.

I always feel that a good name is required for the next group, Lesser Broadtails always sounding rather cumbersome. The pair of Red-vented Blue Bonnets that bred in 1939 managed to escape in 1940 and were not recaptured. I succeeded in obtaining a nice pair in Queensland in 1943 to replace them but they never looked like going to nest that season. Yellow-vented Blue Bonnets have never yet got as far as laying in my collection. A mate for my Little (Naretha) Blue Bonnet was not obtained until 1942, when a nice hen was secured

but nothing eventuated, and the pair succeeded in escaping in 1943 and were not recaptured. My old pair of Hoodeds have continued to breed prolifically. In 1940 the first clutch disappeared, but two and four young were reared from subsequent clutches. In 1941 the result was two and three and in 1942 three and three. In 1943, contrary to their usual habit, no early clutch was laid, but four good young were reared in the spring. Many-colours have been very prolific, two clutches being raised in every season except 1943, the average being four. Red-rumps have not been considered worthy of segregation.

Grass Parrakeets have, generally speaking, done rather well. Bourke's have had two nests each season, but never seem to be able to rear more than three in each nest and quite frequently only manage two. The cock of the pair of Blue-wings that reared a single young in 1939 died early in 1940, and though soon replaced the hen has never seen fit even to lay since. Elegants have nested each year until 1943, when the old hen who always plucked her young in the nest was dispensed with and the successor failed to lay. Only an occasional young was reared, however, as the old hen was invariably used as a foster-parent for Turquoisines, as will be related presently. The pair of Rocks which I had had for a number of years caused great surprise by nesting in a log in 1941 and rearing two good young. However, the shock must have been too much for them, as both parents and one of the young died next year, and although replaced, no further nesting has eventuated. Two young Orange-bellieds were secured for me in 1940, but unfortunately both proved to be cocks. I had the satisfaction of seeing them when I returned from overseas in 1942, but they unfortunately both died in 1943.

My hen Turquoisine appears to have an ambition to win an egg-laying competition, as each year she continues to lay until the log is removed, without ever thinking of incubating. The first half-dozen or so of her eggs are always fertile, and these have usually been transferred to the Elegants' nest, with the result that a few Turquoisines were reared each season prior to 1943, and although they left the nest horribly plucked they invariably moulted out into fine specimens. Scarlet-chested's have been remarkably consistent and prolific, as the following recital of their performances will show, to wit : 1940, four and four ; 1941, three and five ; 1942, four and three ; and 1943, four and five. Swift Parrakeets, of which I had a cock and two hens in 1940, were given every encouragement to breed without results, and a pair of Green Budgerigars were kept in the mixed aviary to complete the collection and raised a few young.

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EYE DISEASE IN AUSTRALIAN PARROTS

Robert A. Patten, B.V.Sc., Superintendent and Curator, Taronga Park Trust, Sydney.

I have no doubt that most aviculturists keeping numbers of Australian Parrots in captivity have had, at some time, one or more cases of eye trouble in their birds. This disease has caused many owners of birds considerable anxiety and at times the trouble has resisted all efforts to cure the disease, with the result that the bird is generally found dead in its isolation cage.

As much literature has appeared about this eye disease from various parts of the world, it will be unnecessary here to go into details in regard to the symptoms, etc., which are well known to most keepers of birds. Some aviculturists, immediately on discovering a case in their midst, destroy the bird, as it is feared that the disease may spread to other inmates of the aviary. Here, as elsewhere, we have had a case occasionally, and I can from experience state that once the bird becomes badly infected, all eye lotions and ointments previously used have proved of little avail—the birds invariably go into a decline and die, in spite of providing warmth and treatment as adopted for eye troubles in other animals.

On a number of occasions I have forwarded infected birds to pathological laboratories so that material would be at first hand for cultures, and the birds kept under close observation. I regret, however, that very little information has so far been forthcoming to throw much light on this very troublesome disease. Fortunately I have had no cases here during the last two years, but nevertheless I still have numerous inquiries from private aviculturists seeking help and advice on numerous bird troubles, including the main subject in question. One applicant stated he had four Barrabands and a King Parrot, all infected badly, and could I assist him as all the birds were old favourites and pets of his.

At the time I had just carried out experimental treatment on a Barraband Parrot, and as the results appeared promising I decided to carry on the treatment with the latest five patients. It might interest readers if I give some details of the cases in question. Case (*a*) Barraband, male, was admitted to the hospital on 25th May, 1943. This bird had only one eye, due to a previous accident. The left one was infected, and it carried its head on one side, trying to focus its vision. The eyelids were considerably swollen and red in appearance, showing acute conjunctivitis. Some discharge was also present, and the cornea was of a milky colour. An ointment consisting of 1 per cent sulphanilamide was applied to the eye. Four doses of sulphanilamide were administered at intervals of three hours. Each dose, consisting of $1\frac{1}{4}$ grains, was given by hand in a little mashed banana. After the

second dose had been administered it was noticed that the bird was very unsteady in its gait, it had difficulty in co-ordination, it was unable to fly, its eyesight was impaired, and it had difficulty in standing on its perch. These symptoms passed off some half-hour after the medicine was administered each time ; the droppings were stained light yellow. It was apparent that the amount of the drug consumed had reached a dangerous level. The bird refused all food during the first twenty-four hours of treatment. 26th May : This morning the bird seemed fairly steady on its legs, but had eaten very little food during the night. It was given 1¼ grains of sulphanilamide at 9 a.m. and at 4 p.m. 27th May : The patient appeared more or less normal in its movements. It had eaten some food and the inflammation of the conjunctiva had partly subsided. Medicine same as previous day. 28th May : The eye had still further improved—dosed a.m. and p.m. same as yesterday. 29th May : The bird was eating well and the eye still improved. 30th May to 3rd June : The bird appeared to improve each day, but 1¼ grains sulphanilamide was administered both a.m. and p.m. On 1st June the eye was normal. 4th June : All medicine was discontinued and the bird placed under observation. It was discharged cured on 16th June. This bird weighed 4 oz.

Case (*b*) four Barrabands, three males, one female. All cases examined were similar to case (*a*) ; the owner stating that the birds were having difficulty owing to the summer light, in flying backwards and forwards in the aviary. I advised that during treatment, as the birds were transferred to portable cages, the main aviary should be painted throughout with lime and kerosene. 27th October, 1943 : All four birds—B, C, D, and E—were each given by hand one grain of sulphamilamide in orange juice at 9 a.m. and 4 p.m. daily. Eyes were treated with sulphanilamide ointment, 1 per cent. This treatment was continued daily for twelve days. The symptoms and reactions to the drug were very similar to case (*a*), but it was noticed that cases D and E had not cleared up completely like B and C, the two latter having been placed under observation. However, D and E were given one dose daily of sulphanilamide for another six days, when these birds also were placed under observation. All four birds were returned to the owner on 22nd December, with the advice to darken the retreat in the aviary so that the strong summer light would be somewhat subdued.

Case F, King Parrot, male. 23rd December, 1943. This bird received by hand 1 grain sulphanilamide at 9 a.m. and 4 p.m. each day, the drug being given in a small amount of orange juice, mixed to the consistency of putty. The eyes also were treated with 1 per cent ointment. This bird was given the drug twice daily until placed under observation on 9th January. It was eventually returned to its owner on 18th January.

After a space of six months I got in touch with the owners of these birds and they reported that a recurrence of the disease occurred in D and E, but the others were quite all right. I am very hopeful that at last we have a drug that, used with patience and care, will assist in clearing up a disease that has for years been a great source of worry to aviculturists. The only trouble I can see now is to work out some more simple medium of giving this medicine. For experimental purposes, of course, it is necessary that a certain definite dose of the drug be given for record purposes. I should be very pleased if some of our other scientific members would also try out this sulphanilamide treatment, and perhaps discover some simple method of administering same. It appears that the Parrot can take a large dose of the sulphanilamide drugs without harmful effects.

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BREEDING OF THE PLUM-HEAD PARRAKEET

(*Psittacula cyanocephala*)

By W. L. Eaves, F.Z.S.

I have always had several pairs of Plum-heads in my possession during the last ten to fifteen years and have had only one youngster hatched during this period which died when only one day old. I now only possess one pair in my collection, which I have had for some eight to ten years, having, through feeding difficulties, parted with the others. These are such a splendid pair that I have never felt I could part with them, although I never thought I should breed with them.

During late February or early March clutches of eggs have been laid every year, and although the hen always sits well the eggs were never fertile, and I had given up all hope of ever breeding them.

My Curator, however, came to the conclusion that the trouble lay with the hen, who always came into breeding condition long before the cock. This year (1944) I decided to try and keep her back, and with this object in view the nesting log was closed up and the birds were always shut up in their shelter during the late afternoon and not allowed out until fairly late in the mornings ; also, not having any canary, millet, or sunflower seeds, substitutes had to be given in their place. This seemed to help with the desired effect, and I consider that for these two reasons the hen was not nearly so forward.

During the last few days of March the cock was seen to display to the hen ; this display consisted of a series of neat bows, followed by the jerking of the tail and running up and down the perches. After this we decided it was time to open the nesting log and give them the free run of the aviary. They soon became interested in the nesting-box,

which was the usual box pattern, 20 in. by 10 in. by 9 in. with concave bottom at one end.

A few days later the hen was missing and we came to the conclusion that she had laid and commenced sitting. On the 2nd May my Curator informed me that he had heard the unmistakable squeak of a young Parrakeet ; I could hardly believe the good news. However, a few days later, catching the hen off the nest, I shut her in the shelter and took just a peep : there was one youngster about 5 or 6 days old and one unhatched egg. This was later thrown out of the nest and was found to contain one dead chick.

The young one was found to be without down, so I presume these birds are born quite naked. The parents proved to be good feeders, and fed the chick on groats and buckwheat, and plenty of green food also was given ; flowering grass seemed to be their favourite of which a large quantity was consumed.

On 10th June the young one was seen looking out of the nest-box and was fully feathered ; it left the nest on 20th June, and proved to be quite a strong bird. The next day it was seen to feed at the seed trough.

I am delighted to have bred this beautiful species after so many years.

(*Received July, 1944.*)

* * *

A TALKING BUDGERIGAR

By KARL PLATH, Chicago, Ill., U.S.A.

At last I have heard a Budgerigar talk ! Of course, I have heard of talking Budgies for years and years, but always with repertoires of single words or single sentences of few words. This in itself was remarkable—to think of a bird so diminutive being able to repeat a word or enough words to make a short sentence. As these reports of talking birds were always authentic and reliable, I had no doubts as to the possibility—but I had never heard one.

The opportunity came the other day, when a gentleman told me of a Budgie who had a repertoire of at least 200 words. He persuaded me to go with him to see and hear this little marvel. I found it to be a fine male specimen of the cobalt blue variety. He was at large in a sitting-room, and immediately flew down to a round table and perambulated around it, meanwhile uttering a soft warble. We were cautioned by our hostesses, the Misses Juanita, Nettie B., Beulah, and Louise Stapp, not to talk to the bird, as then he would only listen and not talk, but to keep on talking among ourselves. Suddenly there

came very clearly from the tiny creature a strongly whispered " Hello, I am Blue Boy, from Australia." One could scarcely expect an imitation of the human voice from so minute an object, yet it was perfectly distinct and perfectly enunciated. Whereas the untrained Budgie often soliloquizes, as it were, with a soft warble, this little fellow actually kept up a running flow of speech. He followed this introductory speech with " Hello, Mr. Tanner, how are you to-day ? " then " Kiss me—(followed by a perfect imitation)—Kiss me like that—make it smack." " Hello, I want to talk to Louise."

At times he would fly around, perching first on one head, then another or on an extended finger. He neither sat on my head nor my finger, but finally settled on my knee. After a short interval of inspection, he said : " What are you doing ? Playing gin-rummy ? Yes, we play gin-rummy."

A year ago the newspapers publicized the escape of a Budgerigar from its owner, an elderly gentleman, and an acquaintance of the family owning " Blue Boy ". This bird's name was " Socrates " and " Blue Boy " heard so much about the affair that now he tells you about it in what I think is the most amazing performance of a talking bird to date. I actually heard him say " Poor little Socrates—he's lost. He flew away—way up high. Isn't that too bad ? " However, the crowning achievement is one which I am sure will earn for his owners a tidy income. For he is to appear on the radio—or rather his voice is to be heard over it—saying " Dirty—dirty—dirty—tsk—tsk—tsk. Get me the wash-rag." Even while we listened to this wonderful little bird a telephone call came arranging to make a recording for radio, in which he will speak a commercial catchphrase.

His teachers said that he was having a play of the word " dirty ", using it in several different ways, such as " Those dirty-dirty-dirty Japs " and " That dirty Mr. Tanner ". Three other young birds were upstairs and already show great promise. " Blue Boy " enjoys circling their cages, saying " Pretty, pretty, pretty, such a pretty little bird." " Blue Boy " came to his present owners at the age of five weeks. He is now two and a half years old. One secret, of course, of this remarkable achievement in training this bird is that he is rarely alone, always has someone to repeat and repeat the phrase he is to learn. Every word he says is delivered with perfect pronunciation and enunciation, delivered in a strong human-like whisper and with child-like expression.

I would not blame anyone if they were sceptical about this ; I could hardly believe my own ears. Yet I actually heard it all.

* * *

MY PARRAKEETS IN 1944

By C. P. Phillips

Having been informed by several members that my notes on the breeding of Parrakeets in Wartime, which appeared in last March–April edition of the Magazine, was of interest to them, a record of results achieved during 1944 with the same breeding pairs may be of interest also, and with this in mind I give details once again of successes and failures.

First, however, I cannot refrain from referring to the weather. The late spring frosts and the subsequent spell of dry weather created, so far as my experience goes, the worst possible conditions for successful breeding. For months on end we were without rain here and the nest-boxes were hot and dry throughout the nesting period. Moisture, it is true, could have been provided from time to time but interference can be just as harmful at times. However, 1944 results were as follows :—

Ringnecks (*Psittacula manillensis*). Lutino-bred. Once again this pair reared young ; four in number this time, including one Lutino.

Rock Peplars (*Polytelis anthopeplus*). Only two young were reared, very fine youngsters.

Crimson Wings (*Aprosmictus erythropterus*). Eggs failed to hatch, due, I think, to the weather. A second pair also failed, eggs being infertile ; the recently introduced cock bird being too young.

Pennants (*Platycerus elegans*). This pair again reared five strong youngsters, which left the nest in almost adult colour.

Queen Alexandra's (*Northipsitta alexandræ*). Only one of my pairs reared young, four in number.

King's (*Aprosmictus scapularis*), of which I have three pairs, all failed to rear young, although some eggs were laid.

Brown's (*Platycerus venustus*). Of my three pairs, two hens were killed by their respective mates before steps could be taken to separate them. The hens seem to be slow in coming into breeding condition, which apparently displeased their pugnacious companions. The third pair did not breed.

Of two pairs of Many-coloured (*Psephotus varius*) one reared four strong youngsters and the second failed. Upon examination I found that mice had got into the log and had made a nest there. Eggs that had been laid had fallen down holes made by the mice in the nesting material.

Blue Bonnets (*P. hæmatogaster*). Started to nest early and deserted after the severe frost of 17th May.

Two pairs of Turquoisines (*Neophema pulchella*) reared young. One of these produced nine strong birds from three nests. The hen

bird actually laid and hatched eggs on a fourth attempt, but subsequently deserted them.

It has been said that nest-boxes should be taken away after two broods have been reared. I, however, leave the birds to please themselves. The strength and condition of the parent birds, also that of their progeny, shows no harmful result.

My Salawati King (*Aprosmictus dorsalis*), mated to a cock Pennant, tried very hard to rear a family. She first laid three eggs and sat upon them for the full hatching period, but having no success she laid four more, brooding the seven for the full period also. I then took the eggs away, they were all clear. Nevertheless, she tried again, and laid three more eggs with the same result. It would certainly be a surprise to find fertile eggs from this mating, but as the cock Pennant fed his mate so regularly over the whole period there seemed at least to be a chance.

The eggs from a pair of Lutino Ringnecks were not fertile, the cock bird being too young. It is interesting to note, however, that although I provided two nest-boxes the hen selected the log on which the bath was placed. She worked for weeks on this and eventually made a hole two feet deep down the centre under the bath, and laid her eggs almost at ground level.

Lastly I come to my Lovebirds. I had only one blue Masked (*Agapornis personata* var.), a hen, and several blue-bred birds, and from the various matings several young were reared, but no pure blues. Since then, however, I have obtained two blue Masked cock birds, one of which has been mated to my blue hen and the other to a blue bred. Both hens are sitting on eggs at the present time, but I can hardly expect young during the prevailing cold weather, and I cannot, of course, remove the nest-boxes.

Apart from Parrakeets I have been wondering whether the Goldfinches, which nest in my garden each year, are the same pair or whether some of their young return to occupy the same building site ? For over eight years the nest has always been within a few feet of the original spot, a chestnut tree by the river.

A Long-tailed Titmouse built its beautiful domed nest in a *Cupressus macrocarpa* tree by the tool shed. My gardener told me that the hen " Wagtail " used to feed every day on crumbs he threw to it. The batch of eight youngsters provided a pretty sight when they left the nest.

How interesting our birds can be. The loud laughing note of the Green Woodpecker and the mellow song of the Mistle Thrush are heard at the present time and remind us that spring is not far off (January, 1945).

* * *

PARROT BREEDING IN THE SOUTH WESTERN UNITED STATES

By J. Delacour

During the last twenty years, California has become the best centre for Parrot breeding in the world. The excellent climate, with its mild winters and dry, but not too hot summers, is perfectly well suited for the establishment of a great many tropical and subtropical birds. All species of Parrots can be kept out-of-doors throughout the year, with the help of unheated, usually open-fronted, sheds. As the winter's rains can be very heavy, these dry shelters must be large and, particularly, deep enough.

To the advantage of the climate, that of a very pure soil is added, as is proved by the fact that no movable aviaries, concrete or wire-netting bottoms are necessary to maintain the birds in good health. Many aviaries are not often cleaned, and it seems to have no ill effects whatever. Many of the problems and difficulties which confront the aviculturist in England and in France simply do not exist here.

Not only are the more ordinary Budgerigars, Lovebirds, and Broadtails reared every year in large numbers, but great successes have been met with in the breeding of various Conures, Bee-bees (*Brotogeris*), Eclectus, Lories, Amazons, Grey Parrots, Cockatoos, and Macaws.

In the course of the past year, I had the good luck of twice visiting the Pacific Coast, staying at Pasadena, close to Los Angeles, from the beginning of April till 9th May, and again for ten days early in October. As usual, I spent much of my time visiting my bird friends and their aviaries.

Of the public zoos in the West, the San Diego park alone has a large collection of Parrots, mostly Macaws, Cockatoos, Broadtails, and Lories. They are all housed in good-sized and well-built outdoor flights, and many have been successfully bred there. Unfortunately, in the last few years bee swarms have been constantly interfering, filling up the nest-boxes and killing the young ; they are particularly attracted by Lories on account of the smell of their sweet food. An easy remedy would be to screen the aviaries with mosquito-netting, but this is out of the question in a public zoological garden. Recently the San Diego collection has been enriched by a consignment of Parrots from the Solomon Islands, gathered and sent over by naval officers. It consists of several specimens of the different local species : Cockatoos (*Kakatoe ducorpsi*), Eclectus (*Lorius roratus solomenensis*), and Lories (*Eos cardinalis*, *Trichoglossus hæmatodus aberrans*, and *Lorius chlorocercus*), all very interesting and so far unknown or very rare in captivity.

Australian Perrakeets are widely kept and bred in California. The

commoner species now are the Common Rosellas, Mealy Rosellas, Pennants, Kings and Red-rumps. There are quite a good number of the rare and beautiful Pileated and Rock Peplars. Crimson-wings, Stanleys, Barrabands, and Browns are rather scarce. Blue-bonnets, Many-colours, Bauers, Yellow-naped, Barnards, Adelaides, Yellow-bellied, and Yellow-rumped have either disappeared or are only represented now by a few birds. Hooded have recently bred in some numbers. There are no Queen Alexandras in California, and the flock in the Chicago Zoo is unique in this country. Of the Grass Parrakeets, there are a good many Bourkes and Elegants and some Turquoisines ; no Scarlet-chested, no Blue-wings are now to be found ; no New Zealand Parrakeets left, except perhaps an odd bird or two.

Cockatiels are, of course, very abundant. I have recently seen a specimen in which the whole of the light-coloured parts of the head are yellow, this tone having completely replaced the white. It seems to be the first case of mutation observed in this widely kept and almost domesticated species.

Blue-and-yellow, blue-and-red, Green-winged Macaws are often bred, as well as Greater and Lesser Sulphur-crested, Rosy (Galah), Bare-eyed, and Leadbeater's Cockatoos, while other species are commonly kept as pets. The same applies to various Amazon Parrots, but a number of them are also reared by different breeders.

Of the Asiatic Parrots, Derbyans have been a great success, and they are now plentiful. A few Alexandrines, Moustaches, and Plum-heads, and also many Ringnecks are reared ; it is amusing to see how precious these once very common birds seem to be to-day to Californian breeders !

African Grey Parrots, those kings of the talking birds, have very seldom bred in captivity. For several years, however, Mrs. G. Lee has reared several each year at Los Angeles. Recently Mr. and Mrs. Vance Wright, who long specialized in the rearing of *Brotogeris*, have also been successful with this fine species. It takes a long time for pairs to get established and to start breeding. In order to have tame birds, the young must be taken out of the nest and hand fed before they can fly. Mrs. Lee is also very successful with Eclectus, as are several other Californian breeders, and some years ago she had young of the Tahiti and Marquesas Blue Lories, and also of the lovely Kuhl's Ruby Lory ; but they never could be fully reared. To-day only one Ruby and one Marquesas Lory remain in her aviaries.

Lories are doing very well in California, but perhaps better still in Arizona, where the climate and air are much drier, with exceedingly hot summers : a proper desert climate. Why Lories should like it, when they come, as a rule, from damp countries, remains a mystery, and the same is true of Macaws and Amazons. That Broadtails,

Cockatoos, and other Australian species flourish in Arizona is easier to understand. Anyhow, Mr. W. J. Sheffler, who has moved the greatest part of his collection to Salome, near Phœnix, has met with outstanding success there. His collection of Parrots, particularly Lories, is very extensive. Of the latter, many species breed continually, including hybrids between the Blue-mountain (*Trichoglossus moluccanus*) and the White-rumped (*Eos fuscata*).

Mr. F. H. Rudkins, who owns a fine collection of birds at Fillmore, has reared last summer a Chattering Lory (*Lorius garrulus*), a difficult species. He has definitely established the blue strain of the Masked Lovebirds, and he has reared scores of them during the past few years. He and his son keep excellent series of species of various families.

Near San Diego, Mr. I. D. Putnam probably owns the largest collections of Parrots in America. He still possesses an old Masked Fijian Parrakeet which the present Duke of Bedford sent him many years ago, and he has been lately extremely successful in breeding the rare and lovely Hooded Parrakeet.

It is always a delight, when in Los Angeles, to visit the charming aviaries of my old friends, Mr. W. J. Sheffler and Dr. R. Woods; they keep and bred many of the rarer Parrakeets, as well as other birds.

I could mention several other good collections, but there are too many of interest to enumerate here.

I hope it will be a comfort to British Parrot lovers to know that, at the least, some of the finest species have been maintained in the hemisphere and propagated throughout these long years of war.

* * *

A ROYAL BLUE PARROT FINCH HYBRID

By J. A. Abrahams

Perhaps members will recall a previous breeding record of this hybrid, between a Royal Blue Parrot Finch (*Erythrura regia*) and a Red-headed Parrot Finch (*E. psittacea*). In the meantime, here are a few words about our first experience of breeding this hybrid at Claremont, Cape, South Africa.

We have always wanted a true pair of Royal Blue Parrot Finches and if possible to do a little breeding with them. But such has not been our luck. Up to the present we have only managed to reach half way. As everybody knows, they are rare birds and difficult to obtain. On one occasion in 1935, after many other unsuccessful attempts, I missed getting a true pair by only ten minutes. However, not altogether discouraged by this disappointment, we still continued our difficult

search. But it was not until the spring of 1938 that we eventually succeeded in booking a pair, through the untiring efforts of a very dear friend, who secured a true pair for us and cabled the good news. He was so keen that this precious pair should arrive safely in Cape Town that he would not take delivery of them until just before the sailing date. But alas ! the unexpected had to happen. When the time for departure arrived and the birds had to be caught he was horrified to find the hen lying dead on the ground in the morning, presumed killed overnight by some marauding animal. This was naturally a big disappointment, and all efforts to obtain another hen failed. However, my friend, to keep his good word, shipped the cock out by itself. He arrived here in good condition, and took to his new home shyly. After his first moult in Claremont he became thoroughly acclimatized and settled down very nicely. Although not very graceful in his manners, he is a beautiful bird, always alert and full of mischief, with a long cheerful song and a great attraction in the aviary. Being a bigger bird and perhaps more clumsy in his ways than the Red-headed and Blue-faced species, he sometimes bumps the smaller birds off the perch. But notwithstanding this he has never been aggressive. On the contrary, he is most agreeable and pleasing, and has proved to be a delightful aviary bird. Since his arrival here he has been housed with small birds, such as Australian True Painted Finches, Gouldians, Red-headed and Blue-faced Parrot Finches, Star Finches, and so on. But I have never at any time seen him chasing the smaller birds about the aviary. He has had every opportunity of pairing up with either of the Parrot Finch family in the same aviary, and year after year we watched him keenly carrying straws about the aviary, but nothing further seemed to happen.

It was not until March of this year, 1944, when my wife noticed an unusually large young Parrot Finch in the aviary, that we first became suspicious that breeding had taken place. After examining this youngster carefully and investigating the position a little further, we agreed that " Mr. Royal " had sprung a welcome surprise on us. This has since been proved by the fact that the youngster has turned out to be a hybrid. This young bird was much bigger than his brothers and sisters out of the same nest. He left the nest days before the others, but apparently too soon, because he landed on the floor with insufficient feathers and could not fly up again. Fortunately he was seen before nightfall, crawling about between the grass and straw. He was promptly picked up and pushed into a spare nest-box, where he seemed to live perfectly happy. Here he received much attention, mostly from the Red-headed Parrot Finches, and seemed to thrive much faster than the rest. A few days later he was out of the nest again, but this time for good, for he was now fully feathered and could fly quite strongly.

But still he was inclined to be misleading, because he did not possess the usual pretty blue colour of a baby Royal on leaving the nest. Instead he much resembles a young Red-headed Parrot Finch in colour, with the same dull green body, yellow legs and feet, and dull red tail. Only he was a bigger bird and the beak was slightly different, being larger, with the upper mandible yellow and the lower black. The phosphorescent blue beads on each side of the beak were much larger than those of the Red-headed or Blue-faced species. They were remarkably pretty, especially when held in the dark. They were intensely blue and more beautiful than any I have previously seen.

Friends of the Avicultural Society of South Africa and others who were fortunate enough to see this young hybrid when he was small became interested, and we were all curious to see what he would look like when fully grown. So with keenness we stealthily watched to see what colours he would develop. But this, too, was rather difficult, because he seemed to live so much in the background, always hiding in the bushes in the darkest corners of the aviary ; coming out into the open only when there was no sign of anybody about and scampering back to cover at the first sound of your footstep. Consequently one only caught passing glimpses of him ; glimpses which made watching keen and interesting. Interesting because it gave us a thrill and raised our hopes ; secret hopes that he would be as beautifully coloured and marked as his handsome and robust father, especially when he started coming into colour and the first blotches of red commenced to appear, first on the head, then on the face.

But he has shattered all our precious hopes and chosen his own design of pattern and natural selection of pretty colours. He is now fully grown and his general colour is rich grass green, with a short bright red tail, black legs and feet. He has a royal blue breast and abdomen or under parts and black beak. The head, face, throat, and neck are a beautiful rich red. He shows a great deal more red than the Royal Blue Parrot Finch or the Red-headed Parrot Finch. The Royal has what could be described as a red hood or bonnet on the head, but no red on the throat or neck. The red of the Red-headed species starts from just above the forehead and finishes well down the throat. But in the case of this young hybrid the red extends over the crown of the head ; he has a full red face and broad red throat, red at the sides of the neck, which widens as it extends towards the shoulders, and finishes with a clear-cut straight line across a broad blue chest. The red, blue, and green edges are all clean cut and clearly defined against each other.

In conclusion, he is bigger than the Red-headed, but not quite as big as his Royal father. He is nevertheless a striking bird ; gracefully shaped, he stands erect and alert, with a beautiful lustre of plumage which glistens in the sun. He has all the fascinating mannerisms of the

Royal. We are now patiently waiting to see whether his colour is going to deepen or whether there will be any change in his colour scheme after the first moult.

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HYBRIDS BETWEEN THE ORNAMENTED AND SWAINSON'S LORIKEETS

(*Trichoglossus ornatus* × *T. novae-hollandiæ*)

By A. M. Taibel

(Translated and reprinted from *Rivista Italiana di Ornitologia*, 2. Serie, Anno VII, 1937)

My friend, Dr. Conte Cesare Masetti Zannini, an enthusiastic and experienced aviculturist and fortunate possessor of a collection of living Parrots, rich in rarities, mated a male Ornamented Lorikeet (*Trichoglossus ornatus* (L.)) with a female Swainson's Lorikeet (*Trichoglossus novae-hollandiæ* (Gm.)), and obtained in two successive years, three hybrids, two males and a female.

The female *novæ-hollandiæ* laid her first eggs (each clutch consisted of two eggs only [1]) in November, 1931, but owing to various causes, these could not be hatched. The following year eggs were again laid at the end of July and after an incubation period of little more than three weeks, two chicks were hatched which grew quickly, though they were somewhat slow in becoming fledged. The chicks remained in the nest about 55 days. A third clutch was laid in 1933, rather earlier than usual, about the middle of July. Although both eggs were fertile, only one chick hatched out. The eggs are pure white [2]; in the specific case of *novæ-hollandiæ*, they are very pointed at one end: in size they are similar to those of the Quaker Parrakeet (*Myopsittacus monachus*), practically the same, therefore, as those of a Ring Dove.

Unfortunately, a sudden epidemic carried off the male *ornatus* and all the hybrids. My friend—to whom I am extremely grateful—gave me the stuffed skin of one of the hybrids, which I am, on account of its rarity, going to describe.

Forehead, crown, and ear-coverts purplish blue, turning to red on the occiput; cheeks and chin mixed red and blue, the red prevailing in the region comprised between the eye and angle of beak. Yellow band on nape. All upper parts, including wings, dark green, with exception of base of neck where feathers are yellow with wide border of dark green. Outer webs of remiges dark green, inner webs blackish: a yellow band on the under surface of wings. Upper half of breast scarlet with dark blue transversal stripes, each feather having a 1 mm. border of the said dark blue. Lower part of breast dark green splashed

[1] Already noted by former breeders of *Trichoglossus* (1) Decoux who obtained a perfect reproduction of *ornatus*, and (2) Ezra, and (3) Benchley who obtained that of *hæmatodes*.

[2] As already noted by Decoux and Ezra in the cases of *ornatus* and *hæmatodes*.

in centre with blue, while the sides are a mixture of red, yellow, and green. Under wing-coverts orange with small splashes of vermilion. Abdomen, legs, and under tail coverts yellow mixed with green. Tail-feathers rather short, reddish yellow below (tending to orange-red at base) and dark green shading to yellow on inner webs of upper surface. Beak red. The female is similar, but less bright.

As can be seen from the description, the hybrid has reproduced exactly the colours common to both parent species, forehead, crown, and ear-coverts purplish blue, upper parts dark green, legs and under tail-coverts green mixed with yellow, beak red. It therefore displays an intermediate stage, a mixture of colours where previously there were contrasts, as in the region of cheeks, occiput, and chin, where the scarlet of *ornatus* is mixed with the purplish blue of *novæ-hollandiæ* ; the same applies to the lower part of breast and the abdomen, where there is a mixture of green and blue, and on the flanks where the three shades, red, green, and yellow, appear. In other regions, two contrasting colours merge into their resultant tint, much as on the palette of the artist, as for example on the underwing, where there is a beautiful orange shade resulting from the yellow of *ornatus* and the red of *novæ-hollandiæ*. Similarly on the tail feathers, especially at their base. Finally, in some places the characteristic colours of one or other parent are displayed in all their purity : such are the two yellow patches on the sides of the neck, the yellow feathers with wide green borders on the dorsal region at the base of the neck and the red striped with blue on the upper part of the breast, all characteristic of *ornatus*, the pale yellow of the under-surface of the first remiges on the other hand is characteristic of *novæ-hollandiæ*.

My friend Masetti was unable to control the procreative power of his hybrids. It was hardly to be expected, however, in view of the close relationship of the parent forms, that both sexes should be fertile. In my opinion, many forms of *Trichoglossidæ* elevated to the rank of " species " by various systematists, should be considered as " geographical varieties " of a same " subspecies " due to isolation, seeing that each has a different geographical distribution, represented mainly by island localities separated by extensive tracts of sea. In fact, the most typical forms of the genus *Trichoglossus* differing one from the other only in slight details of plumage, as for example, *massenæ* Bp., *mitchelli* Gray, *flavicans* cap. et Rchw. *cyanogrammus* Wagl., *nigrogularis* Gray, *cæruleiceps* d'Alb. et Salvad., *rosenbergi* Schl., *coccineifrons* Gray, *rubritorques* Finsch., *hæmatodes* L. and the two species under discussion, *ornatus* L., and *novæ-hollandiæ*, Gm., inhabit respectively the vast forests of eucaliptus and resinous trees of New Guinea (with New Caledonia, New Spain, and the Solomon Islands), the Moluccas, New Guinea, and the neighbouring islands, Southern New Guinea and the Aru and Key Islands, South-East New Guinea, Misor, North Australia, Samoa, Celebes, and South Australia.

NOTES

Restoration of Libraries.

An appeal has been received from Professor Sir Ernest Barker, Chairman of Committee of the Conference of the Allied Ministers of Education, which is commended to the members of the Avicultural Society. Sir Ernest Barker writes :—

" I beg to request that you will bring to the notice of your President and Council the terms of an appeal of which I enclose more detailed particulars. I feel that your members will welcome this method of giving practical assistance to many colleagues who have suffered misfortune and loss even greater than has fallen on many of us. The need is for books of real quality and authority in their content, and your active collaboration is earnestly requested in organizing amongst your members an appeal in support of our efforts.

" I am confident that this appeal will have your whole-hearted support and have every hope that, as a result, we shall be able to restore confidence in the future to many who can now look forward to little more than returning to a scene of desolation."

The following is the memorandum forwarded by Sir Ernest Barker :—

One of the tragedies resulting from the present war has been the destruction of many important libraries, both in this country and abroad. A great task before us is the replenishment, on as large a scale as possible, in each of the allied countries, of national, university, public, and other libraries, which are open freely to serious readers, and whose books have been destroyed. Unless this is done the development of the arts and sciences will suffer a serious check. This need was early realized. Not only has much been done by various societies, such as the Library Association, but the British Government has also shown its practical sympathy by setting up machinery to withdraw from the book drives, primarily intended for paper salvage, all those books which would still be useful *as books*.

Under the auspices of the Conference of Allied Ministers of Education a Committee has been set up to administer the organization and premises known as the Inter-Allied Book Centre, where books can be received and systematically arranged for ultimate allocation. Already more than a million books, ranging over the whole field of knowledge, have been set aside from book drives. The collection includes books of every kind ; but the proportion of *modern* technical, scientific, commercial, and legal works is low. These are the books which a man keeps by him for purposes of his profession or calling—in brief, his working tools ; and they are exactly the books needed for the replenishment of destroyed libraries.

Fortunately few University, Public, and Institutional Libraries in Great Britain have suffered serious losses. In those libraries which have been more seriously damaged it is usually the books covering one or more specified subjects which have been destroyed, so that their need is not so much for a large number of books of a general character as for individual items in a special field.

The need of British libraries is clearly defined, so that, subject to such precautions as will enable British libraries to replace destroyed books, there should be a wide choice for allocation to libraries in allied countries. It is obviously desirable that as many of these libraries as possible should have a rich collection of the works of English standard authors, and in particular of the recent technical and scientific literature, publication of which has largely been stimulated by wartime research. Books in foreign languages as well as in English are also wanted.

Many libraries, having lost their whole stock, will urgently need sets of the more important periodicals, particularly the back numbers of Journals and Transactions. We appeal, therefore, for complete sets where possible ; but even the gift of odd issues may enable us to make up such sets.

To obtain all this essential material we must depend largely on the generosity of universities ; of scientific, literary, and other learned bodies ; and of their individual members. It is certain that those who themselves owe much to books will desire to help colleagues, especially in their own fields, by giving books which they can now be assured will be properly handled and, under expert guidance, be sent to the libraries where they will be most useful.

Many volumes of considerable rarity have been lost or destroyed, which cannot

easily be replaced ; but it is hoped that substitute works may be obtained which will to some degree make good the loss.

If anyone who is unable to give books or periodicals desires to support the general scheme, any money contributed will be used entirely for the purchase of books and periodicals urgently required ; but so many books have been destroyed, or are in short supply, that the need is for books rather than money.

It is suggested that the best use of any work can only be assured if a free hand is left to the expert committee of allocation to decide the ultimate destination of all books received ; but if a donor urgently desires to give to a particular country, or even a particular library, he is asked to communicate with the Director of the Book Centre.

Some Universities and other bodies are already collecting books for specific countries or institutions. The committee welcome such efforts ; but all these bodies are asked to supply the Director with lists of books and periodicals which they propose to distribute, so that they can be taken into account by the Centre in making its own distribution.

For the sake of economy in transport and labour it would be a great convenience if donors will first send to the Director lists of the books available. Carriage will be refunded, if so desired, on all books presented.

Books and periodicals in good physical condition, in all fields of knowledge, should be sent to the Inter-Allied Book Centre, where they will be acknowledged and dealt with by Mr. B. M. Headicar, the Director, and a qualified staff.

News from California.

Some little time since I wrote to our member, Mr. Francis H. Rudkin, to inquire how the breeding of the blue variety of the Masked Lovebird was progressing. The following is his reply, dated 15th July :—

" This year I have very little to report in the breeding line. The Mealy × Pennants did not raise any, and the three pairs of Turquoisines ditto. But the two aviaries of Blue Masks raised scores of young and are still doing so. I have two large aviaries of Blues, each containing fourteen breeders ; another two aviaries of the Green Masks, which throw many Blues. A curious thing is that a *pair* of Blues *never* throw a Green. The Blue variety is well established in California—can be found in almost every aviary where Parrot-like birds are kept. Almost everyone here breeds all Lovebirds in colonies. I intend trying the Bourke's and Elegant Parrakeets in colonies another season. I have raised a lovely Chattering Lory this season. The canary seed is now $20 per 100 lb. ; sunflower seed $19 ; millet seed $15 ; but we use wheat for all our birds, soaking it for 12 or 24 hours ; this and oats save a lot of seed. Even the Finches and Canaries eat some soaked wheat."

A. A. P.

London Zoo Notes.

A recent arrival in the Small Bird House is a Corncrake (*Crex crex*). This bird was presented by a member of the Zoo staff, now a Naval Lieutenant, who caught it some thirty miles out at sea. The Corncrake is becoming increasingly scarce in South-East England, due mainly to mechanized farming ; and its rasping crake, " rerf-rerf," oft-repeated, once one of the most familiar sounds of the countryside at night, is now rarely heard.

Another arrival is a Yellow Weaver, at present unnamed. Identification is made the more difficult because comparison cannot be made with the skins in the Natural History Museum, as they are away in the country for security. The Lapwing is a common enough bird, but it is some years since there was one in the collection. This omission has now been remedied, as recently one was picked up in an exhausted condition at Edmonton and sent to the Gardens. Welcome additions to the Parrot House are two Caiques, a Black-headed and a Green-thighed. Two Rheinart's Pheasants have been reared in the Gardens. And Whipsnade, not to be outdone, has bred two Manchurian Cranes. I believe this is the first time the Zoo has bred this species. Mr. W. H. St. Quintin reared two in 1919 and another in 1920 (see *A.M.*, 1920, 188). Possibly they have been bred elsewhere, but I have no record of the event.

A. A. P.

HYBRID MACAWS.

In July, 1937, a female Red and Blue (*A. macao*) mated to a Blue and Yellow (*A. acarauna*), belonging to Mr. W. P. Bell, of Romford, laid an egg in a dog-kennel; it, however, proved infertile. More suitable accommodation was provided and two eggs were laid, one of which was hatched in October. The young one was duly reared and is still flourishing. In 1942 two more were reared by this pair on Brownsea Island. One of the young unfortunately managed to escape, and after five days was found dead on the shore, no doubt from exhaustion. In July this year (1944) two more were hatched and are doing well.

A. A. P.

ACKNOWLEDGMENTS.

The Editor acknowledges with many thanks the great help given by Mr. Seth-Smith in compiling the index to subjects, alphabetical list of contributors, and list of plates of Volume 9, published in the last number of that volume. Grateful acknowledgment is also made to Miss Phyllis Thomas, Zoological Museum, Tring, for translating the article on "Hybrids between the Ornamented and Swainson's Lorikeets", which appears in this present number.

* * *

CORRESPONDENCE

THE WATTLED CRANE

To the article about the young Wattled Crane which appeared in the November–December, 1944, number of the AVICULTURAL MAGAZINE, I have to append the depressing note that it died on 26th November, aged four months. It really was discouraging to lose it, but there is the possibility that something has been learned. Post-mortem examination showed deep erosion of the esophagus, proventriculus, and gizzard. In anticipation of the low temperatures usually experienced here in winter, the Cranes were brought indoors about 1st November, and from that time on, the youngster failed to thrive.

We hope that if we can get one hatched a little earlier next year, we may do better.

LEE S. CRANDALL,
General Curator.

NEW YORK ZOOLOGICAL SOCIETY,
THE ZOOLOGICAL PARK,
NEW YORK 60, N.Y.

A MEXICAN CLARINO

I should like to ask any readers what experience they have had with a Mexican Clarino. I bought one, I think a young bird, five or six years ago. I acclimatized him by the side of a cosy stove all the winter, and it sang beautifully every year and all the year except when moulting, and just before the moult he was silent. I fed him on hard-boiled egg mixed with ant eggs and much fruit and mealworms; when I came here two years ago last April he had mostly potato and hard-boiled eggs, apple, and puddings. Alas! last year he moulted badly and one white feather came into his wing, and this spring he died. He lived in a large open 3 ft. wide cage, with a big glass on it the window side. He was a great bather, and a very handsome and tame bird, and is much missed. I never got the King Parrakeets back, but I heard of the death of the cock about 4 miles off, in the autumn of the year.

MARY E. HAWKE.

OAKFIELD,
PARTRIDGE GREEN,
SUSSEX.

COLOUR PREFERENCE IN WEAVER BIRDS

Those who read the note on colour selection in birds, in the May–June number of the Magazine, may be interested in the results of a study made at the New York Zoological Park by Herbert Friedman. In his " The Weaving of the Red-billed Weaver-Bird in Captivity " (*Zoologica*, vol. ii, No. 16, pp. 355–372), he states that the birds preferred for their nests red, orange, and yellow, in that order, to green, blue, violet, and black. As there was no difference among the material offered as to taste, length, weight, or texture, no other factors affected the figures. Those interested in further details are referred to the paper itself, pp. 367–371.

CARL STROMGREN.

BOX 742,
NEWTON, IOWA, U.S.A.

CONDITIONS FOR BREEDING REDRUMPS AND BOURKE'S PARRAKEETS

With reference to Mr. H. J. Indge's letter in the November–December issue of AVICULTURAL MAGAZINE concerning Redrump and Bourke's Parrakeets. I have no wish to be a wet blanket, but my experience of these species is that colony breeding is asking for trouble. With two pairs of Redrumps and two pairs of Bourke's I experienced the same trouble in each case—i.e. fighting.

One could hardly believe that the gentle Bourke's Parrakeet could be transformed into such a little demon. With the hens it was only mild squabbling, but the cocks fought as fiercely as any of the larger Broadtails. They chased each other up and down the flight, and no quarter was asked and none given.

It was apparent after a week of this, when both birds looked the worse for wear, that if the war was allowed to go on no breeding results could be expected. They were therefore separated.

Redrumps of both sexes I have found to be most quarrelsome. The parents set about the young (father starts on the sons and mother on the daughters) as soon as there is another nest under way, and this enmity appears to be carried on throughout their adult life.

One pair of Redrumps will quarrel violently with another pair when placed in adjoining aviaries, and the birds of each pair will join forces in an attempt to put the others to flight.

The favourite method of attack appears to be to bite the opponent's feet. I have even had a cock Redrump set about a cock Rosella in no uncertain manner. All told, I consider Redrumps to be one of the most pugnacious of Parrakeets.

Youngsters can be safely kept together until they start to feel grown up, and then the trouble starts. Unmated hens appear to be fairly mild with each other, but introduce cocks *that are in good condition* and the male birds will fight it out to a finish.

I once picked up two adult cocks that still went on fighting in my hands. This also happened some years back with two cock G.M. Rosellas.

Other readers' experience may differ but for what it is worth my advice is : " If you want to keep your birds, keep them in pairs."

CHARLES P. GUY.

TREVOSE FOREIGN BIRD FARM,
MILL LANE,
WEDNESFIELD, NEAR WOLVERHAMPTON.

Mr. Indge has raised two very interesting questions in his notes on Parrakeets and Cockatoos and, while not attempting to give advice, I should like to offer a few remarks on them.

I have not known of anyone trying to breed either Bourke's or Red-rumped Parrakeets on the colony system, but it does seem likely that Bourke's, from their gentle disposition, could be successfully bred in that way. Red-rumped are more doubtful, I think, and the cocks may fight among themselves or injure one another's young.

In captivity bird behaviour is apt to be eccentric, but perhaps a fairly safe general

rule is that birds which are naturally gregarious breeders will not breed well unless kept in numbers. I believe that both species are solitary breeders : Red-rumped Parrakeets are gregarious only in the winter season.

Some very interesting observations on this aspect of bird psychology have been made by an ornithologist whose name I cannot call to mind at the moment. The observations were made on gregarious breeding sea birds, and showed that when a single pair or a few pairs of birds started a new colony, the breeding results were poor, but improved as the colony grew larger, suggesting that the fecundity of the birds was much influenced by the psychological effect of the breeding activities of the remainder of the colony. This would probably apply equally to other birds, and it is known, for instance, that solitary pairs of Budgerigars will often not breed.

With regard to the Lorikeets, I should think it doubtful whether any species would breed better in cages than in aviaries. I have no personal experience of breeding Swainson's, but at Sterrebeek a pair of Red-collared bred in an aviary on two occasions to my knowledge, and each time in February. A curious feature of their breeding was that they reared their young almost exclusively on Parrakeet seed mixture and fruit and practically no Lorikeet food, whereas at other times they lived on the Lorikeet food and fruit, but were not given any seed. How they came to acquire the habit I do not know—perhaps in the first place they were given seed to supplement the other food. The young were excellent specimens.

In M. Bruneille's collection I once saw a Greater Palm Cockatoo sitting amid the wreckage of a Parrot cage. M. Bruneille explained that the bird always did that to its cages, but never attempted to escape, though when I saw it the bird could have got out in two or three places.

Evidently its only desire was to satisfy itself that it was too good for the cage. It was a pity to keep such a bird in a small cage. In a large aviary they look—not perhaps handsome as one may judge from the drawing on the covers of Parrot Numbers—but, at any rate, they show to far better advantage and indulge in their peculiar antics, uttering the cries which have been described by Lord Tavistock as " like those of a housemaid engaged in bandinage with her swain ".

JOHN YEALLAND.

BINSTEAD,
ISLE OF WIGHT.

* * *

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James Gibbes Murray, M.R.C.V.S., Glyn Iddens, Leddington, Ledbury, Herefordshire. Proposed by R. S. de Quincey.

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Miss Maxwell Jackson	1	1	0	A. Lamb	2	2	0
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POST-MORTEM EXAMINATIONS CANCELLED UNTIL FURTHER NOTICE

 [*Lt.-Col. Pope*

Kittlitz's Sand Plover
(*Aegialitis pecuaria*)

 [*Lt.-Col. Pope*

Crowned Lapwing
(*Stephanilyx coronatus*)

AVICULTURAL MAGAZINE

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NESTING HABITS OF COURSERS AND PLOVERS

By Lieut.-Colonel Pope, A.F.C., S.A.A.F.

In October, 1941, whilst stationed at Kimberley in the Northern Cape Province, I was attracted by the number of Coursers and Plovers in the vicinity. The Kimberley district seems to attract these species in great numbers, being rather barren, sparsely grassed, and with numerous pans. The district is on the fringe of the Kalahari Desert, and this fact is very apparent from the air.

Four species particularly attracted attention, namely: The Crowned Lapwing (*Stephanibyx coronatus*), Burchell's Courser (*Cursorius rufus*), the Double-banded Courser (*Rhinoptilus africanus*), and Kittlitz's Sand Plover (*Aegialitis pecuaria*).

Suspecting that all four of these were nesting just then, I determined to endeavour to locate their nests if possible and photograph them as a permanent record. On long walks over the areas where the birds were most common I failed most dismally to locate the nests.

Numerous specimens were everywhere apparent, running about in pairs and making occasional short flights to keep just out of my range and leading me a wild goose chase. This, however, only served to spur me on to greater efforts. I became more and more convinced they were leading me away from their nests with every artifice and antic they knew.

Considering the problem, it became clear my tactics needed revising. Speed of approach and surprise were the missing elements, so next I drove over the area in a car—*it worked!* and I succeeded in locating the nests of both the Crowned Lapwing and Kittlitz's Sand Plover.

My technique was this—driving over the area at about thirty miles per hour and keeping the eyes fixed straight ahead, I would suddenly see one Crowned Lapwing, obviously the male, running fast in a crouched attitude then to straighten up and start his antics. Ignoring him and watching the general area from which he appeared to have started, I would suddenly espy the hen moving away comparatively slowly, also crouched to avoid attracting attention. By prolonging the tracks of both birds back to a meeting point, I would locate a spot, and from there start a square search outwards, until I located the nest.

The ground surface was fairly flat but very stony with patches of sand and short sparse grass. I had to proceed with infinite patience, searching every square foot with my eye until suddenly in a very minute depression I would locate the eggs, usually three in number.

I kept the nest under observation for some days, and took my photographs, but each time, notwithstanding my having taken bearings to relocate it, I often found myself standing within a yard or so of it and still not able to spot it. (See the accompanying photograph.)

Of the four of them, Kittlitz's Sand Plover is perhaps the most interesting. A little fellow, but with a phenomenal turn of speed, and when really moving his little legs are a complete blur. As in the case of the Crowned Lapwing, the male runs off and starts his antics. The female meanwhile crouching perfectly still on her eggs, until it is very apparent that the car is bearing directly down upon her, when she will leap up and, moving in rapid circles round the eggs and facing inwards, commences with rapid movements of her feet to shuffle fine sand over the eggs, completing the whole process in a matter of seconds.

The moment the eggs are covered, she moves off quickly in a crouching attitude. It was only by keeping my eyes continually on the spot, whilst climbing out of the car, that I could locate the eggs, and then only by bending down and blowing the sand away. (See accompanying photograph.)

So far, I had accounted for two nests, and now I was particularly anxious to locate those of Burchell's Courser, a very pretty bird with a sky-blue nape.

Levelling operations at the time were taking place on the aerodrome near by, and driving over the area to inspect it, one day, I spotted a Burchell's Courser sitting on the ground with hundreds of yards of perfectly flat smooth ground in all directions. I changed course and aimed to drive within a few yards of her. She didn't budge or make the slightest move. Having completed the inspection, I decided to drive back to see if perchance she was still there. I thought she might perhaps be injured. Driving slowly past, she still remained perfectly still and not batting an eyelid. I thought this rather queer, and stopping the car, walked over. As I approached, she leaped suddenly to her feet and ran away.

In the immediate vicinity were numerous donkey droppings, of a dark sepia colour with faint yellow hair lines. She appeared to have been sitting on one of these, I thought perhaps she was broody, but to be sure I went closer and it was only by picking it up that I had no doubt whatever it was her egg. The camouflage and the similarity to the droppings was incredible. In colour and shape, even down to the fine faint yellow hair lines, it was almost perfectly round and quite unlike the Plover eggs. I was particularly anxious to obtain a photo-

graph of the egg and its environs, and was gone barely a half hour to fetch my camera, when upon my return I was to discover that the motor roller employed in the levelling operations had gone over and completely eliminated the egg. My disappointment was intense, but immediately set about trying to locate another, and although I searched vast areas and saw many Burchells and Burchell chicks, I never found another nest. I was also unfortunate in not being able to locate a nest of the Double-banded Courser ; perhaps, however, one day I will.

* * *

BREEDING RESULTS FOR 1944

By Lieut.-Colonel Alan Lendon

The period April, 1944, to March, 1945, constitutes the most successful year as far as breeding results are concerned that I have yet experienced with my collection of Australian Parrakeets. I was fortunate in being stationed only a few miles away from my home, so that whilst the lion's share in the care of my collection was borne by my friend Mr. H. Manfield and his two elder sons, I was nevertheless able, during my times off duty, to supplement their care to some extent. The season under review has been an unusual one, in that most aviculturists report disappointing results ; in one fact, well-known local aviculturist, who normally breeds a number of Parrots each year, has to render, in army parlance, an almost complete " nil return ". After an exceptionally dry winter an early spring brought many birds into breeding condition surprisingly early, but this apparent advantage was offset by a disappointing lack of fertility in many of the early clutches. However, in my collection this was more than compensated for later on.

Turning to statistics, thirty-three species of Australian Parrakeets were represented in my collection during the year under review, the only species which I had previously possessed which was not represented being the Northern Rosella or Brown's Parrakeet (*Platycercus venustus*). Of the thirty-three species, twenty-seven were encouraged to breed by their segregation in suitable aviaries ; in the case of the remaining six species breeding was not attempted either for lack of accommodation or because of unpaired birds. Of the twenty-seven species thus encouraged no less than twenty produced eggs, and nearly all of the remaining seven raised my hopes at one time or another by evincing interest in the nests or by courtship displays or feeding of their mates. Out of the twenty species that actually laid eighteen hatched young, the remaining two producing infertile eggs, and of the eighteen species that were hatched sixteen were successfully

reared, the remaining two losing their young within the first week of hatching. The total number of young that actually left the nest was seventy-one, being approximately 80 per cent of the total number, ninety, believed to have hatched.

1. Cockatiel (*Leptolophus hollandicus*).—The pair shared one of my largest aviaries with a pair of Crimson-wings. The first egg of the first clutch was laid on 18th August; the total clutch consisted of six eggs, all of which proved infertile, and were removed on 9th September. The second clutch comprised eight eggs, of which the first was laid on 15th September. Two young were seen on 7th October, and as no further young had hatched on 13th October the remaining six eggs were removed. Three of these were infertile, but to my surprise the other three contained embryos; two of these were alive! The young left the nest on 1st and 2nd November, being rather badly plucked about the head and neck, presumably by the parents. The third clutch was commenced on 29th October, and consisted of seven eggs, two of which proved infertile. The first young hatched on 18th November, and the second and third on the two succeeding days, a fourth hatched on 23rd November. By 27th November a fifth had hatched, but one of the earlier young had died, and another died the following day; the remaining three survived, and the first left the nest on 21st December, the second on 25th December, and the third on 28th December: all of these were slightly plucked about the back of the neck, but not nearly as badly as the previous clutch were. A fourth clutch was commenced on 28th November, only ten days after the first young of the previous clutch had hatched. Six eggs were laid, but were removed on 14th December in an effort to prevent the incubating parents from plucking the young; four of these were infertile, the remaining two containing live embryos.

2. Barraband Parrakeet (*Polytelis swainsoni*).—This pair, of which the hen is aviary bred, have been in my possession for several years and have never laid, though given a breeding compartment to themselves on many occasions. This year the hen came into breeding condition early in October, and feeding was seen, but they never appeared interested in the log provided, and nothing eventuated.

3. Rock Pebbler Parrakeet (*P. xanthopeplus*).—This pair have also been in my collection for several years and have never previously produced eggs, although they seemed interested in the log provided in 1943. This season feeding was observed in the middle of September, and the first egg was laid on the 25th of that month; the clutch consisted of four. Three young were seen on 22nd October, the fate of the fourth egg being unknown. One young died when a week old, but the remaining two flourished, and both left the nest on 27th November, one being a little more advanced than the other. This is the first occasion on which this species has reproduced in my

collection. I should appreciate advice on the possibility of sexing immature birds of this species ; I think these two young ones are both cocks, but am by no means convinced about it.

4. Alexandra Parrakeet (*P. alexandræ*).—This pair reared five good young in 1941, but did not lay in the two subsequent seasons. This year they appeared mildly interested in the log in August and feeding was noticed about mid-September. The first egg was laid on 29th September, the clutch being five. One young was seen on 22nd October, and an egg containing a fully-developed dead embryo was found on the ground three days later ; the remaining three eggs were clear. The young one was found dead, with a full crop, on 27th October. I rather think the hen failed to brood it at night. I had intended transferring it to the Rock Pebbler's nest the following day in the hope of getting a second clutch of eggs ; however, this did not eventuate even after the death of the young one.

5. King Parrakeet (*Aprosmictus scapularis*).—This pair have been in my possession for many years, but have never laid. This season they shared one of my largest aviaries with a pair of Swifts, and the hen came into breeding condition early in November and was fed by the cock. She appeared likely to lay on the ground in a corner of the flight, but became interested in a log placed horizontally on the ground near by. No eggs had appeared by late November, and at this stage the cock became ill, and he eventually died on 3rd December, after which the hen took no further interest.

6. Crimson-winged Parrakeet (*A. erythropterus*).—I obtained this pair, of which the cock was in immature plumage, in Queensland in 1943. They were interested in logs provided, and feeding was observed in August and September and again early in October, but they got no further. I should be interested to know if there is any record of this species having bred before the cock attains adult plumage. My cock bird commenced to moult about the middle of November, and had attained his full plumage before the end of January.

7. Crimson Rosella (Pennant's) (*Platycercus elegans*).—Only represented by a single adult male until late in December when an adult female was procured.

8. Adelaide Rosella (*P. adelaidæ*).—Represented by a single adult female only until early in December when an immature male of the northern (pallid) race was obtained. On account of shortage of breeding cages no effort was made to breed either this or the previous species.

9. Yellow Rosella (Yellow-rumped) (*P. flaveolus*).—I have had a pair of this species for some years without ever succeeding in inducing them to lay, and as a friend had a hen of this species which had produced hybrids with a cock Adelaide in 1943, I loaned my cock bird to him in June. Unfortunately the hen failed to lay this year. This is

the only species of Rosella whose breeding has not been recorded in South Australia.

10. Green Rosella (Yellow-bellied) (*P. caledonicus*).—A cock of this species which has been in my possession for a few years took a fancy to an escaped hen Red-vented Blue Bonnet which had remained at liberty for several months. When she was eventually caught and disposed of, he refused to mate with either of two hens of his own species, one of which was alleged to have been bred in captivity in Victoria.

11. Pale-headed Rosella (Mealy) (*P. adscitus*).—This pair consists of a fine male, obviously an escapee, which was caught on my aviaries in 1939, and a female bred by me the same year. In 1940, 1941, and 1942 the hen laid numerous eggs but never incubated, and, in consequence, was not given a log in 1943. This year the first egg was laid on 11th August, and when the clutch totalled eight I began to fear a repetition of previous performances. However she then sat steadily, and young were first seen on 15th September, five in all hatching, two eggs being clear, and the remaining one containing a half-developed embryo. All five were duly reared, and proved fine specimens ; the first three left the nest on 19th October, but some returned to it during the next few days : all finally left by 26th October. The hen laid an egg from the perch on 1st November, so I replaced the log, and a further clutch of four was commenced on 13th November and incubated until early December, when the hen suddenly started to moult and deserted the eggs ; all four were fertile and contained half-developed embryos.

12. Eastern Rosella (*P. eximius*).—This species was represented by a single male of the golden-mantled subspecies which I brought back from Brisbane with me in 1943. I had previously possessed a hen of this species, but have been unable to obtain one since and for want of space I did not attempt to get a mate of the common subspecies.

13. Western Rosella (Stanley) (*P. icterotis*).—I was unable to procure a mate for the hen of this species, which in 1943 had reared three young single-handed, her mate having died while she was incubating, until early in September, 1944. The hen appeared anxious to nest at once, and the first egg appeared on 26th September, the total clutch being eight. An ejected eggshell was seen on 24th October, and a large number of young, which eventually proved to be six, were seen two days later ; the remaining two eggs were fertile but failed to hatch. All six young were reared, three leaving the nest on 28th November, a fourth on 30th November, a fifth on 1st December, and the sixth, which was rather a miserable specimen, not until 5th December.

14. Pileated Parrakeet (*Purpreicephalus spurius*).—This pair had eggs in 1942, but failed to incubate them. This season feeding was

observed in September, but they never seemed interested in the log. The hen was extremely timid, and I doubt if she will ever settle down to breed.

15. Mallee Ringneck (Barnard's) (*Barnardius barnardi*).—I was fortunate to obtain in May, 1944, a hen of this species who had been a regular breeder of hybrids for several years past. I attempted to mate her with a cock that I had had for several years, but she was frightened of him, and in July I obtained a new mate for her. This time the reverse occurred and the new cock was scared of the hen. However, she went to nest, the first egg being laid on 14th August, and the clutch comprising five eggs, but, as I feared, all the eggs were infertile and I removed them on 6th September. By this time the cock had recovered from his early timidity and fed the hen in a rather apologetic sort of way when she left the nest, so that I was hopeful but none too confident when a second clutch of five was laid, commencing on 19th September. Incubation was uneventful and one young had hatched by 11th October, and either two or three a couple of days later. By 19th October there were three large and one small young one in the log, but the small one only survived until four days later. The fifth egg was fertile and when removed contained a fully developed embryo. The three surviving young flourished ; the first, a hen, leaving the nest on 14th November, and the other two, a pair, on 18th November. This is the first occasion on which the breeding of this species has been recorded in this state, although it is a common bird in captivity.

16. Cloncurry Ringneck (*B. macgillivrayi*).—This pair consisted of my old hen, who has reared young every season since 1939, and an unrelated mate obtained for her in 1943, with whom she continued her usual run of success. This season the first clutch, consisting, as usual, of three eggs, was commenced on 14th August ; all were seen to have hatched on 6th September, and the first, a cock, left on 16th October, the second, another cock, on 18th October, and the third, a rather small hen, the next day. The first egg of the second clutch, again of three eggs, was laid on 29th October ; this time one egg was clear. The first young was seen on 20th November and the second the following day. Both left the nest on 31st December, being a fine pair in perfect feather.

17. Port Lincoln Ringneck (*B. zonarius*).—I did not obtain a mate for my old cock bird, from whom young were reared in 1939, until the middle of August. Prior to that I had obtained a supposed hen in July, but their behaviour soon after introduction made it apparent that I had two cocks ; I have always found this species rather difficult to sex with certainty. The hen obtained was not a very promising specimen, being tailless and rather wing-stiff, but she soon evinced a desire to nest, and the first egg, of a clutch of five, was laid on

15th September. Three young were seen on 13th October, and six days later all five were seen to have hatched. All were reared, the first leaving the nest on 20th November, three more on 22nd November, and the fifth the following day.

18. Twenty-eight Ringneck (*B. semitorquatus*).—The hen of this species, a bird that I have had for some years, was given a new mate this season, but went through her invariable performance of ejecting all the contents of the log provided. I doubt very much if she has ever produced an egg, although feeding and mating have frequently been noticed, and she has always been interested in the logs provided. This is the only member of this genus that has not been bred in this State.

19. Red-vented Blue Bonnet (*Psephotus hæmatorrhous*).—This is a pair of birds which I obtained in Brisbane in March, 1943. They made no attempt at breeding in that year, but this season they became interested in the log in August and the first egg, which was broken, was laid on the 28th of that month. Five more eggs were laid and all proved fertile ; the first young was seen on 23rd September, and two days later there were three living and one dead young in the nest ; the fifth egg contained an almost fully developed embryo which failed to hatch. The first young, a hen, left the nest on 26th October, the second, a cock, the next day, and the third, another hen, on 30th October. All Blue Bonnets are notoriously shy breeders, and it is strange that I should have previously bred this same species in 1939 from a different pair of birds. I have always thought that a better name for this bird would be Chestnut-shouldered Blue Bonnet, as the red subcaudals are not the most distinctive or characteristic feature.

20. Yellow-vented Blue Bonnet (*P. xanthorrhous*).—I was unable to obtain a male of this, the commonest species of Blue Bonnet, until late in November, and consequently no effort to breed them was made. This species has not yet been bred in South Australia to my knowledge, although I am aware of a Victorian record. Following my suggestion regarding the previous bird, the suitable name for this species would be Olive-shouldered Blue Bonnet.

21. Little Blue Bonnet (Naretha) (*P. narethæ*).—This pair of birds, which were bred in the Adelaide Zoo in 1941, proved a great disappointment. The cock had always been inclined to drive the hen about a lot, but as the breeding season approached they appeared to become much more friendly. The first egg was laid on 16th September, and was broken the next day, five more eggs were then laid and incubation proceeded steadily, but all proved infertile and were removed on 8th October. No further attempt at breeding took place. The breeding of this species at the Adelaide Zoo in 1941 has been recorded in a recent number of the Avicultural Magazine.

22. Hooded Parrakeet (*P. dissimilis*).—This pair, which has reproduced successfully each season since 1938, had their leanest year on record. At first they used to have their first nest for the year in the late autumn or winter, but for the last two years they have not come into breeding condition until about mid-July. This season the first egg was laid on 28th July, the clutch consisting of five. Incubation proceeded steadily until 28th August, when the hen was noticed to be off the nest with an injured foot, presumably the result of a bite from the inmates of the next cage. The eggs were removed, three were infertile, and the remaining two were placed under Cockatiels but had evidently been chilled for too long, as when removed a week later they were found to contain practically fully developed dead young. The first egg of the second clutch was laid on 7th September, the clutch this time being four. One egg was broken during incubation, and one young was seen on 3rd October, the remaining two eggs being clear. This bird, a male, left the nest on 1st November.

23. Many-coloured Parrakeet (*P. varius*).—This pair, which has reared either one or two clutches each season since 1939, proved as reliable as usual. The first egg was laid on 6th August, the clutch being four. The first young was seen on 27th August, and all were hatched, but one died when quite young. The first young bird, a hen, left on 27th September, the second, a cock, two days later, and the third, another hen, on 1st October. The second clutch, again of four, was commenced on 11th October. Three young were seen on 4th November and the fourth had also hatched when the nest was next inspected a few days later. All flourished, and the first two, a pair, left on 3rd December, the third, a cock, on 8th December, and the last, another cock, on 11th December.

24. Red-rumped Parrakeet (*P. hæmatonotus*).—I had never previously been able to spare a breeding compartment for this extremely common species, but decided to give them a chance on this occasion. The first egg was laid on 17th September, the clutch being five. Several young were seen on 16th October ; they had obviously been hatched for some days. Three days later it was apparent that four had hatched and that the fifth egg was clear. The first two young, both hens, left the nest on 10th November, the third, another hen on 13th November, and the fourth, the only cock, not for a further three days. The old cock was very intolerant of his son's presence almost from the first, but he soon learned to keep his distance and has not had to be removed from the cage.

25. Bourke's Grass Parrakeet (*Neophema bourki*).—This pair has never been very prolific since 1939, usually only rearing a few young each season. This year the first egg was laid on 12th August, the total clutch being seven, of which the third egg was laid from the perch and broken. A single dead young was found in the nest on 15th Septem-

ber, the remaining eggs were all infertile and were removed two days later. The first egg of the second clutch was laid on 27th September and broken the next day, six more were then laid. A single young one was seen on 27th October ; of the remainder four were clear and the fifth contained a dead embryo. This young one only survived until 13th November. At this stage I badly needed another cage for my recently acquired Orange-bellieds, and being disgusted with the performance of the Bourke's I put them in a cage with a pair of Barrabands. To my surprise, when I looked in the large log on 28th November, I found the Bourke hen sitting on five eggs and a sixth was laid later. An eggshell was seen on 14th December, and four young two days later, the other two eggs being clear. These flourished until 8th January when two were dead, being well feathered by then. The two survivors left the nest on 13th and 15th January respectively, and are, I think, both hens.

26. Blue-winged Grass Parrakeet (*N. chrysostoma*).—This was the only species of which I had two pairs. The hen of the first pair had reared a single young in 1939–1940 with a different mate, but had not laid since. This season her first egg was laid on 1st December, and the clutch consisted of four ; by 11th December two eggs had disappeared, and by 16th December all had gone. The second pair, newly acquired, promised better. Their first egg was laid on 16th November, the clutch being three until two misshapen eggs appeared several days later. All proved to be clear and were removed on 18th December. Three more malformed eggs were found in the nest on 13th January and were removed.

27. Elegant Grass Parrakeet (*N. elegans*).—This pair comprised a cock bird that has been in my possession since 1936, and one of his daughters reared in 1942. They were not encouraged to nest in 1943. This season the first egg of a clutch of five was laid on 27th August ; all the eggs were infertile and were removed on 25th September. The second clutch was commenced on 8th October and consisted of four eggs, all of which were fertile on this occasion. The first young one was seen on 27th October, three had hatched by 4th November, and the fourth by 8th November. The first three young left the nest on 4th December, but the fourth did not leave until a fortnight later ! A third clutch was commenced on 1st December, before any of the young had left the nest ; the clutch comprised four eggs, all of which were clear, and were removed on 16th December.

28. Orange-bellied Grass Parrakeet (*N. chrysogastra*).—I was fortunate enough to procure two cocks of this rare species on 16th November, both were in excellent condition and had been in captivity for several years. So far I have been unable to get a hen, although I know of one that has laid an infertile clutch in each of the last three seasons.

29. Rock Grass Parrakeet (*N. petrophila*).—This pair, of which the

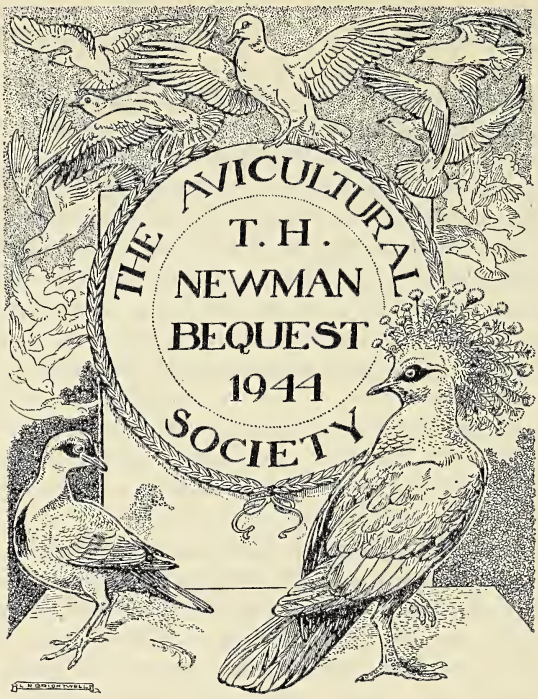
cock was bred in my collection in 1941, appeared likely to lay, being interested both in a log and in a small cavity in the brick wall at the rear of their shelter. Feeding was observed in October, but no eggs were laid.

30. Turquoisine Grass Parrakeet (*N. pulchella*).—I obtained a new hen as a mate for my old cock bird early in the season, but for some months it seemed that he was unlikely to mate with her. However, the first egg of a clutch of five was laid on 22nd September, all the eggs proving fertile. Young were first seen on 18th October, and all five duly hatched, but one died during the first week. The first two, a pair, left on 11th November, the third, a cock, the next day, and the last, a hen, on 14th November. The hen went to nest again almost immediately, and four heavily incubated eggs were seen on 30th November, and the first young one hatched on 7th December; all four had hatched by 11th December. The two eldest, both cocks, left on 7th January, the third, a hen, on 9th January, and the fourth, another cock, not until 13th January. Strangely enough two of the first clutch and all of the second lost all of their tail feathers within a few days of leaving the nest.

31. Scarlet-chested Grass Parrakeet (*N. splendida*).—This pair, which have almost invariably produced two good clutches each season since 1939, have had their poorest year to date. The first egg was laid on 21st August, the clutch being five. One young was seen on 17th September, and the remaining four eggs were clear. This bird, a hen, left the log on 16th October. The second clutch, of six eggs, was commenced on 11th October, and this time all were fertile. Young were first seen on 4th November, one being dead. All had hatched by 9th November, but two more were dead two days later. Of the remaining three, one, nearly feathered, was found dead on the ground on 30th November; the survivors, both hens, left the nest on 10th December.

32. Swift Parrakeet (*Lathamus discolor*).—I have had this pair of birds for about six years, and the hen is alleged to have bred in captivity before I obtained them. This year feeding and mating were observed intermittently from September onwards, but no interest was taken in the logs until early in December. The first egg was laid on 20th December, and a second some days later. One egg proved clear and a dead young one, with an empty crop, was found in the log on 9th January. The old birds seemed likely to go to nest again, but no further eggs were laid.

33. Budgerigar (*Melopsittacus undulatus*).—I always keep a pair of green Budgerigars for the sake of completeness of the collection, and my children have added sundry others to the small aviary in which they are housed. This year one pair reared three young from their first nest and two from their second, while a second pair reared a single nest of three.



THE NEWMAN LIBRARY

In this journal for July–August, 1944, reference was made to the fine ornithological library bequeathed by the late Thomas Henry Newman to the Avicultural Society. As mentioned there, it appeared at first that compliance with the very proper and reasonable terms of the Will would be difficult if not impossible as the Avicultural Society has no permanent " home ". It was then suggested that the Zoological Society, of which Mr. Newman had been a Fellow for many years, might be asked to act as godfather to the library, and take it under its wing. If this could be done, the Rev. S. G. Finch, one of Mr. Newman's executors and a lifelong friend, considered that the terms of the Will would be complied with and the great wish of the testator carried out.

The Zoological Society of London has always been very kind and friendly to the Avicultural Society, and a conference with its chief officials led to the promise that the Library should be housed with

its own Library in Regent's Park, where members of the Avicultural Society, though not necessarily Fellows of the Zoological Society, could consult the books during such times as the Library was open, on application to the Librarian and production of their membership ticket. It was decided that no books could be taken away.

The book-plate reproduced herewith has been specially designed for this Library, which consists of, approximately, 1,500 volumes, and contains many rare and valuable monographs on birds and series of ornithological journals. Among the monographs the following are worthy of special mention :—

GOULD (John). *The Birds of Asia.* 7 vols. Folio. London, 1850–3.
—— *A Monograph of the Trochilidæ or Family of Humming Birds.* 5 vols. Folio. London. 1849–61.
SHARPE (R. B.). *Monograph of the* Paradiseidæ *or Birds of Paradise, and* Ptilorhynchidæ *or Bower Birds.* 2 vols. Folio. London, 1891–8.
—— *A Monograph of the* Alcedinidæ *or Family of Kingfishers.* 4to. London, 1868–1871.
SHELLEY (G. E.). *A Monograph of the* Nectariniidæ *or Family of Sun-birds.* 4to. London, 1876–1880.
BONAPARTE (Prince Charles Lucien). *Iconographie des Pigeons.* Folio. Paris, 1857.
TEMMINCK (C. J.). *Les Pigeons par Madame Knip.* Deuxieme edition. Folio. Paris, 1838–1843.
DRESSER (H. E.). *A History of the Birds of Europe.* 8 vols. and supplement. 4to. London, 1871–1896.
ELLIOT (D. G.). *A Monograph of the* Paradiseidæ, *or Birds of Paradise.* Folio. London, 1873.
TEMMINCK (C. J.) et MEIFFREN LAUGIER (Baron de Chartrouse). *Nouveau Recueil de Planches coloriées d'Oiseaux.* 5 vols. Imp. 4to. Paris, 1820–1839.
SCLATER (P. L.) and SALVIN (O.). *Exotic Ornithology.* Imp. 4to. London, 1866–99.
SIEBOLD (P. F. von). *Fauna Japonica.* Aves volume by C. J. Temminck and H. Schlegel. 4to. Lugduni Batavorum (1850).
ROTHSCHILD (Hon. Walter). *Extinct Birds.* Folio. London, 1907.
Biologia Centrali-Americana Aves. By O. Salvin and F. Ducane Godman. 4to. London, 1879–1904.
DESMAREST (A. G.). *Histoire Naturelle des Gangaras des Manakins et des Todiers.* Folio. Paris, an. xiii (1805).
DES MURS (O.). *Iconographie Ornithologique.* Folio. Paris, 1849.
MATHEWS (G. M.). *The Birds of Australia.* 12 vols. and supplement. 4th. London, 1910–1928.
ELLIOT (D. G.). *Monograph of the Bucerotidæ or Family of the Hornbills.* Imp. 4to. London, 1877–1882.
BEEBE (William). *Monograph of the Pheasants.* 4 vols. Folio. London, 1918–1922.

Our Society owes a debt of gratitude to the Rev. S. G. Finch, as well as to the Zoological Society, and in particular to Mr. Stratton, its Librarian, for all the trouble he has taken in the transference and arranging of this valuable collection of books.

D. S-S.

* * *

EARLY IMPORTATIONS OF BIRDS OF PARADISE

By Arthur A. Prestwich

Some of our older members will remember A. D. Bartlett, Superintendent of the London Zoological Gardens for nearly fifty years (1851–1897). His son, Edward, edited two volumes of his father's anecdotes, letters, papers, etc., under the titles *Wild Animals in Captivity* (1898) and *Wild Beasts in the Zoo* (1900). In the latter there appears some diverting correspondence worthy of a place, if only from the historical point, in the pages of *A.M.*

Early correspondence which took place respecting live Birds of Paradise, with Mr. A. E. Wallace and the Crystal Palace Company :—

" Memorandum from Secretary to Mr. Bartlett.

" Crystal Palace Company.

" 18th May, 1858.

" The Board authorize you to write to Mr. Wallace and say that they will give him £25 per bird for every Bird of Paradise which he delivers here up to twelve birds, and £5 a bird for ten more, making twenty-two in all ; on the understanding that no Birds of Paradise are to be procured by Mr. Wallace for any other party than this Company. The Board think that the males and females should be in equal numbers.

" J. Statham,
" For the Secretary."

" Natural History Agency Office,
" 24 Bloomsbury Street, London, W.C.
" 2nd April, 1859.

" Dear Sir,—I have lately received a letter from Mr. Wallace in answer to mine on the subject of the Birds of Paradise for the Crystal Palace, and the following is a copy of the reply dated ' Ternate, Moluccas, 6th October, 1858 :—

" ' Mr. Bartlett and the Crystal Palace Directors have curious ideas about getting *live Birds of Paradise*, and talk of sending them by *dozens* as if they were Cockatoos or Lories. Just state the following facts to Mr. Bartlett. 1st : The natives of Aru and New Guinea do not know the nest-breeding-place of the Birds of Paradise. 2nd : the few that have been obtained *alive* have been accidental, wounded birds in almost every case. 3rd : Perhaps one Bird of Paradise in ten years is obtained alive. 4th : At least £25 would be asked for them *here* in Moluccas—perhaps more—and would be eagerly paid by any of the Dutch officials for presents to send to Java. 5th : In about three

hundred years that Europeans have been in the Archipelago and trade carried on with New Guinea and Aru, why have they never reached England or Europe but in *one* instance ? 6th : Let the Directors offer £250 for one male bird, and have it well advertised in Macassar and all the parts of the Moluccas, with a free passage to the person bringing it home, and perhaps in the course of the next twenty years they may get one.'

" By the foregoing there does not appear much chance of Mr. Wallace getting them over *alive*. Still I am quite sure if he could meet with them he would make the attempt, and trust to the liberality of the Directors.

" I am, dear Sir,
" Yours faithfully,
" Samuel Stevens."

" Natural History Agency Office,
" 24 Bloomsbury Street, London,
" 9th August, 1859.

" My Dear Sir,—I received on Saturday a long letter from Mr. Wallace from Ternate, 28th April, 1859, in which he speaks of Birds of Paradise, and the following is an extract :—

" ' In my next voyage to New Guinea, I think *it probable* I may get some live Paradiseas (*P. papuana*), but I must have a *definite* arrangement, or will not trouble myself with them. I hear from captain of steamer there is one now in Batavia, for which 1,000 rupees (£85) is asked ; this is too much, but it shows their value here. Now I myself will not come home *on any chance*, and if sent, a person *must* come to take charge of them. If, therefore, the Crystal Palace Company want them, you must get and send me out an order for a free passage from Singapore to England *first-class*, to any person in charge of *Birds of Paradise* for me ; next they must either be put up to auction on arrival and the *Palace* get them at their market price, or they must *agree to pay as follows* : if only *one* comes alive £100, the second £50, third and others up to ten £25 each. If they will not give this price I will not trouble myself, as it would be a most difficult and troublesome undertaking. I must have their *answer immediately*, and it must be understood that they take their chance of how many are females, as in the young birds I cannot tell the difference. This is my ultimatum.'

" I shall be writing to Mr. Wallace on the 20th or 24th of this month ; perhaps you will be able to get a reply from the Company before that time.

Yours faithfully,
" Samuel Stevens.

" Mr Bartlett."

In spite of Wallace's hopes the Crystal Palace Company was disappointed.

On his return to England, however, after eight years' exploration of the then little-known islands of the Malay Archipelago, he brought with him two living examples of the Lesser Bird of Paradise (*Paradisea minor*). Their acquisition and journey is best told in his own words. In his narrative of travel in the land of the orang-utan, *The Malay Archipelago* (1869), vol. ii, p. 395, he says :—

" When I returned home, in 1862, I was so fortunate as to find two adult males of this species in Singapore ; and as they seemed healthy, and fed voraciously on rice, bananas, and cockroaches, I determined on giving the very high price asked for them—100*l.*—and to bring them to England by the overland route under my own care. On my way home I stayed a week at Bombay, to break the journey, and to lay in a fresh stock of bananas for my birds. I had great difficulty, however, in supplying them with insect food, for in the Peninsular and Oriental steamers cockroaches were scarce, and it was only by setting traps in the store-rooms, and by hunting an hour every night in the forecastle, that I could secure a few dozen of these creatures—scarcely enough for a single meal. At Malta, where I stayed a fortnight, I got plenty of cockroaches from a bake-house, and when I left, took with me several biscuit tins' full, as provision for the voyage home. We came through the Mediterranean in March, with a very cold wind ; and the only place on board the mail steamer where their large cage could be accommodated was exposed to a strong current of air down a hatchway which stood open day and night ; yet the birds never seemed to feel the cold. During the night journey from Marseilles to Paris it was a sharp frost ; yet they arrived in London in perfect health, and lived in the Zoological Gardens for one and two years, often displaying their beautiful plumes to the admiration of the spectators. It is evident, therefore, that the Paradise Birds are very hardy, and require air and exercise rather than heat ; and I feel sure that if a good sized conservatory could be devoted to them, or if they could be turned loose in the tropical department of the Crystal Palace or the Great Palm House at Kew, they would live in this country for many years."

Dr. P. L. Sclater announced the acquisition by the Zoological Society at the April, 1862, meeting (*P.Z.S.*, 1862, 123) and remarked that :—

" The two Paradise-birds had been lodged in the upper part of the Zoological Society's old museum, a room having been fitted up for their reception with a large cage of galvanized wire, 20 feet long by 11 feet width. As they were both males, it had been found necessary to keep them apart, the sight of one another, or even of a Paradise-bird's plume waved near them in the air, providing in them great

excitement. The cage had been, therefore, divided by a screen which excluded the light, and the two birds placed in the separate compartments. The remarkable side-plumes which ornament the males of the true Paradiseæ when in full dress were as yet but partially developed in these specimens, but in a few weeks, if the birds continue to thrive, would probably attain their full dimensions."

The Wallace importation in 1862 is generally considered as the earliest into Europe, although judging by the correspondence, Wallace himself was of the opinion that there had been " one instance " (prior to 1858). A clue to this may be contained in the note in *P.Z.S.*, 1862, 153 : " Mr Leadbeater exhibited a stuffed specimen of a Lesser Bird of Paradise from the collection of Lord Braybrooke, and stated that this individual had been formerly alive in England, at Windsor Castle, in the possession of the late Princess Augusta."

If we delve amongst the works of the early nineteenth century ornithologists, we find Latham, *A General History of Birds*, vol. iii, p. 183 (1822), writes of the Greater Bird of Paradise : ". . . it is said they cannot be kept alive by art . . ." and in a footnote " the late Mr. Pennant furnished us with an instance to the contrary, from Sir Joseph Banks ; one of them having been brought alive to England—*Ind. Zool.*, 4to, 13, note x."

On referring to *Indian Zoology* (1790), edited by Pennant, we discover a contribution by Dr. John Reinhold Forster, entitled " On the Birds of Paradise and the Phœnix," this was apparently written in 1781, and contained the sentence, " No real naturalist ever had the fortune to see a live *Bird of Paradise*, or to have observed their manners and economy." Pennant adds the footnote quoted by Latham which is, in full, " Sir Joseph Banks did me the favour of communicating the drawing of the common *Bird of Paradise*, brought alive to *England*, drawn from the life."

The drawing mentioned is on the title-page, a very indifferent representation of what is presumably intended to be a Greater Bird of Paradise flying, according to the description, over Dory Harbour in New Guinea. If the artist really had a living model he took no advantage of the fact.

But what *are* we to think? It is inconceivable that Sir Joseph Banks would have wilfully misinformed Pennant or that Pennant would deliberately attribute a statement to Sir Joseph Banks knowing it to be untrue. It should be noted that Pennant does not definitely state that Sir Joseph Banks said the Bird of Paradise was brought alive to England. It seems probable that either Pennant misunderstood Sir Joseph Banks, or that for reasons best known to himself he jumped to conclusions. Even though one would like to think that a Bird of Paradise had been brought alive to England over 150 years ago, the evidence available makes the event seem unlikely, to say the least.

AN EARLY ACCOUNT OF SOME OF THE PERCHING BIRDS IN THE SCAMPSTON COLLECTION

By A. F. Moody

(*Continued from p. 149, Vol. IX.*)

Wagtails

From an acquaintance of three species in captivity, the Wagtails appear to be birds that are easily catered for and exceedingly ornamental if kept in a pool aviary. Their chief requirements also seem to be protection from severe frost, constant access to water, and any good insectivorous mixture. Their one drawback, that the males are extremely pugnacious towards each other.

Grey Wagtail (*Motacilla cinerea*)

An example or two kept for about two years (until liberated).

Requirements, etc.—Hardy enough to winter out of doors, and vigorous enough to subsist upon the waste from a wader's pan and such insects as they could procure.

Blue-headed Wagtail (*Motacilla flava*)

Odd examples kept for some years.

Habits, etc.—Similar to those of the last species.

Breeding.—As being of interest, I may record that a female Blue-headed mated with a male Grey Wagtail, constructed a nest, incubated, and reared a young male hybrid.

Nest.—A neat structure placed beneath a heap of stones. Eggs, one of which alone proved fertile, five in number, somewhat smaller and more uniform in colouring than those of the Grey Wagtail.

Grey-headed Wagtail (*Motacilla melanocephala*)

A single example kept.

Habits, etc.—Similar to those of the preceding species.

Hardwick's Bulbul (*Chloropsis hardwickii*)

A species kept for a short time only.

Habits and requirements similar to those of the next species.

Green Bulbul (*Chloropsis aurifrons*)

Several on different occasions kept.

Appearance, etc.—A beautiful and active species which readily adapts itself to either cage or aviary, but taking into consideration the way in which its grass green plumage harmonizes with leaves, etc., a bird which in confinement is perhaps seen to the best advantage when

enjoying the range of a roomy aviary containing natural tree or bush foliage.

Disposition.—The males are decidedly pugnacious towards each other, and care is necessary in introducing either sex to new or weaker species.

Sexual Difference.—At times we have experienced some difficulty in sexing the species, but such undoubted males as we have had, in addition to being possessed of a harsher note seemed to have had certain parts of their colouring (the shoulders, forehead, etc.) more vivid or intense.

Food.—Fed upon a too stimulating diet, this Bulbul appears subject to fits, and although a daily allowance of solid food in the shape of some insectivorous mixture or other is necessary, their diet should consist largely of fruit, bananas, oranges, grapes, etc.

Hardiness.—At all times appears to require dry sleeping quarters, as much sun as possible, and artificial heat during the colder months.

Breeding.—We have never for any length of time possessed a true pair, but twice nests have been made, and eggs laid upon one occasion.

Nesting Habits.—Our birds were tempted to go to the nest by suspending from the roof a wooden orchid basket rendered private and stationary by an arrangement of green yew sprays lashed to the supporting wires.

Inside this basket a Blackbird's nest was stuffed, and the birds contented themselves with simply adding (once almost in the form of a dome) an additional lining of fine dead grass.

Eggs.—Yellowish white in ground colour sparingly sprinkled with overlying spots of brick red, and underlying ones of purplish grey. These, two in number, were thin shelled and Swallow shaped, and about $\frac{1}{16}$ less than an inch in length by $\frac{11}{16}$ broad.

Incubation.—Both eggs proved unfertile.

Blue Sugar-bird (*Dacnis cayana*)

A pair for something like the past three years kept here, still living July, 1916.

Appearance.—Handsome and sprightly little birds, about the size of a Wren. The male when in colour differing from the greenish female by his deep azure blue general plumage, also at all times by his bright red legs.

Habits.—Happily suited as house cage birds, these examples on being transferred for a few weeks during a certain summer to a nicely sheltered outdoor aviary appeared none too delighted with the change, taking little flying exercise and except for the few occasions on which I secretly observed them taking a dew or shower bath amidst a patch of tall grass which adorned their outer flight, spent the greater proportion of their time in the shed.

Food.—The mixture described below and prepared as follows, appeared to suit this pair admirably.

Pour boiling water sufficient to scald and saturate a piece of dry sponge cake about the size of a walnut, placed in the bottom of a cup, pour off any surplus water and immediately add while still hot a small teaspoonful of honey and the same quantity of Nestle's condensed sweetened milk, stir lightly, and supply in a small glass vessel.

An allowance of sweet grapes was also given.

Tui or Parson Bird (*Prosthemadera novæ-seelandiæ*)

Two or three of these very cheerful, active, and attractive birds kept. They proved charming subjects, the most noticeable characteristic of the species being their fine glossy black plumage, peculiar white throat appendage, and extraordinarily loud musical bell-like notes.

Food and Hardiness.—Similar to the Bulbuls, not forgetting a liberal allowance of banana.

Golden Oriole (*Oriolus oriolus*) Linn.

Several kept.

In captivity the species may be described as wild and nervous, requiring gentle treatment. One of those species which from a habit of almost invariably using its wings when moving from perch to perch is ill adapted for cage life. In an aviary also even tame examples are easily alarmed, and having a tendency to overlook a perch are better with access to a quiet shed and specially arranged perches in their outer flights to prevent them clinging to the wire.

Food.—Fed upon a too heating diet (animal food, etc.), appears subject to enlarged or gouty feet. Would recommend chiefly fruit and vegetable matter. We have for lengthy periods possessed examples in perfect order, when with the addition of an occasional mealworm, a change of boiled rice, grocer's grapes, or garden fruit added, they have subsisted entirely upon the following mixture : Equal parts of insectivorous food, banana (cut up small), tender cabbage or lettuce (also cut up), and scalded sultanas or currants.

Hardiness.—Susceptible to cold, requiring during the greater part of the year, a dry sitting and sleeping compartment. This, of course, means artificial heat during the winter, and I may add that although our birds were shut in at nights, they had access to the open air nearly all weathers, and never appeared to suffer so long as they had a warm place to return to after exercise.

Great Grey Shrike (*Lanius excubitor*) Linn.

Some four or five Great Grey Shrikes have been kept here. In the aviary we found them nervous and suspicious, not taming as readily

as some species, and as might be expected from their carnivorous habits, quite unsafe to trust with weaker birds.

(I have even known one attack and quite overpower a vigorous cock See See Partridge, a victim, I may explain, equal in size to a Californian Quail, and which was only rescued in an exhausted condition.)

Food.—This Butcher-bird is rather a large and continuous eater, requiring almost constant access to food. The species will eat lean meat of any kind, but all the coarser animal food, even sheep's heart, appears too stimulating or conducive to fits. We found the only suitable diet to be mice, sparrows, etc., with an occasional mealworm, feed of rabbit's flesh, or such few cockroaches as could be procured.

In eating their food, these Shrikes either stand upon it and tear pieces off with the bill like a Hawk, or without using the feet to steady it, tear fragments from a piece that is fixed (impaled). In removing a mouse, etc., it is carried in the bill, and regarding their method of adding to their larder (it is the well-known habit of the species in a wild state to form a larder by impaling its various quarry upon the spikes of a thorn bush), I have observed them proceed as follows : First taking the object in its bill, the bird hops about until it finds a suitable spike or projecting point of wood, then taking a firm grip of the perch with both feet, it lifts the object, and reaches well over the spike, drawing it backwards and downwards, until the flesh catches on the point, after which the bird very intelligently gives two or three downward tugs, as if to make sure that the victim is secure, and in no danger of falling off.

The above observations were taken from wild caught examples received from Valkensvard, in Holland, after having been used during the autumn migration, and then discarded by the professional Hawk-catchers there.

Hardiness.—Delicate as regards cold, requiring protection from frost.

Waxwing (*Bombycilla garrulus*)

We have found this a very attractive species, and for about thirteen years prior to the time of writing (1912) have possessed from one to three pairs. They are birds that thrive, when once established, for years in confinement, but undoubtedly need plenty of exercise, and are most suitable to be kept in a roomy outdoor aviary.

Breeding.—The species has nested on three or four occasions here (the first being June, 1903), but up to the present, probably largely to accident and the fact of being unable to keep our birds in a really suitable (cool, secluded, etc.) aviary (this from a tendency they have of damaging themselves if disturbed by cats, Sparrow-hawks, etc.), we have never reared the young, and our best results remain with a

brood that lived some days, and an orphan chick which by the aid of artificial heat and frequent hand-feeding, was kept alive until the ninth day. Referring to the breeding habits of the species, the first indications of nesting have usually been observed by a pair feeding (the male, the female) becoming restless, and repeatedly uttering their peculiar trilling note.

As to the nest itself, our birds instead of commencing a new foundation, have invariably taken possession of, added grass bents, etc., and relined with feathers a Blackbird's or Missel Thrush's nest. (These nests had been securely stuffed into small dead or green bushes, which had previously been affixed to the walls of their shed, or suspended stationary from the roof, an arrangement which forms a tempting nesting site for many birds.)

Eggs.—About five in number, may roughly be described as being of a clouded white, or stone-grey ground colour, double spotted with grey and black. (For accurate portrait of an egg laid here, see Avicultural Magazine, New Series, Vol. VII, p. 117.)

Incubation.—About fourteen days.

Nestling.—The most noticeable feature of the nestling at eight days old, in addition to the fact of its scarlet wing tips being visible through the quills, consisted of its curious mouth ornamentations. These took the form of a conspicuously tipped tongue (rich claret or port wine colour) and four vivid purple streaks or dashes running parallel with, but at a little distance from, the inner edge of the upper and lower mandibles. These were very conspicuous, and were it not for the fact that they were interrupted at the gape or hinge of the mouth on each side, and failed to unite at the tip of the beak above and below, would have formed a continuous diamond-shaped band entirely round the inside of the mouth.

Sexual Difference.—We have possessed breeding pairs which, as far as could be observed without handling, were indistinguishable as regards plumage. In certain examples, however, which I have sexed, the males in some instances, in addition to having the waxen wing-tips more numerous or better developed, appeared to have more crest, and a greater amount of yellow on the tail and flights.

Food.—Waxwings will eat almost any moistened artificial preparation. They are, however, rather greedy feeders, and according to my experience if kept with too limited exercise (in a cage, etc.) are apt to put on excessive fat, become sluggish, and succumb to apoplectic fits. The species is also easily put wrong by any sudden change of diet. As a suitable food for Waxwings, I can recommend the following mixture: One part insectivorous food (prepared as for Thrushes), one part dried ants' eggs (best quality), and two parts scalded grocer's currants.

Hardiness.—Delicate and liable to chill, when fresh from the dealers' cages. Once thoroughly established, unmindful of cold, but requires access to shade or cool quarters during the summer.

(*To be continued.*)

* * *

THE JAPANESE BLUE FLYCATCHER

Cyanoptila cyanomelæna

By Guy Falkner

Description of Adult Cock.—Sapphire-blue head, back and wings and tail; black face to half-way down breast—remaining half of breast white. Black bill and, if I remember correctly, blackish legs and feet.

About nine years ago I brought two cocks of the above Flycatcher home from Japan. They are lovely little birds, and reminded me much more of a Robin than a Flycatcher. I think really it was their huge brown eyes, like a Robin's, that gave me this illusion. They are very popular cage birds in Japan, both on account of their beauty and song; the latter is lovely—like a little flute—a few bars being quickly sung, then stop—sung again—stop, and so *ad infinitum.* They vary much in their performance, just as Shamas do, and it is just luck if you get a good one. The Japanese always keep them in small bamboo slatted cages with a sort of grill at the bottom of the cage to let the droppings through. This, I need hardly say, is *not* the case—the droppings stick on the grill and it takes infinite time to wash the cage. I dispensed with the grill at once. They give them two perches—both of the same size and both on a level. This would seem to apply to all the cage birds, both soft-billed and seed-eaters, I saw in Japan in private houses. The soft-billed food is a sort of powder—greenish coloured and smells of pigs! It is, I believe, made of powdered shrimps, etc., and a sort of pea meal. One mixes it with water to a very thin paste, and the birds love it and thrive on it. No water is ever given to soft-bills. The birds are all "sprayed" with a very fine spray twice a day, never given a bath. I must confess much as it went against the grain to own it, the Japs keep their Blue Flycatchers for years like this. I, poor fool, thought I knew better, and lost mine in about 18 months!

On getting them back to England I gave one to Mr. Ezra, and kept one for myself. Gradually I got mine on to our English "soft-billed" food and a few mealworms, and gave it water to drink and bathe in. All went well until (I think it was) the second moult, when it seemed unable to get its wing feathers through, and after a few weeks of this it died. Now, two points I think I went wrong on. One was giving mealworms—far too hard a skin for these delicate birds in my opinion;

secondly, in giving it water to bathe in. I don't think it ever dried itself properly—why I don't know, but it used to sit motionless after a bath until it dried. It was a very tame, delightful little bird, and it used to fly about the sitting-room, though far from active. When I first let it out, it could not fly at all, having lost the use of its wings *entirely*, I think through being kept for years in a cage about 10 inches long by 6 inches wide. I think had I given it *moths* instead of mealworms, it would have lived for years—it was very fond of them, and ate the body only, clipping the wings off and discarding them. It threw up no pellets when fed on the Japanese " paste " but regularly threw pellets up when fed on mealworms and ordinary soft-billed food. It was rather fond of grapes or strawberries, only eating those that were over ripe.

I forgot to mention, apart from coming away with a good quantity of Japanese " paste " to feed it on the journey home, I also brought a large quantity of a grub which the Japanese use instead of mealworms. It is the grub of some sort of moth and encased in a lichen-covered " envelope ". You tear the end off the " envelope " and out it pops. The birds love them, and all the birds I brought back had a regular supply every day—even the Japanese Bullfinches eventually took them. I was very lucky, as I never lost one of the birds on the voyage from Japan to England, chiefly due to having them all in my cabin the whole way (bribery !), except, of course, across America, when they went in the guard's van—I went too. It was very cold (winter), and I had their cages fitted into boxes with literally almost hermetically sealed fronts of glass. These were most satisfactory, and if ever I import any birds again I shall most certainly use the same principle. It would be invaluable in a rough sea or high wind, when the wretched little birds have to be kept on deck or in a draughty butcher's shop—there is usually no alternative ; but I was extremely lucky to be able to keep mine in my cabin on board both the Japanese and the English ships.

* * *

NOTES

European Aviculturists

The President of the Avicultural Society, Mr. Ezra, has received a letter from Monsieur Georges Olivier, who writes as follows regarding Clères : " As you may believe, I am very sorry for what the Germans did when pushed away and leaving the country. I had so much trouble in keeping and feeding the remaining mammals and birds. I was so proud in succeeding, under such awful circumstances, the breeding of the Red-necked Brent Goose, Casarca, and Sonnerat Jungle-Fowl. . . . At present apart from about fifty Swans, Geese, and Duck, all has vanished ! "

Mr. John Yealland has received information from Belgium that Dr. J. M. Derscheid was taken a prisoner to Germany three years ago, but though it is believed he is alive there is no news of his whereabouts.

CORRESPONDENCE

COLOURATION OF KOOKABURRAS

May I thank Mr. Boosey for the kind way in which he drew attention to what he believes to be an error in my description of the plumage of the Kookaburra ; he might have slated me more thoroughly in the circumstances.

But I am completely unrepentant ! May I first of all dispose of *Dacelo leachi*. This bird is so different from *D. gigas* that even I could not make a mistake. (In parenthesis it is interesting that this species is easily sexed by plumage whereas *D. gigas* is not, although closely related.) I have once more examined all the available skins of *gigas*, and referred to numerous books. The skins are all of males, and at first sight only one shows faint traces of blue on the rump. When the feathers are lifted, however, a small amount of blue shows on several. So far as the books are concerned, I cannot do better than quote . . .

Birds of Australia, Gould, vol. 2. " . . . rump tipped with verditer green." The sexes are " scarcely distinguishable from each other ".

The coloured plate—almost life-size—shows a brilliant blue rump.

Monograph of the Kingfishers, Sharpe. " Female exactly similar to the male, but has not perhaps so much blue on the wing-coverts or the rump."

An Ornithology of Australia, Diggles. ". . . upper tail coverts light verditer blue."

The Birds of Australia, Lucas and le Souef. ". . . lower back and rump greenish-blue."

British Museum Catalogue of Birds, Bowdler-Sharpe. " Adult male, lower back and rump greenish blue."

Catalogue of the Australian Birds in Sydney Museum. ". . . rump and median upper tail-coverts dark brown, tips of the feathers light silvery blue . . . female similar to male, but having less of the silvery blue tint on the wings and rump."

Several sub-species are recognized by most writers, differing in their range, darkness and amount of brown in plumage, and size, but no mention is made of any difference in the colour of the rump from that of the typical bird.

The interesting thing to me is this. Whether Mr. Boosey is correct or not (and I should hate to enter into a " right or wrong " discussion with him on this subject, for he has probably forgotten more about Australian birds than I shall ever know), the books, even by the highest authorities, are not accurate. For we know from skins and living birds in this country that Kookaburras do occur, and even may predominate, without blue in the rump, and I am inclined to the belief that we shall find that this part of the plumage varies, not only in individuals, but in different parts of the bird's range. I look forward to enlightenment from Australian readers.

I am surprised that I have not been taken to task for saying that the " laugh " had little significance except as an emotional bond and sexual stimulant ; a fatuous way of expressing what I meant, for these functions are of great importance.

Finally, it is amusing to note that Mr. Boosey and I are both behind the times in using the name *Dacelo gigas*. As long ago as 1927, it had been changed to *Dacelo novæguineæ novæguineæ*, which was found to be older. But we can laugh last . . . the bird does not occur in New Guinea !

M. D. England.

Aston Clinton,
Bucks.

GREEN-CHEEKED AMAZON WITH YELLOW SHOULDERS

We did not raise quite so many parrot-like birds this year (1944) ; only two Queen Alexandras, six Swainson Lorikeets, five King Parrots, and a few Shell Parrakeets. We also raised two Black Swans, five Wild Turkeys, four Silver Gulls, and three Amherst Pheasants. There were quite a few Wild Geese and Ducks with young on our wild fowl lake.

By the way, did you ever see a Green-cheeked Amazon with yellow shoulders ? We have such a one, and I wonder if it could be a hybrid.

Karl Plath.

2847 Giddings Street,
Chicago,
Illinois.

"SUBMISSION" IN REDRUMP PARAKEETS

It may be of interest to record that in two pairs of Redrump Parrakeets (*Psephotus hæmatonotus*) under observation I have noticed, in one pair frequently and in the other once, the use of a "submissive" attitude by the cock. It occurred in the pre-coition stage when the cock is chasing the hen. After a chase of some minutes the hen remained in one position long enough for the cock to attempt to feed or mount her. She was not ready for this, and turned on him savagely. Instead of retreating or retaliating, he bent his head low and exposed the back of the neck, whereupon she was satisfied and did not attack further. On some occasions he bent so far that the feathers separated and the neck was literally "exposed".

M. W. England.

Aston Clinton,
Bucks.

A LONG-LIVED FRUITSUCKER

I thought perhaps readers might be interested to hear I have at last lost my *Chloropsis zosterops sonnerati* after having him for just under 11 years. He really was a wonderful bird, and remained in full plumage and perfect colour to the end; nor did his feet and legs show signs of age. He died, I feel sure, of old age. I wonder if other readers have had any species of Fruitsucker for many years in a cage. Mine sang beautifully up to a few weeks before he died, and often cheered us during the blitz, by singing in the middle of the night because the lights were on. I mourn the passing of a loved friend. I should like to congratulate your correspondent, the Hon. Mary Hawke, on her success in keeping a Mexican Clarino fit and singing well, for five or six years; this is a most difficult species to keep in captivity, especially in a cage, and usually goes wrong after quite a short time, though, of course, Mr. Frostick, who is a wizard with difficult Softbills, has, I believe, kept them in show condition and singing for years.

N. Wharton-Tigar.

The Highlands,
Manston,
Ramsgate.

* * *

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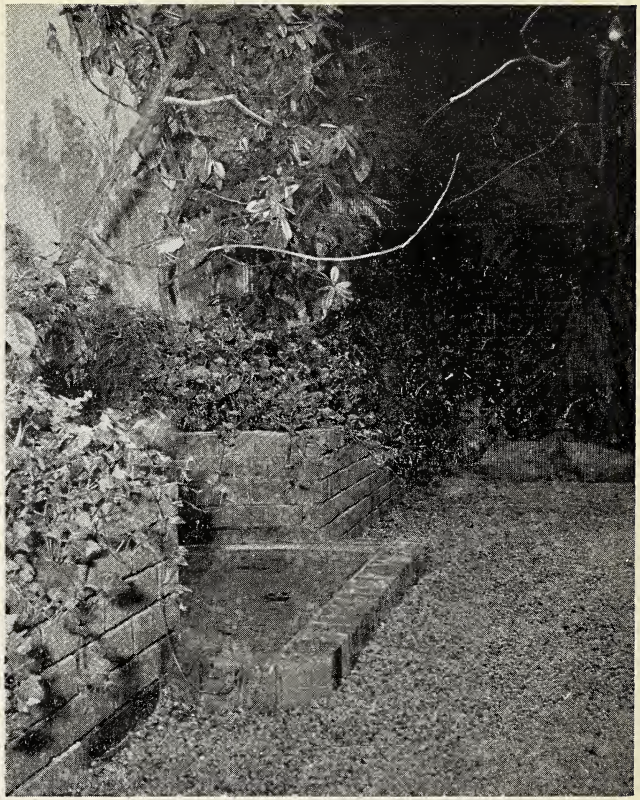

[New York Zoological Society

"NEW ENGLAND GARDEN" FOR NATIVE BIRDS.

AVIARIES IN NEW YORK ZOO.

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DECORATIVE AVIARIES IN THE NEW YORK ZOO

By J. Delacour

I was never quite satisfied with the methods of exhibiting small birds indoors in Zoological Gardens. Certain species, it is true, such as the Birds of Paradise, Troupials, certain Tanagers, Finches, and Grosbeaks, are too destructive to vegetation for any kind of association with living plants. But many other species not only look nicer, but actually do much better when kept in planted aviaries recalling their habitat in the wild state.

When the astonishing circumstances under which we have all been living during the past few years brought me to New York, I found a good chance for experiment. I talked things over with my old bird friends Fairfield Osborn, President of the Zoological Society, and Lee Crandall, Curator of the Zoo, and in 1942 the old Parrot Hall of the Bird House was converted into a planted aviary. The old cages were removed, and in their place were built five flights, two on one side and three on the other, each 18 to 20 feet long, 6 feet wide, and 8 feet high, and standing two and a half feet above the floor. The hall is very high, and a giant bamboo, two large Kentia palms, and a few other trees give it a tropical garden atmosphere.

Three of the flights are dedicated to tropical birds: Indo-Malaysian and tropical American. Another one imitates an arid plain, while the middle cage represents a little formal garden which we call the " New England Garden ". The adjoining photographs show the last two flights better than words can describe them.

The " Arid Plain ", or desert cage, is inhabited by birds adapted to life in dry countries. It contains some Asiatic Pratincoles, African Sandgrouse, Egyptian Plovers, Diamond and Plumed Ground Doves, many species of Australian Grassfinches, and African Waxbills, different Larks, some Galapagos Finches, and two Costa's Humming Birds from the Californian desert.

Succulent plants such as aloes, cacti, and yuccas have to be replaced about three times a year, as the glass roof of the house is too high above

them, and does not afford them sufficient light. But, at that price, the show remains excellent. Needless to say, the birds do exceedingly well and a number have nested successfully.

The " New England Garden " is a little more difficult to keep in good condition, as hardy plants do not last very long indoors. They have to be replaced four times a year. We show in this cage a selection of our local small birds : Ruby-throated Humming Birds, Bluebirds, Hermit, Russet-backed, Veery and Wood Thrushes, Catbirds, Baltimore and Orchard Orioles, Cedar Waxwings, Purple Finches, different " Warblers ", Sparrows, Nuthatches, small Rails, etc.

To make and maintain such planted aviaries in suitable condition, it is essential never to place in them birds which would destroy the plants, and also to keep them perfectly tidy. An especially trained gardener waters and tends them every morning with great care, and a bird-keeper cleans them thoroughly.

This hall has been a great success with the public, and once again the proof has been made that what is really attractive and well done is appreciated by the ordinary visitors just as much as by specialized amateurs.

* * *

THE BUSTARD-QUAIL AT HOME

(*Turnix suscitator taigoor*)

By Prince K. S. Dharmakumarsinhji of Bhavnagar

The Bustard-Quail is a common bird with us in Kathiawar and although one does not come across it always, it is to be seen almost at all times of the year. During the monsoon I have often flushed it in standing millet with other species of Quail. Further, during the Summer, I have often attentively listened to the booming call of the female.

The breeding season seems to be throughout the year, although most nests that I have found were from March to June. The scarcity of cover and grass in the hot months may well be the cause of locating nests with ease.

During the Winter of 1942, I had a pair of these Quails caught. I promptly put them in one of my aviaries in which were other birds such as Bulbuls, Diamond Doves, Bush Quail, and Sandgrouse. The pair seemed to thrive quite well in spite of their new environment. The primaries were removed to prevent them from crashing their heads against the ceiling and the wire netting, as most newly caught game birds are wont to do. The birds appeared timid, and I did not see them moving together.

In May, however, the female laid her first egg without making any nest. In this way she laid twenty eggs, all scattered about from one place to another.

The following year, 1943, she commenced laying earlier, starting in March and ending towards middle of June, scattering her eggs as in the previous year. As I was away for a short period I was not able to get the exact dates of egg laying. In all there were fifteen eggs.

On the coming of winter, I observed both birds moving together, and it appeared that they had paired. On 15th February, 1944, the first egg was laid in a nest made by the female of coco-nut fibres. The nest was made in a site specially selected for the birds ; it consisted of a pile of small pebbles placed in a circle with a square wooden roof 6 in. by 6 in., put loosely on the top. This artificial nest site was arranged under a young Casuarina plant and became an ideal home for the Quails. There was only one entrance, and the coco-nut fibres were so arranged that the entrance hole was of quite neat appearance.

Three eggs formed the whole clutch, the eggs being laid on consecutive days ; the male started incubation when the first egg was laid, but was not seen to sit very regularly until the last egg was deposited.

On Tuesday, 22nd February, the eggs were found smashed, doubtless the mischief of the Scimitar Babblers (*Pomatorhinus*). They were immediately removed.

On 1st March, the male again commenced incubating three eggs, which hatched out on the 13th March. It was very interesting to note that during incubation the female would sometimes visit the nest and sit on the eggs while the male came out to feed. However, this sitting on eggs by the female had no regularity, and I could not say that the hen bird incubated in the true sense.

When the eggs hatched, the young chicks were fed by the male on young termites or white ants, supplied to them regularly. The chicks when hatched appeared dark brown, but as they grew the colour faded and the regular stripes became more and more distinct.

During parental care the male courageously defended the young and menaced any intruder by puffing out his feathers and attacking vigorously with his bill. He also emitted a clucking sound to call up his chicks. The chicks, however, soon after they had hatched did not always respond to the parental call and often mistook another bird by following it instead of their real parent. This, however, only occurred when a chick strayed from the male parent. The male invariably fed the chicks by taking food in his bill and simultaneously calling.

Three days after the young had hatched, I saw the male feeding young on our mixed food. On the 20th March I saw all three chicks feeding on their own, nevertheless, at times being fed by both parents.

The female, I noticed, often took interest in the young chicks, the whole family moving and remaining together. This is interesting, because I have seen Father, Mother, and young of these Quails together in the jungle.

A point worth noting was that during incubation the female frequently sounded her "booming call", but, once the eggs had hatched, ceased until the chicks were fifteen days old. Soon after, she resumed booming, and started making a new nest of grass, in the same place, with a tunnel-shaped entrance. On the 3rd April a clutch of four eggs was complete and the male again commenced incubation. Thereafter the chicks were neglected, and I often saw the female feeding the male in the manner of the male when feeding the chicks. This clutch was eventually destroyed, and on the 15th of the same month he again began sitting on four more eggs in a nest that was made roughly without dome or tunnel entrance, under an artificial bush. These eggs also hatched out, the young surviving to maturity.

I want to mention particularly that the female often sways her body forwards and backwards, and this peculiar action I have often observed in the male when he had chicks, and when he wanted to move secretly away. He would move, then stop, and then begin swaying in the manner described. I have seen this behaviour in the wild too, when a pair of these birds tried to move out of my sight. I am inclined to believe this peculiar behaviour to be one similar to that of other animal life when they desire to produce an effect of camouflage. I have not, however, yet been able to learn to what extent this swaying movement coincides in this case. A moving of a leaf in the wind would hardly be expected to be copied, yet instinctively these amusing little Quails give vent to such behaviour when under close observation. I think we need to study the Bustard-Quail more closely in its natural surroundings.

[For accounts of the successful breeding of other species of *Turnix* in Great Britain, see *Avicultural Magazine* 1903, p. 317, 1905, p. 295, and 1907, p. 303.—Ed.]

* * *

REMINISCENCES

By Flight-Lieutenant D. H. S. Risdon, R.A.F.

In response to the Editor's appeal for articles the following notes are submitted.

The writer has always found the personal experiences of other aviculturists in a general way among the most interesting features of the Magazine. This has been so particularly since the war, having been for five years now deprived of the pleasure of keeping foreign birds of any kind. It is hoped, therefore, that the many others, who are similarly placed, may derive some enjoyment from the reminiscences of one for whom aviculture has always been one of the major joys of life.

To start with one must hark back quite a way, to 1929 in fact, when the writer had passed the Pigeon and Canary stage and was beginning to hanker after rarer and more difficult game. At this time a long-suffering and, be it said to their eternal credit, a very tolerant family, having grown tired of the house and garden being littered with aviaries, cages, vivaria and aquaria, I was given a section of the garden to do what I liked in.

This plot of land measured about 50 feet by 40 feet and was in the centre of a small wood.

Now most aviculturists have, at some time or other in their careers, had dreams of huge planted aviaries wherein brilliant birds of many species flash in and out of the foliage and nest and rear their young in close harmony.

This dream usually attacks people who are as yet new to aviculture proper, and it is only after experience that it is brought home to them that birds have strong territorial instincts and most of them, when in breeding condition, resent the close proximity of others even of different species.

Be that as it may, such was my dream at the time, and in order to make it a reality the whole area was covered in with in. mesh chain link netting supported on a framework of 2 in. metal tubing.

Well do I remember my visions of all the birds from Cordon Bleus to Cockatoos, and from Painted Quail to Pheasants that were to live and breed in this enclosure, but I was yet to learn that, what to us may seem large aviaries, are to birds comparatively small areas of nothing like the acreage which they would annexe for themselves in a wild state.

Here, let it be said, that, should one merely desire a colourful collection, unmated birds of many kinds can be safely mixed, except of course those which are liable to look on their companions as a potential meal, such as birds of prey, and highly mischievous types

like Crows and Pies which will often slay a weaker bird for the sheer pleasure of pulling it to pieces. One gets exceptions even in these cases. I once kept a breeding pair of Little Owls in a large aviary in which guinea pigs also lived and bred. The Owls never molested even the newly born young guinea pigs, although the latter ran loose in the aviary night and day, and the Owls were very fond of dead rats and mice.

I soon discovered, however, that towards one another mated pairs of birds are an entirely different proposition. If they are properly fed and looked after, sooner or later they will come into breeding condition, even if they don't actually nest, and then trouble starts. I have known individual birds which, on their own, have been the essence of gentleness and good behaviour, but when given a mate have overnight become ferocious bullies quite unfit for mixed company. They have in fact become territorially minded, usually to the extent of the whole aviary, and then woe betide any other bird to which they may take exception. These remarks do not apply of course to sociable species like Budgerigars, nor to many small Finches, though even these bicker a good deal and interfere with one another's breeding arrangements. Generally the bigger the species the more dangerous do they become when breeding.

As will be seen in later articles a good deal of success was obtained in this aviary, chiefly by associating species of such widely different families that they completely ignored one another. Trouble usually started though when nearly related species were introduced.

To return to the aviary itself, when completed I had an enclosure 50 ft. by 40 ft. by 10 ft. high. In one corner was built a wooden shed 18 ft. by 15 ft., divided up inside to form several compartments, as my interests extended to mammals, reptiles, and fish, and these had to be accommodated.

As waterfowl were wanted as well, a cement pond was constructed within the aviary of irregular shape some 20 ft. by 16 ft. at its widest parts, and water was laid on from the mains.

The ground enclosed already contained several hazel trees and to these, with much personal labour, were added box, privet, *Cupressus macrocarpa*, laurel, ivy to be trained over the shelter shed, and up the internal supporting columns of the flight, and last, but by no means least, elder. This latter bush was discovered to be one of the best for the purpose. It grew at an amazing rate in sunshine or shade and seemed to withstand all the nibbling it got from the birds, except, of course, Parrakeets. Moreover, no harmful effects were ever known to come to the birds through eating its bark and foliage.

Rushes were planted round the pond and the ground was turfed. Although the turf gradually disappeared in later years under the constant tread of increasing numbers of Pheasants and waterfowl, the

general effect always remained decorative and served as an excellent setting for the many and varied birds that were to occupy the aviary in the days to come.

Whilst on the subject of planted aviaries, one often hears it asked whether such and such a bush will harm the birds. It has been the writer's experience that birds on the whole do not seem susceptible to vegetable poisoning. They can certainly eat with impunity many plants which are known to be deadly to mammals. My Cockatiels used to eat laurel leaves without ill effect and many is the time I have seen a small flock of parents and young settle on the bushes and commence nibbling away at the succulent shoots and young leaves. Golden and Amherst Pheasants would also eat laurel and ivy with the same apparent relish that they had for lettuce, and this in spite of the fact that fresh greenfood of more orthodox kind was regularly supplied.

Here a few words may be said about the shelter. Birds as a class suffer from chronic claustrophobia and most of them, even delicate foreign ones, prefer, if they get the chance, to roost outside. Their natural instincts (except those which habitually sleep in holes) are to avoid closed quarters in the dark where they cannot shoot off instantly into the night at the approach of an enemy. So strong is this instinct that I have known birds to use a warmed shelter all day and to attempt to roost outside in the open as soon as dusk falls, evidently preferring the cold comfort of an English winter's night to the cosy shelter with its imagined dangers lurking in dark corners.

Now in aviaries of the usual type with shelter extending the width of one end of the flight, it is a comparatively simple matter to drive birds in at night and shut the entrance hole. In an enclosure of the size under discussion, however, this was quite impossible. The birds had to be trained to use the shelter, and to this end it had to be made attractive to them. This was done by having sufficient windows in it to allow plenty of light during the daytime and always feeding inside it. By being thus compelled to use it a good deal during the day they learned that it was a place to be sought rather than avoided, and in most cases used it to sleep in.

New arrivals were always shut inside in an inner compartment for a day or two, where they could see others coming in and out to feed. The door of the inner compartment was then opened and they were left quietly to find their own way out. By this means they had time to take stock of their surroundings and get their bearings as it were. Later, when they had found their way outside and felt hungry they invariably knew their way back into the shelter, and, as a result, tended to use it more than they might otherwise have done.

It is evident that many losses of freshly acquired birds are caused through their inability to find food and shelter in new surroundings. The owner, naturally enough, wants to gloat over his new birds at

their best, and, in his enthusiasm, turns them straight from their travelling box into the flight. Should they by chance find their way into the shelter right away all is well. Very often, however, the unfortunate creatures arrive hungry, thirsty, and upset after a journey. They are turned loose into a completely strange place among new and strange companions, and on top of all this they don't know where the food and water is. No wonder they are found dead the following day !

When once one has kept birds in large aviaries one is, I think, cured for ever of wanting to keep them in cages and small enclosures. Half their attraction is lost by close confinement. Admittedly one can still admire their beauty of form and colour, but their elegance and grace of movement, as they disport themselves in a comparatively natural manner, is to me the chief joy of aviculture, not without its amusing side either if one's sense of humour correctly interprets their reactions towards one another.

Aviaries can, however, be too large for the size of birds they contain. The first kinds I put in were those I already had by me, namely Chaffinches, Bullfinches, Greenfinches, Great Tits, and an odd Goldfinch. In such a big place they were completely lost and might as well have been loose in the garden for all one ever saw of them close to. This became such a bore that at a later date a partition was made in which the smaller birds were enclosed to enable them to be seen at closer quarters for a change.

Here again was found another disadvantage of the large planted aviary, namely that it is difficult to control or keep watch on individual small birds. Sick ones were only noticed when " far gone ", and it was impossible to catch them till they were almost *in extremis* and therefore too weak to fly far, and, as every aviculturist knows, there is by that time little chance of a cure. On more than one occasion the absence of a small bird was noticed, but its corpse was never found, simply because it had hidden itself away among the bushes and dropped into the undergrowth and been lost.

The food question also needed careful watching. Large birds can be prevented from eating the small one's food by placing it behind wooden bars wide enough only to allow the little ones to pass through. It is impossible, however, to prevent the reverse happening, and, although in a large outdoor aviary birds can eat with impunity things which would be almost poison to them in a cage, they do tend to eat more than is good for them of certain things which take their fancy.

It was my custom to collect all the kitchen scraps, mince them, and feed them to my ever increasing flock of young Pheasants and waterfowl. It did them good, they obviously enjoyed it and it helped out the corn bill.

Much was my surprise to find that nearly all my softbills and some seedeaters helped themselves with relish to this fare, very often in preference to their more normal seed and insectivorous mixture. No harm resulted in most cases, but I did lose two Missel Thrushes which seemed overfat when dead, and Napoleon Weavers, which ate quite a lot, used to go off in fits for no apparent reason. They, too, were very fat when examined.

As the years went by and the collection increased, the question of stale ground arose. Large aviaries of this nature cannot be moved in practice, and this one was in constant use for eight years, having, besides something like thirty Pheasants during the autumn and winter months, four pairs of waterfowl and numerous perching birds all using the same piece of ground.

As can be imagined, turf soon ceased to grow, but this was made up for by scattering ashes from the boiler which supplied central heating to the house, dead leaves swept off the lawns in the autumn, and barrow loads of weeds, roots and all, that were collected from the garden during the summer. Once a year the ground was dug over and all the above worked well in.

Whether this had the effect of keeping the ground fresh I am unable to say, but judging by results on the whole it must have done.

Pheasants, which are supposed to be particularly susceptible to stale ground, always throve and were 100 per cent fertile right up to the time when the aviary was disposed of. Moreover, their progeny were as strong and healthy as one could wish to see.

Waterfowl results were not so good. Although the parent stock remained in perfect condition and were fertile every year, the number of young actually reared to maturity was small. The mortality was high among ducklings under a week old. As, however, they were placed under bantams in pens on the garden lawn it may have been that there was something in the local soil which was inimicable to them, rather than any ill effect from the ground in the aviary to which they had no access until they were half grown, when they were reared successfully in any case.

Of Parrakeets, Budgerigars never did well, largely it is thought because of the dampness caused by close proximity to the pond. Here again they bred well during the summer, but parents and young were subject to enteritis and chills during the winter. Cockatiels throve and reared good young. Rosellas and Alexandrines also did well, but were not kept long enough for decisive breeding results.

Softbills always did well, including such species as Royal Starlings, which lived for years without artificial heat in winter.

Finches were satisfactory, but would have done better if more control could have been exercised over them when they fell ill with chills in the winter. They did much better when in smaller enclosures

where they could be watched for signs of incipient illness and put into hospital as soon as detected.

It is proposed at a later date to give some detailed accounts of the species which were kept in this aviary.

(*To be continued*)

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BREEDING OF SILVER EARED MESIAS

(*Mesia argentauris*)

By A. H. Isenberg (California)

Mesias are charming birds and very beautiful, and greatly resemble the well-known Liothrix. They are somewhat stouter, with larger beaks, and their tails longer. They are native to the Himalayas, the Malay Peninsula, and Indo-China, living in the hill stations. The song of the Mesia is louder than the Liothrix, and is heard throughout the year, whereas the latter sing in season.

My experience with Mesias ranges well over twenty years, and never have I noticed them to be nest robbers, such as is the case with the Liothrix. Closely related are the Blue-winged Sivas, and these also are not nest robbers.

The male Silver Eared Mesia has a yellow forehead, the nape and top of the head are black, the cheeks are light silver-grey ; the belly is olive-green, and the back and wing coverts are greenish-grey ; throat is deep yellow ; tail is black with orange-red coverts. The hen is somewhat duller, the red rump and tail coverts being replaced by olive-yellow or greenish-orange.

The following notes on my first successful breeding of Mesias are herewith attached, and I believe is the first success on record.

The eggs are supposed to number four, but in numerous nests in our aviaries, the number varied from two to four.

In the year 1942 we had two females and one male *Mesia argentauris* in our large aviary of mixed birds. Early in May the male paired off with one of the hens and nest building was begun in a thick clump of dwarf bamboo, about four feet from the ground. The nest was built of dry bamboo leaves, grass, rootlets, string, horse and goat hair, and some cotton. The lining was of horse hair, the whole being poorly suspended from the forks of the bamboo. Three eggs were laid, two of which hatched, the third having disappeared. The young were fed on meal worms by both adults.

The nest, being poorly attached to the bamboo, began tipping dangerously so that I was compelled to reinforce it from beneath. This interference by me in no way seemed to affect the adults, who waited patiently near by, chattering the while. One young was found on the ground the second day, and the other lived five or six days.

These young had quite a reddish orange skin colour. Both adults fed the young and also took turns in incubating.

Another nest was soon begun, but then the great tragedy occurred. Red-eared Bulbuls " picked " a fight with the Mesias and managed to kill the male Mesia. This naturally brought to an abrupt halt any further breeding of the Mesias and proved further that breeding is not to be attempted, or I should say, success not to be anticipated in a mixed collection, even though exception does prove possible at times, as was the case with out *Zosterops simplex*.

Among the inmates of this aviary was a hen Blue-Winged Siva which fraternized with the odd hen Mesia. These two in no way interfered with the breeding Mesias.

I was greatly disturbed over this loss and failure, and early the following Spring wrote letters to friends, and was most fortunate in being loaned a male by one of my very good friends in aviculture (whose name, for obvious reasons, I reluctantly omit).

Upon arrival, the new male was placed in a small aviary by himself for a two weeks' rest before putting the former odd hen in with him. Much displaying and singing at once took place, and some seemingly arduous chasing about the aviary, which subsided within an hour or so to very friendly relationship. This took place on 15th May of 1943. Nest building began on 1st June. This aviary is small, 4 feet wide by 12 feet long, and approximately 10 feet high at the peak of the domed wire roof, the back being boarded in with a shelter 4 feet square. Nest No. 1 was constructed in a willow some 7 feet off the ground, but soon began falling down, and repairs attempted by the pair proved futile. On 4th June, Nest No. 2 was built in a thick Eugenia bush 5 feet up, but was also a flimsy affair, so that I helped by firmly attaching a wicker canary nest beneath it. No further interest was shown until the 6th, and on the 7th, one egg was laid followed on the 8th by a second egg, and sitting was then carried on in earnest. All eggs then or later laid were dull white heavily blotched with reddish-brown spots on the large end. Both sexes incubated, and on 23rd June, one young was seen. On the 27th, one young and one egg still in the nest. On 3rd July the quills were nicely forming on the young, the (other) egg being infertile and removed. On 6th July the young left the nest and was doing nicely, but quite awkward. I am convinced the aviary was too small as the young would fly on to the wire mesh and then, apparently from fright, would hang by its feet as if in a trance.

On 9th July the hen was seen carrying nest material again, but both sexes were still feeding the young one. On the 10th the young had evidently remained too long on or near the ground, and upon my returning in the evening, I found its head covered with ants and badly bitten around the eyes. We took the young indoors with hopes

of hand rearing, as the adults had evidently abandoned it, but in vain my wife and I futilely attempted to feed it, and it died that night.

A third nest was completed by 7th July, and by the 18th two eggs had been laid, when I noticed the hen acting unwell and having peculiar fits. Sweet oil was administered as egg binding was feared, and she recovered. Nest No. 3 was abandoned, and No. 4 built in a bamboo clump on 19th July. By the 25th two eggs had been laid, and on 7th August, one young hatched. On 9th August two young and one egg were in the nest. On 11th August one young and one egg in nest, and one young dead on the ground. On 20th August the remaining young was dead in the nest, and the third egg infertile.

24th August found a fifth nest being built, and by 4th September, two more eggs laid, which later proved to be infertile. This ended the nesting for 1943, a rather trying succession of failures.

A description of the " almost " reared young may at this point be of interest, and I quote from A. G. Butler's *Foreign Birds for Cage and Aviary*, volume ii, pages 31–32, which very adequately describes the young thus :

" The general hue above is smoky drab, with a well-marked black cap ; the ear-coverts are silver-grey as in the adult Mesia, and the quills have light outside borderings, dirty cream-colour on the early primaries, passing into ochre yellow on the secondaries. The smoky drab colour extends on to the breast and flanks, and the throat and centre of the abdomen are dull cream-colour, the throat verging slightly on yellow. There is a slight wash of olive-green on the back of the neck. Such little of the tail-feathers as has grown is dull black like the inner webs of the quills. The under tail-coverts are dull brick-red. The bill is dull flesh-colour, horny at the tip and gape, and the legs, feet, and claws, dull flesh-coloured also."

Early in 1944 I began construction of a new and large aviary, 25 feet wide and 55 feet long, and 15 feet high, with the hope of completing it before the Mesias' breeding season began. The Mesias got ahead of me by building a nest in last year's small aviary on 18th April, but a pair of Wren-tits were very disturbing to them by throwing out the two eggs laid by the Mesias and using the nest themselves, without success. I had put the Wren-tits in with the Mesias only for the winter, but unfortunately did not take time to remove them as the construction of the new aviary took all my spare time.

On 21st May the new aviary was at last ready, and the Mesias, together with *Alcippe* and Sugar Birds, were released therein. High winds, somewhat on the cold side, prevailed for three days, but the Mesias at once started building, ignoring the weather. This aviary, by the way, is completely glass sash on the windy side, and affords good protection.

Nest No. 1 was built some 10 feet high, in a " long-needled " pine tree, and by the 29th of May incubation began. Two eggs were laid, and sat on until 20th June, when both were removed as infertile.

26th June, Nest No. 2 was begun in a bamboo clump. Two eggs were being incubated by 1st July, which also proved infertile by the 20th, and were removed.

Nest No. 3 was completed in another bamboo clump some distance from No. 2. This time three eggs were laid by 28th July, and on 9th August one young was hatched, the other egg later proving infertile. On 23rd August the only young left the nest and roosted that night in a bush ten feet from the nest. I must admit that I caught the young just before dark, and placed him in the bush for the night. The adults took good care of him. The next day all went well, and I was greatly surprised to find that the young could manage to fly into the shelter for the night, after much coaxing by the adults. On the 25th flying ability was improving rapidly and this night again saw the family well roosted together in the shelter. I was greatly relieved. By the 26th the young was quite able to fly after the adults, begging to be fed. By 2nd September the tail was over half an inch long, and by the 14th quite long and the rump showing quite red, and the yellow of the throat very distinct, and I knew this young was a male. Much singing practice took place from then on, he later proving to be a better singer than the old male.

Mealworms and grasshoppers were fed and an occasional moth. Cream cheese was soon seen to be taken, and although by the 25th the young was seen eating by himself, he still begged food from the adults and got it, too, for some time to come. Grasshoppers were well prepared by the adults before feeding, the wings, legs, and hard head being first removed.

While feeding the young on the nest, the male has a very sweet whisper song.

At this writing, 29th November, 1944, the young male is barely distinguishable from the old male, and I am happy now that I banded him when two weeks old. The bill is still not quite as long as in the adult ; otherwise, the bird is identical in all respects as to size and colour, the latter being very brilliant in all three birds this season, after the moult.

[There does not seem to be any satisfactory record of the successful breeding of *Mesia argentauris* in Great Britain, though Reginald Phillipps very nearly succeeded in 1903, when a young bird left the nest, but died before it was able to care for itself. This is the specimen described above, the description being copied from a note by Frank Finn in this journal for 1904, p. 42. There is a record, according to Hopkinson, of the breeding of this species in the London Zoo in 1906, but this would probably mean no more than " hatched ".—Ed.]

BIRDS SEEN IN INDIA AND BURMA

By Sergeant J. M. S. Lax, R.A.F.

I was immediately impressed on reaching Indian waters to find that the Common Pariah Kite had more or less replaced the Common Gull in circling around the ships and in the dock areas. It is a large brown bird with a forked tail, particularly conspicuous in flight, thoroughly omnivorous, and one of the most useful of scavengers. No matter if in populated towns or outlying villages this bird is always to be found, and in some areas is a serious menace to poultry keepers especially when it has young. Four of the commonest Indian birds, and which can be seen in almost any locality, are the Common House Crow, Blue Rock Pigeon, Common Mynah (actually I have seen three other species, Pied, Bank, and Grey-headed), and lastly, like the poor always with us, *Passer domesticus*. My journey across India was full of interest, and numerous species were seen, chiefly resting on telephone wires, and some, like the Cattle Egret, following and stalking alongside the cows and even riding on their backs ! On the wires were Ring-neck Parrakeets, Black Drongos or King Crows, Blue Jays or Rollers, and Green Bee-eaters, whilst the large Brahminy Kite, similar in size to the Pariah but a rusty red bird of prey with a white head and breast down to the abdomen, sat on the pole itself. Near Chittagong I was pleasantly billeted amid palm trees, near paddy fields and numerous ponds. Here I saw three species of Kingfisher, the Common, the Pied, which is a speckled and barred black and white bird, and the Stork-billed Kingfisher, easily distinguished from the others by its large size and enormous sharp-pointed blood-red bill. Two species of very beautiful Woodpeckers also frequented this part, the Yellow-fronted Pied or Mahratta and the Golden-backed, a much larger bird than the former, also less shy, as one I watched tapping on a tree trunk not 6 feet away seemed quite unconcerned at my presence.

The Crow Pheasant or Coucal was also about in quite large numbers : its deep resonant call, " ōōk," repeated at slow but regular intervals, is apt to try one's nerves after a time. It is said that quacks use its flesh as a cure for bronchial ailments ! The typical cheeky but cheery Robin-like Dhayal, garbed in black and white, was a regular visitor in and out of the basha ! As common as it is it ranks amongst one of India's best songsters. A less numerous but brilliant bird is the Black-headed Oriole, he is a perfect picture in his golden yellow and jet black head, throat, and upper breast. It is strictly arboreal and is usually seen singly or in pairs. The Pond Heron or Paddy Bird is another familiar species, found whenever there is water in any form,

inundated paddy fields, ditches, swamps, or rivers. Its food consists chiefly of frogs, crabs, and fish.

A never to be forgotten sight was that of White-backed Vultures rapidly devouring the carcase of a cow. The speed and thoroughness with which they disposed of it was truly amazing, some gorged themselves to such extent as to be utterly incapable of flight! As scavengers these birds seem indispensable, judging by the numbers seen, there seems to be plenty of work and food for them. Further east, during my short walking tours through paddy fields along river banks and the edge of the jungle, a number of small birds have been observed, many unfortunately too small or too far away to be identified for certain. I did see *Zosterops* or White Eyes, Manikins, Bulbuls (Red-vented, White-breasted, and Whiskered), and one Verditer Flycatcher. On one occasion I was lucky to see one pair of Common Iora Birds. I also was fortunate to see three flocks (of ten birds) of the very pretty Small Minivet, all males. I believe some of these birds, also the larger Scarlet Minivet, were imported into England in 1939. Although I have less time now that I am in Burma for going out and observing, nevertheless there are quite a lot of birds near here, viz. Bulbuls, Yellow-eyed Babblers, Grey-backed Shrikes, Green Pigeons, Weaver Birds and their many nests, Nightjar and nest with two young, and many unknown species of Bunting. Two specimens of Koel Birds have been seen, the male being a glistening black with yellow-green bill, whereas the female is brown, spotted and barred with white. This far-flung continent seems to offer living conditions to a host of species of the feathered tribe, it is said for its size to contain one of the richest and most varied avifaunas of the world, although from the species I have seen, kept in captivity, or read of in books, it does not contain such a high percentage of brilliantly coloured birds as Australia does. Nevertheless it can and does give the naturalist and budding aviculturalist plenty of scope for study and, above all, joy and exhilaration can be derived from everyday watching and observation. In conclusion all interested in Indian birds should obtain a copy of *The Book of Indian Birds* as published by the Bombay Natural History Society. It has 188 plates in colour and a host of other information. I can confidently recommend it.

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THE POSSIBILITIES OF SEMI-LIBERTY

By Prebendary Sweetnam

Were it not for its probable length this article could better have appeared under " Correspondence ", for it is the nature of a " kite "—flown in the hope of attracting information from those with more experience than the writer of an aspect of aviculture which has always fascinated me, and on which I hope to concentrate when (or if) time is available and conditions more favourable. Though I possess the complete edition I can find surprisingly little information about it in previous volumes of the Avicultural Magazine.

Before entering the region of conjecture it may be worth while mentioning those species with which I have, so far, experimented in this way—more especially as most of them have been British birds, and it will probably be a considerable time before any others are obtainable.

My earliest recollection is of a pair of Kestrel Hawks, secured in the " downy " stage, and assiduously hand-reared by my brother and me. When old enough to fly they were quite tame, and would come to the whistle like a dog. Mouse, strangely enough, was a favourite tit-bit, and I have seen both birds come to the whistle from an apparently empty sky, and pick up their quarry before it had run many yards.

I have no recollection of their ultimate end, but presume that, like so many native birds kept at semi-liberty, they disappeared in the breeding season. I should add that this occurred in an out-of-the-way district of Southern Ireland, where keepers were unknown. Under other conditions the life of any tame predatory bird would probably be short . . . which is a pity since, as our forefathers knew well, hawks are fascinating pets.

Since that early venture I have tried my hand with a number of other native birds, from Gulls and Magpies to Finches and Titmice, but, in most cases, either the call of spring, an open water-butt, or a " sportsman's " gun has brought the sorrow which too often follows in the wake of releasing one's feathered friends . . . which, I suppose, is the main objection to keeping birds at semi-liberty.

I will always cherish the memory of two of the exceptions, both of which survived for quite a time. One was a prosaic Jackdaw which, after the manner of its kind, was at once the joy and the exasperation of the household. I am still confronted with the wire-netting placed over the thatched roof of a summer-house to prevent " Jackey " from pulling it to pieces in what time he had to spare from his other machinations.

The other was a Herring Gull, and I commend this intelligent species to anyone with even a small garden, as a pet likely to afford constant

pleasure and amusement . . . apart from being almost omnivorous and so, even under present conditions, providing no feeding problem.

This particular bird was, I think, the most intelligent feathered creature I have ever come across, and full of what I can only call humour. He would wait at the garden gate to meet, and walk quietly behind, unsuspecting visitors for the pleasure of nipping the back of their legs, and then bursting out into what sounded just like derisive laughter. His (or her) favourite amusement was stalking the cat, with the same purpose and the same reaction to his stealthy attack.

At one time I allowed him full liberty, but either his sense of direction or his homing instinct was defective, and the annoyance of having to fetch him from nearby houses eventually led me to keep one wing clipped.

The end of this bird was rather tragic and unusual, for he was unintentionally strangled by the (then) grown-up cairn terrier with which he used to play for hours when a puppy.

To come to foreign birds : my own experience has been confined to the occasional release of a few hardbills such as Zebra and Bengalese Finches, and a few softbills such as Starlings and Bulbuls. The Finches always disappeared after a few weeks or months of semi-liberty and, with a few exceptions, my experience with the insectivorous birds was similar.

The Bulbuls I tried (White-faced and White-cheeked) became delightfully tame, but seemed to lack any homing instinct and got quite lost when once they strayed out of call. Starlings, on the other hand, seem to have the homing instinct well developed, and as anyone who has kept them will know are very easily tamed. One Green Glossy survived at semi-liberty for quite a long time, and might even be alive now but for the attentions of one of those obnoxious " sportsmen " who are the bane of bird-lovers. This wretched man operated from a nearby garden, but by the time I discovered that his " bag " was my dearly-loved Glossy, he had decamped.

As Barbary and " Java " Doves can almost be classed with domestic Pigeon, they hardly come within the scope of this article, but a flock of either are a pretty sight round a house, and they are quite harmless in a garden. Personally I have never succeeded in building up any considerable flock, as the wastage through accident has always exceeded the young birds reared at semi-liberty, and the stock has eventually wasted away.

Until just recently I still had at liberty rather a remarkable bird . . . a cross between a cock Fan-tail Pigeon and a hen Java Dove. Though they had any number of eggs, fertility only resulted from this strange mating in this one instance. The remarkable thing about the hybrid was that, though neither parent had a dark feather, the offspring hadn't a white. He was very dark grey, almost black, in colour with the

purple sheen of a Rock Pigeon on the throat and upper breast . . . which led me to wonder if he was a " throwback " for many generations to the original wild Rock Pigeon from which species, no doubt, the Fan-tail father had sprung.

As " Joey ", my little Senegal Parrot, has recently had a whole article to himself he is only entitled to be mentioned here . . . and doubtfully to that since, though he can use his wings quite well if he chooses, he seldom does, but contents himself with climbing about on the shrubs and creepers round the house.

If our President or (and) other of our members who have succeeded in maintaining such birds as Macaws and Cockatoos (or, indeed, any other species) at full or partial liberty in their grounds could be induced to follow up this article with an account of their experiences in this direction it should make interesting reading.

But apart from such experiments, from which most aviculturists are precluded for one reason or another, and regarding as also outside the scope of this article, Fancy Waterfowl, Pheasants, Cranes, and similar species, it seems to me there are two classes of bird which might be successfully maintained at semi-liberty.

In the first class are a wide variety of species, such as could have been found in many aviaries before the war, and some of which one hopes still survive. These could hardly be described as " tame "; and certainly not as finger-tame. If released without precautions they would probably disappear in a short time, and ultimately perish for lack of food or shelter.

But, as many experiments have shown, if the release is brought about gradually, many species which have the homing instinct well developed can be taught to return to their aviary for food and shelter and, given a suitable locality and a readiness on the part of their owner to suffer some initial losses, there seems no reason why a more-or-less permanent flock of gregarious birds could not be established. In this group insectivorous or semi-activerous species would seem to have an advantage, since the initial liberation could be more safely undertaken when pairs were feeding their young and foraging for insects outside the aviary . . . though, of course, this applies to some extent to all birds when breeding.

Some of the hardier species could be allowed semi-liberty throughout the year, but others would have to be confined during the winter.

What an added attraction it would be to any garden, and what a delight to any garden and bird-lover to see a good flock of (say) Cordon Bleus, Zebra Finches, Avadavats, or Weavers, not to mention the somewhat rarer birds like Parrot or Painted Finches or Diamond Sparrows, flying freely about.

In my opinion the pleasure to be derived from keeping one's birds in this way far exceeds that of confining them to an aviary, and should

amply repay the expenditure of time, patience, and expense entailed in achieving it.

But it is in the second class of birds I, personally, am most interested. This includes those of any species possessing two essential qualifications . . . the homing instinct, and a capacity for attachment to their owner. Before a bird in this class can be successfully liberated it must have lost all fear of the hand that feeds it, and come to it when called.

Though it is possible to achieve this degree of tameness in some hardbills, in practice it is much more easily obtainable with softbills . . . most of which will " sell their souls " for mealworms, and generally come to hand whenever they hear or see the mealworm tin being opened.

In my limited experience with foreign birds kept in semi-captivity I have found that though a large cage or weather-proof box will suffice for the purpose, it is advisable to have a small aviary for each bird or pair, in which they can always find a supply of food and water, and on occasion be confined.

Most birds are instinctively afraid of cats, and given a cat-proof aviary there should not be much danger from that source, while if they do not stray too far from the house the danger from Hawks is not great.

But all except large birds are liable to fall a prey to marauding Owls, and for that reason it is advisable to induce them into the shelter of the aviary or cage before dark and, if necessary, confine them there.

The number of species suitable for keeping in semi-captivity is almost unlimited, but evidently all are not equally adaptable. Any birds of the Starling family are excellent, and one of my ambitions is to have a pair of Royals flying about my garden, and, perchance, nesting there. Sibias, I know, are very adaptable, and I should imagine Troupials also, while any of the Pie family should present no more difficulty than our native " Mags ", and be less liable to vanish in the spring.

I am sadly aware that, until importation is again possible, most of this is on a par with those other dreams we aviarists are cherishing, and for the realization of which we may have to wait quite a time yet.

In the meantime there is a wide field for experiment with British birds, many of which can compare both in beauty and interest with the imported.

But my advice to anyone who might contemplate keeping a Cuckoo either at semi-liberty or in any other way is emphatically that of Mr. Punch to those contemplating matrimony ! Not long ago I rescued and hand-fed a fledgeling of this vaunted species.

Of all the greedy, filthy, spiteful, ungrateful, and generally disagreeable birds I have ever known it was that Cuckoo. By the time I had discovered it's true character and some of its vices it was winter,

so, being determined to be rid of the thing at all costs, I dispatched it, unheralded and unsought, to the London Zoo. To my astonishment I shortly received a note of *Thanks* from an innocent official !

This incident had rather an interesting sequel. A boy, evacuated from a London suburb to this little Berkshire parish and school, already knew of my existence—for he had chanced to see my name on the label affixed to the aviary in which resided that unholy bird !

* * *

AN EARLY ACCOUNT OF SOME OF THE PERCHING BIRDS IN THE SCAMPSTON COLLECTION

By A. F. Moody

(*Continued from p.* 53)

White-browed Wood Swallow (*Artamus superciliosus*)

From an acquaintance of three examples I may describe this Australian species as an exceedingly bright and attractive bird, being almost continually on the move, and combining a cheerful twitter with a graceful swallow-like form and flight : in fact both the bird's habits and appearance are pleasing, which, coupled with its peaceable nature and general good spirits, make it a most desirable occupant of the aviary.

Size.—From memory, about equal to a Thrush. Colour, French grey.

Breeding.—We possessed no sound female, but a particularly vigorous male seemed most anxious to nest, and repeatedly carried green leaves, dead grass, etc., into an open box, the interior of which had previously been moulded into a cup-shaped cavity of clay.

Food.—In addition to continual access to the insectivorous mixture we gave the birds an occasional mealworm and a small daily allowance of shredded raw meat (sheep's or bullock's heart).

Hardiness.—Our examples, as a matter of convenience, were given the advantage of a heated compartment during the colder months, so I cannot state to what extent the species is hardy.

Special Requirements.—The species, instead of using ordinary perches, as it does during the daytime, prefers to roost clinging in an upright position to a brick wall, or other uneven perpendicular surface. I would recommend its being favoured in that direction, also in an aviary being allowed considerable wing-space.

British and Foreign Finches, Waxbills, etc.

British

The requirements and the behaviour of the British section of this group are so thoroughly understood by bird lovers generally, that I need write little under the present heading, except perhaps to mention that of late years at least, such of the commoner British seed-eaters as have been confined here have been kept as a fill-up to some outdoor aviary. A pair or so only of one species have been kept at the same time, and with the object of being able to observe their nesting and rearing habits at close quarters, after which parents and young have usually been liberated or found good homes.

Food.—Have usually had access to hemp, canary, millet, and sometimes rape seed, a diet that, coupled with abundance of exercise and green food, appears to suit the group admirably.

Foreign

In dealing with the foreign section of these hardbills, I may state that although almost entirely absent from the collection at the time of writing, 1912, we for some years reserved two or three aviaries for their accommodation, and kept a goodly number of these small and, in many instances, attractive little birds.

Requirements.—The requirements of the group (apart from food, etc.), if kept otherwise than as cage birds, appears to be a sunny, sheltered, aviary entirely covered in or provided with a well-lighted, perfectly dry, and mouse-proof sleeping compartment (heated, shut up, or open fronted as the case may require) which should be rendered attractive by numerous perches and a variety of nesting boxes.

Hardiness.—Referring to the hardiness of these small foreigners many species, provided they can be slept undisturbed and dry, are comparatively hardy and would, I should imagine, if thoroughly established, winter satisfactorily with access only to an open-fronted shed.

Our method of treating the group here has been to associate several species together, and during the more unsettled months to sleep (also to confine during severe weather) the more hardy and less valuable kinds in a shut-up, well-lighted, but unheated wooden shed, and to give the more valuable or delicate species the advantage of a flight connected with a brick-built glass roofed structure provided with artificial heat and glazed sliding front.

Breeding.—As is well known many of these small foreigners nest freely in confinement, and, we found, usually either built domed structures composed of hay, etc., in evergreen bushes, or took readily to artificial nesting boxes.

Food.—In the matter of food those species resembling the Britishers

in size and structure appear to require a similar diet, but the true Waxbills, Grass Finches, etc., are undoubtedly simple feeders and with the addition of half-ripened grass and weed seeds, thrived and reared their young upon a mixture of plain canary and millet seed.

Goldfinch (*Carduelis carduelis*)

For some months prior to 1912 we have possessed a pair of the Siberian or larger form of this well-known songster.

Habits.—Similar to our native bird.

Breeding.—Beyond carrying nesting material this pair made no progress.

Siskin (*Carduelis spinus*)

For about three years we possessed examples of this rather uncommon British seed-eater, which I may describe as a charming little bird, suitable for either cage or aviary.

Breeding.—The Siskin does not appear to nest very freely in confinement but from a pair which enjoyed the range of a roomy aviary two broods, a four and a three, were reared in 1909.

Nests.—Rather like that of the Spotted Flycatcher, built in yew bushes at a height of about 6 feet from the ground.

Eggs.—Five and four in number.

Incubation.—Thirteen to fourteen days. It was observed that the broods left the nest on the thirteenth and fourteenth day respectively, and that on the date that the first brood left the nest (10th August) the female ceased to assist the male to feed the first brood and commenced to sit upon the second clutch of eggs, also that the young males on leaving the nest differed from the females by showing a greater amount of yellow in their plumage.

Wild Canary (*Serinus canarius*)

For some time we kept in an outdoor aviary a pair of this species, examples I may state that in spite of their small size and sober colouring, appeared to the writer vastly more interesting than their more showy descendants, the domestic forms.

Hawfinch (*Coccothraustes coccothraustes*)

Except for short periods we have never found aviary room for this rather formidable Finch. In captivity, however, the bird may be described as an excellent doer if at the same time somewhat wild, restless, and untameable.

Tree Sparrow (*Passer montanus*)

On two occasions for a few months we have confined a pair or so of these extremely active little birds. The species appears to thrive in captivity but does not tame readily.

Snow Finch (*Montifringilla nivalis*)

For about ten years prior to 1912 we have possessed examples of this fine, and when on the wing, conspicuous species. It is a bird I should describe as long lived, but ill-adapted for cage life, and in an aviary, instead of using ordinary perches, prefers to walk about the ground, or rest, or chase its fellows upon ledges of woodwork, etc.

Breeding.—In such newly imported birds as we have received the males appear to predominate, and we have but once summered an undoubted female, a bird that almost completed a Wagtail-like nest in a covered-in box, but did not produce eggs.

Disposition.—The males are generally spiteful towards each other and not infrequently quarrel seriously.

Food.—Mixed seed, and if kept with no opportunities of procuring insects, etc., a small daily allowance of insectivorous mixture.

Hardiness.—The Snow Finch, like certain other Alpine species, appears by no means unmindful of cold combined with damp, and although no great protection is necessary I have noticed times when the dozen or so examples that we have wintered appeared extremely glad of the open fronted shed to which they had access.

Madera Chaffinch (*Fringilla tintillon maderensis*)

For about eighteen months, dating from the spring of 1910, we kept a pair of these Chaffinches. Roughly speaking they differed chiefly from our native bird by being slightly larger with a proportionally stouter bill, by the male showing little of the red on the breast and being generally blue or slate on the upper parts, also by the note of both birds being quite distinct.

Habits, Food, etc.—As far as could be observed similar to the common Chaffinch.

Hardiness.—These examples wintered satisfactorily without artificial heat.

Brambling (*Fringilla montifringilla*)

This rather showy winter visitor does well in confinement, but according to my experience is possessed of a wild restless nature which, coupled with its readiness to take alarm and unsettle other birds after nightfall, makes it rather an undesirable subject to confine with other species.

Breeding.—The species has but once had an opportunity of nesting here, when during the summer of 1907 the following observations were taken from a very ragged male (a dealer's bird) and a fine locally caught female of the previous autumn. 30th May : About this time the male completed his nuptial dress, began to sing and otherwise behave as a breeding bird. 1st July : The pair began to build,

choosing as a nesting site an old and partly decayed Blackbird's nest which had the year previously been stuffed into a growing hawthorn bush at a height of about 4 feet from the ground. 6th July : Nest completed, in appearance very Chaffinch-like, differing only in being slightly larger and not so compact. 7th July : The first of a clutch of five very Chaffinch-like eggs laid. 11th July : Incubation appeared to commence. 2nd August : Two young males left the nest. These were successfully reared, and rapidly assumed a plumage not unlike the adult in winter dress.

Nestling. Four hatched (two of which died at an early age), covered with a dull white down.

Incubation.—Exact period not taken.

Food.—The parents, having the range of a large aviary containing much herbage, reared the young upon such seeds and insects as they could procure.

Mealy Redpoll (*Acanthis linaria*)

For about two years we possessed examples of this sober plumaged little bird which may be described as a species that takes readily to confinement, becomes very tame, and is quite easy to manage.

Habits.—Similar to the common Redpoll.

Bullfinch (*Pyrrhula pyrrhula nesa*)

It may perhaps be worth recording that during the summer of 1911 in a large outdoor aviary a pair of these well-known and charming cage birds were given an opportunity of nesting. Being hand reared examples of the previous season they were very tame and confiding. At the same time they proved most indifferent breeders, or rather I should say rearers, for although several typical nests were built in perfectly natural situations and young hatched on two or three occasions, they only succeeded in rearing two young (a pair) late in the season, after having neglected the previous broods. As to the behaviour, etc., of the birds at the nest it was observed that an average nest occupied four days in building. That both took an equal part in the labour, and at intervals sat in the nest before the eggs were laid, after which the female only incubated. The eggs were laid on successive days, roughly about 8 a.m. Incubation in the only timed instance lasted thirteen days, and the young left the nest on the thirteenth and fourteenth days.

Northern Bullfinch (*Pyrrhula pyrrhula*)

For a few months we kept a pair of this large form or sub-species.

Habits and Requirements.—Similar to our native bird.

Breeding.—The female produced eggs but did not incubate.

Red-headed Bullfinch (*Pyrrhula erythrocephala*)

A pair received in 1913.

Appearance, etc.—Fashioned after the manner of our English Bullfinch, but lacks the black crown and has the head and breast orange-yellow instead of brick-red. Tail somewhat more forked.

Sexual Difference.—Female showing only a small quantity of yellow on the crown and nape, and none on the breast.

Habits, Food, etc.—Very similar to those of the common Bullfinch. Quite as confiding in captivity. The male is possessed of a pleasing Finch-like song. The double call note of both sexes slightly higher pitched, but similar.

Breeding Habits.—This pair were given an opportunity of nesting in 1916. I have notes that two young out of three which were hatched on 4th August left the nest on 21st August ; that incubation lasted fourteen days, and that these young which proved to be a pair when first fledged showed no colour, green or yellow, and had the bills yellowish instead of black, as in the case of the parents. Also that at the end of December they had almost assumed the adult plumage, and by March of the following year were indistinguishable from their parents.

Nest.—Somewhat more slight than that of our English bird.

Eggs.—Three in number, similar but slightly less round and more sparingly marked than average Bullfinches' eggs.

Scarlet Grosbeak (*Carpodacus erythrinus*)

For about two years we kept examples of this rare British bird, a species that according to our experience is as hardy and easy to maintain in health as the common Greenfinch, but possess the one drawback of not retaining (or reassuming to the full after the first moult) the brilliant colouring of breast and forehead.

Requirements.—Similar to the Bullfinch.

Song.—Loud, penetrating, clear, and unlike that of any seed-eating bird that I know.

Desert Trumpeter Bullfinch (*Bucanetes githaginea*)

We possessed a pair or two of this desert species. We found them peaceable, easy to keep, and from their peculiar trumpet-like note and the delicate rose pink bloom of the male, attractive birds to possess.

Breeding.—On one occasion at least a pair nested in a covered-in box.

Eggs.—To the best of my recollection, rather smaller and paler in ground colour, but otherwise similar to those of the common Bullfinch.

Hardiness.—We supplied our birds with artificial heat during the winter.

(*To be continued*)

CORNCRAKE IN CAPTIVITY

By A. C. Furner

I think it might be of interest to some readers to hear of my experience with a Corncrake.

One evening of July last year a friend, Mr. Elkington, of Derby, came down to see me and brought a cardboard box containing a bird which he had found in his garage. As I have seen one live Corncrake and several pictures of them, it was not difficult to identify it. The bird was evidently a young one, and was too weak to fly properly.

I put it in my greenhouse which is, or rather was, plentifully stocked with every type of insect pest, and this bird proved the tamest " wild " bird I have ever possessed or known. It was with some difficulty that I hit on a suitable diet to meet his requirements. At first I tried him on corn, with " nothing doing ". Spiders were very acceptable, but the supply was entirely inadequate. I eventually took in a piece of old wood covered with wood lice and that was just right. He would come on to my knee without fear whilst I pulled the bark off piece by piece, and he helped me to look for the wood lice.

The next step was to prepare for the winter, and once again after repeated experiments it was found that dried egg scrambled and chopped up was quite acceptable ; also gentles, which I have been able to purchase from a local fishing shop, have filled the bill, and he is perfectly fit although in a heavy moult at this date, 9th March. One curious feature was that the extreme tameness disappeared in a night. At first he would jump up with some difficulty due to weakness on my knee, stand on my hand, and even follow me about the greenhouse. This was not just because he was hungry for he did it after feeding, and when he would take no more food.

One morning in early September when I went into the greenhouse, he just rushed away and refused to come near. He would not even go to the food pot whilst I was in the greenhouse. There appeared no logical reason for this sudden change. It may have been caused by a fright or, as was suggested to me, the migration instinct. He has gradually come round again and will condescend to take gentles out of the food pot when I offer the pot to him, and whilst I am holding it, but beyond this he will not go. If anyone else is about he refuses to come near, but disappears along the staging with lightning rapidity. The early weakness had completely vanished, and he can fly up from the floor on to the staging without effort.

I am essentially a foreign bird enthusiast, but this little British migrant has definitely been a source of pleasure. In addition he has given one the satisfaction of watching him improve in captivity rather than decline as is too often the case.

I have called this bird " He " throughout, which may be entirely erroneous, as I cannot even hazard a guess until the moult is complete, when I understand the grey on the side of the head is an indication as to sex.

* * *

NOTES

A Special " Birds at Semi-Liberty " Number

It has been suggested that a special number of the Magazine devoted to articles on birds kept at semi-liberty be published. The Editor would be glad to hear from those members willing to help make this possible either by sending accounts of their own experiences of birds kept at semi-liberty, or suggesting the names of others able to do so. Such a number would undoubtedly be both of great interest and value to aviculturists as a whole.

P. B-S.

Some Recent Arrivals at the London Zoo

Through the kindness of the Hon. Mrs. Mcleren Morrison the Parrot collection has been enriched by one Slender-billed Cockatoo, one Leadbeater's Cockatoo, one Roseate Cockatoo, one Red-vented Cockatoo, one Alexandrine Parrakeet, one Red-rumped Parrakeet, one Rosy-faced Lovebird, one Blue-crowned Conure, one King Parrakeet, one Yellow-winged Parrakeet. The Red-vented Cockatoo, Yellow-winged Parrakeet, and Rosy-faced Lovebird have not been represented in the Zoo collection for some time.

Sir A. Burn has presented two Orange-crowned Parrots (*Poicephalus gulielmi fantinensis*) which are at present in the Zoo Quarantine Station in Gloucester Road. The Bristol Zoo have at present three Blossom-headed Parrots deposited in the Parrot House. All these various Parrots make the Zoological Society Parrot Collection a very fine one, as it was a very representative collection before these last arrivals.

Mr. Sydney Porter has presented one Manchurian Eared Pheasant, two Falcated Teal, and one American Wigeon. The unidentified Weaver bird which was presented by Mr. Nelson, which was on exhibition in the small Bird House has died. It was rather impossible to identify it as I understand the Natural History Museum Weaver bird specimens are away in the country.

P. H. Maxwell.

Penguins at the Edinburgh Zoo

The Edinburgh Zoo is extraordinarily successful in the breeding of Penguins. The King Penguin was first bred there in 1919 and on numerous occasions since. In answer to a recent inquiry Mr. T. H. Gillespie, the Director-Secretary, very kindly supplied the following particulars of Penguin breeding in the Park since 1932.

King Penguin

From August, 1932, to August, 1940, twenty-three chicks were hatched. Not all of these, however, were reared, and the number takes no account of eggs laid which proved infertile, of which there were some two or three dozen.

Gentu Penguin

1937. Two eggs : one chick hatched and reared to first moult.
1938. Twelve eggs laid (six pairs nesting) and five chicks hatched : two reared to first moult.
1939. Ten eggs laid : seven chicks hatched : five reared to first moult.
1940. Six eggs laid : six chicks hatched : two reared to first moult.

Macaroni Penguin

1935. Four eggs laid : two chicks hatched : one reared to first moult.
1936. Two eggs laid : one chick hatched—not reared.
1938. Two eggs laid : one chick hatched : reared to first moult.

Ringed Penguin

1935. Two eggs laid : one chick hatched—died within a week.
1936. Seven eggs laid (four pairs nesting), one chick hatched—died within two days.

" The death rate amongst Ringed Penguins was fairly heavy, and these Penguins, thirty of which arrived in the Park in 1933, had all died by 1938. Since the outbreak of war the death rate of other Antarctic Penguins was also heavy, and we have now only two King Penguins left out of about one hundred and forty of four species which we had in 1937."

A. A. P.

* * *

CORRESPONDENCE

FECUNDITY OF GREGARIOUS BIRDS

I was much interested in Mr. Yealland's remarks in the January–February, 1945, issue, regarding the fecundity of gregarious birds.

Might not the same remarks apply to non-gregarious species ? I have frequently noticed that the best breeding results are obtained in collections where several pairs of the same species are kept, not necessarily together, but within sight or hearing of one another. May not the proximity of other potential rivals have a stimulating effect on the breeding activities of each pair ? The cocks hear the calls of rival cocks and the hens hear rival hens. It is a well-known fact that jealousy has an important bearing on human affairs, so might not the same apply to birds ? The surest way of making a cock " keen " on his hen is to let him see or hear a possible rival.

In a wild state, even though a species may not nest in colonies, as a whole it occupies certain land areas, each pair annexing its own particular bit of breeding territory, however large. Thus, even though they may be pugnaciously inclined towards one another, they are bound to be in touch wherever their territories meet, and to have that feeling that, if they don't make the most of their partners, there is always someone just over the border ready to come in and do it for them !

There are, of course, numerous instances of single pairs breeding very successfully, and, one has to admit, where several are kept, the good results of one pair offset the poor results of another. In spite of this, however, I have a theory that if statistics could be obtained, the most consistently successful breeders, that is to say those who rear a good number of young year after year, would be found to be those who have kept several pairs of a few species, rather than those who have kept merely one pair each of numerous different families.

It would be interesting to have the views of other aviculturists on this matter.

D. H. Risdon, Flt.-Lt., R.A.F.

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WATERFOWL AFTER THE WAR

By Ronald Stevens

Unfortunately many collections of birds have come to an end through the war, and at present their former owners may be feeling discouraged when they reflect on the years of work which the war has seemingly cancelled out.

True, the birds themselves have gone, but the knowledge that we have gained from them remains, and it would be regrettable if we sealed that up.

Birds, including waterfowl, will become available again. The numbers of species will no doubt be very limited for a time, but let us get what material we can. After all, the pleasure of keeping waterfowl is not dependent on amassing large numbers of species. In fact, the man who is not content unless his collection surpasses all others in comprehensiveness is apt to be a mere collector, and may lose sight of the far more important aspect of ornithological knowledge which is the aim of the real aviculturist. And so his neighbour who keeps a pair of Teal only may contribute more to aviculture and undoubtedly gets more genuine pleasure from his birds than the collector whose chief purpose is to make an impressive display.

Now the war has ended, it will be a fine opportunity for us to take stock of our past experiences with waterfowl. In the halcyon days of our collections how often did we say to ourselves, " Now, if I were starting all over again I should avoid this or do that ? " Well, the time will soon be here when we can start all over again, and who knows that future aviculturists will not point to the post-war years of world war 2 as being the period when aviculture began to express itself more intelligently ?

This brings me to the purpose of this article, to that which I should like to call lesson one to be applied to future collections, i.e. the correct grouping of species.

In the past most of our birds were " collections " in the crudest sense of the word. Years ago when my brother and I came to Walcot to keep waterfowl, we put every duck, goose, and swan that we could lay our hands on on to the lake there until there were over a hundred

different species inside the enclosure. A " collection " it certainly was ! Most of the countries of the world were represented on that lake and at feeding time, when the birds congregated round one, the scene was one of the wildest disorder. Photographs were taken, and the resulting pictures had the effect of making these birds appear to be just a jumble of poultry, although in actual fact each species, by itself, was of great æsthetic value and highly interesting.

Sometimes people came specially to study certain species. The occasions were rare when we could show them the birds they were interested in on separate ponds. Too often they had to spot them as best they could among a heterogeneous crowd of fowl, and if a bird came within close range as likely as not some other duck, goose, or swan, representing some entirely different country, would drive it away, and so the inquirer would go away disappointed.

This mistake of crowding all species of the Anatidæ together has been general, and not only that, but the birds have so often been placed in the wrong setting. Who has not groaned inwardly on seeing sea ducks against a background of green lawns and blazing flower-beds ? Eiders do not go with gladioli, neither do Goldeneye harmonize with geraniums.

Anyone who intends keeping waterfowl when final peace comes again would be well advised to consider the water he has at his disposal, and to procure only those species which suit it. To illustrate —suppose it be desired to stock what might be termed the typical garden pond. In such an instance where the decorative value of waterfowl is an important consideration, a pair of Mandarin or Carolina would be chosen, not both, because in the breeding season the drake of the one species would persecute the duck of the other, unless the pond were large and possessed plenty of cover in the form of reeds. Then a pair of European or American Wigeon could with reasonable safety be placed with a pair of Chiloe Wigeon as the latter keep much to themselves. Shovelers too, either the common or one of the Southern Hemisphere species may be relied on to live in harmony with other ducks, and a garden pond is an ideal setting for them.

One must be careful about selecting Teal so as to avoid hybridizing and to maintain peace on the pond, but one pair each of Garganey and Cinnamon could be expected to live happily with either European, American Green-winged, Cape, Chilian, or Hottentot Teal.

Diving Duck could be represented by a pair either of Common Pochard, Tufted, Scaup, Canvasback, or White-eyed Pochard, with Rosybilled Duck and Red-crested Pochard safely thrown in, although the last two species are not typical of the Divers. The tiny American Ruddy Duck is more of a diver than any of the preceding, and is such

an individualist and so disregards other birds that it should certainly be added if possible to procure.

If Sawbills be required, a pair of Mergansers would be quite in order on a garden pond.

Tree Ducks are an attractive and amusing race, and generally speaking the different species live at peace with one another and with other fowl.

If the pond be a large one, a pair of Black Swans is permissible, or Black-necked, but Geese, in my opinion, would look out of place except for the charming little Maned Goose.

And so this brings us to a total of about eighteen or nineteen pairs of waterfowl, which, on a good-sized pond, could be expected to live together as a harmonious whole. This collection would be pleasing to what we might call the average person, although the purist would probably want to confine himself, in such conditions, to flocks of one species of surface feeders and one species of diving ducks.

If it be desired to stock a large lake in a park, it would be a fine opportunity to have flocks of waterfowl on the grand scale. But I contend that the species ought to be chosen with all the care that should go with the stocking of a garden pond. It might be best under such conditions to have flocks of all the British freshwater duck and to aim at having their numbers greatly augmented by the arrival of wild winter migrants whose numbers would increase from year to year through the establishment of such a sanctuary. In time, such a lake would be able to show such quantities of fowl as would recall those bygone times before the marshes of this country were drained. It would be a fine thing to aim at, and what interesting experiments one could make ! One might make conditions for the birds so attractive as to persuade many of the winter visitors to remain to breed. Thus many wild Wigeon, Gadwall, Pintail, Shoveler, Pochard, and Tufted would almost certainly stay to nest instead of flying north, as they would form ties with the tame birds of their species, and so the friendly influence of the place would spread among them. This was achieved to some extent at Walcot. There are in fact several waterfowl enthusiasts who have achieved some success in this direction. Personally, I cannot help feeling that the cultivation of wild birds and their successful taming is the pinnacle of the art of keeping waterfowl.

But I should never be so exacting as to rule out all foreign species in such conditions. I should want flocks of full-winged American and Chiloe Wigeon, not only for the gratification of seeing them fly overhead, but for the interest of comparing them with the increasing numbers of their English cousins as winter advances. It would be like spotting Rainbow and Sea Trout among the Brown. I am certain, too, that I should make every endeavour to have a large flock of that royal-looking bird the Red-breasted Goose and also the Emperor

and Bar-headed Geese, and they would not look incongruous with the Greylags which would breed in large numbers round the lake and maintain themselves as in former times they used to do in this country.

But the aberrant forms of Geese ought not to be allowed on such a lake, for the *Cløphaga* group, *Cereopsis* and Andeans, etc., do not look right among the true Geese. They are extremely interesting, of course, but they do need separate enclosures, particularly as they are so spiteful and often kill other birds when they get the chance.

In fact, there would be no need to leave any foreign species out of such a collection as described above, but I do advocate the greatest consideration before mixing species that are not allied to one another. Have foreigners by all means, but in these conditions I do maintain (reflecting on past experiences) that the *majority* of them ought to be confined to small enclosures where the occupants could remain under close observation. Such small enclosures could be made quite attractive, and it would be interesting to try to make each one a little replica of the kind of setting that is appropriate to the species in its native haunts. Thus, for the White-winged Wood Duck of India a tangle of undergrowth could be arranged for it to retire into, and logs and branches would offer it perching places.

If anyone were fortunate enough to own an estuary with marshes and sea pools, what opportunities would be open for the keeping of the fascinating, beautiful, but difficult to keep sea ducks ! In such a place Eider, Longtail, Scoter, Goldeneye, and Harlequin would flourish as they so seldom do on fresh-water ponds ; and if the landscape were large enough, I doubt whether foreign sea duck would look out of place among them, though there should be plenty of scope to give them their own areas. Sheldduck, English and foreign, would be in their element, so would Brent, Barnacle, and Snow Geese.

And here Flamingoes would come into their own at last !

I remember once, on a visit to Tresco, Scilly Isles, seeing a Flamingo feeding among the rocky pools of the sea shore. Its owner, Major Dorrien-Smith, told me it was an escaped bird which now led a feral existence. It looked perfect there against the primary elements of rocks, sand, sea, and sky, and was in splendid condition and colour as it found all its own food which was food of the right kind. I shuddered when I thought of the Flamingoes one usually sees against the vigorous green of English lawns, plunging their heads into buckets for their food.

Not only because of æsthetic considerations, but for practical reasons too, waterfowl ought to be kept in their right places. They thrive when so kept and, after all, in natural conditions they are much worthier objects to study.

WILD GEESE ON THE SEVERN

By H. H. Davis, M.B.O.U.

What, to the wildfowl student, can be more delightful than the sight and sound of wild geese in thousands at one of their chosen winter haunts? One such haunt is on the Severn, at Slimbridge, about four miles north of the time-honoured town of Berkeley. Here, on pastures known as the New Grounds, and on the adjoining saltings, large numbers of White-fronted Geese have their annual winter home, and Pink-footed Geese arrive in the autumn for a short stay at what is the most south-westerly of their quarters either in this country or in Europe. Although early writers make no comment on wild geese at Slimbridge, it seems likely that the birds have wintered there for centuries.

No account of these geese would be complete without some reference to the history of this interesting and highly fertile pasturage. The New Grounds, more than a thousand acres in extent, has for long formed part of the Berkeley Castle estate. At one time overflowed by the Severn, it has, as its name implies, been gradually reclaimed and enclosed from the river. When such enclosure was completed is uncertain, but that the reclamation of large areas was in progress early in the seventeenth century may be gathered from Smyth (*The Berkeley* MSS., 1639 [1]) who writes in considerable detail of the enclosure and embankment of what he calls the " newe warthe " and the " newe gotten grounds ".

In their county histories of Gloucestershire both Atkyns (1768) and Rudder (1779), writing under the heading of Slimbridge, refer to the reclamation of this land and, evidently quoting from Smyth's MSS., both mention a dispute over its initial ownership. The former records that " Many hundreds of acres of very rich meadow in this parish, called the New Grounds, have been gained from the Severn and do belong to the Earl of Berkeley because his manors do extend to the middle of that river. A suit in the exchequer was begun in the reign of King Charles the First to entitle the crown to these lands ; but after the jury was impanelled and evidence begun, the attorney-general dropped the suit ".

That the great fertility of the New Grounds pastures was recognized at an early date may be seen from remarks by Fuller (*History of the Worthies of England*, 1662), who says, " As for pasturage, I have heard it reported from credible persons that such is the fruitfulness of the land nigh Slimbridge, that in the springtime, let it be bit bare to the roots, a wand laid along therein over night will be covered with new grown grasse by the next morning." Fosbrooke (*History of Gloucester-*

[1] Cf. *A Description of the Hundred of Berkeley*, vol. iii, 1885, pp. 330–8.

shire, 1807) records that, " on this being told to King James I the incredulous King answered that he knew a field in Scotland where if a horse was turned in on a Sunday it would be in vain to look for him the next day."

The omission from such accounts of any mention of wild geese is to be regretted, for there seems little reason to think that what is now so marked a feature of the district was not equally marked during the lives of at least some of these historians. From records noted on the spot and regularly sent to Berkeley Castle, it is known that geese were wintering on the New Grounds in 1843. The first reference to the birds, however, is apparently that of Berkeley (*Reminiscences of a Huntsman*, 1854), who says that " Immense flocks of wild geese are in the habit, from September to April, of feeding on some large grazing meadows by the side of the Severn, called the New Grounds, and the geese in their coming and going never vary above a day or two, but are as sure to arrive, in small numbers at first, as the month in the year comes round." He also mentions that among the geese killed are " four different species—the grey lag, the white-fronted goose, the bean-goose, and the pink-toed goose ". The same author in remarking on the occurrence among the flocks of what were, no doubt, albinistic varieties states that, " There have been occasional instances of white geese appearing among them, to which the cow-herds or farmers' men have approached so near that they could be sure of the species ; but, from no crafty steps having been taken to kill them, these rare specimens have hitherto escaped." Similar white varieties have twice been seen in recent years—one among White-fronts in January, 1939, and another among Pink-feet in October, 1943.

Of numbers, Berkeley says that " At times, and in hard weather, the geese number many thousands ", and again refers to them as " exceeding occasionally ten thousand ". Mellersh (*A Treatise on the Birds of Gloucestershire*, 1902) gives a comparatively moderate estimate, but in writing of the White-fronted Goose at a later date (" Wild-fowling," *Victoria History of the County of Gloucester*, 1907) he also quotes numbers reaching ten thousand. The accuracy of these statements cannot now be assessed, but it may be pointed out that while so great a number might well occur on the New Grounds, it seems highly unlikely that they could be maintained there for long. Recent observations suggest a present-day maximum of between three thousand and four thousand birds.

Various authors have referred to the excellence of goose-shooting on the New Grounds. Walsingham and Payne-Gallwey (" Shooting," *Badminton Library*, 1897), say that, " The only place we know of in our islands where wild geese are obtained with a shoulder gun in such numbers as at Holkham is near Berkeley Castle . . . not far from the banks of the Severn. Here 45, and on another occasion 44, wild geese

were killed in a day, the larger bag being obtained during the great snowstorm of 1881." Whitaker (*British Duck Decoys of To-day*, 1918), in describing a visit to the Berkeley Castle decoys, gives a brief account of how the geese are driven over high butts between the meadows and the river, and states that as many as twenty-one have been shot at one drive. As the average annual bag over a period of ninety years has amounted to no more than forty, it will be seen that shooting takes but a slight toll of the many geese visiting the New Grounds.

Geese begin to arrive on the Severn in September, usually during the second half of the month and, as noted by Berkeley nearly a century ago, they come in small numbers at first. That they turn up with great regularity is evident from records dating from 1843, in which, on no less than 70 of the 86 years listed, the arrival date is shown as being from the 12th to the 23rd. From local information, and from observations since 1932, it appears that their departure takes place with equal regularity. In view of the statement by Berkeley that the birds remain from September to April, it may here be stressed that they now seldom stay later than the first fortnight of March.

Although they make frequent visits in small parties to other reaches of the river, the bulk of the geese may usually be found on the New Grounds. Here they receive adequate protection, and to see them grazing, several thousand strong, either on the saltings outside the flood-bank or in the enclosed meadows, is a magnificent sight. Magnificent too, when if disturbed, they rise and in full cry repair to mid-stream, where, unless the tide is up, they take refuge on the sand-banks. The protecting flood-bank provides the observer with exceptionally good cover, for no matter where the birds are feeding they can, with due caution, be approached and viewed at fairly close —sometimes very close—range. It may indeed be claimed that, though Geese are to be found in greater numbers elsewhere in the British Isles, there is probably no place where they can be seen to better advantage.

Since regular observations were not begun until as recently as 1932, it is impossible to say what changes, if any, have taken place in the past. From the remarks of Berkeley and subsequent writers, however, it seems evident that both the White-front and the Pink-foot have for long been known to occur in large numbers, and that the White-front in particular has been regarded for many years as the common goose of the New Grounds. Present-day records make it clear that these two are the only geese which now visit the Severn at all plentifully, and that the Pink-foot, coming in September, makes a comparatively short stay in varying numbers, while the White-front, arriving in October, remains—often in great abundance—until March. From 1932 to 1937 Pink-footed Geese were fairly frequently noted in numbers exceeding the 1,000 mark, but in more recent years

far fewer have been met with. Their departure normally takes place at any time in October or November, and only rarely are any to be found later. Nothing is apparently known as to their destination on leaving the Severn, or as to why they forsake a haunt in which so many White-fronts are content to remain. Although often outnumbered by the Pink-foot for a few weeks the White-front is usually present in considerable strength by mid-November. From then until early March the birds generally total between 1,000 and 2,500, though on some occasions as many as 3,000 or more have been seen.

Owing to the confusion which for long existed between the Bean and the Pink-foot, early records of the Bean-Goose on the New Grounds must be regarded with caution. Both this species and the Greylag-Goose have been mentioned in the past as being among the Geese killed, but no clues are given as to how often they were obtained. The only definite sight records for recent years are those of single Greylags in October, 1933, and October, 1939, and of two Bean-Geese in February, 1940, and one in February, 1945. It seems, therefore, that whatever their former status, both are no more than very scarce visitors now. Snow-Geese have occurred on at least three occasions—eight, adults and immatures, staying for about four days in October, 1901, and three adults remaining for several weeks in November, 1906, while a more recent record is that of one, now preserved at Berkeley Castle and said to be a Lesser Snow-Goose, shot from a party of three adults which stayed for some time during the severe winter of 1916–17.

There is nothing in past accounts to suggest that either the Barnacle-Goose or the Brent Goose have ever been regarded as anything more than uncommon visitors to the Severn. It is known, however, that the Barnacle now occurs regularly and that it may often be found in very small numbers feeding among the flocks of grey geese. Seven in February, 1945, is the highest total yet reported. The Brent is less regular, but has been noted, either singly or in twos or threes, on various occasions during the last twelve years. As recorded in *British Birds* (vol. xxxv, p. 83) a quite unexpected occurrence was that of a Red-breasted Goose which remained, with a large gathering of White-fronts, for at least a week in February, 1941. The bird, showing unmistakable signs of immaturity, was undoubtedly hatched in the previous year and, as inquiries sent to all likely quarters failed to elicit any evidence of a 1940 hatched Red-breasted Goose having escaped from confinement, there seems good reason to believe that it was a genuinely wild visitor. The Canada Goose, though known to become widespread in the British Isles in winter and sometimes to associate with grey geese, has seldom been met with on the New Grounds. A single bird from December, 1939 to March, 1940, and one (possibly the same) in February, 1941, are the only records.

Enough has perhaps been said to show that a day with the Geese in this old established haunt is well worth while. That such a day can exceed all expectations may be gathered from the writer's experience during the hard frost of February, 1940, when fine views were had of 1,500 White-fronts, 2 Beans, 25 Pink-feet, 1 Barnacle, 3 Brents, and a Canada Goose feeding in company on the saltings. Six species together is surely as much as any goose-watching enthusiast can hope for !

Acknowledgment is due to the Publications and Library Committee of the Bristol Naturalists' Society for permission to include here this short version of a more detailed account [1] published in the *Proceedings* of the Society for 1943.

* * *

THE FAMILY ANATIDAE

By J. Delacour

I have long been personally interested in waterfowl. For over twenty years I kept at Clères several hundreds of these fascinating birds, representing all the known wild species with the exception of twenty-six. They lived there under almost natural conditions and many of them were breeding regularly. This enabled me to make countless observations which were extremely valuable for the understanding of their relationship.

I had already published several articles on the subject, notably in the *Proceedings of the VIIIth International Ornithological Congress, Oxford*, 1934 (1938). Since, however, more has been learned, and at the suggestion of several American ornithologists Dr. Ernst Mayr and I decided to sum up our knowledge in a new more important paper in English. Our study has been published in *The Wilson Bulletin*, vol. 57, 1st March, 1945 (pp. 1–53), and I refer it to all persons interested. Our object has been to effect a more natural grouping of species, with a better understanding of their affinities expressed in a simpler taxonomy.

The conventional classification of waterfowl usually so far adopted is founded on a small selection of morphological characters, primarily the shape of the bill and feet. Nothing could be more misleading, as these are entirely functional and undoubtedly often recently acquired, representing merely a secondary adaptation, that is repeated in widely separate groups. We have used on the contrary a number of non-

[1] Studies on the Biology of the Bristol Channel—XV. "The Severn Geese," by H. H. Davis and H. Tetley (*Proc.* B.N.S., vol. ix, pt. v, 1943).

adaptive characters : pattern of tarsus, plumage pattern in adults and chicks, posture, general body proportions, length of neck and shape of head, internal anatomy and more particularly biological peculiarities. Habits and behaviour are of paramount importance, for they are deeply rooted and usually the product of very ancient evolution. In the waterfowl family the main points are pair formation, displays, nesting, and feeding habits.

We believe in large genera, since it is the function of generic names to express relationship not distinctness, which is expressed by the species name.

A New Classification of the Anatidae

The new classification of the duck family that we propose attempts to do two things : to arrange the species in related groups and in a natural sequence, and to adjust the nomenclature of species and genera to progressive concepts of these categories.

Following the popular classification of this family, the first taxonomists divided the waterfowl into : swans, geese, ducks, and mergansers. As more and more was learned about the anatomy as well as about the habits of members of the family, it was realized that this simple division was unsatisfactory. For example, Linnaeus included in the duck genus *Anas* such widely divergent species as the river ducks of the Mallard and Teal type, the diving ducks of the Scaup-Pochard group (" *Nyroca* " = *Aythya*), the diving ducks of the Goldeneye-Scoter-Eider group (Mergini), the Tree Ducks (*Dendrocygna*), and the Sheldrakes (*Tadorna*). Although subsequent classifiers recognized some of these subdivisions, they were guided in their reclassification mainly by the shape of the bill or by the presence or absence of the diving habit.

All the ducks, geese, and swans, including even the most aberrant species, are so much alike in their basic structure and habits that there can be no doubt that those modern authors are right who include all waterfowl in a single family, the Anatidae. Within this family a number of groups of genera can be recognized, but they are clearly arranged in two main groups, which we admit as two sub-families :—

(1) Anserinae. This subfamily includes the swans, geese, and the whistling ducks (" tree " ducks). The attributes of the group are a " goose-like " posture and body shape (with a long neck) ; a tarsus reticulated in front ; a single annual moult ; absence of sexual dimorphism in plumage, voice, and structure of the syrinx. Displays are simple and are similar in the two sexes.

(2) Anatinae. This subfamily includes the rest of the Anatidae. The attributes of the group are a tarsus that is scutellated in front (with a few exceptions) ; a double annual moult ; sexual dimorphism

in plumage (frequent), in voice and structure of syrinx (usual). Displays are usually elaborate and different in the two sexes.

Within each subfamily further subdivisions are recognizable. We use the term tribes (with the ending *-ini*) for such groups of genera, following a custom that is widespread in entomology. The reasons for the recognition as well as for the delimitation of these tribes will be found in the following discussion. The phylogenetic relationships within the duck family are diagrammed as follows.

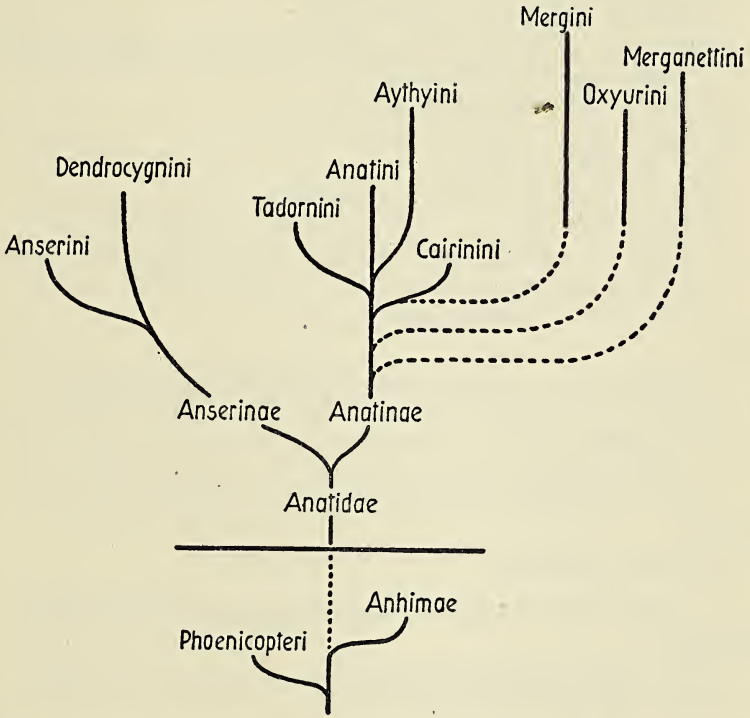

Diagram of the theoretical relationships of the sub-families and tribes of the Anatidae.

A List of the Genera and Species of Anatidae

On the basis of the considerations in the above section of our paper, we propose the following list [1] of genera and species of Anatidae :

[1] Additional genera and species recognized by Peters are given in parenthesis. Each pair or group of species united by a bracket constitutes a superspecies.

I. Subfamily Anserinae

1. tribe anserini. geese and swans

Branta

canadensis, Canada Goose
sandwicensis ("*Nesochen*"), Hawaiian Goose
leucopsis, Barnacle Goose
bernicla, Brant
ruficollis, Red-breasted Goose

Anser

cygnoides ("*Cygnopsis*"), Swan-goose
fabalis (inc. *neglectus* and *brachyrhynchus*), Bean Goose, Sushkin's Goose, and Pink-footed Goose
albifrons, White-fronted Goose
erythropus, Lesser White-fronted Goose
anser, Grey-Lag Goose
indicus ("*Eulabeia*"), Bar-headed Goose
canagicus ("*Philacte*"), Emperor Goose
caerulescens ("*Chen*", inc. *hyperboreus* and *atlanticus*), Blue Goose, Lesser and Greater Snow Geese
rossi ("*Chen*"), Ross's Goose

Cygnus

columbianus (inc. *bewicki*), Whistling and Bewick's Swans
cygnus (inc. *buccinator*), Whooper and Trumpeter Swans
melanocoryphus, Black-necked Swan
olor, Mute Swan
atratus ("*Chenopis*"), Black Swan

Coscoroba

coscoroba, Coscoroba

2. tribe dendrocygnini. whistling ducks (tree ducks)

Dendrocygna

arborea, Black-billed Whistling Duck
guttata, Spotted Whistling Duck
autumnalis, Red-billed Whistling Duck
javanica, Indian Whistling Duck
bicolor, Fulvous Whistling Duck
arcuata, Wandering Whistling Duck
eytoni, Plumed Whistling Duck
viduata, White-faced Whistling Duck

II. Subfamily Anatinae

1. tribe tadornini. sheldrakes

Lophonetta

specularioides ("*Anas*"), Crested Duck

Tadorna
cristata (" *Pseudotadorna* "), Korean Sheldrake
ferruginea (" *Casarca* "), Ruddy Sheldrake
cana (" *Casarca* "), South African Sheldrake
tadornoides (" *Casarca* "), Australian Sheldrake
variegata (" *Casarca* "), Paradise Sheldrake
radjah, Radjah Sheldrake
tadorna, Common Sheldrake
Alopochen
aegyptiacus, Egyptian Goose
Neochen
jubatus, Orinoco Goose
Cyanochen
cyanopterus, Abyssinian Blue-winged Goose
Chloëphaga
melanoptera, Andean Goose
poliocephala, Ashy-headed Goose
rubidiceps, Ruddy-headed Goose
picta (= *dispar* = *leucoptera*), Magellan Goose
hybrida, Kelp Goose

Aberrant Species

Cereopsis
novae-hollandiae, Cape Barren Goose
Tachyeres
patachonicus, Flying Steamer Duck
pteneres, Magellanic Flightless Steamer Duck
brachypterus, Falkland Flightless Steamer Duck

2. TRIBE ANATINI. RIVER DUCKS

Anas
specularis, Bronze-winged Duck
Anas
waigiuensis (" *Salvadorina* "), Salvadori's Duck
Anas
angustirostris, Marbled Teal
capensis, Cape Teal
punctata, Hottentot Teal
versicolor, Versicolor Teal
erythrorhyncha, African Red-billed Duck
bahamensis (inc. *galapagensis*), Bahama and Galápagos Island Ducks
Anas
georgica (inc. *spinicauda*), South Georgian and South American Pintails
acuta (inc. *eatoni*), Common Pintail and Eaton's Pintail

Anas
flavirostris (inc. *andium*), Yellow-billed and Andean Teal
crecca, Green-winged Teal

Anas
formosa, Baikal Teal

Anas
falcata, Falcated Teal

Anas
bernieri, Madagascan Teal
gibberifrons (inc. *albogularis*), Grey Teal and Andaman Teal
castanea, Chestnut-breasted Teal
aucklandica ("*Nesonetta*," inc. *Anas chlorotis*), Auckland Island Teal and Brown Teal

Anas
fulvigula (inc. *diazi* and *rubripes*), Dusky Duck, Mexican, and Black Ducks
poecilorhyncha (inc. *superciliosa* and *luzonica*), Spot-bill, Australian Duck, and Philippine Duck
melleri, Meller's Duck
undulata, African Yellow-billed Duck
platyrhynchos (inc. *wyvilliana*, *laysanensis*, and *oustaleti*), Common Mallard, Hawaiian Duck, Laysan Teal, and Marianas Mallard

Anas
sparsa, African Black Duck

Anas
strepera ("*Chaulelasmus*", inc. *couesi*), Gadwall and Coues' Gadwall

Anas
penelope ("*Mareca*"), European Wigeon
americana ("*Mareca*"), American Wigeon
sibilatrix ("*Mareca*"), Chilöe Wigeon

Anas
discors, Blue-winged Teal
cyanoptera, Cinnamon Teal
querquedula, Garganey Teal
platalea ("*Spatula*"), South American Shoveller
smithi ("*Spatula capensis*"), Cape Shoveller
rhynchotis ("*Spatula*"), Australian-New Zealand Shoveller
clypeata ("*Spatula*"), Common Shoveller

Anas
leucophrys, Ringed Teal

Aberrant Species

Hymenolaimus
malacorhynchos, Blue Duck

Malacorhynchus
membranaceus, Pink-eared Duck
Rhodonessa
caryophyllacea, Pink-headed Duck
Stictonetta
naevosa, Freckled Duck
(Removed from *Anas : specularioides*, see *Lophonetta*, Tribe Tadornini ; *brasiliensis*, see *Amazonetta*, Tribe Cairinini.)

3. TRIBE AYTHYINI. POCHARDS

Netta
rufina, Red-crested Pochard
peposaca (" *Metopiana*"), Rosy-billed Pochard
erythrophthalma (" *Nyroca* "), Southern Pochard
Aythya
valisineria (" *Nyroca* "), Canvas-back
ferina (" *Nyroca* "), European Pochard
americana (" *Nyroca* "), Redhead
innotata (" *Nyroca* "), Madagascan White-eyed Duck
nyroca (" *Nyroca* "), Common White-eyed Duck
baeri (" *Nyroca* "), Baer's White-eyed Duck
australis (" *Nyroca* "), Australian White-eyed Duck
novae-seelandiae (" *Nyroca* "), New Zealand Duck
collaris (" *Nyroca* "), Ring-necked Duck
fuligula (" *Nyroca* "), Tufted Duck
affinis (" *Nyroca* "), Lesser Scaup
marila (" *Nyroca* "), Greater Scaup

4. TRIBE CAIRININI. PERCHING DUCKS

Amazonetta
brasiliensis (" *Anas* "), Brazilian Teal
Chenonetta
jubata, Maned Goose
Aix
galericulata (" *Dendronessa* "), Mandarin Duck
sponsa, Carolina Wood Duck
Nettapus
auritus, African Pygmy Goose
pulchellus (" *Cheniscus* "), Green Pygmy Goose
coromandelianus (" *Cheniscus* "), Indian Pygmy Goose
Sarkidiornis
melanotos (inc. *carunculatus*), Comb Duck
Cairina
hartlaubi (" *Pteronetta* "), Hartlaub's Duck
scutulata (" *Asarcornis* "), White-winged Duck
moschata, Muscovy Duck

Plectropterus
gambensis, African Spur-winged Goose

Aberrant Species

Anseranas
semipalmata, Pied Goose

5. TRIBE MERGINI. SEA DUCKS

Somateria
mollissima, Common Eider
spectabilis, King Eider
fischeri (" *Arctonetta* "), Spectacled Eider
stelleri (" *Polysticta* "), Steller's Eider
Camptorhynchus
labradorius, Labrador Duck
Melanitta
nigra (" *Oidemia* "), Common Scoter
perspicillata, Surf Scoter
fusca, White-winged Scoter
Histrionicus
histrionicus, Harlequin Duck
Clangula
hyemalis, Old-squaw
Bucephala
islandica, Barrow's Golden-eye
clangula, Common Golden-eye
albeola, Buffle-head
Mergus
albellus (" *Mergellus* "), Smew
cucullatus (" *Lophodytes* "), Hooded Merganser
octosetaceus, Brazilian Merganser
australis, Auckland Island Merganser
serrator, Red-breasted Merganser
squamatus, Scaly-sided Merganser
merganser, Goosander

6. TRIBE OXYURINI. STIFF-TAILED DUCKS

Oxyura
dominica (" *Nomonyx* "), Masked Duck
leucocephala, White-headed Duck
jamaicensis, North American Ruddy Duck
australis (inc. *maccoa*, *ferruginea*, and *vittata*), Blue-billed Duck, Maccoa Duck, Peruvian Ruddy Duck, and Argentine Ruddy Duck

Biziura
lobata, Australian Musk Duck

Aberrant Species

Thalassornis
leuconota, African White-backed Duck
Heteronetta
atricapilla, Black-headed Duck

7. TRIBE MERGANETTINI. TORRENT DUCKS

Merganetta
armata, Torrent Duck

GENERA RECOGNIZED BY PETERS AND SYNONYMIZED HERE

Arctonetta = *Somateria*
Asarcornis = *Cairina*
Casarca = *Tadorna*
Chaulelasmus = *Anas*
Chen = *Anser*
Cheniscus = *Nettapus*
Chenopsis = *Cygnus*
Cygnopsis = *Anser*
Dendronessa = *Aix*
Eulabeia = *Anser*
Lophodytes = *Mergus*
Mareca = *Anas*
Mergellus = *Mergus*
Metopiana = *Netta*
Nesochen = *Branta*
Nesonetta = *Anas*
Nomonyx = *Oxyura*
Nyroca = *Aythya*
Oidemia = *Melanitta*
Philacte = *Anser*
Polysticta = *Somateria*
Pseudotadorna = *Tadorna*
Pteronetta = *Cairina*
Salvadorina = *Anas*
Spatula = *Anas*

GENERA RECOGNIZED HERE BUT NOT BY PETERS

Amazonetta von Boetticher (for *Anas brasiliensis*)
Lophonetta Riley (for *Anas specularioides*)

Our reasons for this classification will be found in the original article of *The Wilson Bulletin*, as well as detailed studies of the colour pattern of the downy chicks of biological characters, etc. In every respect except the inventory of the species the family is still insufficiently known. Many of the downy young are still to be described, particularly those of the rarer, more aberrant species, such as *Heteronetta atricapilla*, *Stictonetta naevosa*, *Rhodonessa caryophyllacea*, and *Malacorhynchus membranaceus*. The internal anatomy of ducks is a completely neglected field. There are a few scattered reports on the anatomy of one or the other species, but no comparative study of the various tribes and subfamilies was ever undertaken. The trachea of many species is still unknown. In a survey of the literature (admittedly quick, and by no means exhaustive) we have failed to find the description of the vocal apparatus of such common ducks as the Hooded Merganser and

Buffle-head, not to mention rarer birds, such as the Torrent Duck, the Blue Duck of New Zealand, the Crested Duck, Ringed Teal, Pink-headed Duck, and others.

The biology of the ducks is even less known than their morphology. It is remarkable how much new information Hochbaum (1944) was able to give on some of our most common ducks. The various phases of courtship, the relative frequency of various types of pursuit flights, the intensity of the bond between male and female, the possible share of the male in the raising of the young (Widgeons, Whistling Ducks) are still very insufficiently studied. A golden opportunity awaits the student of these problems.

Aviculturists have a great part to play in the advance of our knowledge of waterfowl. They often have better opportunities for observation than field-naturalists, and I personally have learned more from my birds at Clères than from those I watched in the wilds of many different countries.

* * *

NOTES ON THE NESTING OF GEESE AT TAYFIELD, FIFE, IN 1944

By John Berry

1944 was a " nesting year " for the semi-tame geese at Tayfield, Fife. Almost every adult female, who could be expected to nest, did nest. Unfortunately, however, only a comparatively small proportion of goslings was hatched and reared. On 7th May a gang of youths from another district came and plundered several nests. But much more serious loss was caused by torrential rain storms accompanied by a bitterly cold wind during the first few days of June, just when several clutches of eggs were hatching. Even nests on quite steep ground were flooded, and goslings were found dead in the open. From fourteen fertile eggs laid by a pair of Lesser Snow and two pairs of Blue, only two goslings were saved, one Lesser Snow and one Blue Snow hatched on 2nd and 5th June.

There were other disappointments in hatching, the explanations for which were not obvious. The wild full-winged Pinkfooted Goose again nested, and laid four eggs, but hatched none. Her nest in 1943 was rather dangerously visible from a road. So, when in May, 1944, she seemed to contemplate nesting on precisely the same spot, I made an artificial nest about ten feet away, but almost out of sight, in a whin bush, and this nest was promptly adopted. At the end of June the nest was deserted. Two of the eggs were broken and flattened into the nest, and another contained a dead gosling at the point of hatching.

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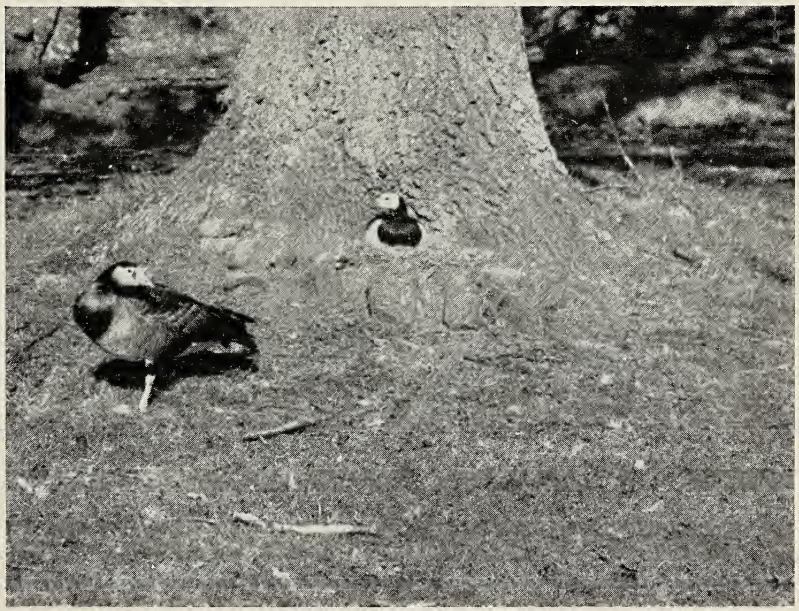
WHITEFRONTED GANDER ON HIS NEST WITH THE TWO EGGS WHICH HE REMOVED FROM THE ADJOINING GREYLAG'S NEST.

The head of a "Snow-lag" (hybrid Lesser Snow ♂ × Greylag ♀ gosling can be seen peeping out from under the Greylag's left wing.



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BARNACLE × GREYLAG HYBRID ♂ GUARDING HIS BARNACLE ♀ MATE ON HER NEST.

Two pairs of Bean bred, but only one gosling was reared. Four eggs out of five in one nest were unfertile, and the other nest only contained two eggs, one of which was unfertile. When the second goose had been sitting for over six weeks, I drove her off her nest. I then found that a gosling had been hatched, but it was lying dead about a yard away. The nest was under trees where there was neither grass nor water, and the poor gosling appeared to have starved to death because its mother would not stop incubating her rotten egg to look after it. Mr. J. C. Laidlay tells me that he has had experience of goslings dying from starvation in this way when there has been no food near the nest and the mother has gone on brooding unfertile eggs without the gander taking charge of the goslings already hatched.

The Barnacle Geese were, as usual, the most successful breeders, perhaps because they seem to be the most adaptable and easily satisfied in all respects. In 1943 I made the first artificial Goose nests on 24th April, and a Barnacle had laid in one by the following morning. In 1944 the first artificial nest was made on 15th April, and a Barnacle laid in it on the same day, although before that there had been no indication of a desire to nest. On 17th May I saw that Barnacle and her mate feeding with their five goslings some distance from the nest, yet the nest itself was still occupied by a sitting Barnacle. Investigation showed that a two-year-old daughter had occupied the nest as soon as her mother had left it. At first she could only have the nest during the day as the five goslings were brooded in it at night, along with one, two, or three newly-laid eggs. Soon, however, the old pair of Barnacles left the nest for good, and the daughter was then able to complete laying and incubation without further interruption. She left the nest with her own brood on 24th June.

It is of interest that the Barnacle who took her mother's nest on 17th May had made a previous attempt at laying on 27th April. On that date I found her sitting on an artificial site I had made with turf and stones at the root of an oak tree. It seems common among the Geese that as soon as one bird begins to nest, another goose immediately covets the site, and starts to fight for possession. It was so in this case. That evening I found a fight in progress between the first Barnacle and a sister of the same 1942 brood who was mated with a hybrid Barnacle × Greylag. The hybrid gander is a particularly strong and aggressive husband, and the first Barnacle, who may have been paired with a wild bird down on the coast, had no male to protect her ; so she soon took to flight pursued by her sister, both birds dodging through the trees like Woodcock.

On 29th and 30th April, three more Barnacles nested. Two were of the same 1942 brood as those just mentioned, and the third was an older sister hatched in 1939. That 1942 brood consisted of five females ; one got shot, but the four survivors all nested for the first

time in 1944. The three Barnacles who nested on 29th and 30th April shared as mate a Greylag gander who used to walk from nest to nest to visit them while they were sitting, and was always prompt to defend any of his " ladies " from interference. One of the Barnacles had all her eggs stolen on 7th May, but in due course the other two produced hybrid progeny, and for the rest of the summer the Greylag with his three wives and the quaint goslings seemed to form a peculiarly peaceful and contented little flock. Later in the year the Greylag gander developed a cerebral tumour, and died during the winter, and the hybrid progeny were given away because of shortage of feeding ; so regrettably the odd party was broken up.

In immature plumage, the Greylag × Barnacle hybrids bore a surprising resemblance to Canada Geese, being similar to two specimens of the reverse cross, Barnacle × Greylag, described and pictured in the AVICULTURAL MAGAZINE for May–June, 1942 (p. 83). One of these earlier hybrids, the female, still resembles a Canada Goose, with dark bill and feet. The other, the male, however, now has a yellowish bill with a black nail, pinkish legs and feet, and strangely original plumage. But his fertility was established on 2nd June when his Barnacle mate produced a quarter-Greylag gosling. Another gosling died at the point of hatching, probably because of the rain storm that day, and three other eggs were rotten.

This curious gander not only showed that such intergeneric hybrids are capable of procreation ; he also demonstrated that a gander can share in all the female's procedure of nest construction.

When the pair took possession of their nest on 27th April, what little nesting material had not been blown away in a recent gale, had been scattered in the struggle for the nest. Much of the next two days was therefore spent in remaking the nest.

Nest-making began in earnest about 10 a.m. (B.D.S.T.) and throughout that day the goose collected material and fashioned it into her nest in the usual manner characteristic of all the " True Geese ". First she sat on the edge of the nesting site and heaped on to it all the moveable stuff within reach of her outstretched neck, lifting the pieces over her back in her bill and dropping them into the nest beside her tail. At intervals she stopped collecting to sit back in the middle of the heap and work the stuff round her in nest form. Then she would move to another point on the edge of the nesting site and gather suitable material within reach of her neck from there.

After an hour or two, the goose had more or less cleared the loose stuff from a half-circle round the nesting site, the other half of the circle being the oak tree. She now moved to the edge of the cleared area where she stood or sat, and repeated the performance, stretching out her neck without moving her position, lifting the stuff in her bill and dropping or tossing it over her tail. Later, she returned to sit

on the edge of the nest and heap into it by the same method what she had now brought within her reach. I was able to keep the geese under observation for some days, and I did not note any of them actually carrying a piece of stuff to a nest.

While the nest making was proceeding, other geese often approached. But the hybrid male was constantly on the alert and drove them off with a fierceness which none could withstand ; although scattered tufts of feathers bore witness to the violence of some of his fights. Each time trespassers on his territory were driven away, he would run back to his " lady " with triumphant shrieks of his extraordinary voice, and much mutual bowing and " necking " would follow before the nest-making was resumed and the gander returned to his guard patrol. Both birds slept for about two hours in the early afternoon, and the late evening was spent feeding together near the nest.

On the following morning, we were surprised to find the hybrid gander sitting in the nest, with the goose standing on guard near by. Later, the gander was seen sitting on the edge of the nest and gathering material into it precisely as the goose had done on the previous day. His mate soon joined him. At first they sat at opposite sides of the nest with their tails touching in the middle, and dropped stuff on to each other's backs. They seemed to notice that this was unsatisfactory, and the goose then remained sitting at the edge of the nest while the gander stood about two feet in front of her, his tail being towards her, and both birds worked together, the goose lifting into the nest over her back the withered grass and moss collected and dropped over his tail within her reach by the gander. About noon the arrival and eviction of other geese interrupted the proceedings and no more material was collected, but the nest was already an unusually large one.

Although my observations of marked birds indicate that it is not usual for ganders to assist with nest-making or incubation, such procedure may be less uncommon than is generally supposed. If the male of a pair were collecting nesting material or sitting on the nest while the female stood on guard, the fact might easily escape notice because of the close similarity of the sexes.

Only a week after I had watched the hybrid gander nesting, I was able to watch a White-fronted gander doing the same. At the end of April an artificial nest was adopted by a pair of White-fronted Geese. On 5th May I found that the nest had been entirely scattered by poultry and the White-fronted pair appeared to have deserted. I remade the nest which contained two medium-sized eggs, but that pair of Geese never returned. On 7th May, however, the nest was occupied by an old Greylag goose. Her original Greylag mate had died two or three years previously, and she now seemed to be paired with an old White-fronted gander. Although this White-fronted was

certainly a male, it became quite obvious when the Greylag's 1944 goslings grew up that a promiscuous Lesser Snow, and not the White-fronted gander, had been their father.

On 7th May, the White-fronted gander was watched first collecting material into the nest while the Greylag stood near by, and later standing with his back to the nest and dropping stuff over his tail within reach of the Greylag who then added it to the nest in which she was sitting.

The collaboration in nest-making between the White-fronted gander and the Greylag goose was similar to that between the hybrid gander and the Barnacle goose. But the subsequent behaviour of the two ganders was entirely different. While the hybrid remained fiercely on guard, but often twenty yards or more from his mate, the White-fronted gander never attempted to drive trespassers away, and was never seen to leave the immediate proximity of the nest. For the first few days of incubation he sat actually touching the Greylag. He had pulled a little nesting material round him and his behaviour was that of a sitting goose, for when trespassers approached, he only laid his extended neck on the ground and hissed. I was so much surprised at this behaviour that I risked making the Greylag desert by removing the White-fronted to check his identity and sex beyond question from the numbered rings on his legs.

The Greylag seemed annoyed to have the other bird quite so close, and gave him a good deal of gentle pecking or rather prodding with her bill. After a day or two he had moved himself to a spot about two feet from her, and there he sat until 3rd June. On that morning one of the two adopted eggs, laid by the White-fronted pair, hatched, and the gander returned to his original position at the Greylag's side. Two of the Greylag's own eggs hatched on the following morning, and at 8 p.m. (B.D.S.T.) the goose left the nest with the three goslings, and wandered off to feed with them at some distance for over an hour.

The White-fronted gander did not accompany them, however. We watched him through binoculars pulling material from the Greylag's nest and using it to make a new one where he had been sitting. He worked hurriedly, and in about half an hour had made quite a normal nest. He then trundled two unhatched eggs out of the Greylag's nest and into his own. This gave him some difficulty, but he achieved it by working the eggs one at a time towards his breast with the underside of his bill. He then sat down on the eggs and brooded them.

A few minutes later the Greylag returned with the goslings. She remade her deranged nest, but did not take back any of the stuff which the White-fronted had removed. Soon both birds had settled themselves for the night, the Greylag on the three goslings and the

White-fronted on the two eggs. It was late and getting dark, but through a gap in the clouds a shaft from the setting sun on the horizon suddenly lit up the nest like a searchlight. I hurried for a camera and took a photograph. I prodded the two geese to make them stand up, but before I could get them both to do so simultaneously, the clouds had closed and the sun had set, making another photograph impracticable.

On the morning of 5th June, both birds were still sitting on their semi-detached nests. The White-fronted stood up when I came near, and I saw that he was brooding the White-fronted gosling as well as the two eggs. It was some days before I could be at Tayfield again. By then the twin nests, one still containing the two rotten eggs, had been left for good. Subsequently, the two geese proved excellent parents, and the White-fronted led and defended the family with all the behaviour characteristic of a normal healthy gander.

* * *

REMINISCENSES II

By Flt.-Lieut. D. H. S. Risdon, R.A.F.

(*Continued from p.* 66.)

Waterfowl

The completion of the big aviary, with its pond enclosed and running water laid on, meant that I could try my hand at ornamental ducks. As with Pheasants, my earlier recollections of these birds had been at the London Zoo, where, above them all, Mandarins and Carolinas had stood out in my mind as the loveliest. I still think so, being one of those who refuse to be blinded to the beauty of a bird by its lack of rarity.

The aviary was completed in the autumn of 1929, but it was not till the following spring that Mandarin ducks were seen advertised and a pair promptly sent for.

Up till then the pond in the aviary had had nothing on it except three domestic ducks of doubtful breed. These were disposed of as being unfit companions for such treasures as Mandarins.

The pair, when they arrived, proved to be imported wild-caught birds. In direct contradiction of all the text-books, the vendor assured me that such were a much better breeding proposition than tame bred ones. Of this I had strong doubts, but I bought them because they were full winged. My pond being enclosed, I wanted to see them fly up to their nest-boxes and perch as they were alleged to do, and it was difficult to obtain full-winged, hand-reared birds, the breeders, naturally enough, pinioning them at hatching time.

The pair were terribly wild. At first when one entered the aviary

they would shoot up from wherever they were and fly straight into the wire netting. I often wonder now how they escaped breaking their necks ! This habit ceased after a while and they took to flying up to a perch in the far corner of the aviary whenever anyone approached, there to remain motionless until all signs of humanity had disappeared. They used the pond freely enough when nobody was about, but as soon as one began to walk down the garden they could be seen sneaking off the water, swimming low to escape detection.

As can be imagined, this state of affairs began to pall after a while. There was I with the much-coveted Mandarins at long last, but I was apparently doomed never to see them on the water ! The addition during the summer of some more domestic ducks, which, it was thought, might allay their fears and lure them on to the water in human presence, did no good. In the end clipping of one wing and feeding at regular times, removing food when I was not there, did the trick and in no time they learned to come to be fed along with the Pheasants.

When they moulted their clipped flights they remained tame enough and also learned to fly about the aviary as readily as Pigeons. It was most attractive to watch them fly from a perch and alight on the water, or, when playing " ducks and drakes " with one another, skim over the surface, alight, dive, surface, and fly round again.

I was now able to admire the self-importance of a Mandarin drake which was only too evident as he puffed out his chest, threw back his head, and elevated his square-cut green and copper crest. The more he did this the more did his mate seem to admire him, and would shake her head and quack in a rather falsetto voice. They were a devoted couple, but, as might be expected, did not attempt to breed during the first year in this country.

The following spring saw Caroline Ducks added to the collection. I had never been sure whether I preferred them to Mandarin, but the latter had just that slight elegance of form and posture which the Carolinas lacked with their short legs and low, level carriage. As, in those days, only one pair of birds at a time could be afforded the Carolinas came second therefore.

A full-winged drake was obtained but a full-winged duck seemed impossible to get, so a pinioned bird had to fill the bill. Unlike the Mandarins, these were hand-reared and tame.

When the Carolinas arrived it was too late for them to settle down and breed that year, but the Mandarins took to a nest-box high up in the aviary, half-filled with earth and peat moss.

The drake took a considerable part in hollowing out the nest at the back of the box and both birds were often inside together. At other times he would remain on guard on a perch at the entrance, while the duck busied herself inside.

She began to lay in April and completed a clutch of four very large eggs before she commenced incubation. I was surprised at this, as one usually associates ornamental ducks with large clutches. It may have been a peculiarity of this particular duck because she did the same every year afterwards.

Signs of incubation were evident from the bits of down which clung to the entrance of the box. On inspection she was found to have a lovely " swans-down " lined nest in which the eggs were embedded. She showed no signs of having been plucked, although there were several handfuls of the stuff, which must have come from her breast. During incubation the drake remained on guard on his perch outside the box much of the time.

Two ducklings hatched in May, and I was first made aware of their presence by the duck running towards me and then flapping away across the ground, doing the " broken wing trick ". Of the ducklings there was at first no sign, till I discovered two fluffy atoms crouched motionless together under a bush. The duck had different cries to which the young responded instantly, either crouching still in hiding while the mother came out to draw the intruder away, or following her obediently when she called them.

These ducklings had only a matter of about 8 feet to drop from their nest to the ground, but in a wild state they must often fall from holes in trees quite high up. I suppose that their very lightness at the time of hatching prevents them hitting the ground with sufficient force to cause injury. All the same it seems a violent way to be ushered into this world !

The family spent much time on the water from the first—too much for my liking, especially when it rained—with the result that one duckling died in a few days, but the other survived and grew into a nice young female.

In succeeding years the eggs were collected as laid and set under bantams, the ducklings when hatched being transferred to coops and pens on the lawn.

The Carolinas' breeding habits were almost identical with those of the Mandarins, except that they laid in March and the clutches were larger but the eggs themselves smaller.

The second spring after their arrival they went to nest. The duck took to a nest-box set rather lower than those of the full-winged Mandarins, with a branch leading up to it, and laid in the approved manner. The drake, as far as I remember, did not take part in the preparation of the nest.

The eggs were collected and set with those of the Mandarins under bantams, and in due course a small number of ducklings were reared on the garden lawn.

For some reason, however, waterfowl never bred very successfully.

They laid regularly every year and fertility was fair, but the number of ducklings which used to die under the age of one week was a mystery which I never solved.

I checked the food, which was the same as used successfully by other waterfowl fanciers. I tried leaving the ducklings with their parents. I tried keeping them off water. If they were left with the ducks themselves the mothers seemed to spend all their time on the pond, especially during heavy showers, with the inevitable result that their tiny, fluffy offspring became waterlogged and died of exposure. When reared under bantams they were protected from overhead rain and given plenty of duckweed, but the result was the same ; ducklings which appeared to be thriving and feeding well, would, a few hours later, be found on their backs dead. It was exasperating as Mandarins and Carolinas are said to be easy to rear.

Possibly there was a germ present in the local soil which attacked them, but if so, it never adversely affected the parents.

During the spring the Mandarin and Carolina drakes were very pugnacious towards one another, to such an extent that they would not tolerate each other's presence on the pond together. As ducks usually mate on the water, this was the cause one year of many infertile eggs, but was remedied thereafter by the simple expedient of dividing the pond into two during the spring months by means of wire netting stretched across it. This was removed at the end of May, when laying had finished and the birds' pugnacity had died down.

A pair of Wigeon were added a year after the Carolinas ; but in spite of their delicately beautiful colouring they were found to be uninteresting. They never attempted to breed, although they were a tame hand-reared pair. Moreover, they lacked the activity and quaint mannerisms of the Mandarins and Carolinas. They were exchanged some years later for a pair of Tufted Pochards, which proved far more intriguing with their completely aquatic habits.

These tubby little ducks endeared themselves to me with their quaint way of rolling over on their backs while in the water, in order to preen their bellies, and their diving displays always amused visitors. They never attempted to breed, but hardly had a fair chance as the aviary had to be disposed of after they had been in my possession for only a year.

The same remarks apply to three White-faced Tree Ducks, which were acquired at about the same time as the Tufted, but they were unlikely breeders in any case. These, although wild-caught, imported, birds, were tame from the start, as I believe they always are. A pair was originally ordered, but one arrived with only one eye. After some correspondence with the vendor a third was sent and I was told I could keep the one-eyed one, it obviously having little sale value. The three went about together and never quarrelled.

Although so " unducklike " in shape, reminding one more of Trumpeters with large webbed feet, they had a strong fascination for everyone who saw them, and were remarkably graceful in their movements both on land and in the water. When they came from the dealer they had clipped wings. By the time they began to grow their new flights the following year they had to be disposed of, so I was never able to watch their perching proclivities nor to see whether they might breed.

Moorhens, whilst being easy to keep and feed, were found to be uninteresting as aviary birds, unless hand-reared and tame.

The first pair were caught from a pond in a neighbouring field, soon after the aviary was built, with a cage rat-trap baited with bread and set at the pond's edge.

The first thing I discovered was their ability to squeeze through amazingly small apertures. Two-inch mesh wire netting was no barrier to them. When in normal attitude Moorhens look reasonably bulky, but they have the most extraordinary powers of elongating their bodies when they wish to. Their naturally skulking behaviour and their wildness made them invisible when anyone was near the aviary, so after a while they were released.

A year or two later a brood of newly hatched young was discovered on the same day as I had a batch of Carolina ducklings. Two of these were brought home and placed with the ducklings on the lawn under their bantam foster-mother, who took to them as if they were her own chicks.

Young Moorhens feed by taking food held out to them in the parent's beak, going through a peculiar twisting motion of the head while doing so and raising their wings at the same time. For a while they adopted these tactics with the bantam, who, as bantams do, dropped the food on the ground for them to pick up. Finding no food in her beak, the Moorhen chicks used to do their best to swallow her red wattles, but learned surprisingly quickly to take food as she dropped it for them.

They throve on duck-rearing food, and in due course were transferred to the aviary where they remained tame and were very attractive. They were omnivorous, eating grain, house scraps, or any soft food that was going.

They had an interesting colour phase. When first hatched they were black with red beaks and blue foreheads and black legs. As their nestling down was replaced by their first feathers the bright colours were lost and they became a uniform dark brown, including beaks and legs, with slightly paler underparts. It was not till they moulted again in the autumn and got their adult plumage that they obtained their sealing-wax red frontal shields and " garters " and green legs.

All my ducks I had found quite harmless even to the smallest birds

in the aviary. In fact, they ignored all but their own kind. The Moorhens, however, I suspected the following year of slaying three newly fledged Blackbirds, which spent their first night out of the nest on or near the ground. The Moorhens were never seen to molest or chase anything, but the bones of the young Blackbirds were broken in many places. Having read somewhere that Moorhens will suck eggs and kill frogs, storing them away in the muddy banks of ponds, I felt that birds which do that kind of thing must be inclined to treat baby birds the same way. I kept watch, but no more violent deaths occurred, so it was decided to keep the suspects as they were so attractive.

The following winter, however, one morning one was found dead on the pond. The body appeared in perfect condition. The post mortem report stated that the cause of death was—of all things for a British waterfowl—pneumonia !

The remaining one was later sent to someone who had an ornamental pond and particularly wanted Moorhens.

(*To be continued.*)

* * *

NOTES

ACKNOWLEDGMENT

The Editor acknowledges with many thanks the permission to reproduce the painting of Mandarin and Carolina Ducks, which forms the frontispiece of this number, and also the loan of the blocks by Mr. Ronald Stevens.

BREEDING SILVER-EARED MESIAS.

Mr. Isenberg is to be congratulated on breeding this species, but his success is not a world "first". Mr. A. Ezra (*A.M.*, 1931, 331) writes: "One young one fully reared in a large aviary which was full of several different kinds of birds." I believe Decoux reared three young ones in France in 1925, but failed to record the event.

A. A. P.

A SPECIAL "BIRDS AT SEMI-LIBERTY" NUMBER.

One article and several promises of contributions for a special "Birds at Semi-Liberty" number have been recieved and it is evident that such a number would be most acceptable. The Editor would be glad to receive further offers of articles on this interesting subject.

THE FAMILY ANATIDAE.

A small supply of reprints from the *Wilson Bulletin* of the complete article on "The Family Anatidae" by Jean Delacour and Ernst Mayr, have been sent by Monsieur Delacour for members of the Avicultural Society. Copies may be obtained from the Editor of the AVICULTURAL MAGAZINE'

* * *

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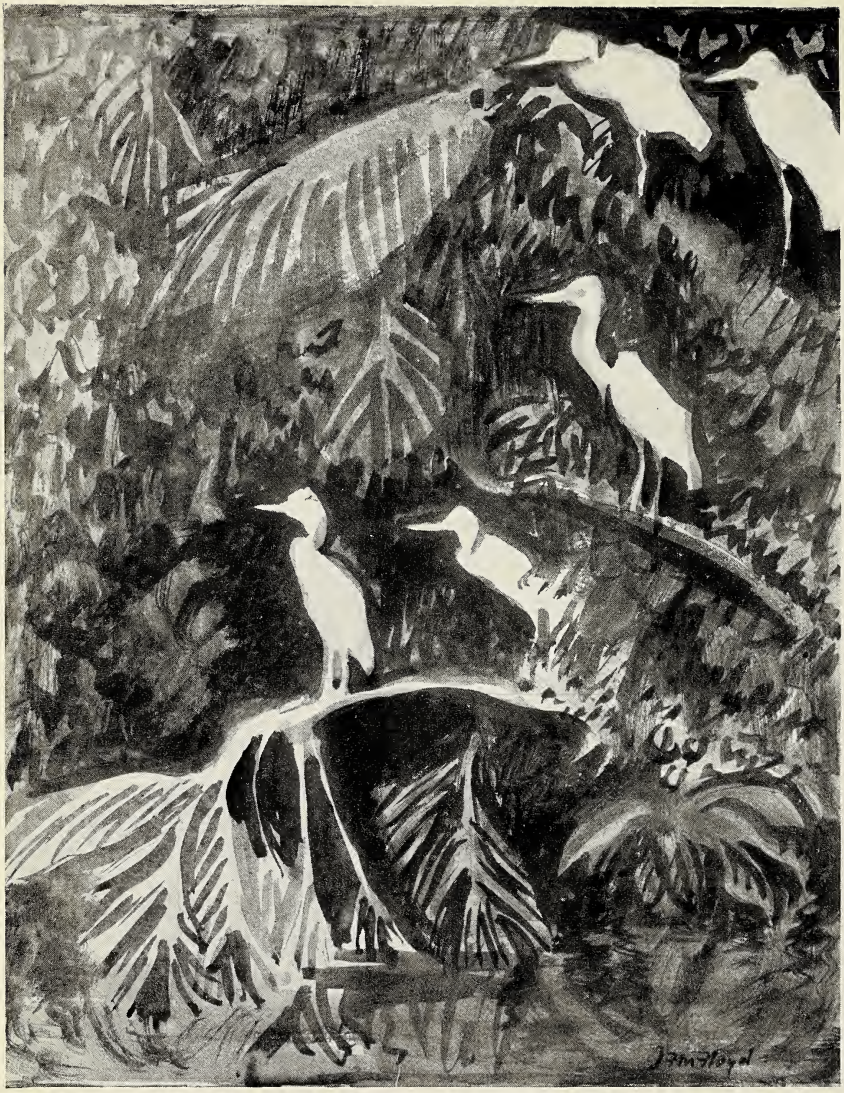

The Island.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE
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TROPICAL SANCTUARY

By J. F. M. Floyd

A scene of tropical vegetation and from somewhere the song of a Blackbird ; walks that wander beside stretches of still brown water ; islands under great cosies of high bushes and low trees, pierced with difficulty by palms and bamboos, looming against an evening sky. The coverings worn in places, where threads and loops are lianas and air-roots ; otherwise leaves, only leaves. One island in particular at a safe distance from the bank, safe that is for the birds, and only an after-tea stroll from the hotel. These are the Botanic Gardens of Georgetown, British Guiana, at about five in the afternoon.

I woke on my first morning in a tropical land to the notes of the Blackbird, that might have been our own bird's best, mixed with the screeching of a caged Parrot and street cries of Kiskadees in the Flamboyant trees lining the road. I managed to get a view of him, a bold bird between a Song Thrush and a hen Blackbird, but larger, without the spotted breast (*Planisticus albiventer*). But the Kiskadee was really my first land bird, on the ridge of a warehouse roof, as the RMSP. Ouilpue touched wharf to the scent of Demerara sugar the day before. *Pitangus salphuratus*, dyed in sunlight among leaves, last seen in Gamages ! He announces himself in a sort of French.

Coming through the Gardens there was a sociable party of Maroon Tanagers (*Ramphocælus carbo carbo*) in a willow-like tree on an islet, full of loose fibrous nests, probably those of a Cassique, and a large Hawk chased by a Kiskadee. Blue Tanagers were like Sparrows in clean trees (*Thraupis episcopus episcopus*). The drainage dykes or " trenches " beside the main drive were thick with pink lotus flowers drooping on stalks of six or more feet among lovely glaucous leaves, like huge nasturtium leaves, or paved with the fortified dishes of *Victoria regia*. They clicked, some things unlocated emitted clicks. But to the rookery island with fieldglass, camera, and sketchbook. The leaves on their sprays looked as if they yearned to the water. Leaves of all sizes, even the leaflets of palms, hung straight down, rather like rhododendron leaves touched by frost, but without the look of misery. Here and there Snowy Egrets (*Egretta thule*) stood

securely on slender branch and sloping cane, as active as if cut out of white paper and stuck on, like the useful figures on grandmamma's water-colours, and everything was doubled by reflection in shades of umber. A palm seemed to have fainted on parade, with its head in the water ; the slanting stem a favourite rest. In contrast some Little Blue Herons (*Florida cærulea*) fidgeted from stick to stick. The moment they stop moving they fade out. Head and neck are tinged with purple, body slate blue, legs yellowish green ; size about the same as the Snowies, but for confusion the young are as white. The tops of two trees, with very large simple leaves drooping in bunches at the ends of wires, rose in silhouette a few feet above the canopy. The island is never silent ; it croaks like a frog, but to no measure.

A bird like a Buzzard swept over low to perch on one of the trees with big leaves, saw me move and was off. The rest of the community took no notice, but it made a feint at an Egret, dropping to roost on bent wings, out of temper or for a joke. The " Little White " swerved and settled unconcerned. Most of the Egrets had already come in ; it is a sight when they corkscrew down from the zenith, a day's work done. Looking up, there was the Buzzard in its former place, though I had not seen it return. They fly quite silently. The glasses showed a pair on the tree, and a third on the other tree ; the leaves were each almost as big as a Buzzard, and by the way the name is *Rostrhamus sociabilis*, the Everglade Kite. Against the sky you never would spot a treeful of them. They stood motionless. By scrutinizing through strong glasses I realized there were now more than three ; four, six, eight, more, in two small treetops. They ignored the Herons and the Herons ignored them. I wondered if they could possibly have been there all the time. One of the favourite tricks of the High Bush. I remember hearing and finding a huge Cicada at about eye-level on one of the million saplings beside a trail we used. Like all the others, it let its bark to the firm of Lichen et Cie., decorators in pastel, jade, yellow, and violet, but the Cicada did not. Lost in wonder at this antique of the Insect School of Sculpture, not so difficult after all, I thought, not like a tree frog on a leaf in front of your face (Beebe discovered that one for me on the Puruni Trail ; but many's the time I've asked myself, did he know it was there ?) Somehow the veil melted and I saw it was one of a crowd ; a replica was on exhibition opposite only two inches away, and others stuck to the trunk every few feet. Almost the jungle seemed amused. There were two patches of white Heron feathers under some palms on the bank, that might be work of the imported Mongoose.

Walking to a point nearer the island I put up a pair of Spurred Jacanas (*Jacana spinosa*) from a trench full of blue water-lilies. They settled after a short flight with a flash of lemon-coloured wings, stretched aloft for a moment like a Redshank, in vanishing contrast to the rich

reddish-brown body. A very small Blue Heron, called a Shypook (*Butarides striata*) left a bush overhanging the water and blundered into the island followed by a pair of orange legs, a weird little gawk, it ought to be bottle-green by the book. Just about here is where, if lucky, you get a surprise of your life. I was,[1] and, moreover, hadn't been warned. A sort of boiling rise almost underfoot ; at least an aligator ! I looked down into a Visage, an Apparition, a vast harelip punctuated with thick separate whiskers, flaring nostrils greedy for air, backed by bleary eyes, if memory is not at fault. Old Bill himself, filling a hole in the water. Not a bird, I'm afraid, but a Manatee.

The most noticeable feature of the Everglade Kite is its very long delicate curved upper mandible. Head and beak seem out of proportion to the bulky body, one too small, the other too fine a tool. It is said to be specially adapted to extract apple snails from their shells (*Ampullaria*). The legs on the other hand look powerful. The upper plumage is dark brown, slightly barred with buff, the wings darker and the tail, with a broad white band on its upper half, very obvious in flight. Forehead, brows, and throat are light buff, and the underside too, with dark vertical streaks. Cere and legs orange, wing-tips just reach the end of the tail.

As the light failed more Kites dropped in to roost on noiseless wings, singly and without fuss. I counted seventeen, nearly all in the two tree-tops. Only one or two in the bushes below among the heronfolk. They stayed looking sharply round but awoke no interest among their neighbours. Between themselves was no exchange of greetings, they were too sociable for formalities. One of them differed from the others, but only in colour. Self-coloured slatey blue, except for the white tail bar, tail feathers tipped faintly with buff, and reddish orange about eyes and cere. So I looked over the rest and found quite a number the same, here and there. Their legs were not orange, but pale yellowish grey. These should be adult males.

The sun had set in a low cloudbank and the first strokes of the anvil chorus of tree frogs broke out—tink-a-tonk-tink-tink-tink—mosquitoes also. But the prize for noise certainly goes to *Crotophaga ani*. There are some very fine noises that live in memory without owners, but this shindy it was possible to allocate. An undescribed outburst of bubbles and chuckles. Several large " old witches " dashed in to the cover of bushes growing down to water's edge, the " Ticketty Annie " aforesaid, and a Gowk in weeds. She has a sort of plough along the culmen for the parting of dung and hair, so they say. The last of the sun struck a blue gleam from their strange plumage, and immediately out of a disturbance among those bushes came the cries. The witches were going to roost.

About the time the Egrets and Kites finished coming in and the

[1] But not so lucky as William Beebe. See *Edge of the Jungle*.

mosquitoes began to come out, grey Herons with large eyes stepped out of the tangle and took the places of the day Herons who had gone indoors. They were Night Herons, my notes say *Nycticorax violaceus*, but memory records ordinary *N. naevinus*. The Bats came out and the night shift was present and correct.

[This by no means exhausts the roster of Herons present in the Gardens, and in naming these and distinguishing between their immature plumages the Georgetown Museum, if scarcely Rowland Ward, was an invaluable aid, lately destroyed by fire ; but I was under the " Lure of Kartabo ", the untouched forest, and a river where every log *should* be a crocodile ; and still am. But so far the nearest to the saurian ideal was the Zoo at Arnhem, which has since got into the papers for the birth of a Polar bear, which had an open air tropical pool literally crammed with crocodilians, tropical by unseen hot-water pipes.]

* * *

ORNITHOLOGICAL AVICULTURE

By M. D. England

I was recently introduced to a man who is an expert bird-keeper—he has bred the Pied Wagtail—and after inspecting his aviaries we went for a walk together. I was amazed to find that he was quite unable to recognize the song of such a common bird as the Willow Warbler, and subsequent conversation revealed that he had not the remotest idea why birds sing.

It is not suggested that this sort of thing is by any means universal, but it does seem as though many aviculturists have been devoting their time more to finding out how to keep difficult species alive than to learning how birds live in the broadest sense. Which is only natural, especially if they came to take an interest in birds as a result of keeping some in captivity, instead of being an ornithologist first and keeping birds because they want to watch and learn from them. What follows is not for the latter type, nor is it concerned particularly with the breeding of those species such as many of the Parrots and some of the Finches which, on the whole, do as well as we can wish in " standardized " conditions. It is for those who, like myself, feel an ever-increasing need to know more about their birds, and who wish to try to breed them in conditions where their behaviour will be as natural as possible.

Hitherto ornithologists have been chary of accepting records of birds' habits in captivity, rightly I think, because many aviculturists are not experienced watchers, and some—dare I say it ?—have only the vaguest knowledge of bird biology ; and because they were habits

which arose in some measure as the result of artificial surroundings. We could all give examples of this. Some years ago I had three aviaries containing Long-tailed Grassfinches. Two were of about the size and design commonly used for controlled Budgerigar breeding, with shelter and nest-boxes. One held a pair and the other a cock and two hens. The third was bigger, had no shelter, and was planted with long coarse grass. In the first the pair roosted on a perch in the shelter and later nested in a box near the roof. In the second all three roosted in a box, the cock paid attention equally to both hens, and they built a series of " sandwich " nests in the box. During the abortive incubation—by both hens at once—the cock roosted on top of the box.

It might be inferred from this (*a*) that Long-tailed Grassfinches nest and roost high up in holes in trees, and (*b*) that they are bigamous. (We will draw the line at inferring that in the wilds of Australia they all build sandwich nests, although one might reasonably suppose that the young are fed entirely on " finest Spanish canary " !) But the pair in the other aviary had no box to roost or nest in. So they did a most " unnatural " thing. They roosted on the ground, and wove an elaborate nest, also almost on the ground in the long grass, the shape of a rugby football, with a tunnel entrance.[1]

These discrepancies in habits are, to quite a large extent, our own fault, and the more intelligent and realistic our bird-keeping the more nearly normal is the birds' behaviour likely to be, and the more valuable our records. I think the time has come for all of us to ask ourselves whether we are justified in calling ourselves aviculturists, for to my mind the word aviculture should mean more than mere bird-keeping.

" Aviculturists " appear to be divisible, with some overlapping, into four main classes :—

1. Those who keep birds, usually in cages, for the purpose of enjoying them and entering them at shows, and to some extent for their " pet " value.

2. Those who keep numbers of one or similar species in cages or aviaries, for the purpose of producing as many young as possible, establishing new strains, or to make their hobby " pay for itself ".

3. Those who keep a number of birds, mostly of the hard-billed species and in mixed collections, because they enjoy seeing them living in their aviaries (and sometimes because they appear to be conducting large-scale experiments in incompatibility !).

4. Those who are ornithologists before they are aviculturists, who keep and attempt to breed birds not only because they enjoy it, but *because they want to know more about their habits.*

(There is, of course, a very small, very necessary, and rather-to-be-envied fifth class : the professional breeders and importers who know

[1] Most people will already know that nesting near the ground is usual in the wild.

something about birds *as* birds and not as things to be kept alive until some mug buys them. We should be grateful that a few such people do exist).

Before the barrage begins let me say that these are not put in what I consider to be an order of merit. There is no question of comparing these four classes one with the other ; they are not comparable, any more than it is possible to compare the man who runs a 1926 Bentley " because it feels like a real motor " with one who prefers the latest model Morris " because it's smart and reliable ". I must admit that although I have at different times merited inclusion in all the first three classes, if I had to make the unpleasant choice between aviculture and field-ornithology I should have no hesitation in choosing the field-glasses and Wellingtons. So now we know where we stand. (It's just about here that one begins to hear cries of " Chuck him out " !)

The gap between aviculture and ornithology, where it exists, is a most unfortunate and unnecessary thing, and my first aim is to make some small attempt to bridge it. My second is to try to help myself and others to be more successful " ornithological-aviculturists " by considering a few of the things which combine to make birds achieve the reproduction of their species. If I succeed in bringing classes one, two, and three a little closer to class four I am sure they will not regret it.

We probably do not know by any means all the factors which not only bring a bird or pair of birds into what we call breeding condition but enable them successfully to rear a family. Leaving aside such things as accident, disease, and enemies, most birds are probably affected by the following :—

1. A food supply not only adequate to maintain health, but suitable for the feeding of young.
2. The possession of a territory, consisting of terrain of a suitable type and containing, in many species, *a place from which to sing or display.*
3. Males, especially at the beginning of the breeding season, by contact with other males of the same species.
4. The presence of one of the opposite sex who is an ardent suitor or is " ready to be courted ".
5. A suitable nesting site and, often, suitable nesting material.
6. The amount and type of light.
7. Favourable weather.

To these must be added, especially in the case of birds which nest in colonies or have displays in which a number of birds take part—

8. Stimulation by sexually excited birds around them.
9. The absence of other birds which are dominant.

As this is not a treatise on bird feeding, the first needs little elaboration, except to notice that an exceptionally abundant supply

of food may cause some species to lay larger clutches of eggs than usual, as, for instance, Short-eared Owls do when there is a plague of voles.

The second requires more consideration. A territory may be large or small, from the wide expanse of country held by a pair of Golden Eagles to the " beak's-reach " circle round each Gannet's nest in a colony. It may, as is a Robin's, be well defined, vigorously defended, and large enough for a feeding-ground as well as a breeding place ; or rather vague and spasmodically defended as in the case of the Bullfinch, which feeds far outside the nesting territory. But, although differing widely, most breeding territories have an important effect on the bird in that the holding of them against trespassers provides a sexual stimulant.

Very few of us can afford to provide an aviary which will give our birds a territory as large as they would normally hold, but I think that as far as aviary *breeding* is concerned the size, within obvious minimum limits, is of less importance than the stimulation of defending something against a real or imagined trespasser. That is not to say that a pair of Nightingales in a wired-in acre of oak scrub and nettles would not breed . . . on the contrary. But I believe that a cock Nightingale in a 10 ft. by 10 ft. concreted aviary would be more ready to breed if another cock were caged a short distance away. Not too near, of course, or they will spend their time trying to get at each other's throat ; but near enough to be reminded now and again that their territory is something to worry about. There probably is, however, a minimum limit of size of territory below which a bird will not usually breed. I say " usually " because records such as those of Shamas breeding in a cage and Skylarks in a box in an attic show that birds occasionally ignore all the " rules ". Our aim, where circumstances permit, should surely be to give our birds as natural a life as we can, rather than to see just how far it is possible to compress and confine them. (This is not in any way intended as a criticism of the breeding of Shamas in a cage . . . I should like to have done it myself !) When more are obtainable it will be interesting to experiment with gramophone records as " stimulators ". I have tried the effect of British birds' songs on Shamas in winter, and both cock and hen were excited by Song and Mistle Thrush, less so by Blackbird, hardly at all by Nightingale (the Nightingale called forth only a mild sub-song from the cock and nothing from the hen), and curiously enough most of all by Curlew.

The " place from which to sing or display " is important. Display occurs in widely differing places, from high in the air to tunnels under the ground. It is connected with both territory and courtship, and the lack of a suitable place in which to do it *may* be sufficient to prevent breeding. To a lot of small birds the higher the singing-post the better. It is likely that telegraph poles have considerably influenced the

distribution of some species. (In some cases because they provide a place from which to watch for food as well as making the bird conspicuous to rivals.)

Numbers three and four would take too much space to go into thoroughly, and we have already noted that a cock defending breeding territory is brought to a high pitch of sexual excitement by singing and displaying to, or chasing, intruders. The expression " ready to be courted " is perhaps not a very happy one, but it is difficult to find a better. The time during which a hen is willing *and able* to copulate successfully is probably shorter than the corresponding phase of a cock, though his is not of very extensive duration in most species. The essential point is, of course, that the periods should occur simultaneously. From the fact that a bird is willing to copulate it does not by any means follow that it is able successfully to do so.

We should do well to pay more attention to the way in which a would-be breeding pair are introduced to each other. It must be remembered that in a number of species the male occupies a territory for some time before the arrival of the female, and that during this time he is " working himself up " to a state of readiness to receive and court her by his displays in defending the territory. It is not always a good plan to keep a pair together through the winter ; " familiarity breeds contempt," or, to put it another way, the attractive stranger met at a dance causes more heart-beats than the typist you see every day. Comparatively few birds mate for life, and so far as I know no British bird had been *proved* to do so (though Continental forms of the Marsh Tit have), but it seems likely that such birds as Bullfinches, birds of prey, some of the Crows, Geese, and a few others do so fairly consistently. Although birds are adaptable animals, they are more likely to breed in captivity when the various phases follow one another " according to plan ". With many species the desirable order of events would appear to be :—

(*a*) Cock in breeding aviary.
(*b*) Another cock near by.
(*c*) Hen in adjacent aviary.
(*d*) Hen introduced to breeding aviary.
(*e*) Other cock to greater distance or removed.

On the other hand, in some species, especially those which are normally polygamous, a number of males should be actually together before the introduction of a female. Although this sounds avicidal, it is not so provided suitable species are chosen. For example, in the Ruff the males gather at a display ground, have mock battles and generally get themselves excited, until a female arrives and " chooses " one of the ecstatic males. After copulation the male has apparently completed his part in domestic affairs. (It should be noted that the Ruff can and sometimes does breed when only a pair is present at

one place, but in captivity most of the interest would be lost if the full normal breeding cycle could not be witnessed.)

I feel that we are inclined to take it for granted that all that is necessary to bring a cock and hen to a sufficient intensity of emotion (and a suitable physiological state) to enable them to breed is their awareness of each other's presence. As Howard [1] has pointed out, a male is usually influenced *first by males*, and afterwards by a female ; whereas a female is usually influenced by a male only.

In parentheses, the time at which to separate a pair is almost as important as that at which to bring them together, if they are birds which do not normally share the duties of rearing a family. Especially in those species which are promiscuous or polygamous the cock may hinder rather than help his "wife". Many of us can remember a cock Weaver which has dashed our hopes by pulling to pieces a nest in which eggs were just about to hatch. A partial solution of this particular problem is to provide him with so many wives that he is kept occupied.

The fifth is obvious. Although some birds will nest in an amazing variety of places, most demand a particular type of site, and in default many will not breed at all. Last spring [2] the water-level in a large reservoir near my house was unusually low, and the water was bordered by wide expanses of mud and shingle instead of reed-beds. As a result, although the shingle induced a very rare bird to breed there,[3] the breeding arrangements of the normal population of water birds were completely upset. Little and Great Crested Grebes, Moorhens, and Coots all failed to rear young. Only one pair of Coots rose above the lack of nesting sites by building a nest on the bare mud and laying eggs. The time came, as the water receded, when the distance was too much for the Coots' peace of mine and they gave it up.

A great deal has been written on the subject of nest-boxes, but hole-nesting birds probably present only a small problem compared with others. But even here we might exercise a little more care as to where we put the box (or preferably natural log). Most bird-photographers will say, to their sorrow, that it is uncommon to find a tree nest-hole which is in full sunlight for more than a little while each day, and it has been shown that Woodpeckers tend to bore more on the north side of trees than on others. The count which showed this included *all* nest borings, and my own experience is that in *dead* trees without shade Woodpeckers almost invariably bore on the side with least sunshine.

Not only is the position important, but so is the time at which the nest is introduced (quite apart from the withholding of boxes from

[1] *An Introduction to the Study of Bird Behaviour.*

[2] 1944.

[3] The Little Ringed Plover, *Charadrius dubius curonicus*, which had only once before been recorded as breeding in the British Isles.

birds which are eager to breed during unsuitable weather). Let's get an aviary ready for them, we say, and before we put them in we'll make sure that there are several nest-boxes. . . . But it's not always a sound idea, any more than it's always right to put " them " in together. In some species the cock has chosen a nesting site before his mate-to-be arrives ; in others he has nothing to do with it. Some birds, such as some of the Tits, appear to choose in February the hole in which they will breed at the end of April. Others commence to build within minutes of first seeing the site. The cock Wren chooses the site, builds the nest, and induces one of his wives to line and use it by displaying outside it. There is a time and a place for all things, including nest-boxes.

This year some Spotted Flycatchers took up territory outside my front door. There were two of them together, but otherwise they gave no indication of being a pair. They hunted from different posts and hardly seemed on speaking-terms ; there was no display, no feeding. One casually inspected a crack in a tree several times, and once half-heartedly had a look in an old kettle. I carefully watched the one I believed to be the hen,[1] and found that she very frequently sat on a stump of a plum tree. So I fixed up a nest-box by the stump. Within two minutes she was back. But from being a rather dowdy drooping little bird she had become trim and excited. (Excitement *is* one of the human emotions which I allow myself to attribute to a bird !) She " ticked " and flapped her wings as excited Flycatchers do. And so did her mate, and both of them were in and out of that box six times in two minutes. Then she flew to the fence and crouched and fluttered her wings, and he mounted her. Nest building began at once, and in the intervals she begged him for food. Gone was the apathy . . . in some way the presence of the box *at the right moment* had released the full flood of their urge to breed.

The problem of providing nesting-places for birds which do not normally use holes in trees is not always easy to solve, although some will unexpectedly utilize boxes *faute de mieux*. Termites' mounds, sand-banks, and reed-beds are quite out of the question in most aviaries, and it must be admitted that however carefully we attend to the birds' requirements there are some species which will probably beat us owing to the sheer impossibility of providing a suitable site. I refrain from giving examples, because someone will write reminding me that in 1908 they bred the Slavonian Grebe in a basin in the linen cupboard. I know . . . even rummier things have happened, but these thousand-to-one chances are not aviculture ; they're luck.

I am not going to attempt, nor am I able, to provide solutions to all these problems because the ground to be covered is obviously far too vast, but one type of site must be mentioned which seems to have

[1] This must not be taken to imply that the female usually chooses the site.

been rather neglected by aviculturists ; the foster-parents' nest for parasitic birds. There is a very interesting field of study open here, and one in which a great deal can be learned. (Perhaps some day one of us will be able to prove that the Cuckoo really does sometimes lay her eggs on the ground and carry them to the nest, by providing her with nothing but fosterers' nests in small holes !)

So far as number six is concerned, I cannot do better than quote from *Bird Display* (E. A. Armstrong, Cambridge U.P., 1942). He says " There is now a great deal of experimental evidence proving that light is one of the most important external factors in furthering the onset of the breeding condition. It has long been the custom in Japan to expose pet birds to artificial light for some hours after sunset in order to bring them into song in January. . . . By artificially increasing the light hours of early spring Marshall and Walton (*Philos. Trans. Roy. Soc.*, B. 226, 423–456) succeeded in producing Ducks to display prematurely. Recrudescence of the gonads accompanies all such precocious behaviour. A great deal of experimentation . . . has not yet elucidated the precise means by which this stimulation is effected . . . it is, however, clear that a certain minimum day-length must be reached for spermatogenesis to take place. . . . There is good evidence that the eye, acting as a light receptor, stimulates the pituitary gland by nervous channels and that the activity of the pituitary controls the internal secretion of the testis."

A number of people have experimented with artificial light in the shelters of their aviaries, but chiefly with a view to giving the birds a chance to feed later than usual, and so mitigating the hardships of our winter.

Number seven is self-explanatory, but it should be pointed out that a sharp drop in temperature, which means that nestlings need more food and brooding, may so diminish the parents' " rearing urge " that they will neglect and even desert their young.

Birds are not only stimulated by seeing others of their own kind mating but there are a number of records of stimulation by different species. In some birds it is not only a question of stimulation but also of imitation. The " Great " aviary at the London Zoo provides very interesting examples, not only of these, but of such things as the fact that Silver Gulls are stimulated to perform their nuptial display by a Glossy Ibis raiding their nest. It would be difficult to find a better place to study bird psychology, although it must be remembered that there the birds are in somewhat concentrated captivity. However, the very concentration gives the watcher opportunities of seeing what is referred to in number nine. One does not, of course, have to visit the Zoo in order to see dominance ; it is found in any fowl-run. At the top of the scale one bird is very obviously " cock of the roost " ; at the other is a poor meek specimen which always gets pecked if it

happens to get close enough to its fellows, and seems to get little food as it hovers on the edge of the crowd at the food-trough. The important thing about a dominated bird is that it not only gets fewer opportunities to breed, but its very submission seems to take away the desire to do so.

I am only too well aware of the pitfalls which beset the way of one who attempts to cover so much ground in so short a time, and I strongly recommend those who have not already done so to study some at least of the books mentioned in the bibliography.

Two important points arise which affect us as aviculturists. First, we should achieve better results if, instead of just putting two birds together and hoping for the best, we paid more attention to the factors which will give them the maximum chances of breeding. (Is it going too far to suggest that one of our first steps in this direction should be to get away from the idea that when we want to breed a certain species we have only to have a *pair* of them ?) Second, although we know in broad outline that our list is at any rate part of the truth, there are tremendous gaps in our knowledge, and even the man who keeps a solitary Budgarigar in a cage can help us to fill them in. This question of recording what happens is most important. I feel that, to a far greater extent than at present, the AVICULTURAL MAGAZINE should be to aviculture what *British Birds* is to British field ornithology—the place to record what birds do. Is it laziness, or modesty, or indifference which prevents us from deluging the Editor with letters to the effect that we saw our Pekin Robins carrying excreta from the nest, or our cock Redstart incubating eggs ?

If we did it would mean a great deal more work for her, and she would have to do some very critical editing, but I think she wouldn't mind that. We can't all write articles (several times in this effusion I have paused to wonder whether I can !), but we can jot down what we see. It must be what we see, of course, and not what we think we see. It is fatally easy for the imagination to add to an incident, and even more so to draw conclusions which are quite erroneous.

It is not only details of egg-laying and incubation that we must note (and we often dare not inquire too closely into these), although they are of great value. Even more valuable are such things as display, both between pairs and members of the same sex ; the share of the sexes in nest-building and the rearing of young ; moulting periods and roosting times ; the attachment or intolerance of a breeding pair during the autumn and winter ; the order of dominance and subservience among a collection of birds—the hierarchy of the aviary ; and, of course, anything helping to fill in the gaps in our list of breeding stimulants.

In addition I feel that it is up to aviculturists to help to find answers, by experiment, to such questions as how birds recognize their own species and members of the opposite sex ; whether Woodpeckers

" drum " with their bills [1] ; to what extent weather affects roosting times ; and many other problems. For example the experiment which proved that a male Flicker recognizes another male by his " whiskers " could well be followed by one in which the rump of a female Redrump Parrakeet is dyed red and the male's reactions are noted. (It would be even more interesting if, as well, we could make her " draw herself up to her full height " like her courting husband.)

May I end on a personal note ? It may be that some who have waded through all this will think that I have made mountains out of molehills, or suggested ways out of difficulties which do not exist. Some may wonder why they can't be left in peace to enjoy their birds as they want to without all these added complications. I may even have offended some by ironical digs. If I have I am sorry. I should hate to be bad friends with anyone who loves birds, whatever their approach. And the fact that I am interested in the " psychological biology " of birds doesn't mean that I don't also love the commonplace. I'd give a good deal to get hold of a pair of Zebra Finches now ; and as for a Shama . . .

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Since writing the above the author has kindly sent me a copy of *The Way Birds Live* (E. A. Armstrong). Although the book is stated to be intended for young people, I strongly recommend it and *Watching Birds* (J. Fisher) mentioned above, to those who want a simple (and cheap !) introduction to the somewhat " heavier " books in the bibliography.

[1] I have no doubt whatever that the noise is mechanical and not vocal, but this view is still being questioned.

* * *

HAND-REARING OF BRITISH BIRDS

By V. A. V. Carr

(*Concluded from vol. viii, p. 136*)

To conclude this series of memoirs of different species of British birds that make ideal intelligent pets when reared from, or soon after leaving, the nest, I should like to mention a few out of the ordinary supposedly impractical birds to keep in closed quarters. In these "few" I should like to include the Partridge, Moorhen, Corncrake, Merlin, Kestrel, and Sparrow Hawk. All these I mention my father has nourished from an early age to reach maturity, and to live in not too commodious quarters. Indeed, it is my own personal opinion he would like to have every species of British bird under his observation whatever their merits or otherwise. On one particular occasion I managed to obtain a sitting of Partridge eggs, which were placed under a small bantam game hen. The rearing of these chicks was the most difficult and expensive of their whole chequered career, entailing plenty of live ants' eggs and easily digested protein foods. But when once they had grown up a little and got started, nothing could daunt their growth to maturity. They used to roost or "jug" with their foster-parent on one particular spot on a lawn and would fly quite long distances away from their rearing quarters to the fields—but, like the proverbial hen that mothered the ducks and could never understand why her children wanted to play in water—the foster-mother could never be induced by these little Partridges to fly off with them. Unfortunately these poor little chicks were chivied about soon after 1st September by anxious sportsmen (! ?) and the lucky survivors were placed in safer surroundings. What beautiful inmates they made. There were not, as readers have gathered, strictly speaking hand-reared in the true sense of the word, but literally with the troublesome way of providing their requisite diet they were, and hence their remarkable tameness. I love shooting better than anything, but after having seen the Pheasant and beautiful nature of these birds at very close quarters, I wish there was something less likeable at which to point one's gun. This last summer and early autumn I heard and saw several Quail living in the cornfields. Their gradual reappearance in these parts is very heartening and I hope they increase.

The Moorhen and Corncrake make very pleasant aviary inmates, and there is no need to go to any trouble in catching them very young. I have caught them in early autumn and within a few weeks, providing there is not too much hiding space, they readily get acquainted with their new companions and owners, and can get extremely cheeky—so likeable a feature with some of our native birds.

* * *

REMINISCENCES III

Pheasants

By Flight-Lieutenant D. H. S. Risdon

I shall always remember my first sight as a boy of Golden and Amherst Pheasants at the London Zoo. Never had I seen such truly gorgeous creatures. In my inexperience then I imagined them to be rare and costly, so that it was with much pleasure, when starting my big aviary, to see Golden Pheasants offered at very reasonable prices.

A young cock was sent for, which arrived with a sprained leg, sustained no doubt in catching. The immature plumage of this species was disappointing, and, as the leg did not improve, the bird was returned to the vendor, who then offered me a full-plumaged cock for a little more money.

This, when received, turned out to be a particularly fine specimen, pure bred and of full, rich colouring. He was quickly followed by a hen, and for the first time I was able to enjoy their display.

The tameness of these birds, the truly gorgeous plumage of the cocks, their graceful movements and the ease with which they can be kept and bred, have always commended them to me as ideal aviary birds for those with a fair amount of space.

In spite of the fact that Pheasants will live and breed in little better than chicken runs, they do not look their best except in an enclosure large enough to give them a semi-natural background.

The Goldens began to lay at the beginning of April the following year. For a nest the hen chose a depression in the bare earth at the top of a small mound planted with hawthorn bushes. I can still remember the thrill at the first sight of three eggs. The nest was not noticed until the hen was seen walking away from it after laying the third.

In spite of warnings that hen Pheasants made bad parents, I was determined to let this one try her hand at rearing her own family. Alas for my indulgence ! She laid twelve eggs and began to sit in an exemplary fashion. Then, after about ten days' incubation, she came off as usual for exercise and I noticed that several eggs had been broken and one was adhering to her feathers and dangling from her breast as she walked about. She seemed somewhat distressed and her feelings were obviously not soothed by the cock who rushed round her displaying enthusiastically.

She refused to return to the nest that night and roosted on the perch as usual. Strangely enough she went back the following day and sat out the remainder of the incubation period perfectly, but, needless to say, there were no chicks that year !

The following spring, when the hen started to lay again, it was determined this time to make sure of at least some young Pheasants. Accordingly a broody bantam was procured, and the first clutch set under her. The brood, seven in number, were transferred to a small movable pen on the lawn when hatched and four were reared in due course.

Much more interesting was the fact that the hen Pheasant, unknown to anyone, laid a further clutch of nine eggs and concealed the nest so well that it was not discovered till she was found actually sitting. Each day after laying she must have covered the eggs extremely well with dead leaves, as the nest was in quite a prominent position and would have been noticed had it not been expertly camouflaged. There is an interesting sidelight on bird behaviour. One would almost think that the careful covering of its eggs was an act consciously thought out, and yet I have seen the same hen Pheasant, when she had forgotten herself and laid an egg on the bare earth, right in the open, go through all the motions of picking up leaves and bits of straw and tossing them over her back without achieving any practical result beyond reminding me of someone who has spilt the salt throwing same over his shoulder !

This time, in spite of her lapse the previous year, she sat perfectly and hatched seven sturdy chicks, six of which she reared to maturity. The seventh would also have been reared but was killed by a monkey, which somehow managed to drag its head off through the wires of its cage.

The cock had to be removed when the young hatched, because of his over zealous attentions on the hen. He rushed round her in circles displaying excitedly and trampling all over the young in his enthusiasm. He was accordingly shut away in a partition containing Jays and Little Owls, where, at the beginning of June, he commenced his annual moult, a process which deprived him in a few days of all his glory and made him look like a rather moth-eaten rooster for many weeks.

While the hen was sitting she was never interfered with by the cock, but whenever she came off to feed he must have driven her frantic with his idiotic prancing.

The brood made a fine sight as they trooped round the aviary with their mother. Although they often chased flies to the pond's edge, there were no casualties from drowning. The hen brooded them in a different place each night under the bushes, never once returning to the original nest after they had hatched.

When they were six weeks old she flew up to roost on a perch and the young followed suit, perching all round her. At this age they were well feathered and could fly. They were about half as big as Partridges and had tails about 2 inches long.

From then on they grew rapidly and, at four months old, were as big as their parents.

The original pair of Goldens I had for years. They seemed to increase in prolificacy with age. In some years as many as fifteen young were reared from them, although the hen never repeated her performance of rearing her own young. Later I exchanged two of my young hens for two others, which were duly mated with the old cock.

Like many male Pheasants the cock was addicted to egg-eating, but he only broke those which were laid in the open. Never did I know him to interfere with eggs laid in nests. " Doctored " eggs stuffed with mustard he ate with just as much apparent relish, which inclines me to the belief that this habit of the cocks is not so much for the pleasure of eating the egg as for destroying tell-tale signs left in the open that nests are in the vicinity.

Incidentally it was found that this stupid habit of the hens in laying their eggs all over the place was greatly curtailed by shutting the cock away from the hens from mid-day onwards each day, when laying usually took place. The cock was always particularly enthusiastic in his displaying just when the hens wanted to lay, and waltzed round them enough to make them dizzy, with the result that they forgot all about their nests. Left on their own, they were able to go quietly about their business and creep into their nests when laying time approached.

It was found that both Golden and Amherst hens took to artificial nests made from old apple baskets turned upside down with a hole cut in the side. The space underneath was then covered with dead leaves and grass and the whole thing camouflaged with twigs.

Amhersts were acquired some years after the Goldens first arrived. They started with a yearling pair, the cock in immature plumage. Until the acquisition of his adult dress he was very timid and retiring, but with his first adult moult he gained self-confidence and became as tame as the rest of the Pheasants. Later two more hens were procured, so I now had a cock and three hens of each species.

Both kinds agreed perfectly. The cocks never, to my knowledge, had a fight. The most I ever saw happen was one making a short run at the other when they happened to be feeding together, to which the latter always gave way. I think the Golden was always inclined to be the " boss ", but he never bullied any other bird, even though, each autumn, the aviary was full of young Pheasants of both sexes, looking like a game farm.

I did separate the Goldens from the Amhersts just before the laying season, not because it was feared that they could fight, but to prevent cross breeding.

Both species were always 100 per cent fertile, and many were the

broods of strong, healthy young produced from them every year. They were hatched and reared under bantams on the garden lawn, and transferred to the aviary when about six weeks old.

Pheasants are great green food eaters. With the exception of cupressus, box, and laurel mine ate every leaf they could reach in the aviary, so that, after a while, the trees and bushes were bare for two feet above the ground. Ivy they seemed to relish, and would walk along the top of the shelter shed, leaning over to get the young shoots which attempted to climb over the roof.

They were, of course, given plenty of green food. Another thing much enjoyed by the young growing stock were house scraps, put through a mincer and made into a mash. This incidentally helped out the corn bill, which became considerable when there were lots of young to be fed.

Try as I would I could never persuade them to roost under shelter. They always chose the highest and most exposed perches in the aviary on which to sleep, and on cold wintry mornings they used to have hoar frost on their tails when they came down to feed.

It is a pity that these showy birds cannot be induced to stay about a garden at liberty. I have never tried it myself, but according to all accounts they stray away gradually to the woods. I wonder whether anyone has ever tried a number of cocks loose with the hens enclosed. This might do the trick, and keep the cocks " in bounds ".

* * *

THE GREEN-WINGED KING PARRAKEET

(*Aprosmictus chloropterus*)

Successful Breeding at Foxwarren

By Alfred Ezra, O.B.E.

This beautiful species from South-East New Guinea is much like the Australian King Parrakeet (*A. cyanopygius*), but the pale green band across the wings and the blue spots on the nape and rump are much larger.

A pair have occupied my aviary for more than nine years, but never until now attempted to breed. However, when looking through the nest-boxes early in July I was much pleased and surprised to discover a healthy young Green-winged King in the tall box in the outer flight of their compartment. Since then the parents have looked after it very well and it left the nest on 30th July, the image of its mother.

It is strange that this pair should have bred after so many years, especially when their diet consists of nothing better than oats and buckwheat, but now that they have started I hope that they will breed regularly in the future. So far as I know, this species has not been bred in captivity before.

MISCELLANEA

By Sir Godfrey Davis

During the war I have had little heart to write about birds, but I have still kept some of mine, though my chief interest has been the breeding of Homer Pigeons for the Army. But I have, particularly in breeding Avadavats, learned a few things which may be of some interest to fellow-members, and before senility completely engulfs me I thought I would put them on record.

Maggots.—This sounds an unsavoury topic, though I have seen them described as luscious and from the time of Izaak Walton fishermen have bred them in dead fowls hung on to the branches of trees and in sheep's heads ; and in Ahmedabad a jungly friend of mine bred them in fishes' heads. It was, however, at best a smelly process, until a little time ago I found the maggots of the common housefly can be bred in bran. It happened in this way. I had some Avadavats nesting. Incidentally they reared three fine young birds in an all-wire cage, measuring 24 inches long, 12 inches broad, and 14 inches high with a nest-box fitted outside. I had used white ants as insect food for them to rear their young on, but black ants had eaten all the white ants, and a friend of mine brought me some tiny white grubs in what looked like leaf mould. The Avadavats fed these willingly to their young, so I kept some of these grubs until they assumed the chrysalis form, and eventually to my surprise they developed into common houseflies. I asked my friend where he got them from, and he told me a servant of his had got them from wheat offal lying in the yard of a flour mill, on which water from a tap was continually dripping; and that the Bhayas, who keep and rear Grey Partridges as pets, bred and used these grubs for the young. So I put some bran in a common clay flower-pot, spread a little sugar on the surface to attract flies, and watered the bran twice a day for three days, or, rather, a servant did for me, and when the bran had started to decompose I watered it no more, as I did not want it to get too wet. I wanted merely to keep it well damped. About the fourth day tiny maggots began to appear. The bran had an aromatic sharp smell, but nothing unpleasant, and when I put my hand in to turn over the bran it was at the bottom of the pot steaming hot. After two days the maggots were of a presentable size, and I then put some of the bran and maggots in two empty cigar boxes to dry them off, as it were. In a day the bran resembled leaf mould and the maggots were clean and dry. I fed these to my Avadavats, which ate them greedily. In another three days the maggots in the pot had turned to chrysalises, and these, too, the Avadavats ate. So I put more bran in another pot and watered it again, or rather a servant did, and again after a few days tiny maggots

appeared. It appears the bluebottle, whose maggots are too big for small birds such as Avadavats, are not attracted by fermenting bran but houseflies are. I suppose the process of decomposition is helped by the climate here, but as houseflies do breed in the summer in England, though no one knows where they go in the winter time, these small maggots could be bred in England in this comparatively odourless and harmless way ; and Avadavats could be reared in cages like Canaries. So when I retire I may buy a tricycle with a wooden box attached, such as one used to see in peacetime, when ices were sold under the caption " Stop me and buy one " ; but my box will bear the caption " Maggots bred the Davis way ; stop me and try some ". I shall then be able to pay my taxes, I hope.

White Feathers.—Often when they are wild Avadavats line their nests with fluff from the plumy heads of the tall Sar grass, on the seeds of which they so largely feed. I have not always been able to get this, and so I gave my Avadavats feathers to line their nests with. I found, however, they were afraid of all dark coloured feathers, and would only come near to and use white feathers or feathers of a light grey colour.

Dates.—I think dates are a good food for Bulbuls and give colour. I have for long had a pair of White-cheeked Bulbuls. When they are wild the yellow beneath the vent is a deep yellow, and when the sun shines on it, as it does at times, when the birds move among the leafy branches of a tree called the Kirir tree, which has at a certain season of the year an abundance of tiny pink fruit, somewhat of the form and texture of red currants, but smaller and paler, the yellow appears the deep golden yellow of a crocus. In captivity this fades to a pale lemon colour, and I have noticed this in birds kept by Indian bird fanciers who feed their Bulbuls principally on boiled sweet potatoes or yams. I was told the Bulbuls did great damage to the date crop. Dates grow abundantly in gardens near the Indus at Rohri. It is said Alexander's soldiers planted the date trees on their way to India. Be that as it may, I got some dates, one of my servants stoned them, and then pressing some into a lump, rolled an empty beer bottle on the dates, placed on a board, to soften them. Dates when fresh from the tree are soft, but they soon harden after exposure in the bazaar. The Bulbuls are very fond of these, and when dates were their principal diet they moulted with the vent feathers a deep golden yellow.

My Bulbuls are very tame, though caught wild, and I let them out into the garden and they return quite happily to their cage. I fixed up a shallow basket in the top corner of their cage, and filled it with coconut fibre or coir, and then roughly hollowed out a nest in the centre. The Bulbuls built in this with the dried fronds of the Casuarina tree which somewhat resemble in form pine needles, and the hen laid four pretty blotched eggs. Unfortunately, the cock

Bulbul ate them all. I find Bulbuls are also very fond of boiled rice, boiled so that each grain is separate. They like also rice mould sweetened with sugar or honey. Above all, they like grasshoppers and Hume, the great naturalist, remarks that grasshoppers form the principal diet of many insectivorous birds in India. I expect Mr. Spedan Lewis to run a grasshopper farm after the war. He can then say " I fed it ". I feed my Bulbuls also on kidney chopped fine, mixed well with parched GRAM (not grain) flour, and fried for a few minutes in ghee. This is a favourite Indian food for insectivorous birds, and a very good food, too, for such birds as Shamas, but if it is fed too liberally to Bulbuls their feathers tend to become black. If a red-vented Bulbul is fed on gram flour mixed into a lump with water, as is sometimes the case, this will turn its feathers black. On the other hand, young Ring-necked Parrakeets and young Mynahs can be reared successfully on this food alone as anyone who visits Crawford Market in Bombay can see. Young Bulbuls can also be fed on this up to the time they start to feed themselves, when they should be got on to fruit and the kidney food. Bananas are a good fruit for this purpose.

Drop Perches.—I found the young Avadavats when they left the nest had for the first few days difficulty in getting back to their nest-box. I therefore got some thin straight branches, fashioned one end into a bulbous form so that the perch would pass through the wires of the cage, and then be stopped by the bulge from falling through. I then cut it to such a length that it would project through the opposite side of the cage, letting it fall, however, so that it was supported by the wooden base of the cage (my cages are all wire cages with wooden cross-bars), and would thus fall aslant, reaching almost to the bottom of the cage, the wooden base being 2 inches in height. I fix three of these perches on opposite sides of the cage, so that they fall into a criss-cross pattern, six perches in all, and the young Avadavats easily find their way back to the nesting box. I do the same with Silverbills, which I find far easier to breed than Bengalese, and in cages, too.

This is all for the time being. Advance Britannia !

* * *

AN EARLY ACCOUNT OF SOME OF THE PERCHING BIRDS IN THE SCAMPSTON COLLECTION

By A. F. Moody

(*Continued from p. 81*)

Pink-browed Rose Finch (*Propasser rhodochroa*)

An example received in 1912. A pair given an opportunity of nesting in 1915.

Appearance, etc.—A cheerful and slightly crested species, the male differing from the darker and rather hen Sparrow-like female by possessing a well-defined eye stripe, and by having a considerable proportion of his plumage suffused with delicate rose pink.

Habits.—This pair which were placed in the large Waders' Aviary kept much to the dense bushes, and were only occasionally to be seen perched upon an exposed twig. Peaceably inclined, but on the whole shy and reclusive, and not particularly interesting birds to keep.

Breeding.—Nested on more than one occasion, the first brood of five leaving the nest on 25th August, 1915. Nest placed in a yew bush at a height of about 4 feet from the ground, rather deep for a Finch's nest, and composed chiefly of dead grass and rootlets with an odd feather or two and a small quantity of cow's hair woven into the fine rootlet fibre lining.

Eggs.—Six in number, Finch-shaped, Hedge Sparrow blue, speckled with black; might be described as resembling miniature Song Thrush's eggs.

Incubation not taken. The young, which resembled the female, leaving the nest on the nineteenth day.

Food.—Mixed seed.

Hardiness.—Quite hardy.

Voice.—Male possessed of a pleasing song.

Pine-Grosbeak (*Pinicola enucleator*)

For several years we kept from one to three pairs of this very charming and docile species. It is a bird that is absolutely hardy, and judging from the eight or ten presumably wild caught examples that we acquired is naturally and unusually tame. In fact every Pine-Grosbeak that we have possessed would from the first allow of an approach to within 2 or 3 feet, and that when kept in a large aviary containing much natural cover and various timid species.

Requirements.—The particular requirements of the species in confinement, apart from food, appear to be plenty of exercise and, during the summer months, access to shade, also if possible some opportunities of procuring insects, etc.

Breeding.—Kept under suitable conditions the Pine-Grosbeak appears to be a bird that nests freely in confinement. We first reared the species (two young) in 1906 (see *Avi. Mag.*, New Series, vol. v, p. 55), since when, until parted with some few years later, we regularly had nests and reared young on two or three occasions.

Nest.—Invariably built in yew or other bushes at a height of about 5 feet from the ground, composed chiefly of dead spruce twigs with an inner cup or lining of fine dead grass and rootlets. These nests were constructed fairly rapidly ; one I have a note of as begun at 2 p.m. on Saturday, completed 9 a.m. Tuesday.

Eggs.—Four or five appears to be the number of eggs laid which, roughly speaking, may be said to resemble those of the Bullfinch. They are, however, considerably larger, more richly marked, and have underlying blotches of purplish grey.

Incubation.—Fourteen to fifteen days.

Behaviour of the Birds at the Nest.—As giving some idea of the extraordinary tameness already referred to of the species, I may state that the brooding females invariably accepted food from the hand. The manner of receiving help while the young were small was to remain in the nest and, after accepting a mealworm or several fresh ant's eggs from the palm or a teaspoon, slightly to raise themselves and feed the young beneath ; as they became older, to step out of the nest on to the wrist or thumb and bending round deliver food from that position.

On one occasion, noticing a female beginning to build and for that purpose laboriously breaking dead twigs from a spruce fir bush, I procured from outside the aviary a handful of similar twigs which on returning and offering them to her she gladly accepted from the fingers, or when tossed one by one near the position of the nest ; her method of architecture I observed to be as follows. First, without much ceremony, she quickly dropped the sticks into position ; next, as the framework became visible she exercised greater care and, after accepting each piece, would stand or sit in the cavity and carefully place each in position, after which her familiarity was such that she would look inquiringly round for another, and should the presenting of it be delayed actually leave the nest and jump to hand a distance of 2 or 3 feet.

On this occasion one or two twigs which accidentally fell to the ground were retrieved by the cock and taken to the hen at the nest, but usually beyond mounting guard over the vicinity of the nest and helping to feed the young I observed the males take little part in the duties of nidification.

Food.—In addition to access to a seed mixture containing sunflower and hemp our birds obtained a certain amount of natural food and undoubtedly much pleasure from nibbling the buds or foliage of

the common larch. These we supplied the year round in the form of sprays or branches about 18 inches long, fresh twice weekly as broken from the trees. Fed as described the males retained, or regularly after each moult assumed to the full, the delicate rose pink of the wild bird.

Parrot Crossbill (*Loxia pytyopsittacus*)

Several examples of this large race or species kept. May be described as considerably larger and stouter in build than the common Crossbill.

Habits, etc.—Similar to those of the type.

Common Crossbill (*Loxia curvirostra*)

For several years we have possessed examples (chiefly males) of this rather interesting bird.

Habits, Requirements, etc.—A species that takes readily to confinement, but is of rather a destructive turn of mind to perches, woodwork, etc., if kept with nothing to interest it ; needs plenty of exercise. I would recommend if procurable a frequent supply of fresh sprays or branches of larch, Scotch fir, spruce, etc., also fir cones.

Food.—Sunflower, hemp seed, etc.

Java Sparrow (*Padda oryzivora*)

Both the natural and white form of this well known cage bird have been kept here. A species that may be described as hardy, vigorous, and long lived in captivity.

Breeding.—The white form at least breeds freely.

Disposition.—According to my experience unsafe to trust with weaker birds when nesting.

Saffron Finch (*Sicalis flaveola*)

We kept for several years (until parted with) two males of this very showy and rather Bunting-like bird.

Breeding.—From the behaviour of these males generally and their frequent habit of carrying nesting material I should imagine the Saffron Finch to be a free breeder.

Food.—The examples referred to thrived chiefly upon and appeared to prefer white millet seed.

Ribbon or Cut-throat Finch (*Amadina fasciata*)

We have kept for a limited period a pair or two of these not very showy but well-known birds.

Habits and Requirements.—To the best of my recollection similar to others of the group.

Zebra Finch (*Tæniopygia castanotis*)

This well-known and easily obtained little foreigner thrived here for a lengthy period. It is a bird that is easy to manage, a free breeder,

and from its attractive appearance and habits one that I can recommend to the beginner or as a child's pet.

Nutmeg Finch (*Munia punctulata*)

For some years we possessed examples of this well-known species, a bird I may describe as active, hardy, and an excellent doer in confinement.

Breeding.—The species nested, but through accident or otherwise did not rear young.

Nest.—Built in a covered-in box.

Eggs.—White, of the usual foreign Finches' character.

Red Avadavat (*Amandava amandava*)

Judging from the behaviour of the pair or two of these little birds that we possessed, and the fact that they did not, to the best of my recollection, live more than about two years, I may refer to the species as not particularly vigorous or long lived in confinement.

Hardiness.—Artificial heat was supplied during the winter.

Green Avadavat (*Stictospixa formosa*)

We possessed three of these little Waxbills which, although showing no indications of nesting, thrived with us for some years (about four, until parted with), and gave one the impression of being less difficult to maintain in health than the preceding species.

Hardiness.—Wintered like the last species as house cage birds.

Dufresne's Waxbill (*Coccopygia melanotis*)

A pair of these rare Waxbills appeared to be charming and interesting little birds, cheerful in disposition and almost continually on the move.

Hardiness.—Susceptible to cold. Dull sunless weather also had a depressing effect upon them. Wintered as house cage birds.

Star Finch (*Bathilda ruficauda*)

We kept for a not very lengthy period an example or two of this species. It is a bird I may describe as of delicate and attractive appearance, and from what I recollect a fair doer in confinement.

Breeding.—The species nested, but owing to the nestlings being chilled by heavy rains on leaving the nest failed to rear.

Eggs.—White.

Nest.—A rather loosely woven domed structure built in a tuft of grass.

Parrot Finch (*Erythrura psittacea*)

For several years we possessed pairs of this bright and active little bird, a species which in the writer's opinion is one of the most charming of the group. Their habits also are as pleasing as their appearance,

and to further recommend the bird they breed freely, are possessed of robust constitutions, and if suitably treated will live for years.

Food.—In addition to hard seed green food forms an important item in this bird's diet.

Sexual Differences.—Although I have thought that the hens are usually less brilliant in colour it is not always easy to distinguish the sexes, but if several are kept together the pairs may usually be picked out by watching the food pan, when it will be observed that a male will allow no other bird of the same species except his mate to feed at the same time.

Hardiness.—We invariably supplied artificial heat during the colder months, so I cannot state to what extent the species may be hardy.

Pin-tailed Nonpareil (*Erythrura prasina*)

Represented by an odd male or two only. A rather showy little bird, not particularly long lived and which probably requires in addition to hard seed a small quantity of insectivorous food.

Hardiness.—Artificial heat provided during the winter.

Orange-Cheeked Waxbill (*Estrilda melpoda*)

Two of these little Waxbills thrived here for a considerable time. They proved easy to maintain in health and hardy enough to winter without artificial heat.

Cordon Bleu (*Uræginthus bengalus*)

These fragile looking little birds are perhaps not the easiest to start or to forget the hardships of being imported. Once established, however, we found the several examples that we possessed not more delicate than others of the group.

Nest.—Built in a covered-in box.

Eggs.—White.

Hardiness.—Wintered as house cage birds.

Gouldian Finch (*Poëphila gouldiæ*)

Red-headed Gouldian Finch (*P. g. mirabilis*)

We have kept a stock of both phases of this gorgeous little Grass Finch, a species which as is well known is one of the most beautiful of the small seed eaters.

Breeding.—Nests fairly readily, and to the best of my recollection succeeds in rearing the young without any difficulty upon canary and half-ripened grass and weed seeds given in a half-digested state from the crop of the male.

Hardiness.—We provided artificial heat during the winter, and I may add that although established specimens may be fairly hardy, newly imported examples require considerable care, and the species

at all times appears liable to chill if exposed to sudden falls of temperature.

Long-tailed Grass Finch (*Poëphila acuticauda*)

Judging from the fact that as many as thirty young Long-tailed Grass Finches have been reared from a single pair within two years I should imagine the species to be an excellent doer in confinement. My own acquaintance with the bird, however, is confined to a pair which, although they thrived and nested here, through accident and otherwise (chiefly owing to the attentions of a stray cat), neither enjoyed a long life or succeeded in rearing young to maturity.

Quail Finch (*Ortygospiza polyzona*)

A pair kept for some considerable time.

Appearance.—Curious little grey and chocolate coloured birds, the breast and flanks being barred with white. General appearance sufficiently like a Zebra Finch to remind one of that bird.

Habits.—True ground birds, our Quail Finches squatted about the bare earthen floor of their aviary (one used for Sandgrouse), and if disturbed rose suddenly with a metallic chirp, and after flying for a short distance returned direct to earth. They also never perched upon anything more nearly approaching a perch than a ledge of woodwork, and when upon the ground were very inconspicuous owing to their grey upper parts.

Hardiness.—Hardy enough to winter without artificial heat. On one occasion during the late autumn they bore without ill effect fourteen degrees of frost, when protected only by an overhanging tree.

Breeding.—Nested on three or four occasions; no young being reared, probably owing to the branch of a tree falling upon the roof of their aviary during the night, and putting the hen off her thirteen-day-old young, and the fact of the male escaping before another breeding season.

Nest.—Domed, composed of dead grass plentifully lined with feathers, built upon the ground and concealed amidst overhanging tufts of grass.

Eggs.—Four in number, thin shelled, white and elongated.

Incubation.—Performed for the first three or four days by the female only, nine to ten days.

Nestling.—Pale flesh coloured, sparsely covered with tufts of whitish down. Gape bluish white above, flesh colour beneath. Palate ornamented by six black dots and the tongue by three, including its black tip. Two small iridescent, opal coloured, bead-like warts on each side of the upper and one of greater size and brilliancy on each side of the lower mandible, spaces between those small protuberances black.

Weavers

In making passing mention of this group of seed eaters I need only state for the purpose of these notes that it is several years since any Weavers were kept here, that from what I recollect the habits of the various commoner species were very similar, that they were all long lived, thrived upon mixed seed (including hemp), and were hardy enough to winter with the protection only of a shut-up wooden sleeping shed.

Breeding.—The species kept included *Pyromelana franciscana* (Orange Weaver), *P. afra* (Napolean Weaver), *P. oryx* (Grenadier Weaver), *Quelea quelea* (Red-billed Weaver), and *Foudia madagascariensis* (Madagascar Weaver) and were all probably too much disturbed (overcrowded) to have much inducement to breed. Certain males, however, frequently amused themselves weaving mock nests.

Nonpareil Bunting (*Passerina ciris*)

Two or three males included in the collection. One kept as a cage bird, thriving for years and regularly coming into full colour.

Appearance, etc.—An exceedingly beautiful species, the male in full colour being a very brilliantly coloured bird. These males also possess a song of some merit, and except for being rather quarrelsome in the spring may be said to have habits as attractive as their appearance.

Food.—In addition to hard seed this Bunting, like the next species, requires a small daily allowance of insectivorous mixture, or at least opportunities of procuring some insects at certain seasons of the year.

Hardiness.—We provided artificial heat during the winter.

Indigo Bunting (*P. cyanea*)

With the Nonpareils we kept two or three of these birds, which appeared to require similar treatment to that species.

Appearance.—Male when in colour of a beautiful indigo blue. Female at all times rather a hen Sparrow-like bird.

American Bunting (*Spiza americana*)

During the autumn of 1910 we received from a well-known dealer a pair of these rather handsome, and as I have reason to believe, not very often imported birds. They proved vigorous and easy subjects to keep, and after wintering satisfactorily with access to a shut-up sleeping shed, were the following spring transferred to an open pool aviary (this was chosen not because the birds showed any partiality for water but because it was likely to afford a considerable amount of insect life). Soon the male began to sing a kind of oft repeated, short jerky song resembling that of the Common Bunting. It was not, however, until 12th June that the pair went to nest, the particulars of which are as follows :—

The nest which was built upon the ground and placed in a deep

cup rubbed out by the birds was composed entirely of dead grass bents, plentifully lined with fine rootlets only. It occupied four days in building and on completion looked very like a Lark's nest. The situation chosen was a slight mound near the water's edge, well concealed amidst a scattered tuft of growing grass some 15 inches in height. The eggs, four in number, were laid on four successive days dating from 16th June. In size they were about equal to an average House Sparrow's egg, but of Pigeon shape and of a delicate greenish blue colour. In fact except for being more elongated they might easily have passed for Hedge Sparrow's eggs.

Incubation taken part in by the female only as far as could be observed lasted twelve days, and the young on hatching were apparently of a pale flesh colour, liberally adorned with mealy down. They, or rather the one which was reared (two jumped out of the nest and succumbed to cold when some few days old), remained in the nest until the seventeenth day. On becoming fully feathered this bird, a female, presented a very sober hen Sparrow-like appearance, but at four weeks old began to change and rapidly assumed a plumage resembling that of the female parent.

Sexual Differences.—Without going into detail I may add that the male of our pair differed chiefly from the female by showing more yellow on the breast and more black on the throat, also by being a somewhat larger and coarser built bird.

Food.—The adults thrived upon mixed seed and such insects as they could procure, the nestlings upon wasp grubs, gentles, etc., carried from a pan by their parents.

* * *

NESTING OF YELLOW-WINGED SUGAR BIRDS

By Agnes V. Doxford

Mr. Edward Boosey wrote as follows :—

" I enclose herewith two letters from a pre-war customer of ours—Mrs. Doxford. In the first, as you will see, she relates how her pair of Yellow-winged Sugar Birds are nesting for the first time, although she bought them from us no less than ten years ago ! In the second she tells how nothing unfortunately came of their efforts. I thought, however, the mere fact of such tiny mites as Sugar Birds actually nesting and laying eggs after ten years in confinement was something that should not pass without record. Of course, I know there are numerous records of the longevity of single specimens. My mother had one for fourteen years in a cage in her dining-room. Actually I've no doubt Mrs. Doxford's pair are more than 10 years old as they are sure to have been adult when wild caught."

Mrs. Doxford wrote on 29th May, 1945 :—

" I have an item of news which I feel sure will interest you.

" Ten years ago I bought from you a pair of Yellow-winged Sugar Birds, and now after all this time and war-time food, they have decided to nest. I believe this is a rare occurrence.

" I have very little time to spend watching the birds in the aviary these days, but as far as I know the hen has been sitting about twelve days. She is sitting very tight, and only comes off her nest for a few seconds at a time to feed. The cock bird sits near on guard all day. Unfortunately the nest is too high up for me to see into, and I daren't get a ladder to look in. The wall of the aviary is packed with straw, and the nest is built in it.

" Whether anything will come of this effort remains to be seen, but it would be wonderful if it did ! The Sugar Birds are in very fine trim, and never been the least bit of worry, in spite of war-time rations. All they have had is a teaspoonful of Mellin's Food, two teaspoonsful of sugar, milk, and bread. Lettuce and green food when I have any, and funnily enough, they eat the Thomas's condition food I put in for the other birds.

" I only have a dozen birds left in the aviary, and they are all very old, barring three Canaries, two cocks and one hen, and they have a nest of young now.

" I would be interested to hear from you ; what is the average age of a Foreign Finch in captivity, and can you give me any information about Sugar Birds ? I have been able to give them an orange lately, and they get a certain amount of insects flying about outside."

On 12th June, 1945, Mrs. Doxford again wrote :—

" I am more than sorry to say the Sugar Birds' effort has come to nothing ! I noticed whenever I went into the aviary the end of last week she was off her nest, and there were no signs of her going in to feed young ; so before I came away on Monday, I looked in the nest and found two lovely little eggs. Heavy but quite cold. I have taken the nest complete with eggs out to keep. Can you tell me of any means to stop the eggs rotting ? I am sure they have young in them.

" The nest is tiny, and I should think most uncomfortable, as it is just made of hard bits of root picked out of the peat on the floor, though I had put in fine hay, hair, feathers, and small scraps of wool.

" I have two cock Fire Finches I bred myself, and they make a beautiful nest every year.

" It is very disappointing about the Sugar Birds, but I am delighted to have even the nest and two eggs, and she may try again.

" The most amazing thing to me about it is they wait till they are ten years old, and are being fed on anything but the right food before they think of breeding."

NOTES

Breeding of Banksian Cockatoo in Australia.

Early this year the Royal Zoological Society of South Australia reported in their *Zoo News* the hatching and progress of a young Banksian Cockatoo. In their March–April issue of *Zoo News* the following information is given :—

This youngster has continued to flourish and is now fully fledged ; it has emerged from the log, but has not yet been seen to fly. The condition of its feathers is perfect, having a beautiful, glossy lustre. We do not know whether it is a cock or a hen bird, as all young Banksians have the speckled markings which are retained throughout life by the hen. Young cock birds have these markings until they are some months old and until this period has elapsed it is difficult to distinguish them from hens. Next door neighbours to this baby and its parents are another pair of Banksian Cockatoos. These birds also decided to set up housekeeping. However, although supplied with a suitable log, the hen deposited her egg on the ground in a corner of the cage. We were not very hopeful of her producing and rearing a baby in such an open and public position. However, to our surprise, the egg was hatched in due course, but there was still doubt as to whether the chick would stand a chance of surviving and being reared. Fortunately, for some time after it was hatched, the weather was mild. This was lucky, as the hen rarely covered the baby during the day, although she brooded over it at night. On several occasions, visitors to the Zoo reported that " a young Cockatoo has fallen out of the log ". This was a natural assumption as it was on the floor of the cage almost under the hanging log. In its early stages the baby lay mostly in a prone position, being strong enough to lift its head only when being fed, but as it developed and gained strength it managed to eventually retain an erect sitting position. Now, at the date of writing, the bird is thirty-seven days old, and has lost most of its original yellow down, this being replaced by black pin feathers. It is fed by the mother who regurgitates digested food, which is fed into the bill of the baby. At this stage it seems reasonable to assume that we will be successful in rearing the youngster to maturity. The unusual circumstances of the hatching and rearing of this Cockatoo have afforded an unique opportunity of making continuous study of its progress.

Lovebirds : Red, Yellow, and Blue.

Mr. A. Phillips, of Goodwood, South Australia, sends me particulars of an abnormal Peach-faced Lovebird at present in Adelaide. " This bird, apparently a hen, has the head colours of the Peach-faced, but the rest of the body is the colour of a Virginian Cardinal, with the rump blue, as in normal Peach-faced, and the wings dark brown. The breeder has had Peach-faced over a number of years, and I would say that his stock of thirty to forty birds had all descended from an original two pairs, so would be pretty well in-bred. It is now in the possession of Mr. McKechnie, who has tried to breed from it, but so far without success."

Shortly before the war our member, Mr. E. N. T. Vane, had a couple of lutino Nyasa Lovebirds. In answer to my inquiry Mr. Vane kindly let me have particulars of their history. " My birds were both hens and I lost them one very cold spell just around Christmas time. They reared some young mated to a split-lutino, and among these I once saw a young bird just getting its quill feathers which had the red eye of a lutino, but it just disappeared." At the beginning of 1939 he loaned all his stock and, as so often happens on such occasions, something went wrong, with the result that he eventually had but a single bird returned to him. I believe Mr. W. L. Eaves also had two lutino Nyasas, but I do not know whether he had any success with them.

The blue variety of Masked Lovebird may be commonplace in the aviaries of California, but such is far from the position here. At the present time there are only a few scattered birds left. Miss B. de Pledge, Mr. C. S. Phillips, and the Keston Foreign Bird Farm are doing their best to prevent the complete extinction of this variety, but it is proving something of a struggle. Miss de Pledge says in a recent letter that up to the early part of 1944 she had over twenty Blues. Several died as the result of a very cold snap, and recent breeding results have been poor, so that at the time of writing she was left with a stock of ten Blues.

A. A. Prestwich.

The First Importation of Humming Birds.

A correspondent asks for details of the first arrival of Humming Birds in Great Britain. The earliest record I have is an importation of Ruby-throated by Gould in 1857. In *P.Z.S.*, 1857, 160, we find a note to the effect that : Mr. Gould gave details of his observations on Trochilus in the United States. " When captured it so speedily becomes tame that it will feed from the hand or mouth within half an hour. Successful in keeping one alive during a long railway journey, in a gauze bag attached to his breast button, for three days, during which it readily fed from a small bottle filled with a syrup of brown sugar and water, Mr. Gould determined to attempt the bringing of some living examples to England, in which he succeeded, but unhappily they did not long survive their arrival in London, and died on the second day : had they lived, it was his intention to have sent them to the Society's Gardens, where they would doubtless have been objects of great attraction."

An account by Gould is quoted in Cassell's *Book of Birds*, vol. iii, p. 64 (187 ?) :—

" A *Trochilus colibris* captured for me by some friends pumped the fluid from a little bottle whenever offered it, and in this manner it lived with me a constant companion for several days, travelling in a little thin gauze bag, distended with whalebone, and suspended to a button of my coat. It was only necessary for me to take the bottle in my hand to induce it to thrust its spiny bill through the gauze, protrude its lengthened tongue down the neck of the bottle, and pump up the fluid till it was satiated ; it would then fly to the bottom of its little home, preen its tail and wing feathers, and seem quite content.

" The specimens I brought alive to this country were as docile and fearless as a great moth under similar treatment. The little cage in which they lived was twelve inches long, seven wide, and eight high. In this was placed a diminutive twig, and suspended to the side a glass phial, which I daily supplied with saccharine matter, in the form of sugar or honey and water, with the addition of the yolk of an unboiled egg. Upon this food they appeared to thrive and be happy during the voyage along the seaboard of America and across the Atlantic, until they arrived within the influence of the climate of Europe. The vessel in which I made the passage took a northern course, which carried us over the banks of Newfoundland, and although the cold was rather severe during part of the time, the only effect it appeared to have upon my little pets was to induce a kind of torpidity, from which they were rapidly aroused by placing them in the sunshine, in the bosom, or near a fire. I do assure my readers that I have seen these little creatures cold, stiff, and to all appearances dead, and that from this state they were readily restored by a little attention and removal into light and heat, when they would ' peck up ', flutter their tiny wings, and feast away as if in the best state of health."

A. A. P.

* * *

CANDIDATES FOR ELECTION

Private James P. Rooney, Squadron R 3705th, A.A.F.B.U., Lowry Field, Colorado, U.S.A. Proposed by Carl Stromgren.

Derek Goodwin, "Toft," Monk's Road, Virginia Water, Surrey. Proposed by Phyllis Barclay-Smith.

Wallace Wood, Handen Farm, Aldrington, near Ashford, Kent. Proposed by E. Maud Knobel.

Lieut.-Commander Peter Scott, R.N., 8 Edwardes Square, London, W. 8. Proposed by E. Maud Knobel.

Alfred L. Wheeler, jnr., Box 266, Danbury, Texas. Proposed by E. Maud Knobel.

Ronald Saunders, Regent Parade, Sycamore Road, Amersham, Bucks. Proposed by A. A. Prestwich.

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W. J. Houghton, 12 Findon Crescent, Kew, Victoria, Australia.

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Arthur William Hext Harvey (Solicitor), Rydal, Long Rock, Penzance.

REJOINED

Hon. Anthony Chaplin, Royal Bank of Scotland, 49 Charing Cross, S.W. 1.

CHANGES OF ADDRESS

J. C. Bennett, F.Z.S., to 24 Rectory Gardens, Worthing, Sussex.

Carl Stromgren, to 30 West Chicago Avenue, Chicago, Ill., U.S.A.

Sgt. Ward J. Secor, to 103 Grant Court, Olean, New York, U.S.A.

J. Spedan Lewis, to Longstock House, Stockbridge, Hants.

OFFICERS FOR THE YEAR 1946

Mr. A. A. Prestwich, Mr. A. H. Scott, and Capt. C. Scott-Hopkins, in place of Hon. Mrs. Bourke resigned, Mr. T. H. Newman deceased, and Mr. B. C. Thomasset deceased.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is one penny per word. *Payment mus accompany the advertisement, which must be sent on or before the 20th of the month to* Miss E. Maud Knobel, 86 Regent's Park Road, N.W. 1. *All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.*

FOR SALE

For Sale, unbound numbers Avicultural Magazine, complete 1927, 1928, 1929, 1930. What offers?—van Heyst, Alkemadelaan 359, The Hague.

Twenty young Budgerigars in perfect health and condition, all colours; aviary bred; for sale to aviaries only.—Apply, Lady Poltimore, North Molton, North Devon.

1945 Redrumps, cocks and hens, £3 10*s*. each, or offer.—Masser, Coundon, Coventry.

WANTED

Wanted, Avicultural Magazines, vols. 1894 to 1901; *Bird Notes*, vols. 1904 to 1907; also Rowley's *Ornithological Miscellany*, vol. i; name your own prices.—Harold Mitchell, 130 Broomhill Drive, Glasgow, W. 1.

Wanted, Caley's *Australian Parrots* and *What Bird is That?*, or similar books; state price.—Gargan, 267 Clontarf Road, Dublin.

Wanted, Avicultural Magazine, 1895, 1897, 1898; *Aviculture*, vol. ii; *Foreign Birds* (F.B.L.), vols. 1–3; Vale, *Mules and Hybrids*; Hachisuka, *Variations among Birds*; Kuhl, *Conspectus Psittacorum*; Greene, *Parrots in Captivity*; Belcher, *Birds of Nyasaland*; Bannerman, *Birds of West Africa*.—A. A. Prestwich, Chelmsford Road, Southgate, N. 14.

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YOUNG AFRICAN GREY PARROT BRED AT KESTON

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THE BREEDING OF AFRICAN GREY PARROTS AT KESTON

By Edward Boosey

Our pair of African Grey Parrots have successfully reared a single young one here at the Keston Foreign Bird Farm this season.

It is extraordinary to what an extent this well-known species has come to be regarded, hardly as a bird at all, but solely as something which you put in a cage, and which can be taught to talk. So much so that most people who see or hear of our young Grey for the first time invariably assume a bewildered expression, as though there was something slightly immoral about a pair of Grey Parrots living in a state of matrimonial bliss in an aviary, instead of separately, as pets, in cages. Then follows the inevitable remark : " But I didn't know they could be bred."

Fundamentally I think such people's sense of the fitness of things is outraged by being addressed in the best King's English by something that comes out of an egg !

Whether or not this is the first breeding of Grey Parrots in this country is, I understand, a matter that our Editor is taking up with the Avicultural Society. She has already made inquiries and sent us the result. I gather that the only known record of Greys bred here in confinement comes from Yorkshire, where some are reputed to have been hatched and reared in—of all improbable places—a copper with " a nest of flannel " in the bottom, placed near (thank goodness not over !) a fire.

As, however, this account is rather more than a hundred years old and third-hand into the bargain, I doubt whether much importance should be attached to it.

On the other hand it appears that Greys were undoubtedly bred by Mr. Charles Buxton, M.P., about 1868, but as the account says that

the pair " brought up two young Grey Parrots which were afflicted with most awful temper. The party of four fly about almost always together, and are a great ornament to the place " (Northrepps Hall) it is obvious that they were bred at complete liberty.

Incidentally, from my own experience of breeding Greys and Amazons, I should say that the " awful temper " referred to was more likely to have afflicted the parents than the young ones, as the larger Parrots—even the tamest of them—invariably seem to become ferocious once they are mated and breeding. The cock of our pair was always a treacherous devil, but the hen, when she first arrived, was quite tame and gentle, though since she started breeding she has become a fiend incarnate, and nearly bites the wire through in her efforts to get at one.

Our young Grey—a very strong flier—unfortunately seemed at first to have little use in one of its feet. The leg, since it has been out of the nest, is slowly but surely gaining strength, but it is only now, a month after it was able to feed itself and was taken away from its parents, that it is able to perch comfortably.

At first we thought at once that it must be the old bugbear, rickets, but a friend, who is a well-known authority on the more obscure ailments of birds and animals, and who himself fortunately happens to be interested in Parrots, made a special journey to see our young Grey, and said it was not suffering from rickets. He thought the leg weakness was more probably caused by the parents having been given too much concentrated Vitamin D, in the form of " Haliborange ", while the young one was being reared. Much to our relief he added, however, that provided the bird received at once the special feeding and treatment he would prescribe for it he saw no reason why it should not regain complete normal use of its leg.

As some of my readers may remember our pair of Greys nested for the first time in 1944, the hen having only been obtained during the previous winter. On that occasion only one egg was laid, the hen doubtless being rather out of practice. The egg, however, was fertile, but the young one was dead in the shell.

This year she was rather late in getting off the mark, and sat about with an appalling expression of acute boredom and apathy—I really think mainly to annoy the cock, who by this time she had managed to work up into a frenzied state of feather rustling and head pumping. The latter seems, by the way, to be one of the most important and characteristic parts of Grey Parrots' courtship, and often, when calmly sitting side by side staring straight in front of them, they will both suddenly start pumping their heads vigorously up and down, and after continuing for some time will as suddenly stop. Often, too, if one of them starts preening its feathers, the other one seems to be instantly seized with a violent desire to do the same thing. Another

favourite communal exercise is to flap their wings rapidly, while clinging frantically on to the perch with their feet to prevent themselves becoming airborne. The odd medley of catcalls and whistlings which seems to constitute their natural cry, is also nearly always indulged in in unison—as a sort of part song—after which they look guiltily at each other, as much as to say, " *What* a noise." Then, each tucking one foot cosily up into the breast plumage, proceed to have a quiet doze until the next outbreak. Our pair periodically have frightful rows (the cock, on one occasion, having got hold of the hen by the thigh swung her violently to and fro beneath the perch like a pendulum !), but just as one expects bloodshed at any moment, the storm subsides as quickly as it arose, and they are at once the best of friends again.

Altogether I think a mated pair of Grey Parrots provide about as entertaining a spectacle as it is possible to imagine, and I shouldn't like to say how many hours I have wasted, or perhaps not quite wasted, watching our couple.

The hen's clutch of three eggs must have been completed at the beginning of May, for when we decided to examine them on 24th May one was obviously on the point of hatching, the other two being unfertile. It may be worth noting that although Grey Parrots and Blue-fronted Amazons are roughly about the same size their eggs differ in size and shape, those of Greys being perceptibly the smaller and more pointed of the two.

It is generally believed that there is no apparent difference in the sexes of Grey Parrots, but I shouldn't say this is entirely true—at any rate in the case of our pair. Certainly I don't think the statement that the male is usually the larger bolder looking bird is of any practical value, because, as is so often the case with members of the Parrot family, individual birds—both male and female—are apt to vary greatly in size, presumably, if their range is large, according to what locality they come from.

Personally I think there are three quite perceptible differences which have nothing to do with the size of the bird.

Firstly, the hen *habitually* has the feathers at the back of her head ruffled up, reminding one, though to a modified degree, of a Hawk-headed Parrot. The cock *can*, of course, also do this, but seldom does, the feathers at the back of his head usually being carried sleek and flat.

Secondly, the cock usually keeps his eyes wide open, and they therefore appear very round-looking, whereas the hen's habit of partially closing hers gives her that Chinese slit-eyed appearance.

Thirdly, if a pair of Greys are studied in profile it will be seen that the shape of the cock's beak is an almost unbroken continuation of the line of the skull, whereas this line is broken in the hen by the fact that her beak leaves the skull at a slight outward angle.

The first time I was certain there was a young one was when I heard it being fed on about 5th June. I can best describe the noise it made at this time as resembling the whining of a very small puppy behind a door it wants opened.

It was at about this period or a little later that matters were complicated by the cock's discovery that he could shut the slide which divides the run from the shelter. This must have been no easy task as it is made of wood and is about 9 inches square and slides—very smoothly it's true—sideways. On one or two occasions I had found the hen, looking the picture of misery, shut in the shelter away from her child, while the cock, outside, eyed her gleefully through a small hole in the slide, rather like a Nazi gloating over his victims through a peephole into a gas chamber. At first I naturally thought I must have shut the slide myself and forgotten to open it. When, however, it happened twice on the same day I decided to watch, and, sure enough, the cock waited until the hen went into the shelter, then, as quickly as he could, pulled the slide to behind her.

The hen, of course, alone incubated, but it seemed to me that the cock did most of the feeding, particularly as the young one got older, and after the hen had ceased sitting in the nest-box with it. When it finally emerged from the nest it was almost exactly like its parents, except that the grey of its plumage was darker than theirs, and the red of its tail slightly tinged with brown on the underside of the tips of the feathers. The most striking difference, however, was in the irides of the eyes which are now a beautiful clear dark grey, but were then almost black, so that in contrast to the white surrounding area, they appeared enormous.

I always think it is a pity that Greys do not keep the beautiful dark grey eyes of babyhood instead of changing to the pale straw colour of the adult. Incidentally I doubt if there is in the whole of nature anything more expressive of a concentrated malice and cunning than the wicked pale eyes of an adult Grey Parrot bent on mischief!

A very noticeable thing about the little Grey—particularly compared with young Amazons of the same age—is its silence. So far the only cry I have ever heard it utter since leaving the nest is the low, hoarse, grating scream—a dreadful sound—which all Greys make when frightened. Now that it is getting tame, however, it no longer does this and it will be interesting to see when it starts to whistle.

Judging by our pair, Grey Parrots seem to go on breeding more or less continuously, as do the Trichoglossine Lorikeets, for the parents moulted—or rather, did the usual Greys' half-hearted apology for a moult—during the latter part of the very long period the young one spent in the nest. Almost as soon as it was able to feed itself and was removed from the aviary the cock began a lot of scrabbling about inside the nest-box getting it ready, and soon the hen laid and is now

sitting again. This rather bears out what a pre-war visitor to our farm—an Englishman who had lived most of his life in India—once told me. He said that a friend of his had a pair of Grey Parrots in India from which he had bred numerous young ones, and when I asked him at what time of year they nested, he replied, rather to my surprise, " Oh, once they get going they never really stop. . . ."

When we realized that the hen had laid again we at first contemplated removing both nest and eggs, but it is no easy matter to bring oneself to the point of throwing away fertile Grey Parrots' eggs, so, in the end, it was decided to leave well alone—for this once at any rate—and see what sort of a do the parents would make of rearing young ones in the winter, particularly as it will not be difficult, if necessary, to enclose entirely the flight in which the nest-box is situated, and to provide a glass front which can be removed on fine days. Since their aviary faces due south, and is entirely protected from the north and east, the experiment might, after all, succeed, and one recalls the excellent broods of Swainson's and Red-collared Lorikeets which, as we ourselves have frequently proved, can be reared out of doors even in the depths of winter.

The Grey has already had an adventurous life for one so young, and it only remains to relate how it escaped, and flew away, we naturally supposed, for good.

This mishap, though it is easy enough to explain it by natural causes, was nevertheless a typical example of the Black Magic practised by " X ", against anyone who is rash enough to try and propagate a seldom or never bred species in confinement.

X—the evil genius of Aviculture—is generally considered to be a fictitious character invented and named by the Duke of Bedford in pre-war days. There is, however, nothing fictitious about X ; on the contrary he is a very real and potent menace who, I sometimes think, must possess some of the properties of a Poltergeist, since, in one instance at least I know of his hurling a nest-box containing a perfect brood of extremely rare and valuable Parrakeets to the ground, and arranging for each nestling to be fatally pierced with a splinter, though the nails upon which the nest box had been hanging were still in place and intact when X's night's work was discovered the following morning.

Having failed to entirely cripple our young Grey in the nest it must have been particularly infuriating for X to have to watch its leg gradually gaining strength. One could almost hear him champing his teeth with rage. Then he had a brilliant idea. I have no doubt he reads my correspondence, and must have come across a letter from Miss Barclay-Smith saying she would particularly like a photograph of the young Grey for the magazine. Here was his chance, and he proceeded to whisper into my partner's ear that doubtless the

young bird wouldn't be a very good flier, so why bother to shut the aviary door when he went in to take its photograph? Just as the photo was about to be taken X must have smiled his sweetest at the bird over my partner's shoulder, and it not unnaturally took fright and flew straight out of the aviary door into the top of a near-by hawthorn. Our efforts to rescue it were unavailing, and once more it took wing, and after flying strongly down the valley over three large meadows and their dividing hedges, finally disappeared in the sunlit autumn haze of the first fine day we'd had for weeks. For us, of course, the sun was darkened, but somewhere I felt sure X was joyfully drinking Cat's Blood and celebrating the Black Mass!

Needless to say we never for one moment expected to see the little Parrot again, then, two mornings later, to our utter amazement, there it was calmly sitting on the ground outside the door of its own aviary, apparently waiting to be let in! That a bird so young and inexperienced should have managed to return safely, not only to the farm, but actually to its own aviary, seemed unbelievable, and more like the inevitable "happy ending" so beloved of late Victorian novelists, than the sort of thing one has learnt to expect in this imperfect world.

Postscript.—The Greys have again got young ones—or, at any rate, a young one—which I heard for the first time being fed to-day (2nd November). I wonder if it will be reared? It will be interesting to see.

The first young one started to whistle about a week ago, and has now started to talk! It quite startled me yesterday by suddenly saying: "Well, Polly!" in a rather small voice, but very distinctly.

* * *

ZIARAT

By Sir Godfrey Davis

This remote hill station in British Baluchistan is some 8,000 feet above sea-level. The landscape is one of stony hillsides and juniper forest. On the lower slopes the juniper trees grow thickly, but not so thickly as to kill all other growth. The soil beneath the stony surface must be fertile, for on the hillsides among the juniper trees grow wild briars, wild cherry, wild almond, and wild currant and bush honeysuckle ; while on the ground itself wild thyme grows in abundance, and also what would appear to be wild lavender, so that the air is filled with a sharp aromatic fragrance. On the higher slopes the junipers grow more sparsely, but sufficient are left to fret the skyline ; the highest summits of the hills are bare of trees.

My memories of this place, going back, alas ! some twenty-seven years, are of tortoises lying like stones on the small fields and wild sheep or *gadh*, so tame that they would cross the valley roads in herds of nine or ten, free and unmolested. I remembered also Magpies. The tortoises are still to be found, but the wild sheep have taken to the remoter hills, hunted by the local Maliks who now possess more guns, but almost the first birds I saw were Magpies, not the hunted furtive birds of closely keepered land, but bold, audacious birds, coming close to the bazaar and perching with harsh chatter on the tops of the junipers. In fact, they are not so common as I thought ; those that so constantly flaunted themselves before my eyes were all of one family, the two parents and three young ; the nest, a large basket-like structure, was in a juniper tree, well out of reach, but the tree itself was close by the dak bungalow, where I was staying.

Some regard the juniper as a useless tree, but it is a charming setting for birds. It is a dark-foliaged tree and the leaves have a strong lace-like texture ; the bark is soft and strips easily, and I have seen it used for the thatching of the roofs of huts and the green foliage is used to thatch the sides. On the open hillsides the snow and biting winds of winter have bent and twisted the gnarled trunks and have stripped branches of leaves, so that on many trees some branches are bare and these, against the dark foliage, form a charming setting for birds, which perch upon them. In the sheltered valleys the trees grow upright and symmetrical, like pyramids of green, but to me the young trees, from 6 feet to 8 feet in height, were most attractive, and seemed to me ideal for aviaries. Do junipers grow in England ? The junipers bear an abundance of blue-black berries, and on these the Missel Thrushes feed. They are fine bold birds, and come to the gardens of the bungalows like Song Thrushes on English lawns, and their harsh notes are to be heard frequently on the hillsides among the

junipers as they feed the young which have now left their nests and with uncertain flight venture out into the world.

The climate here, at this time in June, resembles a hot English August. Indeed, in the valleys, in some places, the corn has ripened and been reaped, and in some cases donkeys and sometimes camels were treading out the grain. This year the rains are late, and the winter snows were light and now it appears a dry and dusty land, but I am told the present hot dry weather is abnormal, and that sometimes in winter the snow covers the tall junipers almost to their tops. Then the birds must leave for the lower hills and valleys.

Now the trees provide an abundance of insect life. Small flocks of Titmice, resembling the English Great Tit, but in reality the Afghan Grey Tit, the palest of the Indian Grey Tits, move among the trees, and Treecreepers, resembling the English birds, but in reality the Himalayan Treecreeper, sometimes accompany them, or solitary, in their own company move up and round the trees, in their never-ceasing search for food. Redstarts perch upon the branches of the junipers or fly from rock to rock upon the hillsides or along the mountain paths. But they are also to be found in the orchards in the valleys and in the gardens of the bungalows. The Redstart is the Western Indian Redstart, though I can see no difference from the English bird, and they have some Robin-like habits. They fight for territory and, when young, are most confiding. In one orchard where I used to sit and watch the birds, my spaniel sleeping quietly at my feet, and my Lhassa terrier, sitting alert beside me, a young Redstart, in its speckled nestling plumage, so like a young Robin, would come close to us and search fearlessly for insects. There were two broods of young in this orchard, one speckled with nestling plumage, and another brood changing into adult plumage ; and it was one of these latter which showed me Redstarts sometimes like a change of diet ; for the red currants were ripening on the bushes, and I saw one young Redstart clinging to one cane, lean forward, and daintily pick off and swallow first one red currant and then another, a small fee for all the good it does ; and I have seen another Redstart knock a small cluster of fallen berries on the ground, as it would an insect, until the berries fell from the stalk and could be swallowed. Strangely enough, neither white or black currants seemed to attract them. Judging from their tameness I should say that young Redstarts, taken in their nestling plumage after they have left the nest, or even later, when moulting into adult plumage, would make most charming pets. A pair of Indian Stonechats had nested in this orchard, but the young were nowhere so confiding as the Redstarts, though these young Stonechats also had the speckled breasts of the Robin family ; but before I left they, too, had started to change their plumage, and the old birds used to drive them from their vicinity. It was in this

orchard, too, I saw and heard the Common Rosefinch, common only in name. I used to hear a loud sweet plaintive call from among the apple trees, which were, indeed, infested with a withering blight. The call was not a song ; sometimes two notes, sometimes four notes, but never more ; and one bird would answer another from among the leafy branches. Then one came down upon a currant bush. The head and breast were a lovely carmine, and it raised the feathers upon its head as does a Chaffinch. I could not find its nest, nor do I know on what it feeds or whence it gets its lovely colour, but I suspect it feeds much like another orchard dweller, the Goldfinch, upon insects and wild seeds. Here chickweed and shepherd's purse, and dandelion, and white clover grow in and near the water channels of the orchard, reminding one of a kindlier land. Missel Thrushes also used to come to the orchard to feed on the fallen currants, and the Magpies used to come in the heat of the day to rest and chatter.

But even more lovely than the Common Rosefinch is the lovely Red-mantled Rosefinch. Not only is the head and breast a lovely carmine, but the back, too, is carmine, so that when it flies it looks like some lovely flower, moving among the dark juniper trees. I first saw this lovely bird come to drink, at a small pool formed by an overflow from the spring water, which is piped from far up the hillsides down to the bungalows on the lower hills and in the valley. This overflow was a favourite place for birds, for the water flowing down the hillside formed a series of pools draining into a small ravine. Here at the spring, where the hillmen used to stop and drink, and sometimes talk with me, I used to sit and watch, my spaniel lying asleep, half in shadow and half in sunlight, on a grassy mound sheltered by a wild currant bush ; the Lhassa terrier would sit quietly, but all watchfulness, by my side. There must be no sound or movement. Then there would come fluttering from the overhanging junipers, like leaves before the wind, those which I think are the most charming of all the birds I saw. They were like Redpolls, the same dainty shapes, the same forked tails, and the same twittering songs, but instead of the red poll they had polls of flaming orange, or so it seemed to me. This bird is, I believe, the Red-fronted Serin, and I have counted no less than seventeen drinking at one time from the pool, prettier even and more dainty than the butterflies, which also came to drink at this small oasis in this thirsty land. They would make, I think, the most charming of pets. I have seen them feeding on the seeds of a fluffy grass which grows on the hillsides, but in captivity their beauty might soon fade, as the carmine of the Linnet eludes captivity, however kind. Is there, perhaps, something in the water that gives some birds their colour ? The earth here is of a pinkish hue, and on the hillsides one sees many stones encrusted with pinkish earth. Does this dissolve in water ? Buntings used also to come to

drink at the pools. These were the White-capped Bunting, the head white, streaked with black, and a chestnut band across the chest. It has a bunting song, but very short. It is a cheerful little bird, in truth more like a brightly coloured Sparrow. I saw one hop about the hillside, looking, I thought, for grasshoppers and singing in between whiles. A large Grosbeak used to come to drink at the pool, or rather a family of six. They were comparatively large birds, the head and throat blue-black and showing yellow as they flew. I have identified them as the White-winged Grosbeak. Every day, about noon, I would hear their calls in the junipers on the hillside and they would come down to drink. I saw one sitting solitary on a bare bough of a juniper, chanting a simple, unmelodious note. They are birds of the wild hillsides. In contrast was the most familiar bird of all, the Simla Black Tit. Where I sat, the branches of a juniper overhung, and a Crested Tit would come and perch on an overhanging bough, not more than twelve inches from me. I could see clearly its bright black eye, its black crest and gorget, and the rust colour under the tail. Once as I sat quietly a very young one came and perched on my foot, as it came down to drink. I was reminded of a pet Crested Tit I had some years ago in Southern India, perhaps a thousand miles from where I now sat ; but here again was the little fellow, with the same bright eye and crest, but it had changed the colour of its coat. The one I had throve happily in what I should call domestication, for it was free to come and go, thriving on a diet of chicken liver, chopped fine, mixed with parched gram flour and fried for a few minutes in ghee or clarified butter—a savoury and luxurious diet for these days, but not so luxurious where chickens are abundant and the market a hundred miles away by bullock cart.

Missel Thrushes used also to come to the pools to drink and search the wet earth for worms. One pair of Missel Thrushes had their nest far up the hillside, among the Junipers. Another had the habit of standing in the water up to its thighs and then spreading its wings to the sun, as do my Homer Pigeons. A Spotted Fly-catcher that used to hawk flies from its stand on the dead branch of a juniper, had this same habit of bathing in two elements at once. A Willow Wren had fledged young in a tangle of wild briars on the far side of the ravine, and she used to search among the stones on the damp earth, almost beneath my feet, for the small moths which took refuge there ; and when a young one started to follow her around, he looked fresh and debonair, and she looked tired and worn. Redstarts would also come to drink. Sometimes also a flock of White-cheeked Tits, resembling, I thought, the English long-tailed Tit, with much the same colouring, much the same dainty form, but with shorter tails, would come calling with their thin voices through the junipers, and I have seen a flock of these hardy little things in the higher hills,

10,000 feet above the sea ; and it is believed they stay here even in the winter snows. But they cannot stay in the higher hills in severe winters when the Junipers are snow-covered. They would go to the lower hills though not to the valleys. Even so, I have seen a flock of these tiny birds in the orchard.

The bigger birds keep to the higher hills, and climbing 2,000 feet through a rocky pass, I came to the summit and rested in the shade of an old juniper. I saw a pair of Ravens fly over the valley. I heard them calling with harsh voices and I saw a Golden Eagle perched in its proud tawny beauty, rather incongruously, so I thought, on the top of a spreading juniper, while as I lay, almost sleeping in the shaded sunlight, what I took to be a young Rosefinch, brown with streaked breast feathers, hopped down beside me, looking, so I thought, for crumbs, and raising the feathers on its head, as does an inquisitive Chaffinch. A flock of White-cheeked Tits came searching the junipers for insects, and a pair of Redstarts, even at this height, kept me company. The only other human occupants of these hillsides were the shepherds and their children, tending the flocks of sheep and goats. Some of the kids of the goats were of a lovely chinchilla grey ; the sheep and lambs were black and white or brown and white or black or brown or white, cleansed, their wool seemed to me, by the mountain winds. The fat-tailed sheep or *dumba* are much prized in these parts for the milk they give. It is said to be better than the milk of cows or goats and clarified butter is made from it and a kind of cheese. These dumbas give to the hillmen also wool and meat. As I came down the pass, Redstarts accompanied me, far now from the orchard in the valley, and a pair of Kestrels flew calling shrilly along the hillside.

Only where there is water can it be said that bird life is at all abundant. In the sheltered valleys large black bees visit the bush honeysuckle, scentless but yielding honey, and in the tangles of wild briars, wild almond, and wild currant, White-throats and other small warblers could be seen and heard. I have also seen and heard among the sheltered and watered gardens the Blue Whistling Thrush, but it did not appear to me so fine a bird as the Blue Whistling Thrush in Kashmir, nor had it so fine a setting ; but the companion of the Missel Thrush cannot but be a hardy bird and would require no coddling in captivity.

I cannot leave Ziarat without mentioning the Rock Conies. They seemed to be like short-eared rabbits, adapted to another way of life, and they find in this rocky country congenial homes. In holes, in walls, in crevices, in the rocks, they make their homes, and so well does their colour harmonize with their surroundings, that it is only when they move that they are seen and then, when they remain still, it is the bright eyes which catch the attention, and then the lines of

the body can be traced. Usually they keep to the uncultivated lands, and one had its home in a crevice in the rocks near the pools, where I watched the birds. The drought had, however, driven them into the gardens and in one garden, particularly nearest the wild country, they were the gardeners' despair. All his seedlings and young vegetables they tore up and carried into their little dens ; and in the evenings they came to drink the water in the birds' bath on the lawn. " Oh," said Abdul Karim, the gardener, " if I only had a *Bilu*, that is, a cat, to prowl at night."

And so, on 25th June after a three weeks stay, I left Ziarat. But the birds were not all seen. I had been told that at the fifth milestone down the Quetta Road I should see some Red-billed Choughs and so it was. I came upon some cultivated land in the valley between high hills, and from a tall tree as I passed, seven birds, with black glossy wings, with leisurely but graceful flight, took their way towards the hills. They were Red-billed Choughs. The Malik, the owner of the cultivated land, who lived near by under his apricot trees, in a long low house built of sun-baked earth reinforced with straw, as in Egypt of old, and built against the hillside, so that it appeared almost a natural growth, told me that the Choughs fed in the cultivation by day, indeed they followed the plough, and slept in the safety of the hills at night. I retraced my steps, and thought I saw Choughs upon another tree, but coming closer I saw the birds were not Choughs but Rock Doves ; from the same tree flew two Magpies, and on the summit of the tree crouched, head to wind, a Kestrel. So I thanked the Malik and said good-bye, but Mullah Habibullah was no ordinary Malik. He had been as far afield as Delhi, and he could read the Holy Quoran. He plucked for me apricots, small yellow fruits but sweet, from his trees, and would take no payment, and this was not the limit of his generosity. He tried to place into my unwilling hands two handfuls of fresh eggs from his own fowls. I knew eggs were scarce and rationed in Karachi, nearly five hundred miles away. I thought of the one egg a month in wartime England, but the journey was too long, even for Habibullah's eggs. So with profuse apologies and thanks I left this scene of Biblical simplicity, on my long journey back.

* * *

Jean Marie Eugène Derscheid
Born at Sterrebeek, 19th May, 1901, died for Belgium and the United Nations, shot at the prison of Brandebourg, 13th March, 1944.

OBITUARY

DR. J. M. DERSCHEID

On 13th March, 1944, at the prison of Brandebourg, Jean Marie Eugène Derscheid was shot, after thirty months' imprisonment in Germany, as a political prisoner. His loss will be mourned not only in Belgium but all over the world. The last heard from Dr. Derscheid by his friends in England was in 1940, when, with the remnants of his regiment, he had fought backwards into France. To fight for one's country to the last is sufficient proof of patriotism, but Dr. Derscheid was one of those people for whom the recognized standards of sufficiency are not enough, and when he returned to Belgium he continued to work for the cause of freedom in the only way possible for him, as an agent for the United Nations. Not only he, but his wife, father, and mother were arrested as political prisoners, though they were subsequently released. There then followed the months and years when his family heard no word from him nor he from them, which is the highest refinement of cruelty known to mankind, until in September, 1945, the news of his death was received.

Though only 42 at the time of his death Dr. Derscheid had already made his mark in the world of aviculture. His collection at Sterrebeek was known throughout Europe, America, and Australasia, and his success with the Anatidæ, particularly sea-duck, placed him in the forefront of waterfowl experts. Not only was Dr. Derscheid's collection of waterfowl renowned, but he was equally successful with Parrots, Parrakeets, Lories, Lorikeets, Pheasants, Waders, and such birds as Bearded Tits. His aviaries and pens were models of their kind and his enthusiasm such that he would sit up all night when sea-duck eggs were due to hatch. His famous collection, which is now lost, has fortunately been described in the AVICULTURAL MAGAZINE in various articles by Mr. John Yealland.

Dr. Derscheid was far-seeing and broad in his outlook and realized that aviculture was an integral and important part of the whole science of ornithology. In an article published in the AVICULTURAL MAGAZINE (Vol. IV, 1939, pp. 90, 276) on the " Preservation of Waterfowl and Aviculture " he pointed out the role aviculture could play in preserving species in danger of extinction by maintaining them and increasing their numbers by methodical breeding in captivity ; a scheme which is now being carried out with great success in America, under the supervision of Monsieur Jean Delacour, with regard to the Trumpeter Swan.

Dr. Derscheid was a Doctor of Natural Sciences, Professor of Biology at the Colonial University, Antwerp, was awarded the Gold Medal of the *Concours Interuniversitaire* 1922–4 and the medal of the *Société*

d'Acclimitation de France. In addition to being a member of the Avicultural Society and the Ornamental Pheasant Society he was a Fellow of the Zoological Society of London, the Audubon Society of America and an Hon. Life Member of the Wild Life Preservation Society of Australia.

Dr. Derscheid's charm endeared him to his fellow aviculturists wherever he went, and his sound scientific knowledge, forceful personality, and great enthusiasm make his loss to aviculture a very serious one. The nature of his death will long be remembered with horror and grief by his friends and colleagues in all countries.

P. B-S.

The death of the following members of the Avicultural Society is also announced with regret :—

Mrs. David Bannerman
Arthur L. Butler (Tasmania)
Major J. Colhoun, M.C.
H. R. Fillmer (Original Member)
Mrs. C. H. Gowland
Colonel A. Hankey
Thomas Hebb
James B. Housden (Original Member)
P. Lauder
C. F. Leach
The Lady Lilford
The Countess of Lovelace
Kenneth McDowall of Logan
Ivan Malisoux (Namur)
Pompeo M. Maresi (New York)
W. P. Pycraft
W. L. Sclater
A. St. Alban Smith
Paul H. Smith
Henry Spencer
Howard J. Stevens
Alfred A. Thom
Bernard C. Thomasset
Miss H. K. O. Walker
Dr. Casey Wood (Montreal)

* * *

REMINISCENCES IV

Softbills and Miscellaneous

By Flight-Lieutenant D. H. S. Risdon

If I remember rightly, the first softbills to be put in the aviary were Blackbirds. A young cock and hen in nest feather were acquired during the first summer after it was completed. They were really introduced, along with other British birds, to start with, to make the aviary look occupied. It was with some surprise, therefore, that the following Spring a half-completed nest was found one day inside the shelter shed, at the end of a perch and up against a wall.

The two birds had never shown signs of being mated, always keeping rather to themselves. Once they decided to start, however, they lost no time and the nest was completed in about three days.

The next day the first egg appeared, to be followed at daily intervals by four more, after which the hen sat tight and, in due course, hatched a nest full of young ones. These were fed by both parents for as long as sufficient live food could be found in the aviary. As they grew, however, it became evident that the supply was insufficient to meet their demands, and they eventually died.

Like most softbills, these Blackbirds at the time refused to feed their young with anything but live insects. Gentles and mealworms were offered as extras, but the Blackbirds only got a small share in competition with the other birds in the aviary, so there was not much that could be done about it.

They soon went to nest again that Summer with the same result—young reared for about seven days, and then allowed to die.

Now comes the interesting point. The second year I noticed both birds carrying soft food to the nest and, although most of the young did not survive, they were reared to a much later stage than previously, and one was actually brought to maturity.

The third year was quite successful, as far as can be remembered, four or five young being reared from two nests.

This has always struck me as particularly interesting. One naturally does not credit a bird with such reasoning powers, but this pair of Blackbirds gradually overcame their aversion to rearing their young on artificial food and, I have no doubt, would, in succeeding years, have continued to produce offspring successfully.

An accident, however, that autumn deprived me of the old hen. The cock was mated to one of his daughters of the previous summer but, later that winter, I found him dead. The cause was unknown, but it certainly was not grief for his late wife, I think of all my birds I do not remember a couple which showed less affection for one another. Even the cock's display, with spread tail and lowered head, generally developed into a ferocious chase which ended in the hen being more or less raped among the bushes !

Their only bond seemed to be their young, in the feeding of which both cock and hen took part, but even then I never remember seeing both parents at the nest together.

I was particularly sorry to lose the cock, as he was a beautiful singer and quite tame. He had an amusing habit of " playing " with a lump of loose earth, attacking it with claws and beak and rolling it over and over, singing to himself all the time. Certain of my birds will always remain in my memory as " characters " which stood out from among their fellows and seemed, in some strange way, to respond to human beings. He was one of them.

Common Starlings, introduced with the Blackbirds, were started with a wild-caught pair which remained wild throughout their stay in the aviary.

In spite of this, however, they bred the following Spring, building a nest at the back of an unoccupied Mandarin Duck nest-box, and hatching three young which they reared to the fledgeling stage. Unlike most softbills, these used artificial food for rearing.

The young, however, were either not very strong or else left the nest too early, because they could not fly but scuttled about among the bushes and eventually died. I do not think the parents took much notice of them after they fledged. In a wild state young Starlings normally fly straight from the nest and, no doubt, this pair expected their offspring to follow them about loudly demanding food. When they did not do so, they probably lost interest.

Later I released this pair, as I cannot stand wild and timid birds which one can never see properly and, even when one does catch a glimpse of them, are so overcome by fear of one's presence that they either try madly to get away from one or else remain stock still, like graven images, until one is well out of the way.

The following Summer I hand-reared a nest of four young Starlings, and these were great fun once they fledged. As soon as one entered the aviary they flew straight at one from all directions, to alight on one's head and shoulders, and literally scream into one's ears for food. They were rather like boomerangs. One could pick them up and toss them across the pond, but they turned in mid-air and flew straight back at one like bits of metal drawn to a magnet. When they became independent they were not so gushing.

One, always affectionately known as " Young Egbert ", was never as strong as the others, and eventually died. Another was given to a friend as a pet. The other two remained in the aviary till they moulted into adult plumage, and were then released as room was wanted for foreign Starlings which, though far more beautiful, were certainly no more amusing than my " boomerangs ".

As far as I can remember, Missel Thrushes were introduced into the aviary in its second year of existence. They consisted of two taken from a local nest and hand-reared. They were fine, handsome birds, and gave me much pleasure with their bold, fearless ways, but their stay was short. The following winter, when they were about six months old, both died suddenly within a week of each other. They were in perfect condition when this happened, and I could only attribute the cause to fits, due to possible over-indulgence in minced house-scraps put down for the Pheasants and Ducks, and of which all my softbills partook freely, often in preference to their own orthodox softbill mixture.

Great Tits were acquired soon after the aviary was first built. But for their murderous tendencies, of which more anon, they had everything to recommend them as aviary birds. While they had the free range of the whole extent of the aviary, they were the essence of

good behaviour, and contrived to be always " in the picture ". The other small birds I seldom saw close to. They always seemed to be the other side of the aviary, but the Great Tits went fearlessly about their business, poking and prying into everything. They were never still except at night, when they went to roost in a coco-nut shell.

Although they had access to soft food, they lived principally on seed which they never cracked like a true hardbill. Each grain was held under one foot and hacked open with the point of the closed beak.

It was not until later, when I had occasion to partition off the small birds in one end of the aviary, that their gruesome habits became apparent.

First of all an Atlas Weaver was found dead one morning, with its brains picked out. Later a Goldfinch sustained a head injury, which at the time was thought to have been caused by a night fright. About this time several letters in *Cage Birds* cited Blue as well as Great Tits as murderers of their companions, so, with some reluctance, these two were caught up and turned loose in the garden.

They were strong little birds, both in beak and claws. I realized this when handling them as they clung tenaciously to my fingers and hammered away with their pointed beaks at all the tenderest spots on my hands. Even so, I should think a hand-reared, tame one would make a most engaging pet. They struck me as being much more intelligent than most birds of similar size.

One British softbill which lived in this aviary for some months, and which I shall always remember particularly well, was a Cuckoo. This was found, nearly ready to fly, in a Hedge Sparrow's nest in a neighbour's garden. These good people, with the peculiarly misdirected sentimental attitude which non-aviculturists always adopt towards birds, were only too glad for me to take the " horrid bird, which had thrown out the poor little rightful owners of the nest " and was now " working the parents to death " : so I carried off my Cuckoo nest and all.

To say " in the nest " would have been a misstatement of fact. He was on it. It merely served as a foundation. He bulged over the sides and puffed himself out to twice his normal size at one's approach, at the same time opening a large red maw at one. He was very easy to hand feed. All one had to do was shovel food into the open beak as he lunged at one and, after a few times, he realized that one's approach meant food and not harm.

When fledged, he went straight into the aviary, where he played true to type. Young, newly-fledged Cuckoos do not normally follow their foster-parents about begging for food. They sit in a heap and expect it to be brought to them. Consequently, when I entered the aviary to feed him, I would call him, to be answered with a sibilant

squeak from wherever he happened to be. It was easy enough to track down his whereabouts by the sound of his voice, but he had the irritating knack of ensconcing himself in the most awkward places, whence he refused to budge one inch, even when food was offered him a few feet away. As can be imagined, this necessitated the assumption on my part of the most weird bodily contortions, often poised precariously over the pond with imminent danger of falling in, or crouched on hands and knees among the bushes, trying to reach his lordship.

Like every softbill I have ever known, however, he could not resist the lure of mealworms and, once the delights of these succulent morsels had been tasted, his attitude soon changed. Thereafter he would fly to me when hungry and, after being fed, would be quite content to sit on an arm or shoulder as long as I remained.

After he learned to fly well he became adept at taking mealworms from one's fingers while on the wing. He would fly round and round the aviary and take them on each " round " as he passed, rather after the style of the London Gulls in winter time.

He took a long time to learn to feed himself, but did so eventually, and was weaned on to the usual softbill mixture.

His acquisition caused considerable interest in the neighbourhood. Everyone had heard of a Cuckoo, but few appeared to have ever seen one, at any rate close to. I had amusing hopes that when he learnt to " cuckoo "—assuming that " he " was a cock—there would be a spate of letters to the press about Cuckoos in January, but this never came to pass. In October he " went light ", as the Canary fanciers say, and just faded away. At four months old the only noise he had ever emitted was a rather faint squeak.

Unlike wild Cuckoos, which often get " mobbed " by small birds, this one was never molested by the other aviary inmates, neither did he take any notice of them.

When the aviary was first built I had intended never to divide it up, but to go in only for birds which would live amicably in the same enclosure.

Alas for such resolutions ! As time went on and the species which I had in mind were not immediately available, others were offered which were equally attractive, but would not agree with those already in residence.

Under this heading came a pair of Little Owls, seen in a dealer's shop in a Parrot cage. I could not resist these attractive birds, as they stared at me with their pale yellow eyes and bobbed up and down when one went near them.

Their acquisition meant dividing off a portion of the aviary, and I decided, whilst I was at it, to partition off a section large enough to accommodate other birds of similar size and disposition.

Accordingly an area approximately 25 feet by 11 feet was separated from the rest, and a part of the existing shelter shed included.

Into this was turned the pair of Little Owls, and during the following winter, a pair of British Jays.

The Owls were given a nest-box in the shelter, half filled with earth, in which they spent a good deal of time. They lost some of their tameness on being released and developed an irritating habit of diving into their box at one's approach, rather like Lovebirds do : a habit which always rather puts me off this otherwise attractive family. If one opened their box to look at them, they put their backs to the wall and threatened one with their talons, the while emitting a sort of screeching hiss and clicking their bills. I soon found out that they could inflict more damage with their needle-sharp talons than with their beaks. They could give quite a nip with the latter, but on several occasions drew blood with the former unless handled with gloves. I discovered, for the first time, the amazing strength in the claws of a bird of prey. Once they got hold it was next to impossible to make them let go until they wished to.

Towards the Jays, a pet Grey Squirrel, two hand-reared wild rabbits, and some guinea pigs which occupied the same enclosure, they were quite harmless. They never even attempted to attack the baby guinea pigs, although dead mice and rats were eaten readily enough, the former being swallowed whole to reappear some hours later as a neat pellet of fur and bones.

Although they were about most of the day, liking to sit and sun themselves whenever possible, they were of course much more active at nights, and could be seen and heard in the gloom, flitting about and giving their characteristic yelping cry.

It was obvious from the first that they were a true pair, one being much larger and more precocious than the other.

As the following Spring came round, it was noticed that they were hollowing out the earth in their nest-box, so I was not unduly surprised one day to find she had laid a round, white egg. This was followed at two-day intervals by two more.

I think that the hen did most of the incubation, but could never be sure as the cock had the aforesaid habit of diving in with her as soon as he spotted anyone in the distance.

At the end of three weeks one egg disappeared. One by one they all went, leaving no trace of even a broken shell. Whether they became tired of incubation and ate the eggs, or whether the young were eaten, as they hatched, a habit common, I believe, among birds of prey in captivity, was never known.

The reactions of some of my mammals towards the Owls was rather amusing. A Rhesus monkey, which occupied an adjoining cage, was intrigued with them on arrival, but like all monkeys, he could not

stand being stared at. Even eyes painted on a mask used to upset him, and the baleful glare of the Owls used to send him into paroxysms of fear with much pouting and smacking of lips.

The squirrel which shared their enclosure was also sometimes rather disconcerted. Bounding round the aviary from perch to perch in his usual preoccupied way, no doubt trying to remember where he had hidden that last nut, which incidentally was probably in the " turnups " of my trousers, he would sometimes suddenly find himself face to face with a pair of unwinking yellow eyes which looked right into his very soul. The result was always the same. He would first try and bluff his way past with flattened ears and flourishing tail, but his nerve always failed him at the last moment, and he would turn tail with a muttered curse (grey squirrels do mutter !)

The British Jays were not in particularly good condition when they arrived. One, in fact, could not fly because the webbing of its flight feathers was defective in some way, probably caused through dirty conditions previously. If a bird's flight feathers become " gummed up " with excreta or soft food, they often fail to regain their air-worthiness, and it takes a complete moult before it can fly again. It managed to get about the aviary fairly well, however, and by an arrangement of perches, could hop in and out of the shelter, but it did not survive long.

The other thrived from the start and, after moulting into a lovely specimen, lived for years, eventually succumbing to what I think was pneumonia. It is strange how the toughest of birds are not immune to this nearly always fatal disease.

Towards the above-mentioned companions the Jays were quite indifferent. True they used to steal the Little Owl's raw meat and mice, but the latter evidently never caught them at it ! Like all their tribe, my Jays were lively and intelligent rascals, and their bright colours made them an ornament to the aviary.

I received a pair of Lapwings in exchange for a pair of my aviary-bred Blackbirds. They were in adult plumage and, although I think they were wild caught, were quite tame from the start. The vendor advised me to feed them on chopped-up raw meat which they ate readily enough, but they were soon weaned on to softbill mixture, and thereafter were almost omnivorous, eating such vegetable foods as bread and biscuit meal as well as meat and insects.

The characteristic I remember best about them was their peculiar habit of suddenly bending forward as if to pick up food from the ground, without actually doing so. They used to do this most often when excited in any way. They also had a way of running forward a few steps and then standing on one leg, allowing the other to hang, trembling, just clear of the ground as if it were hurt.

They were active on moonlight nights, and could frequently be heard calling on such occasions. One eventually drowned itself in the pond and thereafter the survivor became noisier than ever, particularly at nights. In spite of this, however, they were elegant, pretty birds, and an asset to any planted aviary.

As a contrast to these, some Partridges, which were tried, were stupidly wild and used to shoot up like rockets whenever one entered the aviary, coming into violent contact with the wire top. This used to cause panic among the other inmates, so these were quickly released.

Looking through the advertisement columns in *Cage Birds* one week, I saw advertised a " Golden Oriole ". As the address was not far away, I hastened over to see it, and was shown what was obviously a Hangnest or Troupial of some sort. Needless to say, the bird became mine, for who can resist a fresh acquisition when one is in a " buying " mood, even though the bird purchased is not the one for which one originally set out ?

This bird, which was later identified as the Spotted Breasted Hangnest (*Icterus xanthorus*), was one of my bird " characters ". He was tame, and came readily to the hand for mealworms, and he had a pleasant whistle consisting of two long followed by three short notes, which was very easy to copy. There were variations to this theme at times, but one could always set him going merely by whistling one or other of them. He invariably answered me, and used to recognize my whistle several hundred yards away.

Besides bathing in the normal manner, he liked to ruffle himself in wet foliage after a shower.

He was quiet enough with other birds except Canaries, to which he took an instant dislike, probably because they were yellow like himself. I first discovered this when I put some Canaries in a cage inside the shelter to accustom them to their new surroundings, preparatory to their release in the aviary. No sooner did the Hangnest spot them, than he flew to the cage and, clinging to the wire, tried his best to drag them through it. He had a wickedly pointed beak with which I have no doubt he might have done damage to weaker birds in a confined space, but in this large aviary, apart from the Canaries, he never tried to harm anything.

I tried for years to get him a mate but failed, partly I think because I was looking for the wrong thing. For some reason or other I had always imagined hen Hangnests to be dull coloured birds, and used to search the dealers' consignments for such specimens.

On one occasion I bought what I fondly hoped might be a mate for him, but was a bit damped by his lack of enthusiasm when " she " was introduced. A few months later I realized why, when " she " moulted into adult plumage and proved to be, although a Hangnest, of an entirely different species !

Some years later I read an account of the breeding of, I think, the Brazilian Hangnest, by Mr. Norris, of Purley, if I remember rightly. I am a bit hazy on this point, and being overseas at present, have not my past *Avicultural Magazines* to which to refer, but I believe he stated that the sexes were identical. If this is so, the same probably applies to the Spotted Breasted Hangnest, which is obviously a closely related species, and would account for my failure to procure a hen.

My Hangnest lived out his allotted span with me, and before he died showed obvious signs of old age. His cheery whistle was missed for quite a time after his death, although his efforts in this respect had been growing more and more half-hearted during the last few weeks of his life.

Two Royal Starlings and an odd Purple Headed Glossy Starling were purchased at the same time as the Hangnest.

To deal with the Royals first, I can never tire of praising their beauty. To me they were living jewels, and their attractiveness was enhanced by their slim and elegant forms. To see them fly across the aviary at the rattle of the mealworm tin, and alight on the ground, taking short runs on their slim, black legs, and holding their long tails daintily clear of the earth, was a perpetual delight.

Although they lived with me for three or four years, and never had artificial heat except in the very coldest weather, they were always brighter and happier during hot, dry spells. True, they used to spend the winters out of doors, and I have seen them looking quite unconcerned when there was snow on the ground, and the British softbills were puffing out their feathers and tucking up their feet to keep them warm. They had, however, a habit of drooping their wings, except in the hottest weather, which always made me feel they were not quite up to par. I have noticed this same habit among other people's Royal Starlings, kept out of doors. In fact, the only ones which habitually kept their wings folded tight across their backs were those housed in artificially warmed places ; which inclines me to the belief that they are only half-hardy.

My Royals never appeared to come into breeding condition, so I did not know whether they were a true pair or not. Possibly their failure to do so was because they were of the same sex. They differed in size and shape, but I have an idea that there are two races of these birds—one a smallish " rounded " type, rather like a Spreo Starling with a long tail—and the other a larger, more " elongated " type. This, of course, may be a sexual difference, but I doubt it. It would be interesting to have the views on this point of someone who has bred them.

The above-mentioned Purple Headed Starling, unlike the Royals, did not seem to mind any weather. So tight and glossy was its

plumage that it always looked more like a bird cast in burnished metal than a feathered one. For the first few years it was the essence of good behaviour, and upon my entry with the mealworm tin, would fly to me along with the Hangnest and the two Royals, to receive its ration of mealworms which it liked to catch in mid-air as they were tossed to it.

Came the day, however, when I saw a pair of Purple Heads advertised and, as up till then I had not been sure of the sex of my bird, these two were sent for. Upon arrival, one was seen to be obviously unwell. The vendor refused to have back one bird without the other, so I decided to take a chance and keep them both.

As so often happens in these cases, the sick one let me down and eventually died. It then became apparent that the survivor was a cock and my original bird a hen. From then on they became a classic example of the change that takes place in birds' natures when they become mated.

The cock became a ferocious bully and, backed up by his mate, who had lived in amity for all those years with the Royals, turned on them and bullied them into a decline, from which they never recovered. Being away from home for the greater part of every day, I did not realize what was happening until I saw the Royals looking miserable. Naturally they were separated, but things had gone too far. A post-mortem report on one of them stated necrosis of the liver as the cause of death, but I feel that my Royals would have been with me a good while longer if the cock Purple Head had not arrived.

However, he had come to stay, and he and his partner made a very fine couple. The following year, late in the Spring, they started building a nest in an uninhabited Duck nest-box. They were, however, very secretive about it, and I only knew it was theirs because of their jealous defence of it and its immediate vicinity when other birds came near. On one occasion a pair of Rosellas attempted to investigate, and were sent packing in no uncertain manner. As Parrakeet breeders know, Rosellas are not usually to be trifled with either !

The nest, as far as it went, seemed a cup-shaped affair, composed of dead grass and other rubbish they picked up. I never saw any signs of eggs, so if they did lay they must have eaten them on the spot—a deed which I would not have put past them.

In some ways they reminded me of Crows rather than Starlings, particularly about the head, beak, and legs. Their voices, however, were very Starling-like, consisting of the most weird assortment of croaks and chortles imaginable. Their brilliant orange eyes were particularly striking, being prominent and always wide open, which gave them the appearance of coloured glass beads or boot buttons stuck on the sides of their heads. When excited the black pupils contracted to mere pin points, which accentuated their prominence

and gave the birds the most diabolical expression. I think it was this, more than anything else, which helped them to intimidate other birds.

All hopes of their breeding the following year were abandoned, when along with all my other birds they had to be sold. They went to someone in Jersey, in which equable climate I hope they were given another and better chance to produce their kind.

I should like to conclude this part of my story with a brief reference to the Barbary Doves which graced the aviary from its inception till its end in 1937.

Recently Mr. Falkner praised their beauty in one of his articles, and I entirely agree with him.

Properly kept and allowed to bathe regularly, their plumage becomes like wax, and their delicate shadings of pink, fawn, and pale grey, set off with the black neck ring and red eyes, makes them one of the loveliest of Doves.

I was first of all given a young cock which had been partially scalped by some other bird in a friend's aviary. When he had moulted, he showed no sign of his injury, and as his sex became apparent, I bought a hen from a local bird shop.

Possibly owing to the fact that these two were unrelated (pairs bought from the same source almost invariably being nest brother and sister), they lived with me for eight years and bred like clockwork, rearing four or five pairs of particularly fine young ones every year.

The young of each season remained with their parents until the winter, when they were sold, so that each year started with the old pair and ended with a small flock of some ten or twelve birds.

Having plenty of space and a number being together, they were always active and showy, whether flying about and bowing and cooing to one another, or crowding down to the shallow part of the pond to bathe. They were never the lazy, half-doped looking things that they became in cramped quarters.

They were as hard as nails and roosted out of doors in all weathers.

* * *

BIRDS OF PARADISE IN CAPTIVITY

By Dr. Emilius Hopkinson, C.M.G., D.S.O.

Mr. Prestwich's interesting account in the April number of the early records (Latham, Wallace, etc.) of the importations of these birds, has made me attempt a larger job, namely the records of all the species which have been kept. Here it is. Will some one younger take on the job of producing a complete record of all the birds which have been kept in confinement? It will be a long list, but I have the records in some sort of shape, though they need a younger brain and longer time than I have to expect.

Here is the list. It is arranged in the order of the Zoo list of birds (Carmichael Low, 1929), and the figures Z. 51, etc., refer to that list and more recent Annual Reports.

RIFLE-BIRD. *Ptiloris paradiseus, Sw. Zoo. No. 50.* In 1882 *teste* Neunzig.

MAGNIFICENT RIFLE-BIRD. *Mathewsiella m. magnifica (V.).* Has never been imported *teste* Seth-Smith, but the subspecies, *M. m. intercedens (Sharpe)*, has been. *Z. 51* (under *magnifica*, but = *intercedens.*)

London Zoo 1908; Berlin 1915 *teste* Neunzig. More recently Goodfellow brought three pairs, and eggs were laid with Brook of Hoddam Castle. Mayer brought a single cock in 1927, and two more in 1931, *teste* Seth-Smith, *Avic. Mag.*

TWELVE-WIRED B. of P. *Seleucides melanoleucus (Daudin) (nigricans, Shaw; ignotus, Forster; niger, authors).*

Zoo. 52. Frequently imported; first to the London Zoo in 1881, *teste* Neunzig. Seth-Smith says that one imported in 1907 lived thirteen years in the Zoo. Mayer brought nine in 1929 for Spedan Lewis, two of which were hens, and Whitley had two of these, *teste* E. H.

SICKLE-BILLED B. of P. *Epimachus fastuosus meyeri, Finsch.*

Brook had it in 1909, *teste* Seth-Smith; "new" 1936 *teste* Zoo Report for that year.

A.M., 1937, 155, col. plate.

GORGETTED B. of P. *Astrapia rothschildi, Foerster, 1906.*

Ten deposited in the Zoo. 1931 (= *Z. 53a*), which were brought by Mayer, *teste* Seth-Smith. Whitley had some in 1933 and Mayer brought at least one more about 1939, *teste* E. H.

PRINCESS STEPHANIE'S B. of P. *Astrarchia stephaniae, F. and Meyer.*

Z. 53. Brook had three pairs (brought by Goodfellow) in 1909, and eggs were laid. Goodfellow brought more in 1925, and Ezra has had it, *teste* E. H.

GREAT B. of P. *Paradisea apoda, Linn.*

Z. 54. Often imported; first to the Dresden Zoo in 1875, later London, etc.; one has lived $3\frac{1}{2}$ years, *teste* Neunzig.

Zoo first arrival in 1886, but according to Latham one was brought alive to England about 1820. Ingram released a number on Little Tobago Island, West Indies, where they bred, *teste* Seth-Smith.

P. apoda augustæ-victoriæ, Cab., brought by Mayer in 1931.

Z. 54a, and Mayer brought another in 1937, *teste A.M.*, 1937, 155. Was bred in India in 1940 by Prince Dharmakumarsinhji ; one young bird reared, see *A.M., 1944, 109, reprint from New York Zoo Report.*

P. apoda raggiana, Scl.

Z. 56. At the Zoo in 1908 and at Dresden in 1913, *teste* Neunzig, 520. Goodfellow brought some in 1925, and Ezra had it 1928 among the twelve species of Paradise Birds he has kept, *teste* E. H.

LESSER B. of P. *p. minor, Shaw.*

Z. 55. First at the London Zoo in 1862, brought by Wallace ; many imported since *teste* Neunzig, 518. Goodfellow brought some in 1925, and Mayer more in 1928, *teste* E. H.

GREY-BREASTED B. of P. *Paradisea decora*, Salvin and Godman, new, Zoo, 1930, *teste* Report. *Z. 54b.*

WHITE-PLUMED B. of P. *Trichoparadisea gulielmi* (*Cab.*). *Z.*

One brought by Mayer, 1931, *teste* Seth-Smith. *A.M., 1931, 324* (= *Z. 57a*), and he brought one more in 1939.

RED B. of P. *Drepanornis rubra* (*Daudin*).

Z. 57. Zoo, 1881 and 1884 ; since elsewhere, *teste* Neunzig. Ezra had it in 1927, and Whitley a pair (? others) ; they nested with him from 1931 onwards, for at least two years : eggs but no further, *teste* E. H.

ORANGE-WATTLED B. of P. *Macgregoria pulchra, De Vis.*

Mayer brought one in 1937, which the Zoo bought *teste* Seth-Smith, *A.M., 1937, 181.* The IBIS had a col. plate, *p. 251, 1897.*

BLUE B. of P. *Paradisornis rudolphi, Finsch.*

Z. 58. First in the Zoo, 1907, but it did not live long. Brook had a pair (or more) in 1909, and Goodfellow brought more in 1933, of which Ezra took two and Whitley five ; the Zoo two and Whitley's five were still alive in 1936, *teste* E. H.

HORNED B. of P. *Drepanornis albertisii* (*Scl.*). *D. a. geisleri, Meyer. D. a. cervinicauda, Scl.*

Brook had one in 1909, and Mayer brought another in 1933. *D. a. cervinicauda.*

D. a. geisleri. Some brought by Mayer in 1931 ; one deposited at the Zoo and Whitley had one which was still alive in 1936, *teste* E. H.

KING B. of P. *Cicinnurus regius* (*Linn.*).

Z. 59. Frequently imported. Goodfellow brought the first in 1904 and a number since, *teste* Seth-Smith. Meyer, Frost, and others also brought more, which may have been *C. r. similis, Stresemann.*

HUNSTEIN'S B. of P. *Diphyllodes magnificus hunsteini, Meyer.*

Z. 60. First imported to England in 1908, *teste* Neunzig. Since often in the London and Berlin Zoos. (Goodfellow, 1925 ; Mayer,

1929 and 1937.) ? Were some of Brook's birds (1910), *D. magnificus* or *D. m. seleucides*, *Lessson*, *teste* Seth-Smith, 1923.

WILSON'S B. of P. *Schlegelia wilsoni* (*Cassin*).

♂. *61.* Pratt brought the first—many pairs in 1915. Others imported later by Frost and Mayer. Ezra had some in 1927, and Whitley in 1932, which were still alive in 1936, and I think lived much longer. (Any hope of more details ?—E. H.)

WALLACE'S STANDARD-WING. *Semioptera wallacei* (*Gray*).

♂. *62.* Goodfellow brought five (or more ?) in 1926 ; Spedan Lewis and Ezra had some of them ; in 1929 Mayer brought more, two of which went to Whitley, *teste* E. H.

SIX-PLUMED B. of P. *Parotia sefilata* (*Forster*).

London Zoo, 1908, Berlin, 1912, *teste* Neunzig, *but not in the Zoo List* ? Were some brought with *lawesi* in 1908, *teste* Seth-Smith ?

LAWES' B. of P. *Parotia lawesi*, *Ramsay*.

♂. *67.* Brook had some in 1909 brought by Goodfellow, who brought more in 1925 ; Ezra and Whitley had some of these. E. H.

WAHNES'S FOUR-PLUMED B. of P. *Parotia wahnesi*, *Rothsch.*

♂. *67. a.* Mayer brought some in 1931. (New, Oct., 1931, *teste* Zoo Report.) Whitley also had one. *Ibis*, *1911*, *pl. 6.*

SUPERB B. of P. *Lophorina superba* (*Forster*).

Not yet imported.

LESSER SUPERB B. of P. *L. superba minor*, *Ramsay.*

♂. *68.* Brook had one in 1910 and Mayer brought five in 1933, of which Whitley took a pair at least, *teste* E. H.

♂. *68a. L. s. latipennis*, *Rothschild.*

Mayer brought some in 1931 (= *68a*) and some more in 1937. Whitley had one or more of these, *teste* E. H.

THE MANUCODE, *Phonygannus k. keraudrenii* (*Lesson*).

♂. *63.*

JAMES' MANUCODE. *Ph. k. jamesi*, *Sharpe.*

♂. *64.* Brought by Goodfellow in 1925, *teste* E. H.

BLACK MANUCODE. *Manucodia atra* (*Lesson and Garnot*).

♂. *66.* Brought by Goodfellow 1925, *teste* Seth-Smith. Whitley has two or three Manucodes, 1936 ; I suppose this. *Teste* E. H.

GREEN MANUCODE. *M. chalybata* (*Forster*).

♂. *65.* Brought by Goodfellow, 1925, *teste* Seth-Smith.

The REGENT BIRD, at least six BOWER BIRDS, and four Catbirds have also been imported, but these must wait a later opportunity.

* * *

BIRD NOTES FROM KENYA

By Frances E. Matthews

In the absence of interesting home news about recent bird-rearing successes, I want to describe to you some visitants to the garden which surrounds " Kuta ", N'gong, Kenya. A bird-bath placed there by my brother is a rendezvous for the élite in the Kenya bird world. He writes :—

" We have the Flycatcher, *Tchitrea viridis*, with head and crest blue-black ; back, wings, and long tail, chestnut. They have a nest in the garden, which I saw was occupied by the hen ; it is beautifully constructed of bark, fibres, and fine roots, neatly bound together, resting in the fork of a branch." Authorities say these birds are found in the Transvaal and in localities of South and East Africa, and that they are not migratory—but they ask for information. It would appear they go to Kenya (?). A bird with the white eye of the Zosterops species, but of somewhat blueish grey tint, is also a frequenter of the garden. Its correct name is unknown.

He next mentions the Firefinch, *Rhodopyga senegala rendalli*. " Why the poor little beggar is afflicted with such a name, I don't know ! He is better known as the little Ruddy Waxbill. He likes to nest in the Meraudia creeper, which climbs the walls of our house. It is quite a big nest for such a small bird, and has a door made of feathers, which hang over the opening."

Then " The Cordon Bleu, *Uraeginthus bengalus* is, I believe, the right name. He is about the same size as his ruddy little brother. They both get through fine-mesh wire netting, and help the hens to eat their food."

" We find the Bulbul, *Pycnonotus tricolor layardi*, a bit of a thief where fruit is concerned, he has had more than his share of our figs. I was watching a nest of his last year in a croton tree in the garden. At that time there was a bad plague of caterpillars, and for literally more than 100 square miles all the trees were left bare. However, the Bulbul did not seem to mind, and soon the young birds were flying."

" The varieties of Weavers are so numerous, and with their periodical change of colour it is difficult to be certain about names, but our visitors appear to be *Ploceus velatus*. The Weaver builds about three nests for every one they use."

Of Doves, he writes : " The one I see most of in the garden is the big grey fellow. He builds a very poor nest of twigs about 20 feet from the ground."

" We also have the Emerald Spotted Dove here, which is like the Blue-spotted Wood Dove, and has a similar cry. The Africans say that its cry ' Hapana baba, hapana mama, mimi peke yangu tu tu

tu tu tu ', which means ' I have no father, no mother, I am all alone alone alone ! "

" It is supposed to be hard to find the nest of the Heuglin Robin. Crown of head and under eye black with a white mark over the eye ; back and wings slaty, underpart rufous. But I have had two nests under observation in the garden. Unfortunately both were robbed by my friends the squirrels, or, perhaps, rats are guilty. I don't know the right name for the animals I call squirrels ; they are more like them than anything else, but do not turn up their tails like those at home. The Latin name for this white-browed Robin Chat is *Cossypha heuglini*. He has a beautiful song."

" A friendly little bird, the Streaky-headed Seed-eater, *Poliospiza gularis*, with a lovely song, built its nest within 18 inches of our dining-room window. It had three eggs in it, but I fear it was robbed by the cat."

" I have just been to look at a Sunbird's nest, which is hanging from a branch of a croton tree. Just now she came out with a feather in her beak. Then she poked her head through the opening in the side of the nest and watched me. This is the Malachite Sunbird, *Nectarinia famosa*."

" I have also watched the nest of a Fiscal Shrike. The parent birds have been cross with me while feeding their brood. Now I see them flying about in the garden. Ordinarily they are not at all shy, sitting about on posts and bare branches of shrubs looking for insects."

" I have been trying to observe the African Cuckoo, *Cuculus gularis*. In flight he looks very like his European half-section, but he has three notes instead of two."

" The only bird in the garden to which I have a dislike is the Mouse-bird, *Colius striatus*. He just sits in crowds on fruit trees and gorges, making it useless to grow them. We have not yet discovered any redeeming qualities.

" Our noisiest bird here is the Black-headed Oriole, *Oriolus monachus larvatus*. His call is monotonous.

" But on the whole the songs of the birds, especially at sunrise and sunset, are wonderful, and it is certainly not true at any rate in Kenya, that the birds may be beautiful but cannot sing ! "

* * *

A SOLDIER'S BIRD GUESTS

By D. Goodwin

The feeding of wild birds, especially during periods of hard weather and scarcity, is to those who are fond of them, doubly pleasing in that it not only lessens the sufferings and often saves the lives of individual birds, but also enables one to get to know them as individuals and not simply as Robins, Rooks, Kites, etc., potentially identical with any others of their species. Some go further and claim that their bird-tables are a vital help in conserving the nation's bird life, but this is rather doubtful, since in Britain at any rate most of the birds that profit by our hospitality are species in no immediate danger of declining in numbers, whilst those species which suffer most during prolonged frost, such as Redwings, Kingfishers, and the limicoline birds, will seldom enter our gardens or partake of artificial food should they do so.

In April, 1940, I reluctantly bade farewell to the birds of my Surrey garden, but I soon found that even in the Army one can usually enjoy the pleasure of feathered visitors, provided that one is quick to offer a hand-out when they first put in an appearance, and in my case at least, the interest and relaxation that my guests have afforded has repaid a hundredfold the trouble of collecting a few scraps of waste food for their benefit.

First, in the Spring of 1940, were the Jackdaws at Scarborough : to a southerner the comparative boldness of these Yorkshire daws was remarkable. In Surrey it had taken the local Jackdaws weeks to pluck up courage to fly down on to the lawn when the coast was clear, and it was many months before they would fly down to snatch a morsel whilst anyone stood in the garden, but here their kind foraged about the houses almost as freely as they did in the fields or on the shore, and within a few days several of them learnt to come for food to a ledge outside my window (we were at that time billeted in empty hotels along the front) whilst I stood a few yards away in the room.

A Jackdaw would alight, pause a moment in nervous indecision, every muscle tensed for instant flight, then, encouraged by my immobility but still keeping an apprehensive silvery eye fixed upon me, it would sidle cautiously forward, seize the morsel with a quick thrust of its grey-cowled head, and fly off immediately. They did not get much beyond this stage, however, as we moved before their open-air buffet had been functioning for more than a fortnight, but even in that time they lost some of their initial apprehension, and on his last visit one bird paid me the compliment of eating his ration on the spot instead of carrying it away to devour in greater safety.

In January of the following year we were at Enville in Shropshire, and the surrounding country was both beautiful and rich in avifauna.

I spent most of my spare time studying the latter, but my efforts on their behalf had not gone further than usually carrying a few morsels on my person to throw to such birds, chiefly Great Tits and Robins, as seemed likely to accept them, until late one afternoon I threw a piece of bread to a Great Tit which hit a fence wire and fell only a few yards from me. Before the Tit could decide if it was safe to come so near, a Nuthatch, of whose presence I had been quite unaware, dropped from a near-by elm, perched a moment on the top of the fence, giving me an opportunity to admire his quietly beautiful buff and smoke-blue plumage, and then flew down, picked up the bread, and darted up into the tree again. As long as the cold lasted he never failed to be present on time for his supper, but always insisted on carrying it away to eat in private. As the weather lessened somewhat in severity, his visits became less regular, so that when I left him early in March to go on embarkation leave, I had the satisfaction of knowing that he would not suffer by being once more cast on his own resources.

Late in September we found ourselves in the Tobruk perimeter, where one of the very few pleasant features of our surroundings was the numbers of Crested Larks that ushered in each day with their pleasant, if rather weak and rambling music. One pair of these birds spent most of their time foraging around our gun-site, or to be more correct, around their own territory which we had invaded and proceeded to disfigure with gun-pits, slit-trenches, and the like. However, they soon managed to turn the new state of affairs to their advantage by discovering a taste for artificial food and accepting rent in the form of crumbs of bully beef and biscuits, both of which unappetizing substances they ate with an eagerness rather remarkable, since there seemed, judging by the condition of other Larks in the vicinity, to be no shortage of natural food. This pair of Crested Larks appeared to be just at that interesting phase, common to many British birds, when there is an apparent resurgence of vitality, causing the birds to revisit their old nest-sites, indulging in a good deal of territorial display and other nesting preliminaries, but not usually sufficient to promote autumnal nest-building. One of the pair (I think it was always the cock) would run suddenly to the top of one of the sand-hillocks which the wind had raised around every little stunted scrub bush, in the scanty shelter of which he would proceed to squat as though shaping out a non-existent nest, calling excitedly the while. This behaviour, however, evoked no apparent response from his mate, and after shuffling round with busy feet and wings for a few minutes, he would then lose interest and join her in her food-seeking.

The Crested Lark has been divided up into a great many sub-species, most of which differ only in plumage colour, and this variation seems to be fairly closely correlated with the type of soil they inhabit. Those

at Tobruk were a pale greyish brown above and white below, with lightly spotted breasts, and were, I presume, *Galerida cristata magna*, a rather cumbersome title for such a friendly but unpretentious little bird.

After a short time another move took me to an even less salubrious spot, where the only birds, apart from occasional Buzzards and Harriers passing high overhead, were Lesser Short-toed Larks, although a few Cream-coloured Coursers and a pair of Red-rumped Chats would sometimes appear " offstage ". On one memorable morning, however, a Robin turned up at our improvised " kitchen ", just as a comrade and I were preparing the morning meal. Robins are not uncommon in winter in some of the deep bush grown coastal wadis near Tobruk, and are plentiful in the more verdant country about Cyrene and Barce, but they do not usually show themselves on the open desert. Moreover, they do not as a rule display the confidence in mankind that we expect from this species, but our visitor, although almost certainly a migrant from eastern or central Europe, was as tame as any of his English prototypes. We lavished hospitality upon him, but although he flew down, as though out of politeness, to investigate each morsel thrown to him ; he had evidently no previous experience of artificial food, and was either not sufficiently hungry, or our offerings not sufficiently tempting, to induce him to sample it. We hoped that he would take up his winter territory with us, but after a few hours he decided, not unreasonably, that there were more salubrious locations than an expanse of grey and windswept desert, and departed in search of them. This Robin ought not, perhaps, to have been included in a list of guests, since he was so no more than the many other birds seen briefly in various places, but his short visit was such a pleasing interlude, seeming to carry a breath of English garden air into the dusty Libyan terrain, that I could hardly omit all mention of him.

It was not until November, 1944, when, after various peregrinations, I found myself in Egypt in a camp between the garden suburb of Maadi and the barren but austerely beautiful hills of the eastern desert, that I was able to gather anything in the nature of a regular clientele. House Sparrows and a pair of White Wagtails responded almost immediately to the lure of crumbs scattered outside the tent ; the former were so numerous that I never learnt to distinguish them individually, probably because I was spending most of my spare time rambling in the desert, and when in camp paid more attention to the various other birds. At least a dozen of these Sparrows, however, became very tame, and if their meal was not ready would hop into the tent, looking up at me expectantly until rewarded with a crumb or half a peanut. In March the first broods of young were brought to breakfast by their parents, and in July, when owing to my imminent

departure I gradually decreased and finally withheld the ration, there were still numbers of newly fledged birds, although the early hatched ones had commenced to assume adult plumage.

The behaviour of the White Wagtails was rather puzzling, although typical of the species, or at least of those that winter in Egypt and Libya. They appeared to share a common although loosely defined territory during the day, but to depart to roost elsewhere, almost certainly to some communal roost. Usually the hen was the first to be seen feeding outside the tent. As soon as the cock appeared she would utter eager little cries, suggestive of pleased recognition, to which he did not always deign to reply, and as he alighted would assume an odd statuesque posture with head and tail held at an angle of about 40 degrees, frequently following it up by adopting the typical infantile attitude of hen Passerines soliciting food during " courtship ", with cringing aspect and quivering wings. The cock bird usually appeared rather confused by all this, and if she approached him too closely in this latter attitude would put an end to the performance by darting suddenly at her with the same angry bill snapping that they both used when driving away Sparrows. When he flew off he would utter a few " tchissicking " noises with an imperative ring that almost invariably caused the hen to rise and follow with an answering cry. It seemed strange (although the case with all other White Wagtails that I have watched in Winter) that most of the apparent advances and evidence of sexual attachment should be manifested by the hen ; the impression given was that at any rate the birds were paired but the cock left in the middle of March as soon as he had acquired his summer plumage, leaving his late companion, who continued to call regularly for her meals. She was rather late in moulting (on the 24th February I caught and examined her and the moult had not commenced although her plumage was very worn and frayed), but by the middle of April she also had acquired summer dress and was last seen on the 18th of that month, almost the last of her species that I saw in Egypt.

One evening in February as I was throwing some food to the Sparrows there was a sudden babble of rich fluting notes and a pair of White-vented Bulbuls alighted on the guy ropes a few feet away. After cocking their sooty crested heads appraisingly at me for a second or two they dropped to the ground and commenced to dine ; their procedure at this point was a revelation to me. I had frequently seen the slim, slender-billed Bulbul feeding, delicately plucking and swallowing the small pink berries of the pepper tree or picking tiny insects from among the leaves, but I was quite unprepared for the spectacle I now witnessed. Each bird seized a lump of bread rather larger than its head. I expected a thrush-like attempt to break up the food, but instead there was a

series of gulps, and for a few seconds the bread stuck in the bird's gape, forcing the mandibles so far apart that one feared they might dislocate. Something surely must give way? It did, but it was the bread, each frenzied gulp compressed it more and suddenly it was gone from sight, the slim black mandibles were closed, but before the lumps were half-way down their necks each bird had commenced to repeat the performance. This they did successfully, and then having picked up a few smaller pieces as though to show that although the flesh might be weak the spirit was still willing, they departed as abruptly as they had arrived. They returned at dawn the following morning, and were daily visitors for several weeks thereafter, their loud sweet call-notes and cheery snatches of song endearing them even to people who looked askance at the other birds I encouraged. During the first fortnight in March I was away from camp, and although I tried to arrange for the birds to be fed in my absence, this was not done, and on my return I found that the Bulbuls had ceased their visits.

On the 22nd June, however, one of the pair, I imagine the cock, reappeared, showing precisely the same tameness and reptilian table manners as hitherto, except that after its meal it carefully broke a lump of bread into very small pieces, and flew off with these in its bill, returning after about five minutes for a second helping. Whether this was to feed nestlings or the sitting hen I do not know, but if the latter the pains which he (we will assume it was the cock) took to prepare the meal was rather in the nature of pearls cast before swine in view of her previous behaviour. He commenced to pay several visits each day, although if, as sometimes happened, his first appearance was before I had returned from breakfast with his rations, and his endeavours to attract attention to his wants met, perforce, with no immediate response, he would fly off in high dudgeon and not return until the following day. After some ten days his visits became less regular, and in a few more ceased altogether; possibly some disaster had overtaken him and his family, but I think, and hope, that his desertion was caused by the finding of some ripening grape-vine or other more tempting buffet.

Kites (*Milvus migrans ægyptius*) and Hooded Crows were of course common scavengers about the camp. Hawks and Crows of any kind are unfortunately considered by many Englishmen simply as "vermin", i.e. as creatures condemned by the irrevocable judgment of tradition and completely beyond the pale of human regard or sympathy, so I deemed it would be no kindness to encourage them to come near the tent. However, I always saved any waste scraps of meat that came my way for these birds, and although their well-justified mistrust of anyone in uniform took a little while to abate, I could soon count on several Crows and any Kite within sight coming hastily on the scene whenever I distributed such largesse.

One Kite in particular became very tame, after I had fed her only twice she recognized me at a distance of about eighty yards ; I was walking back from the dining-hall to my tent, a distance of a quarter of a mile along a route where others similarly dressed were constantly passing to and fro, and noticed the bird sitting on a wireless pole some distance away. I looked towards her, and as I did so she stared back at me intently for a few seconds, and then to my amazement flew straight up to me and hovered overhead until I flung her the expected titbit. Thereafter the bird met me regularly as I returned from meals ; at first rather nervous and hesitant, she soon became bolder, and would stoop without hesitation to snatch up a piece of meat or cheese only a yard or so away. When she was flying elsewhere about the camp an upward look and a slight gesture of my hand would bring her down at once to wait above me for the morsel she knew would be forthcoming. Probably the Kite recognized me largely by such gestures, but that these were not her sole means of identification was proved by her coming to me on several occasions when I had nothing for her, and consequently was far from desiring to attract her attention.

One day as I returned from dinner the Kite met me as usual, but as she swooped upon the food, one of my companions, with a rather infantile sense of humour, threw his tin plate at her. It narrowly missed her as she dropped her booty in alarm and beat hastily into the safety of the upper air. Her first suspicions had been justified after all. Man was not to be trusted, his ways were beyond comprehension, but his designs were evil ; still there was the food, in a hard hungry world food could not be despised, even from an enemy one must accept it if one could do so in safety. She came to me afterward as before, but hovered higher above, stooping to seize in mid-air a morsel thrown up to her, but never again would she take food I flung on the ground, unless I retired at least forty yards away, and only then after a great deal of hesitation which frequently resulted in some other Kite coming up and securing the prize.

Late in February my Kite disappeared, being no doubt engaged in family affairs ; during this time she was either fed by her mate or else her spells " off duty " (for the cock Kite at least at times takes over the task of incubation) did not coincide with my own. However, on the 10th June, after I had long given up all expectation of renewing our acquaintance, a Kite flying over responded to my upward look by at once swooping down and hovering above me. There was no doubt as to her identity, as she came again to me regularly, albeit less frequently, and behaved exactly as of yore ; the lapse of three and a half months had not sufficed to obliterate the tin plate episode from her mind, and although she became confident enough to hover a few feet over my head, she would never risk stooping to the ground in

my presence. Our renewed acquaintance was of short duration ; I fed her last on the 28th July, two days before I started on the long-awaited journey back to England.

* * *

BREEDING MY SUGAR-BIRDS

By Viola K. Truitt

(Reprinted from the Bird Fanciers Association Bulletin, New York)

What a thrill I got when Mrs. Gregory called me on the phone to say I could have her cage of wild birds for my very own if I wanted them ! I had only a deep breath to draw before giving her my answer. The very next week she and her chauffeur brought the flight to my New York apartment. In the collection were two Sugar-birds—male and female. The male was not in colour, but some weeks later I noticed baby blue pin-feathers peeping through on his head. A short time after he had a gorgeous blue cap, and another richer deeper shade of blue crept over his breast. In full colour he was beautiful. The female was tame, and even if not quite as breath-taking as her mate, so dainty and quick in her clever actions, I grew to love her more and more. She was the daintiest, sauciest bird ever to grace a bird-room.

One day I noticed her carrying a bit of paper in her beak. I stopped right in my tracks. " Could it be— ? " I asked myself, but of course not ! Had I not heard Tony Prasek speak of how he had to keep his Sugar-birds supplied with spiders to eat and human hair with which to build a nest—absurd, I told myself, to even think that Sugar was planning to build. But, by cracky, she was ! There was no mistaking her actions. I excitedly told my husband that Sugar was trying to make a nest. Trying was quite the word. She would fly up to the nest pan, concealed in one corner of her large cage by leafy (artificial) twigs, with a bit of the white hemp string I had given her, toss it haphazardly into it and hop out again. She and the bit of string landed together. She was getting exactly nowhere. After hubby had watched this sort of thing for an hour he decided to test his skill at nest-building. He must be a rather good builder—at any rate Sugar took on where he left off, and in a few days deposited an egg in her nest. When I saw that egg I nearly fainted. I had done it ! I forgot that it was really Sugar who deserved the credit, but I was just as proud of that egg as she was. Three eggs were laid. One bird hatched, one died in the shell, one egg was accidentally broken. I was afraid to peer too closely at the scrawny bit of bird, and I was

in hot water because I could not see what was going on. The baby grew on fruit and egg-food. (It turned out to be a female. I entered it in B. F. A.'s show of 1942, closely banded. The bird is gone now, but the cup is on my sitting-room mantelpiece. It escaped from an outdoor cage the very day before a male that was from South America and was to be its mate arrived.)

The food may have been too rich for Sugar ; at any rate her second round of eggs were doomed to failure from the start. She never was a " steady " bird, but now she was more frivolous than ever. The egg hatched (two were laid) ; but that baby bounced once too often on the cage bottom. She called it a day and built no more that year.

Looking back I can say it was all very exciting and very simple. Sugar and her mate were in excellent condition. Their food was fresh orange, apple, occasionally a grape, mealworms, egg-food, and honey in their drinking-water. They were tame and got along very well together *except* when there were eggs in the nest. It was hard to see the proud papa take a beating every time he stole a glimpse of his daughter, but that female would lock beaks with him every time he ventured near the nest. She was a wild-cat all through the building period up until the young bird was two weeks old. Her actions worried me quite a bit. I lost no time in contacting Jean Delacour. He advised me to separate them until the female was settled on her nest. I did. When the egg hatched the male had to keep away from her or take a beating. Both of these beauties died last year. The change in climate may have been responsible. Last winter, too, was extremely cold and fuel oil very scarce. To-day I have no Sugar-birds, but the two I did have will always be fresh in my memory, and I will always wonder whatever became of Sugar, Jr., when she decided to fly the coop. I hope she found her way south. I shudder at the thought of her perishing this winter. She may be alive and well—but—I wonder.

* * *

NOTES

Mr. W. Frost and Mr. C. S. Webb

Mr. W. Frost, who has been a prisoner in Singapore, has arrived safely in England. Mr. C. S. Webb has also returned and has been appointed an official Collector and Curator of the Zoological Society of London.

Acknowledgment

The Editor acknowledges with many thanks the permission given by the Editor of *Cage Birds* to reproduce the portrait of the late Dr. Derscheid, published in this number.

THE NEW PHEASANT COLLECTION AT THE LONDON ZOO, OCTOBER, 1945.

The pheasantries on the North Bank have recently been repaired and rewired after their bombing ; the Owl aviaries are beginning to be rebuilt. The Zoological Society have recently purchased from Mr. Spedan Lewis's collection some lovely birds :—

Six Ocellated Turkeys, *Meleagris occellata* (2 cocks, four hens) (Central America). These birds are rarely seen in zoo collections, and until the Zoo had these birds recently, it has never had as many Ocellated Turkeys in the collection at the same time.

Two Argus Pheasants, *Argusianus argus* (one cock, 1 hen).

One Bornean Argus Pheasant, *Argusianus argus grayi* (one cock).

Fifteen Edward's Pheasants, *Gennœus edwardsi* (six pairs and three others).

Seven Bulwer's Pheasants, *Lobiophasis bulweri* (four cocks, 3 hens). Sarawak. These Pheasants are rarely imported, and the cock birds look lovely with their white tails and face wattles. These birds are in lovely condition.

Two Sœmmerring's Pheasants, *Syrmaticus sœmmerringi* (1 cock, 1 hen). Japan : Islands of Hondo and Kiu-siu. A beautiful Pheasant, rarely seen these days.

Three Germain's Peacock Pheasants, *Polyplectron germaini* (2 cocks, 1 hen). Cochin-China.

One Peacock Pheasant, *Polyplectron bicalcaratum* (cock). Burma and Siam.

Six Temminck's Tragopans, *Tragopan temminckii* (three cocks, three hens). China.

Two Brush Turkeys, *Alectura lathami*. Australia. A bird we have been more accustomed to see at Whipsnade in recent years, so it is nice to see them in the London Zoo again.

One Sonnerat's Jungle Fowl, *Gallus sonneratii* (cock). West, Central, and South India.

Two Ceylon Jungle Fowl, *Gallus lafayetti* (two hens). Ceylon.

Three Burmese Peafowl, *Pavo muticus* (two cocks, one hen). These Peafowl have been put in the aviaries next to the Small Bird House.

Mr. H. V. P. Lloyd Phillips has presented to the Society : One Woodford's Owl, *Strix woodfordi*, French Cameroons ; one One-lined Hawk, *Asturinula monogrammica*. Both these birds are in the Birds of Prey aviaries.

P. H. MAXWELL.

CAGE BIRD SHOW.

A very successful Red Cross Fund Caged Bird Show was organized by *Cage-Birds* at the Horticultural Hall, Vincent Square, London, from 1st–3rd November last, the first to be held since 1940. The quality and quantity of exhibits showed that interest in keeping birds has survived all the stresses and strains of war. The foreign bird section was particularly commendable and included entries from the President of the Avicultural Society, Mr. Alfred Ezra. The show served as an occasion for many members of the Avicultural Society to meet again and among those present were Miss E. M. Knobel, Miss Chawner, Mr. Frostick, Dr. Emilius Hopkinson, Mr. A. H. Scott, Mr. Allen Silver, and Mr. E. N. T. Vane.

P. B-S.

INDEX TO SUBJECTS

CANDIDATES FOR ELECTION

Hylton Blythe, New Inn, Hurstpierpoint, Sussex. Proposed by John Frostick.

Frank Bulbeck, Yew Tree Cottage, Partridge Green, Horsham, Sussex. Proposed by E. Maud Knobel.

T. W. H. Crewe, 195 Edenway, Eden Park, Beckenham, Kent. Proposed by John Frostick.

H. Douthwaite, 458 Victoria Avenue, Blackley, Manchester. Proposed by John Frostick.

George William Humphreys, Woodgate, Battanhall Avenue, Worcester. Proposed by A. F. Moody.

W. Lewis, Milnsbridge, Bicton, Shrewsbury. Proposed by John Frostick.

Cyril C. Roote, 116 Cardinals Walk, Scraptoft Lane, Leicester. Proposed by George Beever.

Arthur Charles Soanes, Shaldon, Rickmansworth Road, Amersham. Proposed by A. A. Prestwich.

Miss Marguerite Terry, 1 Glenroyd, 26 Cleveland Road, Jersey, Channel Islands. Proposed by Percy H. Glover.

A. J. Underwood, 24 Wellington Street, Kettering, Northants. Proposed by John Frostick.

NEW MEMBERS

Derek Goodwin, "Toft," Monk's Road, Virginia Water, Surrey.

Private James P. Rooney, Squadron R 3705th, A.A.F.B.U., Lowry Field, Colorado, U.S.A.

Ronald Saunders, Regent Parade, Sycamore Road, Amersham, Bucks.

Lieut.-Commander Peter Scott, R.N., 8 Edwardes Square, London, W. 8.

Alfred L. Wheeler, jnr., Box 266, Danbury, Texas.

Wallace Wood, Handen Farm, Aldrington, near Ashford, Kent.

REJOINED

Wilfred Frost, c/o Zoological Society, Regent's Park, N.W. 8.

Carl Naether, 4442 Woodman Avenue, Sherman Oaks, California, U.S.A.

D. S. Newill, M.D., 402 First National Bank Building, Connellsville, Pa., U.S.A.

F. L. Tuma, Riegrovo Nab 34, Prague 2, Czechoslovakia.

A. F. C. A. van Heyst, The Hague, Alkemadelaan 350, Holland.

CHANGE OF ADDRESS

Mrs. B. Cox, to Barncrosh, Castle Douglas, Scotland.

Capt. F. B. Nightingale, F.R.I.B.A., to c/o The Ministry of Town and Country Planning, 12 Sydenham Terrace, Newcastle-on-Tyne.

DONATION

Gerald Iles, £1

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. *Payment must accompany the advertisement, which must be sent on or before the 20th of the month, to* Miss E. Maud Knobel, 86 Regent's Park Road, N.W. 1. *All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.*

FOR SALE

Jackson and Sclater's *Birds of Kenya and Uganda*, 3 vols., £5 5*s*.; Davis's *Natural History of Animals*, 8 vols., £2 10*s*.; Tegetmeier's *Pheasants*, 1st, 2nd, 3rd, 5th editions, 25*s*. each; Dixon, *Game Birds and Wild Fowl of British Isles*, 2nd edition, £4 4*s*.; Payne-Gallwey, *Book of Duck Decoys*, £3; Ogilvie-Grant, *Handbook to the Game Birds*, 2 vols., 15*s*.; Semon, *In the Australian Bush*, 30*s*.; Wallace, *The Malay Archipelago*, 15*s*.; Kearton, *Nature Pictures*, 30*s*.; Buller, *Manual of the Birds of New Zealand*, 21*s*.; Russ, *The Speaking Parrots*, 21*s*.; *Bird Notes*, assorted, 7*s*. 6*d*. dozen; postage extra.—John Frostick, Minster Precincts, Peterborough.

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