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ADDRESS OF THE EDITOR

Malcolm Ellis, Hon. Editor, The Avicultural Magazine, The Chalet, Hay Farm, St. Breock, Wadebridge, Cornwall PL27 7LL, England.
E-mail: editor@avisoc.co.uk

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FURTHER THOUGHTS ON THE DIETARY REQUIREMENTS OF QUAIL AND THEIR KEEPING AND BREEDING

by Carl Garnham

I was interested by Jack Eitniear and Terry Becherer's article on dietary considerations when breeding Montezuma Quail *Cyrtonyx montezumae* (Vol.118, No.1, pp.6-11 (2012)). I began keeping quail in the early 1980s, when a friend passed onto me a handful of Bobwhite *Colinus virginianus* eggs he could not get to hatch. I managed to hatch them without difficulty and was hooked - though I was yet to master rearing the chicks.

Quail, Their Breeding and Management by Gary Robbins (1983) was at the time the only source of information about keeping and breeding quail, so the following year I set up pretty much as the author advised and bought my first quail - a pair of California *Callipepla californica*. Over the next few years my collection increased to include three to five pairs each of 10 species and one subspecies, including Mountain Quail *Oreortyx picta*, Mearn's Quail *C. montezumae mearnsi* and Gambel's Quail *C. gambelii*, which I imported privately from the USA.

All of the stock was kept, as it is here today, along with Stone Partridge *Ptilopachus petrosus* and See-see Partridge *Ammoperdix griseogularis*, in outdoor, unheated, unlit, raised pens, on a 2in-3in (approx. 5cm-7.5cm) deep litter of peat, chopped straw and wood shavings/chips. The pens for the California Quail-sized species are 4ft (approx. 1.22m) square and those for the Jungle-bush Quail *Perdicula asiatica* and similar sized species are two-thirds this size. A branch is provided for perching on, as well as a block/stump. Kept dry, these pens need cleaning only every two to three years and, even then, any build-up of droppings is not obvious due to the birds scratching in the litter.

The birds were fed a 50:50 mix of poultry chick crumbs and a seed mix based loosely on the mix credited to T. R. Warwick in the above mentioned

book, but with one-eighth of the mix consisting of oilseeds - linseed, rape, safflower, hemp and niger. It had a protein content of 14% and was of high quality due to the oilseed content. Prior to BSE (bovine spongiform encephalopathy), the chick crumbs contained fish meal and meat and bone meal. The coccidiostat was usually amprolium. The protein content was 18%. The birds were fed this all year round, with some fine oystershell added during the laying period. They were fed each day and waste was minimal. They were also provided with water treated with a multivitamin/mineral mix Duphasol, sold as a pick-me-up for intensively farmed poultry, which became unavailable following the takeover/merger of Duphar b.v. by Solvay b.v.

Apart from a single experiment in the early days with a trio of Gambel's Quail, all were and continue to be kept in pairs. Here on the Essex-Suffolk border, the commoner *Callipepla* species began laying in the second week of April. The Mountain Quail began to lay approximately 10 days earlier - usually on April 1st, give or take no more than a day and, therefore, easily remembered. The birds kept by a good friend under very similar conditions further north not far from Merseyside in north-west England, laid their first eggs of the season approximately one week later. The end of laying, which happened sometime in September or early October, was definitely influenced by the weather.

Crested Bobwhite *C. cristatus* laid on and off throughout most of the year. I never kept count but a pair probably laid over 150 eggs. Some were laying when the temperature was around -20°C (-4°F) and the wind chill -40°C (-40°F) during the freak winter sometime in the late 1980s. Drifting snow was something like 6ft (approx. 1.8m) deep in my garden and the eggs froze in the nest box. Masked Bobwhite *C. v. ridgwayi*, Jungle-bush Quail, Elegant (Benson's /Douglas) *C. douglasii* and Mearn's, in particular, started later than the commoner *Callipepla* species and laid fewer eggs.

Pairs of the commoner *Callipepla* species produced 60-80 eggs per year. Mountain Quail produced even more, with some pairs producing over 100 eggs per year. A friend with no previous experience of keeping quail, imported some Mountain Quail from the USA a few years after I did and set them up as I instructed him. He produced a huge number of young which took two to three years to sell - he even gave some away. He had flooded the UK market at the time when quarantine restrictions still existed between the UK and mainland Europe and links between the two barely existed.

I never kept a record of the fertility of my birds, but stock that was not inbred certainly laid very few non-viable eggs. Mearn's and Elegant, in particular, were known to be hopelessly inbred even back then and although each pair produced 30-40 eggs, very few chicks were produced. I never got into double figures during the few breeding seasons I had them. The

only pair of Mearn's which was from the Bob Tybie strain, which produced viable eggs and a large surplus of females in the USA, was loaned to a friend who succeeded in producing just a couple of female chicks before the female died.

A second importation into the UK of Mearn's a few years later produced similar, possibly worse results, with a massive surplus of males. Weirdly, the current European stock, origins unknown, but very unlikely to include ancestors of the two UK importations, produces rather few eggs but of high viability and resulting in a substantial surplus of females.

Over the 30 years that I have kept and bred small gamebirds, I have seen many come into the hobby and many leave, but two common management techniques, particularly in the USA, but also in mainland Europe and to a lesser degree here in the UK, that always seem largely incompatible with small gamebirds breeding well in captivity, are keeping them other than in pairs and keeping them on wire-floored pens. I have very seldom seen or heard of birds doing as well as the birds here and those of my good friend not far from Merseyside, when subject to one or other or both of these regimes. Smaller pens are often a problem too.

My single experimental trio of Gambel's Quail kept long ago produced one very stressed female and 30 or so eggs. It is also a sobering thought that the many millions of Red-legged Partridges *Alectoris rufa* that are reared for sport shooting in Europe each year are almost exclusively produced from paired breeders, albeit housed in wire-floored pens - the days of flock mating of the species are long gone.

The choice of compounded feeds today, since the emergence of BSE and the ban on the inclusion of animal proteins in ruminant feeds, is not as simple as before. Animal proteins can be used for poultry and game feeds, but many compounders cannot risk cross contamination in their mills, so only large compounders use fish meal by dedicating a production line to its use and not using the line for ruminant feed production. Based on experience here and a published science-based study of commercial game flocks, the inclusion of fish meal in the food fed to gamebirds (albeit probably only 1%-3%, the exact amount of fish meal being unknown due to commercial secrecy) does improve egg production and viability. This being so, I now have a limited choice of what I can feed my birds, so use 28% protein game starter mini-pellets, with fish meal, as the compounded part of the ration fed to my birds during the laying period.

Today, Stone Partridge in particular breed freely here, which is not the case with very many other people who keep this species.

A second problem is the move to lasalocid as a coccidiostat in all but breeder rations. Compounded feed being only 50% of the diet, the intake

of any coccidiostat will be far below the minimum therapeutic amount, yet many keepers continue to use chick crumbs as the adult diet. The problem is that lasalocid is concentrated in eggs and causes developmental problems in the embryo. The mini-pellets that I feed to my birds are not medicated.

As something of a postscript, it is worth noting that on the one hand, quoting the basic nutritional analysis can be very misleading, while on the other hand, birds can eat only what is available to them, but there is mounting evidence that when they have a choice they choose to eat to obtain their amino-acid requirements rather than, for instance, calories.

Research on poultry and a few non-domesticated species suggests that fat intake, assuming that there are adequate amounts of essential fatty-acids present, needs to be around 1% of dry matter, but that food becomes far more palatable when it contains at least 3% fat. Similarly, protein quality - how closely the essential amino-acid content of the protein matches the requirements of the consumer - is equally as important as total protein intake. Research into the diets of captive Japanese Quail *Coturnix japonica* and Bobwhite (see, for instance, Dozier and Bramwell, University of Georgia) indicate that a diet with 24%-28% protein, usually derived from soy (soya) and a small proportion of corn (maize) is required for optimum laying performance, while levels of substantially less than 10% are an adequate maintenance level. There is also the issue of digestiblity and digestion inhibitors that are present in all plant foods,

In the large scale commercial manufacture of stock feeds, amino-acid content is carefully controlled, but in the case of Ultrakibble, the protein content derives almost entirely from corn (maize, in the form of gluten meal), which is low in tryptophan and very low in lysine. Although lysine hydrochloride is added (at a level below that of the preservatives in it, two of which are typically used at no more than 0.1%), this is not enough to make good the shortfall, which effectively reduces substantially the protein content of Ultrakibble which is available for body repair and reproduction, etc. (It should be noted there is more dicalcium phosphate in it than fish meal and the calcium content is given as 0.21%-1.2% - a huge range for a compounded feed.) There is also some evidence suggesting that arginine from corn gluten is poorly metabolised by poultry.

Also bear in mind that cooking (as with Ultrakibble), reduces protein digestibility by anything up to 30% even in a well-controlled and analysed process - this is one of the reasons why compounded farm stock feeds are generally not cooked but, at most, very precisely and quickly heat-treated to destroy pathogens and certain digestion inhibitors, such as those in legumes, including soy (soya). Cooking temporarily increases carbohydrate digestibility, but in commercial stock feeds this is not an attractive proposition

when viewed against decreased protein digestibility, as protein is expensive and carbohydrates are cheap. (This is in contrast to pet foods, which are usually cooked, as cats and dogs digest raw carbohydrates rather poorly, so cooking becomes financially very attractive.)

As for natural diets being a useful guide to captive diets of birds: a common estimate amongst workers in avian science is that captive birds require approximately 30% the calorie intake of what they would need in the wild. However, their protein intake, in absolute terms, will be unchanged as body regeneration/replacement etc. proceed at the same pace. This being so, to imitate the protein intake of a bird living in its natural habitat in the wild, the captive diet should have a substantially higher protein content than that in the wild, though very much dependent in both situations upon factors such as protein quality and digestibility. That said, the production of a clutch of eggs in the wild makes very different demands on a bird compared to those of producing numbers of eggs semi-continuously.

Also of note, perhaps, is that various sources quote acorn protein content (from a variety of oaks) as being of high quality with a score in excess of 100.

Useful further reading

Clasing, K. C. 1998. *Comparative Avian Nutrition*. Cab International, Wallingford, UK.
Carey, C. (ed.). 1996. *Avian Energetics and Nutritional Ecology*. Springer, New York.
Robbins, G. E. S. 1983. *Quail, Their Breeding and Management*. World Pheasant Association, UK.

Utrakibble ingredients

Corn Gluten Meal, Sorghum, Vegetable Oil, Rice Bran, Cane Molasses, Dicalcium Phosphate, Fish Meal, Hydrated Sodium Calcium Aluminosilicate, Salmon Meal, Cinnamon, Diatomaceous Earth, Dehydrated Watercress Pulp, Dehydrated Spinach Pulp, Dehydrated Carrot Pulp, Dehydated Lettuce Pulp, Dehydrated Beet Pulp, Dehydrated Celery Pulp, Choline Chloride, Turmeric, Propionic Acid (Preservative), Sorbic Acid (Preservative), Benzoic Acid (Preservative), L-Lysine Monohydrochloride, Calcium Carbonate, Vitamin E Supplement, Niacin Supplement, Calcium Pantothenate, Vitamin A Supplement, Vitamin B12 Supplement, Riboflavin Supplement, Biotin, Vitamin D3 Supplement, Roughage Products, Mineral Oil, Lactobacillus Acidophilus Fermentation Product Dehydrated, Lactobacillus Casei Fermentation Product Dehydrated, Bifidobacterium Thermophilum Fermentation Product Dehydrated, Enterococcus Faecium Fermentation Product Dehydrated, Silicon Dioxide, Citric Acid, Mixed Tocopherois (Preservative), Rosemary Extract, Manganous Oxide, Copper Oxide, Calcium Iodate, Sodium Selenite.

E-mail: carl.garnham100@googlemail.com

HAVING BEEN AN AVICULTURIST FOR FIFTY YEARS
Part 2

by Bernard Sayers

In the 1960s or early 1970s Aubry Buxton, a director of Anglia Television which produced *Survival*, one of the longest-running and most successful wildlife TV series at the time, maintained a large private collection of birds at Norman House, his home near Stansted Airport and, for a few years, opened his collection to the public. The unspoilt rolling meadows, lakes and woodland, had been fenced with what must have been miles (kilometres) of fox-proof fencing, to form a network of adjoining large paddocks. These were stocked with flocks of ducks, geese and swans, cranes, flamingos and deer. A pathway wound round the paddocks and not only was the exotic stock of great interest, but it was an excellent opportunity to do some birdwatching, for the varied habitat attracted many finches, buntings, tits, flycatchers and wagtails.

Near the entrance to the park were two aviaries, which had been modified from pig pens. One housed a tame Bateleur *Terathopius ecaudatus* and the other two European Eagle-Owls *Bubo b. bubo*, which were notable for their enormous size. Of the hundreds of eagle-owls I must have seen during the past 50 years, these were the biggest I have seen. When the collection was dispersed, these owls were acquired by Malcolm Moy, who at the time had a bird park at Smallburgh in Norfolk. A few years after Malcolm moved to Inveraray to set up the Argyll Wildlife Park for the Duke of Argyll, I renewed my acquaintance with these eagle-owls when I was asked to crate them. They certainly felt extremely heavy when I handled them (Malcolm said each of them weighed 10lbs (approx. 4.5 kg)). The two owls were obtained as youngsters by Aubry Buxton, whose keeper told me that they were fed on road kill and other wildlife casualties, along with chicken heads - and, I think, the latter may have been the reason why the owls were so heavy. At the time many of the chickens reared for meat production were caponized, which involved injecting a pellet into the back of the neck, which chemically castrated cockerels and acted as a growth booster. Were there still, I wonder, traces af the pellet in the necks and, by feeding the heads of capons to the owls, did this cause them to grow abnormally large? I cannot be sure, but to my knowledge the owls never attempted to breed and were undoubtably extremely large and, I think, this theory may have some credibility.

Behind the aviaries housing the eagle and eagle-owls was a large enclosure in which Cliff and I saw for the first time a pair of yellow Golden Pheasants *Chrysolophus pictus* and were absolutely awestruck by this

beautiful pair of birds. It was autumn and the pair had just completed its moult. The male's crest retained the typical golden colour although it was possibly a tad paler than normal and the cape was orange edged with black like that of the normal male and likewise the back was glossy green. The real differences were the fact it possessed a lovely primrose yellow breast, soft brown wing-coverts and secondaries, white primaries and a buff/brown tail dotted with yellowish white. The yellow of the breast fades a little as a result of exposure to the sun, but in freshly moulted birds it positively glows. The yellow Golden Pheasant is sometimes called Ghigi's Golden Pheasant in honour of Professor Alessandro Ghigi of Bologna, Italy who played a major role in establishing this mutation. It is said to have occurred in a collection in Bavaria and Alexander Hampe from Coburg was instrumental in transferring the birds to Professor Ghigi in 1952. (see A New Mutation of the Golden Pheasant by Alessandro Ghigi in Vol.63, No.6, pp. 190-191 (1957).) I know little about mutations, but I have read that the original male from Bavaria proved to be recessive. Whatever the ethical arguments about breeding mutations, as Cliff and I stood spellbound admiring the pair of yellow Golden Pheasants we resolved that we must obtain a pair without delay and later I will relate where this led us.

While chatting to the keeper we learned that Mrs Pamela Johnston maintained an extensive and varied collection nearby. Aware that we were keenly interested in exotic livestock, he offered to telephone Mrs Johnston and ask if we could see her collection. She was agreeable to this and so we headed for Mole Hall at Widdington, near Saffron Walden. This part of north-west Essex is particularly beautiful and much less densely populated than most of the county. The rolling countryside is scattered with quaint, picturesque villages, including the village of Ugly, which is home to the insensitively named Ugly Women's Institute.

After a short drive along winding lanes we found Mole Hall and Cliff's car bumped over a cattle grid into the grounds. As the car came to a halt we were joined by a very large Aberdeen Angus bull. A quick vote was taken to decide who should get out of the car first and it seemed I was the popular choice. I was reasonably relaxed about this as bulls of beef breeds of cattle are usually fairly docile and, surely, Mrs Johnston and her husband would not have had a dangerous bull wandering free in their garden. As I got out of the car the bull ambled up to me and I introduced myself and, in return, the bull good naturedly coated the front of my pullover with dribble. I stood taking in the beauty of the setting with the extensive rolling lawns and innumerable Weeping Willows *Salix babylonica*. To one side was the lovely, ancient house, with its pink-washed walls. It is on an island surrounded by a moat which was stocked with ornamental ducks, Black Swans *Cygnus*

atratus and a flock of Caribbean Flamingos *Phoenicopteras ruber* and the grounds were dotted with various enclosures. It would have been difficult to have conjured up a more idyllic setting and I was constantly reminded of *Wind in the Willows*.

Many of the animals were tame and undoubtedly Mrs Johnston's pride and joy was her magnificent troop of Humboldt's Woolly Monkeys *Lagothrix lagotricha*. Even now these sensitive monkeys are considered to be difficult by some zoo personnel, but 30-40 years ago only a few specialist collections enjoyed any success with them. The troop at Mole Hall had a large, warm, indoor enclosure which they could retire to when they wished and also had the opportunity to roam free in the gardens. I was told the grounds were planted with Weeping Willows, as these are the only trees which could survive the depredations of the monkeys. When Mole Hall opened to the public in 1963, the Woolly Monkeys could no longer be allowed so much liberty and, as nowadays, all owners are required to hold a Dangerous Wild Animals Licence, I guess it would be illegal to allow them to roam free.

Dingos *Canis dingo*, Foxes *Vulpes vulpes*, Coypu *Myocastor coypus*, Ring-tailed Coatis *Nasua nasua*, Raccoons *Procyon lotor*, Humboldt Penguins *Spheniscus humboldti* and some lovely otters occupied the enclosures dotted around the gardens. Mole Hall made something of a speciality of keeping otters and had considerable success breeding both the Small-clawed species *Amblonyx cinereus* and the Canadian or Northern River Otter *Lontra canadensis*.

The tennis court had been roofed over and divided into two. On one side was an aviary housing a pair of Green-winged Macaws *Ara chloropterus* and on the other side was a larger compartment housing Indian Blue Peafowl *Pavo cristatus* and Demoiselle Cranes *Anthropoides virgo*. Later, these two aviaries housed Red-billed Curassows *Crax blumenbachii* and Snowy Owls *B. scandiacus*. The curassows certainly laid eggs, because I have several of them in my collection, but to the best of my knowledge the pair never reared any chicks. I have had a magnificent pair of tame Bare-faced Curassows *C. fasciolata* in my collection for many years and have had many eggs - usually clutches of two, but occasionally of just one and, on two occasions, of three eggs - some of which have been fertile, but none of which have hatched. The female never shows any inclination to incubate the eggs, which have either been placed in an incubator or under a heavy breed of broody hen but, to my great regret, the embryos have always died mid-way through incubation,

I always feel that such a failure is usually the result of inadequate husbandry and, therefore, feel responsible for this lack of success. Sadly, I have no idea what I might do to try to remedy this problem. Snowy Owls,

on the other hand, have proved to be far more of a success story at both Mole Hall and here. The original pair at Mole Hall was imported from Canada and bred very well. A later pair came from my collection, in which almost 60 have been parent-reared over the years. The Mole Hall collection also included Mackinder's Eagle-Owls *Bubo capensis mackinderi*, Spotted Eagle-Owls *B. africanus*, Tawny Owls *Strix aluco* and a magnificent Changeable Hawk-Eagle *Spizaetus cirrhatus*.

Paddocks around the periphery of the garden housed deer, ponies and a magnificent pair of Sarus Cranes *Grus antigone*, which reared chicks regularly. Varied though the collection was it was evident, however, that monkeys were prominent in Pamela Johnston's affections. Later a trio of Chimpanzees *Pan troglodytes* was added to the collection, but when I first visited it the stock consisted mainly of small to medium-sized monkeys. Prominent in my memory is a wonderful pair of Wanderoos or Lion-tailed Macaques *Macaca silenus* from the monsoon forests of the Western Ghats of India where this species has become very rare and there is now an international studbook for the zoo population. There were also capuchin monkeys *Cebus* spp., as well as several mangabies *Ceropithecus* spp. from Africa. In those days it was macaques from Asia and North Africa and African monkeys which predominated in zoological collections. Nowadays there are very few macaques, Mona Monkeys *C. mona*, Patas *Erythrocebus patas*, mangabies and Vervet Monkeys *C. aethiops* left in the UK and instead South American species, lemurs and leaf monkeys predominate.

Over the years many interesting species were exhibited at Mole Hall. Servals *Felis serval* were added to the collection and a butterfly house was opened and, of particular interest to me, was a lovely pair of Western or Blue Crowned Pigeons *Goura cristata* which bred successfully several times. The pair had a warm shelter, but chose to nest in a dense hedge in the outside aviary. This species was first bred in the UK at London Zoo in 1914, since when only a handful of collections have bred this impressive pigeon. When it became necessary to reduce the size of the Mole Hall collection, I believe the breeding pair went to Rode Tropical Bird Garden.

Some of Mrs Johnston's stock had, I was told, been bought from "Palmers Pet Stores" in Camden Town. Palmers, Regent Pet Stores, was a large double-fronted shop in Parkway, just a short distance from Camden Town underground station on the way to and from London Zoo (in Regent's Park). Palmers (always without an apostrophe) was a fascinating shop and I always called in when visiting the zoo. It was stocked with a vast range of foodstuffs, sundries and cages and an archway led into the second part of the shop which was an absolute treasure trove of exotic livestock. There were cages with parrots, parakeets and tame softbills such as mynahs, toucans and

hornbills etc. and numerous vivariums containing pythons, boas and other non-venomous snakes, baby caimans, lizards, terrapins and tortoises etc. Towards the back of the shop were cages containing birds of prey, monkeys and animals such as squirrels, kinkajous, civets, fruit bats, mongooses etc. A few larger, more strongly constructed cages, occasionally housed baby Chimpanzees, Sun Bear cubs *Helarctos malayanus* and baby cats of various species and there were more enclosures in the small yard out the back.

When the animals were bought by knowledgeable customers such as Pamela Johnston they undoubtedly enjoyed comfortable lives, but I shudder to think what happened to some of the animals which were bought on impulse by less knowledgeable customers. This was particularly true of baby monkeys, which are enchanting when young, but become destructive, wilful and frequently aggressive as they become mature. Of course, most of the animals sold by Palmers would now be subject to a Dangerous Wild Animals Licence, so could not be bought by impulse buyers. (Although Palmers closed several years ago and now appears to be a café-cum-wine bar, the owners have retained the famous old pet shop sign dating back to at least the 1930s.)

For many years a pair of Bateleurs *Terathopius ecaudatus*, the male of which I bought from Palmers, was among the stars of my collection. Although the pair built bulky nests and the female laid several times this was always in the depths of winter (and these were very severe in the 1960s and 1970s) and none of the eggs hatched. The Bateleur is, of course, one of the few eagles with sexually dimorphic coloration. They take about five years to assume full colour and get the brilliant red facial skin, by which time the female's secondaries have a broad silver bar across them, whereas those of the male are entirely glossy black.

Earlier I mentioned how acquiring a pair of yellow Golden Pheasants became a top priority for Cliff and me. This quest took us to Stagsden Bird Gardens on the outskirts of Bedford and resulted in me maintaining close contact with this collection from its inception until its closure several decades later. The bird garden was founded by Fred (invariably known as F. E. B.) Johnson, a portly gentleman with trademark glasses and cigar and an impish sense of humour. My first contact with Fred had been when he worked, I believe, for the Ministry of Agriculture, Fisheries and Food, and lived at Newport Pagnell. There he maintained a collection of pheasants with which he enjoyed considerable success. Fred had been born into a farming family near Bury St Edmunds in Suffolk and obviously inherited the farming community's natural ability as stockmen, for he kept and bred species such as Satyr *Tragopan satyra* and Temminck's Tragopan *T. temminckii* which were regarded as tricky in those days.

Around about the early 1960s Fred received a family legacy which enabled him to buy the Grove at Stagsden with the intention of realising a long held ambition to establish a bird garden and open it to the public. In theory Stagsden was in an unrivalled position for it was close to a number of major road networks and seemingly within easy travelling distance of a vast population of potential visitors. The only drawback was that, being in a rural setting, it was only accessible by car and, in the early 1960s, by no means the majority of families owned a car.

The Grove consisted of a large (and in my view) rather ugly house with a small copse between it and the road. To either side there were meadows totalling in all about 10 acres (4 hectares). Fred proceeded to develop these into a network of paddocks for waterfowl and enclosures for his beloved pheasants. It was here that a problem arose. Fred's rather unorthodox method of aviary building, whilst enabling him to build a large enclosure before breakfast, to the incognoscenti looked rather unattractive and somewhat casually constructed. Fred's method of working was to erect a stout post at each of the four corners of quite a large plot of land and then stretch heavy wires between them. Wire netting was then thrown over the flimsy support structure in a tent-like fashion and clipped together where appropriate. At ground level the wire netting was bent outwards and weighed down with large rocks. If the enclosed area contained small trees or bushes, so much the better, as these provided additional support and prevented the roof from sagging so much. Such enclosures had limited aesthetic appeal but, aviculturally, proved perfectly satisfactory. Not only were they large, but the scrub in the aviaries provided the pheasants with a near natural environment. Many pheasants being nervous and skittish by nature, the abundance of cover provided them with a sense of security. Also, if the occupants panicked and flew into the wire, the structure's lack of rigidity meant they were less likely to sustain serious injuries. The pheasants showed their approval by thriving and breeding very well, but the visiting public did not appreciate such benefits and were less impressed. They complained that many of the pheasants and waterfowl hid amongst the undergrowth and could not be seen and they wanted to see a greater variety of birds.

Somewhat reluctantly Fred decided to diversify and had some rather more traditional aviaries constructed. This was at a time when I was importing wild-caught birds (a past I am not proud of, but in the 1960s, relatively few birds were bred in captivity, as wild-caught birds were widely available and relatively cheap to buy) and obtained for Fred toucans, macaws, lories, fruit pigeons, owls and other birds. Other interesting species, including a superb adult pair of King Vultures *Sarcoramphus papa*, Fred obtained from other sources. This was more in accord with the public's expectations but, even

so, the gate receipts and revenue from the sale of young birds never really covered the costs of running the bird gardens and, at best, he really only succeeded in losing money slowly.

Fred had wide interests and was a great collector. I can recall him studying and collecting lichens, species roses, exhibition Modena pigeons, pedigree poultry, land snails, orchids and natural history books. The latter developed into a business and for many years Fred dealt in new and antiquarian natural history books. A substantial number of books in my library were acquired from Fred, usually in exchange for birds.

Orchids of the *Pleurothallis* and *Lepanthes* genera were another of Fred's particular interests. He amassed a huge collection of literally thousands of these orchids, many of which are so small that the flowers had to be admired under a magnifying glass. Some were bought from specialist nurseries and many others imported from collectors in their countries of origin. Among the latter was the somewhat extravagantly named "Bhumibol the Adventurer of Perú"! Fred's orchid collection was housed in two large greenhouses which had been erected behind the house. He delighted in taking visitors into the greenhouses and discussing the origin of the orchids, their growing requirements, horticultural history, the source of his plants, taxonomy and a host of other subjects. Fred knew a great deal about orchids and such was his enthusiasm that he lost track of time and being shown his orchid collection could become a lengthy operation. It was somewhat irreverently alleged that two visitors ushered into the orchid house as teenagers had reached pensionable age by the time they finally emerged!

Fred was a wonderfully eccentric and idiosyncratic character, who as he became more engrossed emitted clouds of cigar smoke, which must have been a potent deterrent to insect pests, but left non-smokers like me choking and finally staggering out into the fresh air smelling like a well-smoked kipper, especially in the winter when the greenhouses were not so well ventilated. During his occasional resolutions to economise he would exchange his trademark cigar for a pipe and always left a couple of buttons of his shirt front undone and, every so often when the need arose, would pull out the end of his vest and thoroughly wipe the mouthpiece of his somewhat juicy pipe on it.

Present day pheasant keepers owe Fred a great debt of gratitude for the contributions he made to introducing new species and establishing stocks of first class birds of species which had virtually disappeared during the Second World War. In 1960 Fred was the first person in the UK to breed the nominate subspecies of the Koklass Pheasant *Pucrasia m. macrolopha* and imported from Nagaland in northern India seven Hume's Bar-tailed Pheasants *Syrmaticus humiae* and bred them with great success - his initial

success in 1962 is thought to have been the worldwide first captive breeding of this species. I have vivid memories of him showing me my first Blood Pheasant *Ithaginis cruentus* - although sadly he had only the one. Fred bred many other species which although not first breedings were rare in aviculture, including breeding the spectacular Cabot's Tragopan *T. caboti*. His young stock was always of first class quality and vigour and so he did a great deal to re-establish many pheasants in UK aviculture.

Another of Fred's interests were mutations and he bred several colour forms of the game pheasant, leucistic Moorhens *Gallinula chloropus* and yellow and dark-throated Golden Pheasants. By the selective breeding of yellow and dark-throated specimens of the latter, he produced a new mutation, the salmon Golden Pheasant. This mutation, with its dingy orange breast, is not particularly attractive and never became popular and I doubt if many exist today. Fred supplied Cliff and I with an excellent pair of yellow Golden Pheasants which proved to be a first class pair from which we bred a great many youngsters over the ensuing years.

I must mention a hybrid pheasant exhibited at Stagsden which, in theory, should have been impossible to produce. Although not invariably the case, it is generally believed that hybrids between two species in the same genus will be fertile, whilst hybrids between species from different genera will be infertile (i.e. mules). This trigeneric hybrid was between a Golden Pheasant (*Chrysolophus*) mated to a hybrid between a melanistic game pheasant (*Phasianus*) x Reeves's Pheasant (*Symaticus*). The hybrid had been bred in a tiny aviary on the balcony of a flat in Eastbourne. I think the breeder gave Fred three youngsters. When the hybrid cock eventually died I was given the body and still have the preserved skin, which clearly shows characteristic colouring of all three - the Golden Pheasant, melanistic game pheasant and Reeves's Pheasant.

Fred also liked waterfowl and always maintained a nice collection at Stagsden. There were two large walk-through enclosures. One contained a large flock of Barnacle Geese *Branta leucopsis* which bred prolifically and the other, which contained a pond, was home to a mixed collection of ducks and geese. There were also several smaller enclosures for swans and aggressive and disruptive species. In the large mixed species paddock was Fred's pride and joy, a good sized flock of Red-breasted Geese *B. ruficollis*. Although this species was being bred in collections at that time, it was regarded as difficult and this and the Red-breasted Goose's great beauty, made these birds very expensive. At their peak, they reached £400-£500 (approx. US$650-US$800) per pair, at a time when this was worth a great deal more than it is today. So imagine Fred's elation when one season his flock of Red-breasted Geese produced some 40 goslings. This must have made

a major contribution towards balancing the books that year. Red-breasted Geese, however, are not dependable, regular breeders. One year they might be very productive whereas another year, when conditions appear virtually identical, they will do little or nothing,

After 10 years of struggling with the endless problems and demands of running a public collection and the difficulty of generating sufficient income to pay the considerable running costs Fred decided that, at his age, it had all become too much and decided to sell the collection. Fred sold Stagsden Bird Gardens in May 1975 and he and his family moved to Glebe Farm, near Dereham in Norfolk, where he continued his activities as a bookseller. Fred kept his cherished flock of Red-breasted Geese in a paddock at the rear of the house where he could watch them from his lounge. Later, I think, he moved to Wells-next-the-sea. I learnt a great deal from Fred and always enjoyed our long conversations which were invariably humorous and informative. Sadly, these are treats of the past now that Fred and his wife are no longer with us. Their son, Andrew, continued the family profession of natural history bookseller and, for a time, had premises just off Piccadilly in London, which were a "must visit destination."

The new owners of Stagsden Bird Gardens were Jane and Rodney Rayment, a young couple who had run a post office/general stores in Hertford. However, in their spare time they were keenly involved in aviculture and falconry. There was also continuity from the Fred Johnson era in the person of Peter Kaminski. For a number of years Fred had relied upon the help of Peter Catlin, a joiner by trade and a knowledgeable birdkeeper - who subsequently left to take charge of the building and maintenance of aviaries for Pat and Roy Harvey at Birdworld, near Farnham, Surrey - and Peter Kaminski who had worked for Fred part-time whilst still a schoolboy and who joined Jane and Rod to form the small team that was to run Stagsden for almost two decades.

In the third part of Bernard's reminiscences he will describe how under Rod's dynamic ownership a vast expansion programme was launched and many new aviaries and paddocks were constructed and a huge and varied collection of birds assembled. Bernard usually combined a trip to Stagsden with a visit to Christopher Marler's collection at Weston Underwood and will also write about Christopher's eagles, vultures and owls (including the incredibly rare Blakiston's Fish Owl Ketupa blakistoni, the only living example Bernard has ever seen), flamingos, pelicans, cranes, storks and many other birds (and mammals) Christopher has kept and bred over the years.

KEEPING AND BREEDING THE WHITE-FRONTED WOODPECKER *Melanerpes cactorum*

by Richard Green

The White-fronted Woodpecker *Melanerpes cactorum* measures 16cm-18cm (approx. 6¼in-7in) in length. It is similar in size and behaviour to the Lesser Spotted Woodpecker *Dendrocopos minor*, the smallest of the three UK woodpeckers. It has similar quick agitated movements and a similar head-nodding action. It is small and agile, bouncing on both feet at the same time as it moves around the trunk of a tree, appearing first at one side and then the other, followed by short bursts of drumming as it attempts to expose insect life, upon which it feeds.

The male has a white forehead and face and a yellow throat, along with a red crown, but the latter can be observed only by catching the male and parting the black feathers to expose the red feathers on the crown. Both sexes have a grey nape and hind neck and a blue-black mantle and scapulars, with a creamy white area between the wings, from the nape to the base of the tail. The wings are barred and checkered black and white, as is the tail. The breast is grey. The female is smaller with a shorter beak and a paler yellow throat and lacks the male's red crown. The juvenile is browner and lacks a gloss to the plumage which the adults have and also lacks the yellow throat. Like most woodpeckers this species has a noisy call - a loud "weep weep."

It is a South American species found from arid south-east Perú to Bolivia, Paraguay, south-west Brazil, northern Argentina and Uruguay, that inhabits subtropical and tropical dry forests and shrubland. They move around in small family groups of up to five or six birds. They drill holes in the trunks and branches of trees and plants such as *Prosopis flexuosa* (which belongs to a genus of flowering plants of the pea family) and feed on the extruded sap, particularly during the months of June-September when water is scarce, thus giving the bird its common name of "sapsucker." Sap forms a major part of their diet and intruders which attempt to take advantage of their efforts are driven off.

In South America it breeds from September-December. At this time loud drumming can be heard as groups establish their territories. It is known to be a cooperative breeder with several birds sharing many of the nesting duties. The nest cavity is in the trunk of a palm tree or cactus. The information on clutch size is not specific. The information I have found is general to the Piciformes and describes clutches of between two to five eggs. However, I have a feeling that *Melanerpes cactorum* may be a bird which generally lays a clutch of just one or two eggs. The eggs are white and roundish in shape

and are incubated by both sexes for a period of 11-14 days.

I have kept and bred many softbills over a 30 year period and have always had an interest in woodpeckers. After having successfully kept and bred the White Woodpecker *M. candidus*, I felt that I would like to try to breed another species of woodpecker. In 2009, I bought four woodpeckers from a Belgian dealer, I was unsure which species they were, as this information got lost in translation, however, on arrival home they were identified as White-fronted Woodpeckers. There was one male and three females. Initially, the birds were housed in an indoor flight constructed of breeze blocks and tubular steel, of the type used for keeping and breeding parrots. The flight was furnished with upright, Silver Birch *Betula pendula* trunks, and provided with parakeet-type nest boxes in which the birds could roost. They were offered an omnivorous diet of grated dog biscuits, cheese, carrot, diced fruit, eggfood, softbill food and T16 pellets, fortified with raw minced (ground) beef and livefood. They remained in this building over the winter and although the building was unheated the temperature remained well above freezing.

In April 2011, the group of four birds was released into a breeding flight of similar construction to that described above. It measured 10ft x 5ft x 7ft high (approx. 3m x 1.5m x 2.1m high) and had the roof covered with fibreglass sheeting. The flight was again furnished with Silver Birch trunks, as these are softer and easier for them to excavate than some others. One of the trunks was hollow for part of its length, so I bored a 50mm (2in) diameter hole in it. I also placed a number of nest boxes in the flight, as well as some hollow logs and parakeet-type nest boxes. The concrete floor of the flight was covered with sand and leaves to encourage insects and mahonia bushes were planted in large pots,

Unfortunately, one of the females showed signs of involuntary twitching and quickly perished. Two of the three remaining birds seemed to have paired up and one morning in mid-May when I was feeding the birds, I discovered the remaining female dead on the floor, almost certainly having been attacked and killed by one or both of the recently formed pair. So, my birds proved not to be cooperative breeders showing, perhaps, that often birds in captivity behave differently to those at liberty. (In instances of cooperative breeding, such groups often consist of a breeding pair and its offspring/helpers from an earlier brood or broods.)

By early June the pair was using the Silver Birch log and was also excavating holes higher up the trunk. The birds were "hammering" regularly and I noticed that the main stem of one of the mahonias had been stripped of its bark. Believing that the birds were about to begin breeding, I began to give them more livefood consisting of mealworms, crickets and waxmoth larvae. The smaller White-fronted Woodpeckers showed a greater desire for

The adult pair of White-fronted Woodpeckers (above) has a yellow throat whereas the duller, immature bird lacks a yellow throat.

livefood than the larger White Woodpeckers. It soon became obvious that the White-fronted Woodpeckers were incubating an egg or eggs, as one or other of the birds was always missing. After some 14-15 days the pair was seen carrying livefood into the nest and a few days later faint "chirping" could be heard. Both parents took turns to brood the, as yet, unknown number of young, but after some 18 days both parents were seen in the flight and the nest chamber fell silent. As the pair was no longer seen entering the nest chamber, I felt sure that the young must have perished. However, a few days later I caught a glimpse of a young bird peering out of the nest hole and a couple of days after that it emerged, not from the nest hole but from another hole higher up the trunk. An inspection showed that the birds had excavated three escape holes higher up the trunk. The young bird (there was

only one) spent the winter with its parents outdoors in the aviary constructed from breeze blocks, with the covered roof. Although ice regularly formed on the water the three birds seemed quite active and happy. In October I noticed that both adults had lost their yellow throat, so in effect had gone 'out of colour' and resembled the young bird. A couple of months later the latter was found to be getting a red cap and was, therefore, a young male. It was exchanged for a female belonging to a Dutch breeder, who had two females and was in need of a male.

As the birds rely on sap prior to the breeding season, I began giving them nectar in an attempt to stimulate breeding and, hopefully, get a larger brood of young. I give them a typical nectar mixture suitable for sunbirds, to which I add biotin as a substitute for the cambium layer found beneath the bark of trees and also add T16 fruit pellets and eggfood. I then put the whole lot into a blender and mix them until they are the consistency of lorikeet food and this is eagerly taken by the woodpeckers.

This year (2012) the birds appeared to show no interest in breeding and I thought that due to the poor weather perhaps, they had failed to come into breeding condition. However, when I was feeding the birds one day towards the end of June, I saw there were three birds flying around the aviary. This came as a great surprise to me as at no time had I noticed that either of the pair was missing. They must have come out of the nest hole when the White Woodpeckers in the adjacent flight uttered their alarm call. As luck would have it, the young bird has proved to be a male, which I have paired with the female I obtained last year from the Dutch breeder.

I hope the second pair will breed in 2013 and, with this in mind, I am providing the pair with a rotten log some 7ft (2.1m) high and larger in circumference than previous logs, in the hope that a larger log may lead to the birds raising a larger brood of young. If I succeed in getting both pairs to breed, I hope to try to get this South American woodpecker established in a UK zoo or bird garden.

As described above, the White-fronted Woodpecker *Melanerpes cactorum* has been bred by Richard Green. This is probably the first successful breeding of this species in Great Britain or Ireland. Anyone who knows of a previous breeding is asked to inform the Hon. Secretary.

BREEDING THE ORANGE-BREASTED FIG PARROT *Cyclopsitta gulielmitertii* AND DOUBLE-EYED FIG PARROT *Cyclopsitta diophthalma* AT WELTVOGELPARK WALSRODE

by Anne Hoppmann and Norbert Neumann

Weltvogelpark Walsrode houses four of the five species of fig parrots. Two of these, the Orange-breasted Fig Parrot *Cyclopsitta gulielmitertii* and the Double-eyed Fig Parrot *C. diophthalma*, which in Germany can be seen only at Weltvogelpark Walsrode, successfully reared young during the 2012 breeding season.

The Orange-breasted Fig Parrot, which has seven recognised subspecies, inhabits rainforest, monsoon and swamp forests in the lowlands and hilly regions up to 1,100m (approx. 3,600ft) on the island of New Guinea, Salawati in the western Papuan Islands and on the Aru Islands. In the wild the main breeding season is between December-June. This species nests in a hole which the birds excavate themselves in an arboreal termitarium (termites' nest). In contrast, the Double-eyed Fig Parrot nests in an existing cavity in a rotten tree trunk or limb of a tall tree. This species, which has eight recognised subspecies, is found on New Guinea, the western Papuan Islands and some offshore islands, the Aru Islands and on the north-east coast of Australia. It inhabits lowland and montane forests and more open woodland up to 2,000m (approx. 6,560ft). The main breeding season occurs between March-June on New Guinea, while in Australia this species breeds mainly between August-November.

A special feature, alluded to in their name, is the diet of these small parrots, which in the wild feed mainly on the fruits of various fig trees - they prefer though to eat the seeds rather than the flesh of the figs. In addition, they take a variety of other fruits and berries, nectar and also insects and their larvae.

Experience of keeping fig parrots in captivity has shown that they are very sensitive to disturbance, especially during the breeding season. Changes to their surroundings, especially in and around the nest box, can unsettle them. It is very important, therefore, to be particularly careful when dealing with these birds, if they are to be bred successfully.

To encourage our Orange-breasted Fig Parrots to begin breeding, we provide them with nest boxes measuring 30cm long x 20cm wide x 20cm high (approx. 12in long x 8in wide x 8in high), placed in the enclosure behind the scenes. The nest boxes, which are made of waterproof particle board, have a 4cm-6cm (approx. 1½in-2½in) diameter entrance hole on both sides

Male Orange-breasted Fig Parrot.

Male Orange-breasted Fig Parrot (upper left), female (lower right) and two young birds.

Male Double-eyed Fig Parrot.

Immature Double-eyed Fig Parrot (which resembles the female) having just been removed from its parents' aviary.

of the box. The inside of the boxes are packed full of cork tiles, which are scuffed a bit at the entrance hole to give the birds a starting point, where they can begin to excavate their nest cavity. When the cavity is approximately 8cm-10cm (3¼in-4in) in diameter, the female lays her eggs - she usually lays two, but it is possible she may only lay one or as many as three. The chicks hatch after an incubation period of about 20-22 days. The parents adjust the size of the nest cavity to suit the size of their growing offspring. These birds are by nature tidy - and the chicks deposit their faeces outside the box, so that the interior remains clean.

The Double-eyed Fig Parrots are provided with a nest box made from a section of tree trunk. The cavity is approximately 20cm wide x 25cm high (8in wide x 9¾in high) and about 15cm (6in) in diameter. The entrance hole is about 4cm-6cm (1½in-2¼in) in diameter and is situated a maximum of 20cm (8in) above the floor of the nest cavity on which is placed a layer of wood shavings.

As soon as a pair of fig parrots have eggs, the pair is left in peace until the approximate date that the chicks are due to hatch. Shortly after that, the nest box is inspected, but only after the female has left the box to feed. When we are sure there are chicks in the box, we adjust the diet of the birds. Our standard fig parrot diet consists of germinated seeds and a mixture of blueberries, grapes, apples and papaya, along with dried figs which have been soaked in water for at least 24 hours. To this we add one tablespoonful of Versele-Laga Tropical Patee. They also have access to millet (ad lib). Following the hatching of the chicks the standard diet is supplemented with a mash made of three parts Versele-Laga Nutribird A21 and one part Versele-Laga Orlux Lori. When the chicks are about 14 days old, recently moulted white-skinned mealworms are added to the diet.

Only a few keepers that the fig parrots know well care for them and they disrupt the birds as little as possible during the incubation period and after the chicks hatch. After 35-42 days the young leave the nest box for the first time, but regularly return to the nest box during the first few days after fledging. At 60-70 days old the young are separated from their parents and housed together in single species juvenile groups in enclosures adjacent to those of their parents.

Because fig parrots are so sensitive to disturbances at and immediately around the nest box, in consultation with the appropriate ministry the young are not ringed (banded) with a closed ring, but instead are ringed (banded) with an open aluminium ring (band) at the time they are separated from their parents.

After the young had been removed, both breeding pairs of Orange -breasted Fig Parrots laid a second clutch of eggs. At the beginning of

September, one chick belonging to the first pair had already left the nest box and the second pair hatched another chick in September. The Double-eyed Fig Parrots also seemed to be preparing to produce a further brood.

Breeding fig parrots at Weltvogelpark Walsrode has gone well this year, with the two breeding pairs of Orange-breasted Fig Parrots having to date (September 20th 2012) successfully reared a total of four young and the two breeding pairs of Double-eyed Fig Parrots each having reared one youngster. In the year we are celebrating the 50th Anniversary of Weltvogelpark Walsrode, we are understandably very excited about having bred these two species of fig parrots and look forward to raising many more young.

Products mentioned in the text

Nutribird A21, Orlux Lori and other Versele-Laga products: Versele-Laga nv, Kappellestraat 70, 9800 Deinze, Belgium. Website: www.versele-laga.com

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An earlier account by Martina Müller and Norbert Neumann about keeping and breeding Desmarest's Fig Parrot Psittaculirostris desmarestii, Salvadori's Fig Parrot P. salvadorii and Edwards's Fig Parrot P. edwardsii at Walsrode was published in Vol.104, No.2, pp.55-60 (1998).

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THE BLACK-THROATED CANARY OR SEEDEATER
Serinus atrogularis

by John Santegoeds

I acquired the birds which are the subject of this article at the beginning of August 2005 from a dealer named Eric van Tendeloo in Nijlen, Belgium. I was able to choose from about 30 birds which had been imported and in the end acquired two pairs.

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Showing the male's black throat.

This importer/dealer helpfully listed the scientific names of the species - in this case *Serinus atrogularis* (although it may just occasionally be found listed in the genus *Crithagra*) - but did not identify the subspecies (of which there are seven). I already had a pair of this species (sometimes called the Black-throated Yellow-rumped Seedeater), but the markings of

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The type of nest box favoured in countries such as the Netherlands. The female is sitting on the nest and the male is standing behind her.

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Nestlings at six days old.

the new birds were clearly different to those of my original pair. So, when I got them home, I set about trying to determine which subspecies the new birds belong to. To do this, I used *Finches & Sparrows* by Clement, Harris and Davis (1993), a couple of German books and an article on birds of the genus *Serinus* in *Onze Vogels*, August 1987, by Cees van Berkel here in the Netherlands. Having studied these, I reached the conclusion that the birds I had obtained in Belgium belong to the subspecies *S. a. somereni*. The throat of this subspecies is darker and the dark area covers a larger area than that of the nominate subspecies. Both the male and female show these differences, with the male having a black or blackish mottled throat (see photo p.168) and the female a dark grey head and throat.

The birds were in perfect condition and, after a three-week quarantine period at my home, I placed the birds in my uncovered outside flight. At the time they had to share this with some White-bellied Canaries *S. dorsostriatus*, Grey Singing Finches *S. leucopygius*, Green Singing Finches *S. mozambicus* and Yellow-rumped Seedeaters *S. reichenowi*, along with my original Black-throated Canaries, African Citrils *S. citrinelloides*, Lemon-breasted Canaries *S. citrinipectus* and domestic canaries.

This subspecies of the Black-throated Canary proved to be a typical canary/seedeater of the genus *Serinus* - it has the same characteristic flight, forages in the same way and has the same behaviour - and within days the new birds were fully accepted into the mixed aviary. Also, the song of the males is similar to that of the other males in the flight. The food consists of a tropical seed mix and a wild seed mix. A tropical mix only - consisting as it does mainly of millets - I find too one-sided. Most seedeaters also like grass seeds, some niger, lettuce seed, chicory, plain canary seed and perilla. The main diet is complimented, every now and then, with weeds, mealworms and greenfood. Eggfood is also supplied regularly. Because of a lack of facilities, I decided later that year to sell the Yellow-rumped Seedeaters and my original pair of Black-throated Canaries and keep only the two new pairs.

Coming into breeding condition

Imported canaries/seedeaters come into breeding condition in the autumn in Europe and about the end of September/beginning of October 2005, I noticed that bonding was taking place. As the pairs bonded they were caught and placed in breeding cages. The two new pairs of Black-throated Canaries came into breeding condition a little later than my other birds and, therefore, remained in the outside flight a little longer. (The following year these two pairs too, which I think were probably young birds when acquired, came into breeding condition around about the end of September/beginning

of October.)

The beautiful song of the males was readily heard, especially during mating time. With their wings spread and hanging down, they would energetically sing to the females. Just before Christmas 2005, both pairs were placed in breeding cages measuring 40cm long x 35cm wide x 40cm high (approx. 1ft 4in long x 1ft 2in wide x 1ft 4in high). Over a short period of time the hours of daylight were artificially extended until the the lights in the breeding area were on from 05.30hrs-21.45hrs (5.30am-9.45pm). The breeding area is moderately heated in such a way that the minimum temperature does not drop below 8°C (46.4°F). The fact that few if any canaries/seedeaters breed outside in (open) aviaries here in Europe is, in my opinion, due to the fact that our autumn, winter and early spring weather is too cold and the hours of daylight are too short.

Nesting

The nest box was a wooden type with metal bars at the front and the sides removed (see photo p. 169), into which I placed and firmly secured a pre-moulded coconut fibre nest pan. A mixture of sisal, cotton wool and animal hair was provided as nesting materials.

Both pairs quickly set about building a nest and in both nests a clutch of three eggs was laid. These were a dirty white with pinky/red smudges. The eggs of one pair were, unfortunately, infertile but those of the other pair were fertile and were successfully incubated. The males remained with the females in the breeding cages without any problems and fed the females on the nest. Most of the time they would also hop quickly onto the nest and incubate the eggs when the female left the nest for whatever reason.

Hatching and rearing

On January 29th 2006, after a 13 days incubation period, three chicks hatched. These had very dark coloured skin. The male continued to feed the female on the nest, who in turn fed the chicks. The chicks grew quickly and on the fourth day were able to be ringed (banded) with 2.3mm size rings (bands).

The softfood I provided consisted of a homemade eggfood (made from three crushed Dutch rusks, one egg and a small scoop of Breedmax) complimented with mealworms, defrosted frozen maggots and buffalo worms. Every now and again I also gave them some chickweed. After approximately three weeks the young left the nest and three days later were placed in a 'baby cage' (to see an example go to Vol.117, No.4, p.164 (2011)). Unfortunately after a while one of the young died.

On March 26th 2006, a further three young hatched, all of which were

reared to maturity. The pair which had the clutch of infertile eggs, produced a second clutch of eggs and, on this occasion, all three eggs proved to be fertile. Unfortunately, the male died during the breeding, however, when the three eggs hatched the loss of the male did not prove an obstacle for the female, which raised the three young by herself without any problems. Hereagain, one of the young died after a while.

During the 2005/2006 breeding season, therefore, a total of seven young were produced by the two pairs. During the summer months the birds remained in my outside aviary with the other canaries /seedeaters and went through a moult. For the 2006/2007 breeding season I was able to make up three unrelated pairs from my remaining three parent birds and their 2005/2006 offspring and had the first young in the nest by mid-October 2006.

Preserving Serinus species in aviculture

Clements (2007) listed 43 species in the genus *Serinus*. Some of these seldom, if ever, reached western Europe and others were imported in restricted numbers only - several others, however, including *S. canaria*, the wild ancestor of the many domesticated breeds of canary, have a long history in aviculture. Imported Grey Singing Finches and Green Singing Finches (the two most commonly kept species) continued to be offered for sale in Europe in reasonable numbers until the end of 2005. None were imported into Europe in 2006.

Now, more than ever before, it is vital that owners of *Serinus* species concentrate on breeding these birds, which can with some knowledge and not too difficult conditions be bred in breeding cages indoors. We must endeavour to breed and, thus preserve in aviculture, as many species as possible of the genus *Serinus*.

The aim of the European Society of Serinus Breeders (ESSB) is to promote the breeding of *Serinus* species and bring together breeders throughout Europe to exchange information and birds. If you are interested please visit our website: www.Serinus-Society.eu

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John Santegoeds, who is one of the founders of the ESSB, lives in Lierop, in the Netherlands. E-mail: fam_santegoeds@hotmail.com

THE EUROPEAN FRUIT DOVE PROJECT

by Daan Witlox

Introduction

When people talk about pigeons (Columbidae family) they are generally referring to the feral birds which are a familiar if not always welcome feature of big cities such as Amsterdam and London. Large groups of these feral descendents of the wild Rock Dove *Columba livia* inhabit our city squares and public parks and can be seen perched on our old buildings. There are in all, however, some 310 different species of pigeons and doves, ranging in size from the Diamond Dove *Geopelia cuneata* and *Columbina* spp. to the large, spectacular, crowned pigeons *Goura* spp. Birds of the Columbidae family are found almost everywhere around the world except for the polar regions and some oceanic islands.

They can be divided into two main groups: the seed/grain-eating species and the fruit-eating species. The seed/grain-eating species swallow whole seeds and grains which are ground down in the strong, muscular gizzard, while the fruit-eating species, which have a soft stomach and short and wide gut, are dependent on the soft flesh around the seeds or stone, with the latter being voided intact in the bird's faeces. In this way, the seeds or stones are scattered throughout the forests they inhabit and help regenerate the forests and provide food and nesting places for future generations of fruit pigeons (and other fruit-eating species).

The 124 species of fruit pigeons are divided among over 10 genera. Found on the continents of Africa, Asia and Oceania, they mostly inhabit tropical rainforests in which sufficient food can be found throughout the year. The ongoing destruction of their habitat as a result of human activities such as mining, logging, clearing the land for agriculture and palm oil production, etc., pose serious threats. Several species are placed in the categories endangered, vulnerable or near threatened on the IUCN Red List and others, such as the Red-moustached Fruit Dove *Ptilinopus mercierii*, are already extinct. Ex-situ populations, when managed properly, could make an important contribution to the future conservation of fruit pigeons in the wild.

The project

Because of their colourful appearance fruit doves are very popular among a great many aviculturists. However, others find the fact that they require fresh fruit each day, are heat sensitive, produce copious, loose faeces and cost more to maintain than, for example, seed-eating pigeons and doves, mean

they are less desirable as well as less affordable to buy and keep.

During the 1980s and 1990s the Jambu Fruit Dove *P. jambu* was commonly kept by aviculturists, however, as the number being kept and bred increased this species became less desirable. As it became more readily available and, therefore more common, there was less demand for it among aviculturists, who instead turned their attention to other more unusual species. As a result, within a few years, the Jambu Fruit Dove had disappeared from European aviaries.

In 2005 a temporary import ban was imposed by the EU (European Union) and in 2007 this became a permanent ban on the import into the EU of wild-caught birds. This meant that no new birds could be imported and we had to develop self-sustaining captive-breeding populations of those species currently being kept by European aviculturists. Luckily significant numbers of fruit doves were already being kept by private breeders, zoos and bird gardens, so there was the potential to maintain viable captive populations.

However, to guarantee the future of fruit doves in European aviculture, a group of private breeders in Germany set up a meeting at the bird park at Walsrode. Everybody who kept or was interested in fruit doves was invited to attend and it was at that meeting that the European Fruit Dove Project (EFP) came into existence. The project focuses mainly on birds of the genera *Ptilinopus, Ducula* and *Treron*, but also embraces species of the genera *Alectronas, Gymnophaps* and *Phapitreron*, which are rare in European aviculture (see Table 1).

The main focus

The main focus of the EFP is to bring together breeders in order to share information and expertise about feeding, breeding and the husbandry and behaviour of fruit doves. Mutations and hybrids are not permitted by the EFP. Currently the EFP is focusing on determining which of several subspecies are being kept. The taxonomy of the African Green Pigeon *Treron calva*, which has 17 recognised subspecies, is among those which is proving to be an especially tough challenge. At least four subspecies are being kept, but we suspect that there may be more. Also, in the case of the Green Imperial Pigeon *Ducula aenea*, four subspecies are being kept. The most obvious of these on account of its bronze nape is *D. a. paulina*. The Island Imperial Pigeon *D. pistrinaria* is now also believed to be a subspecies of *D. aenea*.

How it works

All members have to send in their stock data in time for the annual census on December 31st. This must include the number of birds currently owned and details of offspring and/or mortalities. Information on breeding results

and the genetic relationships of the birds are passed onto the various species coordinators, who manage the studbooks.

Everybody retains ownership of their birds and surplus birds preferably go to members of the EFP. This helps sustain healthy populations. Birds which are genetically less important often go to new, inexperienced members.

The EFP has succeeded in unifying private breeders and zoological gardens, so that they are in a position in which both can benefit from each other and share knowledge, experience and birds. This collaboration will help improve the genetic make-up of the fruit dove population and increase the number of birds.

Currently 67 private breeders and 12 zoos in 12 different European countries are members of the EFP.

Annual meetings

The EFP organises two annual meetings, the primary objective of which is to exchange birds. The spring meeting gives members the opportunity to make-up potential breeding pairs for the coming breeding season and by the time the autumn (fall) meeting is held most surplus offspring are ready to go to new owners. In addition, there are presentations on bird related issues, we update members on the progress of the EFP and determine the future course of the EFP. The bilingual meetings are held in German and English.

The spring meeting is held at Köln Zoo in Germany, which is a modern zoo which keeps a large collection of fruit doves and works in collaboration with private breeders. The Curator of Birds, Bernd Marcordes, is Chairman of the EFP. The autumn (fall) meeting is held at a different location each year. This year it was part of the International Dove Meeting which took place at Houthalen, Belgium. The EFP was invited by the Aviornis Study Group, Wild Pigeons and Small Game Birds, to celebrate its 25th Anniversary. It organised this meeting which united pigeon and dove enthusiasts from all over Europe and beyond. Over 80 species of pigeons and doves were exhibited, there were international presentations, birds being sold and exchanged, trade stands stocking bird foods and avicultural supplies and a number of societies were represented (see following report by Rosemary Wiseman).

Recent developments

Great interest has been shown in the European Fruit Dove Project, not only in Europe, but also by several private breeders and zoos in the USA, Brazil and South Africa, which are in contact with the EFP. Their stock data will not be registered by the EFP, as exchanging captive-bred birds is difficult due to import regulations. However, earlier this year 4.2 Jambu Fruit Doves were imported and arrived at Köln Zoo from Louisville Zoo

in the USA. The six birds were genetically overrepresented in the AZA (Association of Zoos and Aquariums) studbook and, therefore, were no longer being used for breeding purposes. The disappearance of *Ptilinopus jambu* from European aviculture is a lesson to the EFP and, thankfully, it is now back in European aviculture without having harmed the in-situ population. Furthermore, the EFP is proud to announce that the first offspring hatched within the year of importation.

In exchange 3.3.3 Beautiful Fruit Doves *P. pulchellus* were sent to Louisville Zoo in order to broaden the gene pool of this species in the AZA studbook. The birds were selected from amongst those belonging to members of the EFP and were quarantined at Köln Zoo. This excellent outcome could not have been achieved without the collaboration of private breeders and the two zoos.

Imported from the Philippines

Another achievement was the importation from the Philippines in 2010 of five species which were no longer represented in European aviaries. The five species are the Yellow-breasted Fruit Dove *P. occipitalis*, Marche's or the Flame-breasted Fruit Dove *P. marchei*, Black-chinned Fruit Dove *P. leclancheri*, White-eared Brown Dove *Phapitreron leucotis* and Spotted Imperial Pigeon *Ducula carola*, which was surplus stock made available by a zoo in the Philippines. Although the prices were very high there was enough interest to decide to import the birds, which when they came out of quarantine were divided amongst EFP members. Three of the five species, the Yellow-breasted Fruit Dove, White-eared Brown Dove and Spotted Imperial Pigeon, bred for the first time the following year (2012).

Species and numbers

As I mentioned earlier, 38 different species and six subspecies totalling over 1,500 individual birds of six genera are currently kept by the membership of the EFP. The first census in 2009, revealed that 360 offspring of 22 different species and subspecies had been hatched that year, since when the number of offspring hatched each year has continued to grow. In 2010, the same number of species and subspecies produced 398 offspring. In the latest census in 2011, 401 offspring belonging to 28 species and subspecies were reported. For 2012, an increase in the number of species and subspecies is expected, as well as an increase in the number of offspring reared. The number of species and subspecies is likely to increase as new members join the EFP and new subspecies are identified amongst the birds held by the EFP membership.

Table 1. Numbers of birds held by the EFP membership July 2012.

Genus	Species and subspecies	Individuals
Ptilinopus	15 species	754
Ducula	14 species + 2 subspecies	415
Treron	6 species + 4 subspecies	313
Alectroenas	1 species	4
Gymnophaps	1 species	17
Phapitreron	1 species	16

Website

The European Fruit Dove Project website provides access to information about these beautiful birds. The information provided by members is published on the website, a decision which was initially very controversial, as the small number of members without access to the internet felt it put them at a big disadvantage. Five years later, however, it seems that all members have found their way to the world wide web or have found someone to provide the information for them.

The website is divided into two sections: the public section which has information on species, subspecies, aviaries, breeding reports and photographs; and the members' section which requires a password to access, which members receive on joining the European Fruit Dove Project and which allows them to contact species coordinators, access the membership list, forums, breeding results, stock data and the list of surplus/wanted birds.

An important requirement of new members is motivation, dedication and the willingness to provide and share information. The annual membership fee is €15 (approx. £12). New members are required to sign a declaration of approval which states that they agree to the publication of their data on the password-protected membership section of the website.

If you keep fruit doves or simply have an interest in these birds please feel free to contact us. You can find additional information on the EFP website: www.fruchttaubenprojekt.eu

Daan Witlox, Project Coordinator Benelux/International. E-mail: hdwitlox@hotmail.com

THE AVIORNIS SHOW

by Rosemary Wiseman

To coincide with the 25th Anniversary of the foundation of the wild dove and quail component of Aviornis, a meeting was held at Houthalen in conjunction with the European Fruit Dove Group (EFP). The aim of the meeting was to stimulate interaction between societies with an interest in these birds.

The meeting was attended by four members of the Avicultural Society, Mike Curzon, Nick Curzon, Terry Babbs and Rosemary Wiseman, who took with them the Avicultural Society show stand, in the hope of attracting new continental members, which indeed we did.

The meeting which ran from Friday to Sunday was held in a community centre which included a small area set aside for trade stands, the stand of the Avicultural Society and those of other such organisations, an area in which members displayed birds they had for sale, a coffee area and also a large hall in which there was a comprehensive display of seed-eating doves plus imperial pigeons *Ducula* spp. These were housed very neatly in rows of small aviaries with branches placed above to reduce stress and seemed to work, for most of the birds did seem very calm. Off this hall was a lecture theatre which on Saturday was used for a series of talks.

The birds on sale included Luzon Bleeding-Hearts *Gallicolumba luzonica*, Zebra Doves *Geopelia striata*, Black-naped Fruit Doves *Ptilinopus melanospila* etc., as well as several of the small brown ground doves such as the Peruvian, Gold-billed or Croaking Ground Dove *Columbina cruziana* and the Ecuadorian or Buckley's Ground Dove *C. buckleyi*, which seem to be increasingly popular at the moment.

As well as the ground doves and the African species, the exhibition birds featured the Blue-headed Quail Dove *Starnoenas cyanocephala*. Hailing from Cuba and little known in the UK this bird is indeed glamorous with a bright blue cap, edged with a white and black line, blue-barred cheeks, black throat, pinkish-purple breast and brown wings and back.

Aviornis has a breeding programme for the Socorro Dove *Zenaida graysoni* and an example of the latter was displayed alongside an example of the closely related Mourning Dove *Z. macroura* to illustrate the differences between the two and there was also a hybrid Socorro Dove x Mourning Dove. To celebrate the 25th Anniversary a special Socorro beer was brewed and drank at the 'Nicobar' (sorry about that!).

There were talks, presented in English, German and French, on a variety of subjects including; the birds of Madagascar; a new hand-rearing food

for pigeons with a component which aims to duplicate crop milk; and the conservation efforts being made on behalf of the Endangered Veracruz or Tuxtla Quail Dove *Geotrygon carrikeri*, endemic to the Sierra de los Tuxtla in south-west Veracruz, Mexico. There were also lectures on the French dove website, the European Fruit Dove Group (EFP) and the German Special Interest Dove Group.

On Saturday evening all attendees gathered for a wonderful supper prepared by wives of the Aviornis members.

We would like to thank the organisers both from Aviornis and the European Fruit Dove Group for arranging a most interesting meeting and for looking after us so well.

Rosemary is coordinator for the Avicultural Society Special Interest Group for fruit doves, ground doves and bleeding-hearts. E-mail: ro.wiseman@virgin.net

CHAMPIONING THE AFRICAN PENGUIN

The Charl van der Merwe Trust has followed-up its original donation of R1.5 million (approx. £106,000 or US$170,000) with a further R2 million (approx. £142,000 or US$230,000) to enable BirdLife South Africa to continue for a further three years to investigate to precipitous collapse of the African (Black-footed or Jackass) Penguin *Spheniscus demersus* population and how this catastrophic decline can be reversed.

Since 2004 alone, the population has decreased by 50%. The colony on Dassen Island, which used to be the largest colony in the world, has crashed from 25,000 pairs to fewer than 4,000 pairs, an 80% decrease in seven years. Those on St Croix Island in the Eastern Cape seem to have fared better, although this colony is also smaller than it was a decade ago.

BirdLife South Africa is examining the effects of commercial fishing around breeding colonies. One experiment will be to curtail fishing around two breeding colonies and compare the breeding success and foraging patterns of these penguins with those of two nearby colonies which will remain open to fishing. Early studies suggest that if commercial fishing is cutailed around breeding colonies, the penguins do not have to swim as far to find food and, therefore, need to expend less energy.

A second project will study the movements of the penguins outside the breeding season, when they need to find enough food to replenish their body reserves which have become depleted during the breeding season. It is possible that they again come into competition with the commercial fishing industry and are unable to find sufficient food to regain prime body condition.

THE AVICULTURAL SOCIETY TRIP TO THE CZECH REPUBLIC

by Laura Gardner and Geoff Masson

On September 14th a group of Avicultural Society members flew to Prague for a four day trip to visit three zoos in the Czech Republic. Having travelled out on the Friday, we arrived safe and sound at the Diplomat Hotel, a four-star hotel on the outshirts of Prague. There we met Daan and Henk Witlox, two of our members who had driven down from the Netherlands. We all enjoyed the delicious buffet that was waiting for us and then retired to our rooms.

Curator of Birds Antonin Vaidl gave the group a short introduction to the history of Prague Zoo.

On the Saturday we travelled by coach to Prague Zoo, where we were met and escorted around the zoo by Curator of Birds Antonin Vaidl. Antonin began the tour by giving us a short introduction to the history of Prague Zoo, including details of the dramatic flood in 2002 when, within a matter of a few hours, the zoo was inundated by over 10m (30ft) of water and mud. A thousand animals had to be evacuated either to higher ground or to other zoos in the Czech Republic. Unfortunately, not all of the animals could be saved and a number either died or had to be put down, as there was no way of saving them. Casualties included a Lowland Gorilla *Gorilla gorilla*, an Asiatic Elephant *Elephas maximus*, two Hippopotamus *Hippopotamus amphibius*, 30 Waldrapp Ibis *Geronticus eremita* and nine African Spoonbills *Platalea alba*, including two which had been the oldest living birds of this species in captivity.

Antonin's knowledge of the 276 bird species maintained at Prague

Zoo was impressive and it was a delight to see so many species breeding successfully. The zoo has had the foresight to develop excellent off-show bird enclosures which were shown to us by Antonin. A highlight was seeing 20 species of laughingthrushes and to learn that 29 pairs are breeding successfully. Antonin explained that when pairs fail to rear their own young, other species such as liocichlas are often used as foster parents, which is a practise which is working extremely well at Prague Zoo. We were also thrilled to see Palm Cockatoos *Probosciger aterrimus* and Lear's Macaws *Anodorhynchus leari*. Another highlight was seeing two pairs of Shoebills *Balaeniceps rex*. One pair is housed in a state-of-the-art planted enclosure with a mesh divider on rollers so that, if need be, the two birds can be separated from one another.

Smaller passerines are well represented by several species of starlings along with a number of different bulbuls. It was a pleasure to see Coleto *Sarcops calvus*, Javan Hill Mynahs *Gracula religiosa intermedia* and what used to be called Dumont's Grackle or Mynah *Mino dumontii*, all breeding well in nicely planted aviaries.

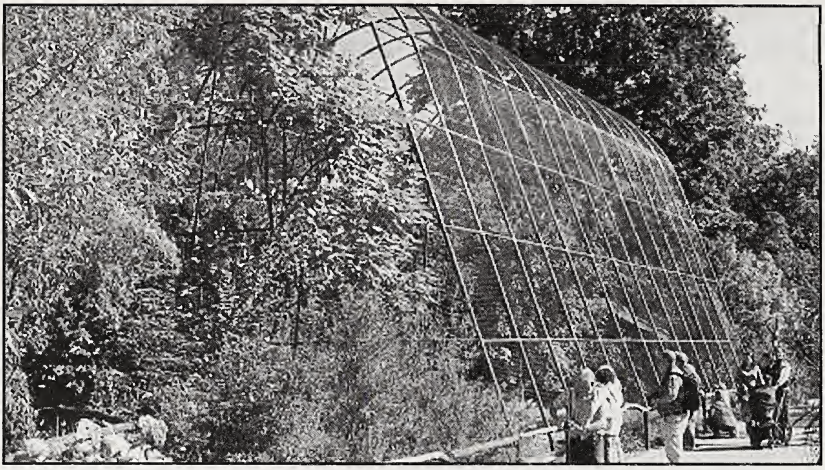
Another memorable exhibit was the enormous walk-through bird of prey enclosure which is built onto a section of rock face. Species include the Bearded Vulture or Lammergeier *Gypaetus barbatus*, Steller's Sea Eagle *Haliaeetus pelagicus*, Bald Eagle *H. leucocephalus*, Bateleur *Terathopius ecaudatus* and Egyptian Vulture *Neophron percnopterus*.

The natural rock outcrop onto which the zoo is built provides excellent habitat for mountain ungulates such as Ibex *Capra ibex* and Barbary Sheep *Ammotragus lervia*. The top of the rock face is accessible by cable car and those brave enough to take the trip enjoyed fantastic views.

The tour took us through a number of fascinating exhibits including a tropical house for Chinese birds, an Indonesian jungle, wetland areas, lemur islands and along a parrot trail. Antonin concluded the tour by kindly giving each of us a beautiful poster showing all the laughingthrushes kept at Prague Zoo. We had a wonderful day and would like to thank Antonin for devoting so much time and attention to us.

It was a short journey back to our hotel where we enjoyed a lovely meal in the restaurant and a few drinks in the bar. Some of the more adventurous members of the group went off to visit some of the bars in Prague and enjoy the beauty of the old town with its amazing architecture.

On Sunday morning we left bright and early for the zoological and botanical gardens at Plzen (Pilsen), where we were met by Curator of Birds Tomáš Peš, who escorted us around the zoo which is celebrating its 85th Anniversary. The collection has some 1,300 animals and 9,100 plant species. The zoo is divided into six biogeographical zones - Australian, Neotropical,



A large mixed species aviary at Plzen Zoo.

Palearctic, Oriental, Ethiopian and Nearctic.

Again we were treated to a guided tour of the bird exhibits along with some of the other more unusual attractions such as DinoPark - an expedition back into the Mesozoic era - we saw the enormous amphitheatre in which flying displays are held and a unique, well-preserved war-time shelter beneath the Japanese Garden. As Tomáš was showing us around he told us about the conservation projects which the zoo supports, such as the Cikananga Wild Animal Rescue Centre on the Indonesian island of Java, where rare endemic species are bred for release into the wild. It also supports projects in the Philippines, Madagascar and the Corncrake *Crex crex* project in the Czech Republic.

We were very priviledged to be taken behind the scenes to see the bird breeding centre. This is a very intensive set up comprising many metal cages approximately 4ft x 2ft (1.2m x 0.6m) housing breeding pairs of species such as the Pink Pigeon *Nesoenas mayeri*, Bearded Barbet *Lybius dubius*, Vasa Parrot *Coracopsis vasa*, Guira Cuckoo *Guira guira*, Australian finches, mynahs, the Purple Glossy Starling *Lamprotornis purpureus*, Asian Glossy Starling *Aplonis panayensis*, peacock-pheasants and several species of weavers. The centre is staffed by a dedicated team of keepers and has a very high rate of breeding success. We would like to sincerely thank Tomáš for giving us so much of his time and for sharing with us his expertise.

After checking out of our hotel on the final day, we travelled a couple of hours by coach to visit the zoo and safari park at Dvůr Králové, which houses some 2,000 animals of some 300 different species. We were met by Michal Podhrazský, who took the group around the safari park in a special

open-sided electric bus. We saw many species of hoofstock including oryx, reedbuck, lechwe and wildebeest or gnu. The birds (in common with the hoofstock) are housed in very large paddocks. Our President, Christopher Marler, was especially delighted to see Great White *Pelecanus onocrotalus*, Dalmatian *P. crispus*, Pink-backed *P. rufscens* and Spot-billed Pelicans *P. philippensis*. We also saw White Storks *Ciconia ciconia*, East African Grey Crowned Cranes *Balearica regulorum gibbericeps* and Marabou *Leptoptilos crumeniferus*, as well as three species of rhino, three species of zebra and two kinds of giraffe.

Having completed the safari we returned to the zoological gardens where we were free to walk around the collection at out leisure. The highlight was a large walk-through aviary housing spoonbills, waterfowl, laughingthrushes, Avocets *Recurvirostris avosetta* and Scarlet Ibis *Eudocimus ruber*. The zoo also has a large group of Greater Flamingos *Phoenicopterus roseus* and a smaller group of Pink-backed Pelicans.

After a spot of lunch in the restaurant the group departed for the airport.

The trip was a huge success - as have been all our previous trips to Europe - and we would like to express our thanks to Mike Curzon, who with the help of Karli Lisiecki at Howard Travel, made all the arrangements and ensured that everyone had a great time and returned home safely.

VULNERABLE IN VICTORIA

There may be fewer than 1,000 breeding pairs of Leadbeater's or Major Mitchell's Cockatoos *Lophocroa leadbeateri* left in the Australian state of Victoria, the number of breeding pairs having declined by 65% in the past 15 years. In October, a survey in Wyperfeld National Park in Victoria's semi-arid north-west, counted just 17 breeding pairs compared with 63 pairs in 1995, according to a report in *The Sydney Morning Herald.*

New research shows that this cockatoo is particular about finding the right nest site - opting for a hollow in a native *Callitris* (Cypress Pine) which is about 100 years old and in excess of 75m (250ft) tall. Moreover, the hollow has to be about 0.5m (1ft 8in) deep - pairs do not like it to be any deeper and do not seem to like it any shallower, according to Victor Hurley, a Biodiversity Officer with the Victorian Department of Sustainability and Environment, who travels around with a chisel enlarging hollows which are too small and sometimes evicting feral bees and other creatures from suitable hollows.

THE SOCIETY'S VISIT TO THE OVERBROOK HOUSE COLLECTION

by Philip Schofield

Flamingo Gardens & Zoological Park in the Buckinghamshire village of Weston Underwood, was open to the public from 1968-2001. Nowadays, the owner, Christopher Marler, maintains an impressive private collection at his nearby home, Overbrook House. Elected President of the Avicultural Society, following the death of Raymond Sawyer, Christopher hosted this year's September, Autumn Social Meeting, which was attended by over 50 members and guests.

The original Flamingo Gardens held all six forms of flamingo and comprehensive crane and stork collections, as well as such unusual avicultural subjects as Lammergeier *Gypaetus barbatus* and Guanay Cormorant *Phalacrocorax bougainvillii*. The current collection is smaller, but equally fascinating. While mammals may seem out of place in an avicultural journal, I feel I cannot ignore them as they are so important and integral to Christopher's collection and way of life.

Leaving aside the whippets which greeted us on arrival and the white wallabies which are, thanks largely to Christopher, now a relatively common sight, there is a fine group of Llamas and six kinds of cattle on view. Christopher has a lifetime's experience of breeding Shorthorn Cattle and has judged them all over the world. His small herd seems to be gradually turning white, not because of old age, but because of their owner's penchant for white animals. There are also white Yaks, three cows and a piebald calf, awaiting a new bull, which is proving difficult to find in the UK. The nearest to wild cattle living in the current collection is the trio of Gayal, the domesticated form of the Gaur *Bos gaurus*. Smaller than their wild ancestors, they have wide spreading horns rather than the curved headgear of the original species. Christopher's pair of Ankole Cattle also show impressive horn development. Once a common sight in zoos, they are currently out of favour here in the UK. The two appeared quite athletic for cattle and trotted around with their heads held high at the sight of a small flock of aviculturists. Also lively, but keeping their distance, were three Hungarian Steppe Cattle, an ancient breed which is grey in colour and has lyrate horns. Christopher was hopeful that one or both of the heifers were in calf. More approachable was the herd of Dwarf Zebu, with the bull pawing the ground and tossing his head at us. According to one breeder of these miniature Indian humped cattle, they make engaging pets and there is a big demand for young calves of both sexes. The last ungulates we met were three female Himalayan Long-eared Goats - the

male who was shut away as perhaps overly friendly, shows a spiral twist to his horns, suggestive of Markhor *Capra falconeri* connections in his distant ancestry. The white Fallow Deer *Cervus dama* are in a distant part of the estate and were not included in our tour.

Christopher has had a long involvement with domestic birds, particularly geese. Grazing around the entrance to the property were 50 or more assorted geese, many of them hatched during 2012. Most numerous were the supremely elegant white Chinese Geese, with Frankish (also called Franconian) Geese (true-breeding blue and a recent UK import from continental Europe), Pomeranian and English Greyback Geese with, for waterfowl enthusiasts, both Atlantic *Branta c. canadensis* and giant Canada Geese *B. c. maxima*. The Atlantic Canada Goose, which is now so abundant as a feral bird in the UK, is a big bird but nowhere near as big as the giant Canada Goose. Other domestic birds include some 30 varieties of pigeons, including elegant Brunner Pouters in red, yellow and dun, as well as my favourite Arcangels. Various breeds have been tried at liberty, but predation by Sparrowhawks *Accipiter nisus* has been a problem. We saw free-flying Voorberg Croppers, which being relatively sendentary, do not attract the hawk's attention in the same way as habitually high flying breeds of pigeon. We also saw some very good Sebrights - examples of both Golden and Silver of this 'hen-feathered' breed - and Golden Duckwing Rosecomb Bantams.

Of Christopher's non-domestic or 'wild' species of birds, his pride and joy are his four species of pelicans. The six Great White *Pelecanus onocrotalus* were in the early stages of nesting this year, when a change in the weather put them off and they did not lay. However, they are in magnificent condition and will, hopefully, try again next year. Their plumage was decidedly pink, which Christopher attributes to their diet of freshwater fish, rather than the pelagic species which are often fed to pelicans elsewhere. Housed away from the Great White Pelicans is a mixed group of other pelicans, consisting of a pair of Pink-backed *P. rufescens* (wing-clipped at present but possibly to be moved into an aviary in the future and kept full-winged in the hope that the pair will breed), a single Chilean *P. thagus* (said to be the least hardy of the pelicans) and a pair of Australian Pelicans *P. conspicillatus*.

The collection may be about to break the accepted dogma that small groups of flamingos do not breed: two pairs of Lesser Flamingos *Phoenicopterus minor* laid in an aviary less than 20ft x 20ft (approx. 6m x 6m) with a tiny pond, but were prevented from breeding successfully by the presence of a pair of Blacksmith Plovers *Vanellus armatus*, which has now been moved to a much larger aviary housing a flock of Greater Flamingos *P. roseus*. The offending plovers have been replaced in the Lesser Flamingos' aviary by two pairs of black Mandarin Ducks *Aix galericulata*, a rare mutation

new to the collection. Christopher's other mutation waterfowl include blue Carolina Wood Ducks *A. sponsa*, silver and bronze Mandarins, blue fawn and silver Bahama Pintails *Anas bahamensis* and silver (or are they blue?) Ringed Teal *Callonetta leucophrys*. A single Lapwing *V. vanellus* represented an apparent failure to maintain more than one of the species in the aviary it shares with various ducks and King Pigeons. The extensive range of larger aviaries, made from black plastic-covered chainlink netting on metal frames, at least 10ft (3m) tall and over 40 years old, came from the old zoo up the road. As well as Greater Flamingos - a young group not yet old enough to breed - we saw a nesting colony of Scarlet Ibis *Eudocimus ruber*, which failed to rear young this year, two pairs each of Grey-headed *Larus cirrocephalus* and Pacific Black-tailed Gulls *L. crassirostris* (Christopher's is one of a handful of UK collections currently taking gulls seriously), also the widowed male Bald Eagle *Haliaeetus leucocephalus* who, with his mate who died in 2011, raised over 30 young (sometimes three in one nest).

Larger waterfowl enclosures house Orinoco *Neochen jubata*, Pacific Brent *Branta bernicla nigricans*, Red-breasted *B. ruficollis*, Bar-headed *Anser indicus*, a very tame and attention seeking group of four Blue Snow Geese *A. c. caerulescens* and Emperor Geese *A. canagicus*, which are a particular favourite of their owner. Ducks on view include American *Anas americana*, Chiloe *A. sibilatrix* and European Wigeon *A. penelope* (including a blonde sample), normal-coloured Mandarin Duck, Red-crested Pochard *Netta rufina*, Yellow-billed Duck *A. undulata* and a group of Pacific Black Duck *A. superciliosa*. The last named produced young this year, all of which are being retained with a view to building a stock, as there are too few of this handsome duck in the UK and it is, of course, threatened in its native lands by genetic 'swamping' by the introduced Mallard *A. platyrhynchos*.

Side pens house Trumpeter *Cygnus buccinator*, Bewick's *C. columbianus bewickii* and 'Polish' Mute Swans *C. olor*. The Bewick's breed annually and we saw a single young one. The so-called 'Polish Swan' is a blonde (leucistic) form of the common Mute Swan, with grey legs and feet and a paler coloured beak. They are most striking when cygnets, being white from hatching, without the grey 'ugly duckling' stage. Apparently, this form occurs in Mute Swan populations in continental Europe (one of our party reported seeing mixed broods of white and grey cygnets in the Netherlands), however, I have not seen them at liberty in the UK.

Our Overbrook tour ended in Christopher's museum, which contains many of the birds which over the years graced his collection.

NEWS & VIEWS

THREE IN A NEST

In September, Dr Matthias Reinschmidt, Zoological Director of Loro Parque, Tenerife, reported the hatching of two Lear's Macaw chicks *Anodorhynchus leari*. In October, however, he corrected this to three chicks, which were all being reared by their parents. As these macaws are so belligerent when they are nesting, nest checks are kept to a minimum and for this reason the third chick was not discovered until later. Although in recent years these macaws have, off and on, produced clutches of three eggs, never before have more than two chicks hatched in one nest. It is thought that the pair has gained enough experience since 2007 to raise three young without any problems.

Most of the young Amazons and cockatoos had fledged by autumn (fall) but there was still a number of young macaws in the baby station. These develop more slowly and visitors could still see several young Scarlet Macaws *Ara macao*. More than 15 were raised this year, as well as several Blue-throated Macaws *A. glaucogularis*, Green-winged *A. chloroptera* and Great Green Macaws *A. ambiguus*.

Two pairs of White-bellied Caiques *Pionites l. leucogaster* bred this year. The young of the first clutches (three and one) were hand-reared and the two pairs laid again and one pair hatched and reared a further three young and the other pair a further two young, making a total of nine altogether.

For more than 10 years Loro Parque has been striving to maintain a breeding strain of normal-coloured Turquoisine Parakeets *Neophema pulchella*. Initially this was because of the increasing number of colour mutations being bred and the corresponding decrease in the number of normal-coloured birds. Nowadays, however, there is an increasing demand for normal-coloured birds and this year 25 normal-coloured young Turquoisine Parakeets were raised.

Three Lilacine Amazons *Amazona autumnalis lilacina* arrived recently from the zoo in Dresden, Germany. Loro Parque is also collaborating with German breeder Ulf Münschner, who has loaned the collection a breeding pair of Philippine or Red-vented Cockatoos *Cacatua haematuropygia* as well as three, four year old females, to be paired with the fundación's spare males.

* * *

FROM Z MAGAZINE

Chester Zoo's *Z Magazine*, Autumn 2012, has on p.15 a photo of two Baer's Pochard ducklings *Aythya baeri*, which had been abandoned by their parents and were being hand-reared by the zoo's bird keeping team. The zoo is one of the few zoological institutions breeding this Critically Endangered species and hopes to play a vital role in its long-term survival.

Curator of Birds, Andrew Owen, said: "There is a plan to establish a European-wide breeding population, which will act as an insurance, should the species continue to decline in the wild." Andrew added: "We hope that these ducklings and the expertise of Chester Zoo's bird keeping staff will play an important part in saving this species from extinction."

On p.9 of the same magazine there is a photo of keeper Amy Vercoe with two young Black Storks *Ciconia nigra*, which had also been abandoned by their parents and were being hand-reared. They were being fed a diet, which included rats and trout, every three hours between 7.00am-7.00pm (19.00hrs). The hope was that they would be successsfully reared and make a welcome addition to the Chester Zoo population and the European Breeding Group.

* * *

FSC COURSES IN 2013

The Field Studies Council (FSC), an environmental education charity with 70 years' experience of providing courses and fieldwork opportunities for people of all ages on all aspects of the natural world, recently launched its new programme of natural history courses for 2013. To browse through the latest list of courses and/or view the complete brochure you can visit: http://www.field-studies-council.org/individuals-and-families/natural-history.aspx and/or http://view.digipage.net/?id=fsc-naturalhistory-brochure-2013

* * *

APPEALING FOR PERFECT SPECIMENS

Taxidermist Jack Fishwick is appealing for perfect specimens of birds. He has recently celebrated 40 years as a taxidermist, during which time he supplied specimens to museums and exhibitions nationally and internationally and continues to judge and give seminars at all the major taxidermy competitions worldwide. Whilst working for National Museums Scotland, Jack completed the largest series of study skins of the Montserrat Oriole *Icterus oberi*. With many species under threat and taxidermy posts within museums in the UK having virtually disappeared, he believes it is important to try to preserve good specimens for future generations. If any members can supply him with specimens, he is willing to recompense them or make a donation to the Avicultural Society. E-mail:fishwick.jack@gmail.com

Contributors to Volume 118 - 2012

Andrews, Bryan
Releasing macaws in Costa Rica 108

Arruda, Carolina M.
The artificial incubation of the eggs and the hand-rearing of the chicks of the Capuchinbird *Perissocephalus tricolor* 59

Brickell, Neville and Konigkramer, Trevor
A final note on the Drakensberg Siskin *Pseudochloroptila symonsi* 37

Chartier, Patrick and Libert, Cédric
Breeding the Blue-crowned Motmot *Momotus momota* in France 63

Davies, Llŷr
Breeding the Spectacled Laughingthrush *Rhinocichla mitrata* 12

Dunn, Christopher
The successful breeding of the Sunbittern *Eurypyga h. helias* 77

Eitniear, Jack and Becherer, Terry
Dietary considerations when breeding Montezuma Quail *Cyrtonyx montezumae* 6

Ellis, Malcolm
Looking back at Raymond's first twenty-five years at Cobham 16

Gardner, Laura and Masson, Geoff
The Avicultural Society trip to the Czech Republic 180

Garnham, Carl
Further thoughts on the dietary requirements of quail and their keeping and breeding 145

Green, Richard
Keeping and breeding the White-fronted Woodpecker *Melanerpes cactorum* 159

Gregson, Jo
The Southern Screamer *Chauna torquata* at Paignton Zoo Environmental Park 105

Hickman, Justin C.
Native passerines in North American zoos 114

Hoppmann, Anne and Neumann, Norbert
Breeding the Orange-breasted Fig Parrot *Cyclopsitta gulielmitertii* and Double-eyed Fig Parrot *Cyclopsitta diophthalma* at Weltvogelpark Walsrode 163

Contributors to Volume 118 - 2012 (cont'd)

Hoppmann, Anne
Rearing couas at Weltvogelpark Walsrode in Germany....97
The opening of a new Hummingbird Breeding Centre to mark the Fiftieth Anniversary of Weltvogelpark Walsrode....89

Low, Rosemary
Long-lived lories....53

Magnus, Wolfgang, Gerbatsch, Janina and Hoppmann, Anne
The hand-rearing of three Dusky Lory chicks *Pseudeos fuscata*....55

Masson, Geoff
Paultons Park - 2011....50

Santegoeds, John
The Black-throated Canary or Seedeater *Serinus atrogularis*....168

Sayers, Bernard
Having been an aviculturist for fifty years: Part 1....112
Having been an aviculturist for fifty years: Part 2....150

Schofield, Philip
The society's visit to the Overbrook House collection....184

Smallbones, Peter
Breeding the Marabou Stork *Leptopilos crumeniferus* at Paignton Zoo Environmental Park....83

Sumbland, Nicola
Breeding the Buff-necked Ibis *Theristicus caudatus* at Blackbrook Zoological Park....1

Vielguth, Jürgen, Kirchhöfel, Kerstin, Allner, Timo and Hoppmann, Anne
Breeding the Toco Toucan *Ramphastos toco* and Black-necked Aracari *Pteroglossus aracari* at Weltvogelpark Walsrode....32

Waugh, David
First recorded case of active nests of the Scarlet Macaw *Ara macao* and Great Green Macaw *Ara ambiguus* in the same tree in tropical rainforest in Central America....91

Wiseman, Rosemary
The Aviornis Show....178

Witlox, Daan
The European Fruit Dove Project....173

Index to Volume 118 - 2012

Ara ambiguus, *Ara macao*, nesting in the same tree 91
Aracari, Black-necked, bred at Walsrode 32
Avicultural Society, trip to Czech Republic 180
Avicultural Society, visit to Overbrook House collection 184
Aviornis Show, at Houthalen, Belgium 178
Book Reviews
Animals in the Blood: The Ken Smith Story 138
Bird Sense 39
Grassfinches in Australia 134
International Zoo Yearbook, Volume 46 137
Canary, Black-throated 168
Capuchinbird, incubation of eggs, hand-rearing chicks 59
Chauna torquata, at Paignton Zoo 105
Cobham, looking back at Raymond's first twenty-five years 16
couas, hand-rearing protocols at Walsrode 97
Cyclopsitta diophthalma, breeding at Walsrode 163
Cyclopsitta gulielmitertii, breeding at Walsrode 163
Cyrtonyx montezumae, dietary considerations when breeding 6
European Fruit Dove Project, to bring together breeders 173
Eurypyga h. helias, successfully bred at Twycross Zoo 77
Fig Parrot, Double-eyed, breeding at Walsrode 163
Fig Parrot, Orange-breasted, breeding at Walsrode 163
hornbills, mixed fortunes for our two adopted pairs 103
Hummingbird Breeding Centre, opened at Walsrode 89
Ibis, Buff-necked, bred at Blackbrook Zoological Park 1
Laughingthrush, Spectacled, bred at Waddesdon Manor Aviary 12
Leptoptilos crumeniferus, bred at Paignton Zoo 83
lories, longevity in captivity 53
Lory, Dusky, hand-rearing chicks at Walsrode 55
macaws, released in Costa Rica 108

Index to Volume 118 - 2012 (cont'd)

Melanerpes cactorum, keeping and breeding 159
Motmot, Blue-crowned, bred in France 63
Motmotus momota, bred in France 63
News & Views 43,93,140,187
Obituaries
John Ellis 95
Prof. J. R. Hodges 47
Raymond Sawyer 45
Wendy Duggan 48
passerines, native species in North American zoos 114
Paultons Park - 2011 50
Perissocephalus tricolor, incubation of eggs, hand-rearing chicks 59
Pseudeos fuscata, hand-rearing chicks at Walsrode 55
Pseudochloroptila symonsi, a final note 37
Pteroglossus aracari, bred at Walsrode 32
quail, further thoughts on diet, keeping and breeding 145
Quail, Montezuma, dietary considerations when breeding 6
Ramphastos toco, bred at Walsrode 32
reminiscences, having been an aviculturist for fifty years 122,150
Rhinocichla mitrata, bred at Waddesdon Manor Aviary 12
Screamer, Southern, at Paignton Zoo 105
Seedeater, Black-throated (Yellow-rumped) 168
Serinus atrogularis 168
Siskin, Drakensberg, a final note 37
Stork, Marabou, bred at Paignton Zoo 83
Sunbittern, successfully bred at Twycross Zoo 77
Theristicus caudatus, bred at Blackbrook Zoological Park 1
Toucan, Toco, bred at Walsrode 32
Woodpecker, White-fronted, keeping and breeding 159

AS WELL AS

Not only did Richard Green's pair of White-fronted Woodpeckers *Melanerpes cactorum* breed again in 2012, both of his pairs of White Woodpeckers *M. candidus* bred and he also bred two White-collared Kingfishers *Todiramphus chloris*, Von der Decken's Hornbill *Tockus deckeni* and the Ferruginous or Brazilian Pygmy Owl *Glaucidium brasilianus*.

* * *

A MOST ENDEARING CHICK

A Red-tailed Black Cockatoo chick *Calyptorhynchus banksii,* described as "very active and most endearing with its long fluffy yellow down", has been hatched at Paradise Park, Hayle, Cornwall, where it is being hand-reared. It is the first time this species has been bred there. Previous breeding attempts failed due to the birds breaking the eggs, so this time the egg was removed for incubation and the decision was taken to hand-rear the chick. The chick's parents are two of four birds which ended up at Paradise Park, after having been hatched from eggs smuggled into the UK from Australia, which resulted in the smuggler receiving an eight-month prison sentence. Another of the Red-tailed Black Cockatoos is so tame that he is considered unsuitable for breeding and has instead become a star of the park's flying display.

* * *

IN MEMORY OF WENDY

The World Parrot Trust (WPT), based at Paradise Park here in Cornwall, is creating "Wendy's Fund" in memory of Wendy Duggan Riches (whose obituary was published in Vol.118, No.1, p.48 (2012)). Over the years the trust has amassed quite a collection of interesting and often unique, parrot related artifacts, including ornaments, books, prints and paintings. All were donated with the specific intention that they would be sold to raise funds for parrot conservation. Wendy was an avid collector of all things related to parrots and left much of her treasured collection to the World Parrot Trust. All these items will be offered for sale on an online site and the funds raised will go into "Wendy's Fund", with the money raised being used to support parrot conservation around the world.

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CONTEN

Further thoughts on the dietary requirements of quail and their keeping and breeding
by Carl Garnham 145

Having been an aviculturist for fifty years: Part 2
by Bernard Sayers 150

Keeping and breeding the White-fronted Woodpecker *Melanerpes cactorum*
by Richard Green 159

Breeding the Orange-breasted Fig Parrot *Cyclopsitta gulielmitertii* and Double-eyed Fig Parrot *Cyclopsitta diophthalma* at Weltvogelpark Walsrode
by Anne Hoppmann and Norbert Neumann 163

The Black-throated Canary or Seedeater *Serinus atrogularis*
by John Santegoeds 168

The European Fruit Dove Project
by Daan Witlox 173

The Aviornis Show
by Rosemary Wiseman 178

The Avicultural Society trip to the Czech Republic
by Laura Gardner and Geoff Masson 180

The society's visit to the Overbrook House collection
by Philip Schofield 184

News & Views 187

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