ABBOTSBURY SWANNERY

by John Fair, Don Moxom and Malcolm Ellis

The origins of Abbotsbury Swannery are lost in the mists of time. The first known mention of it is in 1393, on a long roll of sheep or goat skins sewn into strips with sheep sinews. The strips formed the Monks' Court Rolls and were the record of wrongs adjudicated upon by the Abbot of the monastery to which the swannery belonged. The entry in question refers to the seven pence fine, which must have been quite a sum in those days, imposed on William Squillor, the monastery swanherd, for lowering hatches or sluice boards and raising the level of the Fleet, thereby flooding the swans' nest site at nesting time, something which occasionally still happens accidentally. Although there is no written proof of the existence of the swannery prior to 1393, it seems certain that a colony of Mute Swans *Cygnus olor* had been nesting in the Fleet long before this date. It is probable that the swans were already there when the monastery was founded in the 11th century, and that the monks merely took advantage of their presence, and potentiality, as a source of food and income. They also bred pigeons in the pigeon house which still stands near the Tithe Barn.

As well as providing the medieval monks with fresh meat, the swans' wing quills were used to make quill pens and their down was used to stuff pillows. At one time the Fleet was known as 'Anglice a Meare', from the Frence word *Anglicing*, meaning pinioning or the removal of part of the wing. Presumably, this was done so that the swans could be penned and fattened for the table. Even nowadays, Lloyds of London use quills from Abbotsbury swans to enter shipping and other insurance losses in its *Doom Book*, and the white headpieces on the helmets of the Queen's bodyguard, the Gentleman at Arms, are made from the soft feathers from under the swan's wings. Several hundred feathers are needed for each helmet and enough are supplied to complete one a year.

All Mute Swans living on open water in England today legally belong to the Queen. The only exceptions are the Abbotsbury swans and those on the River Thames belonging to the Worshipful Company of Vintners and Dyers. The Abbey of St Peter's ownership of the Abbotsbury swans ended in 1539, following Henry VIII's dissolution of the monasteries, at which time both the village of Abbotsbury and the estate were acquired by the Strangeways family. Fifteen generations later they are still owned by the same family and to show the family's ownership, the swans are nicked with a sharp knife on the outside of the web of one foot. This mark is called the 'Hive of Ilchester', from an old word for indentation, and possibly refers to a series of small inlets along the back of the Fleet - Hodden Hive, Langton Hive,

Chickerel Hive. As well as being marked, the swans are fitted with numbered white rings. Ringing has revealed that 15 years is a good age for an Abbotsbury swan. At the time of the swannery's 600th anniversary in 1993, the oldest swan was a 16 year old female. The record stands at 25 years.

Abbotsbury Swannery is roughly midway between Bridport and Weymouth, Dorset, on the south coast of England. The Fleet is a brackish lagoon, eight miles (almost 13km) long, sheltered from the English Channel by the Chesil Bank, a geologically unique shingle bank some 17 miles (approx. 27km) long. The Fleet is vital to the continued existence of the swannery - without it there would be no colony. The shallow water of the Fleet is rich in Eel Grass *Zostera marina*, which makes up a large part of the 8lbs (approx. 3.6g) or so of plant matter which each swan consumes daily.

One of the main reasons that the swans nest close together at Abbotsbury (the present nesting area covers only about five acres (approx. two hectares)) is to do with their management and feeding. Feeding helps reduce the need for larger territories normally needed to find sufficient food to feed the growing cygnets. Management of the swans really begins in earnest at nesting time. The position of each nest is recorded on a map, as is the ring number of each bird, the date each egg is laid and the date it hatches. Normally the swannery is lucky to have any eggs before the beginning of March, but this year, perhaps as a result of the mild winter and spring, the first egg was laid on the 13th March and the first cygnets hatched 30th April, a fortnight earlier than usual. Mute Swans usually lay one egg every two days (on average). The average clutch size at Abbotsbury is five. This year there were one or two nests with ten eggs and another with 12, but in the case of the latter, it is felt certain that four of these were laid by a 'cuckold swan'. Incubation begins when the clutch is complete and usually takes 35 days from when the last egg is laid. All the eggs hatch within about 24 hours.

When the cygnets are two days old, and dry and fluffy, but before their parents first lead them to the water, each is given a small web tag which is numbered. This can prove very helpful, as cygnets easily become confused and get lost in such a big colony. The swanherd then has to decide whether to return them to their parents or foster them. This may depend on a number of things - the distance from the nest to the water, how good the parents are at looking after their young, and how many other swan territories the family has to walk through on its daily journeys to and from the water. To make their journeys easier, staff sometimes accompany them. A way of helping pairs which in recent years have begun nesting farther from the Fleet is to feed them in temporary troughs, which also saves the families having to cross other pairs' territories. They are fed in this way three times a day, which can mean that food and water has to be carried to over 100 nests.

In spite of the care the birds receive, only 100 or so cygnets survive each

year from six times this number of eggs. The least successful swans are newly paired birds and young birds nesting for the first time. To relieve the pressure on the territories, some of the earliest families to hatch are put in pens. These are usually the most dominant and well established. By removing them, space is created round their vacated nesting areas, providing new territories for pairs nesting later. Birds usually accept being moved, and at the same time can be given extra cygnets to foster. Parents with less than three cygnets are never chosen, as it is thought that the adults can count up to three and would be unlikely to take on extra young. During the 1997 breeding season 106 pairs nested and out of the 565 eggs laid, 427 hatched, with a 39% survival rate among the cygnets, which is considered very good. There is always a high proportion of swans on the Fleet which do not nest in any one year. This may be because of a number of reasons, e.g. they may be too young, or may not have a partner. In any one season usually only about one-third of the population is involved in nesting.

The national population has increased by 42% since the last census in the 1980s. Recent mild winters have helped the swans' survival rate. On the other hand, hard winters can decimate their numbers. Many hundreds of swans died on the Fleet during the severe winter of 1962-1963, and well over 100 died during the winter of 1986. During February in particular, food can become scarce. Over 1,000 swans regularly winter on the Fleet. Last year's annual count recorded 1,381 wintering there, including many visiting birds from the Somerset Levels and other neighbouring localities, attracted by the Fleet's rich source of natural food. They are joined by up to 20,000 other waterfowl, including nearly 9,000 Wigeon *Anas penelope*, mostly from Russia, and 2,500 Brent Geese *Branta bernicla* from Siberia. In the early spring, in order to reduce the pressure on the plant food, wheat is fed to them in the water about one mile (approx. 1.6km) from the swannery.

Every two years the Abbotsbury swans are rounded up. This takes place in July, when most of the birds are moulting and unable to fly. The annual moult takes six weeks and among the first feathers to be shed are the flight feathers. Rounding up so many birds is obviously a mammoth task and for it the swannery staff are joined by some 60 helpers from the Wildfowl and Wetlands Trust, Edward Grey Institute of Field Ornithology, Oxford, and other field workers, who use boats and canoes to shepherd the swans ashore where they are penned. Although the aim is to round up the entire population, invariably some have completed their moult and manage to get airborne and escape, and the final total penned is usually some 650 to 800 swans. Broken and missing rings are replaced (usually 100 or so swans are found to have no ring). The rings ensure that individuals can be identified in the interests of better management and the understanding of population dynamics. It is the main reason for rounding-up the swans, but the

opportunity is also taken to check each bird for wounds and feather lice, and to take a blood sample. They are also weighed. One bred at Abbotsbury about 15 years ago, had a wingspan of 7ft 10in (approx. 2.4m) and weighed 42lbs (19.050kg), a good 12lbs (5.443kg) more than most other big cobs. There is an authenticated record of a Mute Swan in Germany, which weighed 47lbs (21.318kg).

Duck Decoy

In 1655 the new owner of Abbotsbury, Sir John Strangeways and his son Giles, leased land on the edge of the Fleet to a John Hearne, for the construction of a duck decoy and a 'little house adjoyneigne'. This same decoy is one of only five still in use in Britain. Not only is it the oldest working example, but is also the one truest to its original design. Only two tunnels (or 'pipes') now run from the square decoy pond near the swans' nesting site, though a third nearby leads directly to the Fleet lagoon. The mesh covering each tunnel is supported by locally cut ash or willow hoops and the entire 'pipe' is about 50m (approx. 164ft) long. As well as tapering, it is curved slightly so that the ducks entering it cannot see the fate of their companions at the other end. Tame ducks act as decoys, and grain is used to help entice the birds along the tunnel. Once inside, the ducks are driven towards the tail by the decoyman, who appears from behind one of a number of reed screens placed at an angle along the outside of the tunnel. It may sound simple, but a lot depends on the skill of the decoyman.

The earliest surviving records of the Abbotsbury decoy date back to 1662 and list 112 ducks being supplied to the kitchens at Melbury, and the sale of a further 966. Traditionally, the annual haul averaged about 500-600 ducks, though in the 1920s 2,564 were taken in three seasons. Most were eaten locally, with any surpluses going to market in London. Wildfowl caught in the Abbotsbury decoy nowadays are ringed and released in the hope of learning more about their migratory movements. Ringing started at Abbotsbury in 1937 with Teal *A. crecca* and Mallard *A. platyrhynchos*. Other wildfowl ringed there since include Gadwall *A. strepera*, Pintail *A. acuta*, Shoveler *A. clypeata*, Wigeon, Pochard *Aythya ferina* and a Cinnamon Teal *Anas cyanoptera*! Wildfowl ringed at Abbotsbury have been found in 14 different countries, inevitably most have been shot, although the ring from a Tufted Duck *Aythya fuligula* was recovered from the eyrie of a pair of White-tailed Eagles *Haliæetus albicilla* in Finland.

Sub-tropical Gardens

The sub-tropical gardens in which peafowl and pheasants roam free are the surviving nucleus of the original gardens planted by Elizabeth, 1st Countess of Ilchester on the steep slope between the beach and the mock

castle (no longer there), which she had built in 1765 as a summer residence.

Reed and Withy Beds

Situated mainly around the swannery, they provide shelter for the nesting swans and important habitat for a range of plants, birds and other animals. Because so many reed beds have disappeared or are under threat, those at Abbotsbury are, whenever possible, managed in such a way as to encourage wildlife. Reed Warblers *Acrocephalus scirpaceus*, Sedge Warblers *A. schoenobaenus*, Reed Buntings *Emberiza schoeniclus* and Bearded Tits or Reedlings *Panurus biamicus* are among the birds which benefit from this policy. In the autumn flocks of Swallows *Hirundo rustica*, Sand Martins *Riparia riparia* and Yellow Wagtails *Motacilla flava* feed and rest there before flying south to spend the winter in Africa.

The village of Abbotsbury still has many picturesque thatched roofs, thatched with reed from Abbotsbury's own reed beds, as they have been since time immemorial. Several hundred bundles are also set aside to be used as nesting material by the swans and it is also used to renew the screens lining the tunnels of the duck decoy. As well as being used to make hoops to support the mesh covering the tunnels of the decoy, the willow is still used to produce spars, the wooden staples, for fixing the thatch to the roofs of the houses in the village.

Almost all the information for this article was taken, much of it word for word, from Abbotsbury & the Swannery by John Fair and Don Moxom, photographs by Peyto Slatter, published in 1993 by the Dovecote Press. My thanks go to the book's authors and also to David Wheeler, Manager of Abbotsbury Swannery, who provided me with a copy of the book and obtained the authors' permission for me to make use of material for which they retain the copyright. - Malcolm Ellis

Published in 1993 to celebrate the 600th Anniversary of the swannery, this superbly illustrated, 87 page (265mm x 238mm) paperback book, which originally cost £9.95, is now available price £5, including p&p, from:- Abbotsbury Swannery Shop, Abbotsbury Swannery, New Barn Road, Abbotsbury, Dorset DT3 4JG, England.

WELFARE OF CAPTIVE PARROTS

by Victoria White

Without a stimulating environment captive parrots, in order to relieve their boredom, often resort to self-mutilation (most commonly feather plucking), over-eating or other behavioural problems such as stereotypic movements. Cage size presents a major problem for pet parrots, which, if kept for long periods in cages which are too small can show severe behavioural problems. As a general rule parrots should be able to spread both their wings and turn in a cage without them touching the sides, although this can be unrealistic with some of the larger macaws (Csaky, 1995). Boredom is another common problem with pet parrots which can lead to behavioural problems. The suggestions made in the following sections concern all caged parrots and can be related to both pets and zoo specimens.

Feather plucking is a common problem, often seen in companion birds and zoo specimens. To some degree different species of parrots may have diverse causative factors that influence feather problems and certainly the age that feather plucking starts has a great deal to do with the reasons (Blanchard, 1996). There are many psychological and physical factors which are involved in feather plucking, a common reason given being sexual frustration. While this can be a cause in adult birds it is certainly not the only problem especially in immature specimens.

Disease, injury, malnutrition, allergies and/or a sub-standard environment are physical factors which all lead to excessive feather problems. Feather plucking, whether due to physical or psychological problems can cause noticeable bald patches and is seen especially in areas the bird can easily reach. Typical feather plucking sites include the wing skin fold (wing web), inner thighs and breast (Rosenthal, 1993). Two major physical causes of plucking can be an inadequate diet lacking in calcium and vitamin A, and a low environmental humidity and/or insufficient bathing. Both calcium and vitamin A are essential nutrients for growth and maintaining condition in skin, feathers and tissues, and moisture (either in the air or applied directly to the skin) is needed to prevent skin dehydration which can cause flaking, itching and subsequent feather plucking. Disease and injury also can cause feather picking but with correct husbandry these rarely occur.

Psychological or behavioural problems often result in feather plucking. This is often seen in hand-reared birds (Blanchard, 1996) where there has been no guidance by an adult of the same species, resulting in the learning of the wrong preening techniques, similarly wrong techniques can be learned by very young birds if housed with or near birds of a different species, whose preening techniques may be copied. As there are distinct differences in feather morphology between species this can often cause problems.

Copying is common in young birds and includes copying the habits of others, a bird may start feather plucking simply by watching another bird pluck and proceeding to do the same. Insecure, poorly socialised birds, those with phobic tendencies or birds subjected to sudden change (such as change of environment) often show stress related feather plucking which can become habitual if the bird receives more attention than usual when it plucks. Poor early socialisation can cause confusion when the bird is placed in a social environment (a shared cage, a public display etc.). This can result in serious behaviour dysfunctions and is normally seen in birds under two years old when it manifests as feather plucking (Blanchard, 1996).

When behaviours are frustrated, increased aggression often results. This is usually directed at pen mates but it may be self directed (Bareham, 1973). This can take the form of feather plucking which in this instance may be attributed to a lack of stimulation in the environment. This may be rectified by providing more space, a companion, more 'toys' or time out of the caged environment. Environmental enrichment has long been recognised as a method of reducing or alleviating behavioural problems including feather picking (King, 1992). This will be considered later on.

Another behavioural problem witnessed in captive animals are stereotypic movements. Stereotypies tend to arise when the normal behavioural expression of a motivational state is restricted or blocked (Lawrence & Rushden, 1993). When these behaviours occur in a captive environment, both the behavioural and spatial needs of the animal must be examined. There are two basic forms of stereotypic movements found in a zoo environment (Stookey & Watts, 1998). One of these, pacing, is said to occur when the animal moves repeatedly back and forth in a straight line, a circle, or a figure of eight pattern. In captive parrots this may take the form of pacing along a perch, or climbing up and down or along the aviary wire. While stationary acts, which can constitute stationary stereotypies, are repeated non locomotive acts, such as rocking, head tossing or weaving, swaying movements and repetitive head bobbing, often seen in captive parrots.

Boredom and inactivity due to lack of stimuli can be seen as two of the main causes of stereotypic behaviours. It may also be that these movements develop as escape attempts which are incompletely carried out due to a lack of space in the caged environment (Bareham, 1973, Stookey et al., 1998) and also that they may increase with outside stimulation. The arrival of visitors, or the keeper at feeding time, or sudden noise all cause an increase in behaviour (Bareham, 1973)

When it is presumed that stereotypic behaviours have occurred due to lack of stimuli then the environment in which the animal is kept should be examined. If the environment is found to be lacking in content and does not arouse any species typical behaviours then environmental enrichment

techniques should be considered.

When the limits of the cage simply mean a distinct demarcation of territory for the animal, ideal conditions for captivity have been achieved (Hediger, 1964). This, however, is not often seen with captive parrots. To enrich the environment of a caged animal it should be made as naturalistic as possible so that it resembles the habitat the animal occupies in the wild. This can be done with relative ease by, for example, adding extra vegetation. For captive animals vegetable matter may have many other kinds of significance (Hediger, 1964) for example; food, support (an opportunity for climbing, home, living space, sleeping and nesting space), means of sharpening and abrasion for beaks and claws, building materials for nesting, cover or camouflage. In all these different ways vegetation can enrich a caged environment and stimulate the creatures living in it. Other forms of enrichment, such as placing 'toys' in the cage can also bring about a decrease in stereotypic behaviour.

Enrichment experiments on Crimson-breasted Conures *Pyrrhura perlata perlata* (Van Hoek & King, 1977) using rope, branches, wooden baskets, egg boxes and hidden fruit to enrich the environment, all produced positive effects. Observed effects were increased locomotion and a decrease in preening behaviour which, in environments lacking stimuli can become habitualised in the form of feather plucking. A further study using food based enrichment techniques (Coulton, Waran & Young, 1997) which encourage foraging behaviour showed that providing extra foraging opportunities for parrots is a useful form of enrichment. During enrichment periods the birds spent significantly more time allopreening than in the baseline or post enrichment periods. As the majority of parrots forage for food in the wild this gave the birds a chance to exhibit a species typical behaviour. Providing several different enrichments allows animals to perform a greater range of behaviours, become more active in captivity and decrease the likelihood of habituation to certain enrichment items. The goals of enrichment are varied (Powell, 1995) and include: increasing activity levels, providing opportunities for species typical behaviours, decreasing or eliminating stereotypic or self destructive behaviours, improving captive breeding and rearing of offspring, and educating the public.

Abnormal behaviours exhibited in captivity (those which would not normally be seen in the wild) can be lessened or corrected by providing more adequate environmental conditions, proper care and correct nutrition. It has been proven that with the appropriate care and environmental conditions, stereotypies, feather plucking and other detrimental behaviour can be lessened or eliminated and that these conditions are necessary for maintaining healthy and content cage birds.

A good marker for suitable captive conditions is an animal's reproductive state, if it is reproducing successfully it can be said that the correct

environmental conditions have been achieved. Indirect and anecdotal evidence indicates the importance of physical and temporal complexity for reproduction (Carlstead et al., 1994). Chronic stress may compromise reproductive physiology and behaviour, enrichment reduces stress by providing increased opportunity for behavioural coping responses. Environmental enrichment may also influence reproductive success by stabilising social groups, reducing aggression and increasing affiliative and play behaviours.

To conclude it can be said that by enriching the environment of captive animals, their welfare can be improved. The enrichments may be food or play based, both decrease the occurrence of stereotypic behaviours and, in captive parrots, incidences of feather plucking. The more diverse an environment an animal is provided with, the more relaxed and content that animal becomes to the point where it reproduces successfully, a positive indicator that ideal or near ideal conditions for captivity have been achieved.

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BODY MASSES (WEIGHTS) OF PARROTS

by Johannes Erritzoe

The importance of avian body mass (weight) is well understood. In this paper, the masses (weights) of 328 individuals from 112 species of captive parrots are recorded, along with their sex and condition.

The birds all come from Danish captive collections. The masses were obtained using a balance weight, and the sex was determined by internal inspection. Age determination was made by studying the size of gonads, the form of the oviduct, and the presence or absence of bursa Fabricii, all methods described by Erritzoe (1985). Taxonomy follows Forshaw and Cooper (1989).

* = no weight information in Forshaw and Cooper (1989).

LORIINAE				
Black Lory	*Chalcopsitta atra*	♂ ad	201.8g	fat
Duyvenbode's Lory	*Chalcopsitta duivenbodei*	♂ ad	211.2g	a littlefat *
		♂ ad	181.1g	normal *
		♂ ad	181.5g	normal *
Black-winged Lory	*Eos cyanogenia*	♀ ad	134.8g	
Violet-necked Lory	*Eos squamata*	♂ ad	118.1g	*
	E. s. reciniata	♂	112.5g	a little fat *
Red Lory	*Eos bornea*	♀ ad	118.1g	a little lean *
Rainbow Lory (or Lorikeet)	*Trichoglossus h. haematodus*	♂ ad	143.1g	very fat
		♂ ad	143.5g	a little fat
		♂ ad	112.9g	
		♂ ad	158.9g	
		♂ ad	96.9g	normal
		♂ imm	75.2g	normal
		♂ ad	129.2g	a little fat
		♀ ad	102.8g	
		♀ ad	105.5g	normal
		♀ ad	110.1g	a little fat
Yellow & Green Lorikeet	*Trichoglossus flavoviridis*	♀	47.8g	normal *
Perfect Lorikeet	*Trichoglossus eutelus*	♂	53.3g	normal *
		♀ ad	59.9g	normal *
Goldie's Lorikeet	*Trichoglossus goldiei*	♀ ad	43.1g	
		♀ ad	48.9g	normal
Black-capped Lory	*Lorius lory*	♂ ad	161.2g	normal
		♀ ad	96.5g	lean
		♀ ad	173.5g	normal
Chattering Lory	*Lorius garrulus*	♂ ad	144.8g	normal *
Papuan Lory	*Charmosyna papou*	♀ ad	71.5g	a little fat
CACATUINAE				
Galah (or Roseate Cockatoo)	*Eolophus roseicapillus*	♂ ad	266.4g	normal
		♀ ad	374.8g	fat