The nesting and some other habits of *Alopochen*, *Nettapus*, *Plectropterus* and *Sarkidiornis*

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Summary

African 'geese' are catholic in their choice of nest-sites. Most Egyptian and Spur-winged Geese nest on dry ground, but may use holes in trees, or old arboreal nests of other birds. Pygmy Geese occasionally nest on the ground but more often in trees or on buildings. The Knob-bill nests in trees and in Africa at least also on the ground. Clutch-sizes and parental behaviour are discussed.

There is some evidence that *Sarkidiornis* may often be polygamous in Africa, though apparently not in India.

Alopochen and *Plectropterus* roost on water, the latter also sometimes on dry land. *Sarkidiornis* roosts chiefly in trees, though sometimes on mudbanks or floating islets. The roosting places of *Nettapus* are not known.

Flocks of *Alopochen* and *Plectropterus* sometimes cause serious damage to crops, by trampling or nibbling maize, beans, and sweet potatoes and pulling up entire ground-nut plants.

Introduction

Commonly known as 'geese' the members of the four tropical genera *Alopochen*, *Nettapus*, *Plectropterus* and *Sarkidiornis* differ in many respects from those of *Anser* and other closely allied genera. Delacour (1954–64) and other authorities, treat the Egyptian Goose *Alopochen aegyptiacus* as a member of the tribe Tadornini, which includes the sheld-ducks and South American sheldgeese, and puts the other three genera in the tribe Cairinini, along with the wood ducks and the Muscovy Duck. But in its nesting, feeding and social habits, with which this paper is concerned, *Alopochen* is much like the perching geese.

Nesting habits

Nettapus auritus – AFRICAN PYGMY GOOSE OR DWARF GOOSE

This particularly lovely little goose – the male with its exquisitely handsome head – is found on lakes, lagoons, dams and backwaters. I knew it well in many parts of Uganda and, though widespread, less commonly in Northern Rhodesia. When I first went to Entebbe (on Lake Victoria), Uganda, in 1925, I knew of four nests which I did not disturb. One was in a hole in an ironstone cliff and the others 30 to 40 feet up in holes in large trees. These were all in the same locality where Sir Frederick Jackson (a Governor of Uganda) had previously found a nest at arm's length in a hole, seven feet above the ground in an ironstone cliff. This same hole and others near by in the low ironstone cliff had been regularly tenanted by wild Grey Parrots *Psittacus erithacus* until systematic robbing of their nearly fledged young eventually drove them away. Jackson found other Pygmy Goose nests in trees at Entebbe respectively at 30 feet and 60 feet above the ground – the latter in a hole at the end of a dead branch. Another nest site I was shown near Entebbe was some 30 feet above the ground in the crown of a palm and was only discovered when the goslets were seen falling from it. All these sites were close to water, but in South Africa a nest three feet up in a 'mopane' tree was 200 yards from water. An unusual site was in the thatch of an occupied African hut; the dry grass of the thatch was pushed up to form a tunnel about a foot long and the nest – there were no eggs – was lined with down. Nests have been found in ant-heaps and in the tree-nests of other birds, in particular, inside the huge structures of the Hammerkop or Hammerhead Stork *Scopus umbretta*. In South Africa a nest – of grass but with no down in the lining – was found in a heavy clump of grass on a river bank; and one in Northern Rhodesia, by a shallow 2½ acres pan in 'mopane' woodland, an untidy grass structure under a log, on mud, and about 20 yards from the water's edge. At the same pan there was another Pygmy Goose nest – a rough structure of grass containing six eggs, but no mention of down – in fairly deep water. These last two records are of particular interest as they indicate that the Pygmy Goose will nest on the ground even when there is woodland – and the probability of suitable nest holes – near at hand. There is an important factor, however, which may have influenced these Pygmy Geese for in this locality there is a considerable population of large, deadly, predatory Black Mambas which freely explore holes in trees. In the virtually treeless vast open and swampy country of Nigeria where the Pygmy Goose is common, it can only nest on the ground or in swamp.

The nest is variously described as constructed of dry twigs, coarse grass and leaves, etc., sometimes lined with down and (Jackson records) with a little green

moss. The usual complement of pale creamy-white eggs varies from 6 to 9, though Delacour (1959) records up to 12; and from the data available the African Pygmy Goose lays fewer eggs than either the Cotton Teal or Green Goose-Teal.

So few nests have been found, that as yet little is known about the breeding behaviour of the African Pygmy Goose. At Entebbe, a brood of eight newly hatched goslets was caught by an African who had trapped the parent; an attempt to keep them in captivity failed as the parent escaped and the brood died. The African Pygmy Goose is as agile as the Cotton Teal when entering its nest hole in a tree or cliff, *vide* Jackson's graphic description 'shot in as nimbly as a Sand Martin or Kingfisher'; he also recorded that the mother goose was accompanied to the cliff face by the drake. The female must be able to check itself in a remarkable way so as to enter a small aperture and its restricted space seemingly at top speed. Watch as assiduously as I might, during the breeding season, rarely did I see the brooding female – she was not always accompanied by the male in her flight – enter the elevated cliff-hole. The approach was not direct and when the two birds were together they flew several times to and fro at the correct level until one suddenly swerved into the hole. If one did not watch carefully one missed the split second entry on the realisation there was only one bird visible instead of two!

Nettapus coromandelianus – COTTON TEAL or INDIAN PYGMY GOOSE, and in Australia, where it is usually classified as *N.c. albipennis*, WHITE-QUILLED PYGMY GOOSE or WHITE-QUILLED GOOSE TEAL.

When serving in the Indian Army, prior to the First World War, I was familiar with the little Cotton Teal of south-east Asia, New Guinea and Australia in the course of several shooting expeditions to the Central Provinces. As it breeds during the monsoon when the rains make the jungle impassable I had no opportunity of investigating its breeding habits. In these jungles when there is no other permanent water the widely scattered villages are each sited alongside a 'tank'. A 'tank' may be either quite small or of considerable size according to the terrain and is an artificial expanse of water created by an earth dam to retain the rainy season's surface flow. On these 'tanks' were populations of Cotton Teal in pairs or groups, or in small concentrations not large enough to be designated flocks. Around them, in mango and other trees, I was shown many hollows and holes, some eight to twelve feet above the ground, which contained the remains of their nests and which were said to be used year after year. Various authorities on Indian birds describe the nests as constructed of twigs, grass, dead leaves and feathers – but no down – and at any height above the ground from water level to 30 feet up, though the majority are at about six to twelve feet; a nest sited as high as 68 feet has been found in a hole in a building at Rangoon, Burma and another at 40 feet was in a niche in a factory chimney. A nest has also been recorded in an ant hill at the base of a tree and another – a nest of grass – on top of an ant hill. Nest holes usually have a wide entrance, yet when they are as small as four inches across these birds fly into them with the greatest accuracy, without pause or hesitation.

In Burma, a Cotton Teal with five eggs was found nesting in the same tree-hole as a Comb Duck, which had six eggs; all eleven eggs are in the National Collection at the British Museum (Natural History). Nests may also be placed in ruined houses, temples and old chimneys, but Stuart-Baker challenges the authenticity of two nests described as 'a semi-floating nest on the water, among the rushes or lotus leaves, of weed, grass, etc., all together'. This is an observation of days long bygone, since when there has been no other such Indian record. But this does not mean that the record is valueless, for in Australia *N.pulchellus*, the Green Pygmy Goose, will nest on the ground and in swamp, as *N.auritus*, the Dwarf Goose, also does in Africa.

For the size of the bird the complement of pale creamy-white eggs – usually varying from six to fourteen – is relatively large, and as many as 16, 18 and 22 have been recorded. A nest containing a total of 40 eggs suggests competition for a nesting site and more than one female responsible. The male, though often accompanying the female to the nest hole, never enters.

Sarkidiornis melanotos – KNOB-BILLED GOOSE, KNOB-BILL, COMB DUCK or NUKTA.

I knew the Knob-Bill much better in Africa than in India, where its nesting habits have long been well known, whereas in Africa reliable records are almost as few as those of the Dwarf Goose. In India, with rare exceptions, nests are in trees, usually in holes and hollows mostly within six to twelve feet of the ground, but occasionally even as high as 30 feet. Occasionally the Knob-Bill appropriates the nests of other birds, sometimes at considerable heights, for its eggs have been found in a Vulture's nest, in the nest of the White-tailed or Pallas' Fishing Eagle

Haliaëtus leucophyrys and once in a nest of the Woolly-necked Stork *Dissoura episcopus*. Other sites include holes in ruined forts and amongst rocks, once a nest was found in a hole in a bank and a deep grass nest has been recorded in a swamp amongst thick growth. As a rule nesting trees are near water – though occasionally at a considerable distance – or even standing in water. The nests are of small sticks and grass lined with dead leaves and a few feathers, but no down; at times there may be virtually no nest. Seven to twelve eggs is the usual complement. 40 and 47 eggs, which have been recorded, are presumably attributable to more than one female. But the most astonishing total of 54 was found in a hole in a mango tree, with a nine inches wide entrance, six feet above the ground and nearly four feet deep. The eggs did not hatch and were deserted. The finder suggested that it might be a communal nest and certainly one could reasonably claim that no less than four females must have produced so large a total. This suggests the possibility of more than one female attempting to brood at the same time, which would explain why some of the deserted eggs were cracked. The idea of a communal nest, apart from possible competition for nesting sites, raises the question of polygamy, more especially as this record refers to one male with five females being observed nearby. The subject of polygamy will be referred to below (p. 119). In various parts of south-east Asia, according to the local inhabitants whose reliability can I think be accepted, communal nests containing multiple egg clutches are well known and two females have been seen to enter the same nest-hole.

In Nyasaland, at the commencement of the rains, Knob-Bills arrive in hundreds along the Lower Shire river and its adjacent swamps, and it may be that they are attracted to suitable nesting sites in the numerous *Hyphaene* and *Borassus* palms. This is a well-defined movement though I doubt if it is a migration. A nest with eight eggs was found in a hole 12 feet up in a dead *Hyphaene*, but it was one mile from water, and the finder realised too late that had he made a thorough search of the many dead palms he might have found more nests. In this connection the question arises as to how the young got to the water one mile distant. It is categorically stated, with reference to South Africa 'Young removed from nest on parent's back' but I am unaware of the evidence on which this is based. Nest sites in South Africa include holes in trees and boles, in long grass and among stones on a low hill. A nest of ten eggs found in Southern Rhodesia was in a tree hollow, several feet deep, and quarter of a mile from water. As these little goslings are skilful climbers and as a distance of 440 yards is not beyond the bounds of possibility of the brood having walked to the water, it is a faulty premise 'Undoubtedly carried out of this cylindrical hollow by the male and female'. Another nest in a hollow tree in Southern Rhodesia was at a height of 50 feet and it was said that the young tumbled out of the nest. Some of the young were caught, but easily escaped by climbing out of an open, deep packing case. Eleven eggs have also been taken from a hollow tree in a swamp in Nigeria. Seven eggs recorded from nests in thick reeds over fairly deep water in Nyasaland are of dubious authenticity. In Nigeria a nest has been found in reeds. Only once did I find a nest in Uganda – in a deep hollow amongst the stone blocks of a disused pier – on Lake Victoria; it contained two fresh eggs. The Knob-Bill, in small numbers, breeds regularly along the northern Lake Victoria littoral – but as the local inhabitants are disinterested – I was unable ever to locate a nest, though I was once told about one in a hole in a tree which I was unable to visit. Every year near Entebbe, in September, when out in a launch I used to come across broods, and I was sometimes surprised to find how far out on the lake they would be. On one occasion I spent the best part of a day, when engaged on fishery investigation on a small lake in south-west Uganda, in searching the numerous hollow trees on tiny islets where these geese were said to nest, although I was warned that it was the wrong season. It was not a particularly healthy pursuit for these islets were infested with Puff Adders – on what they fed I did not find out – and some were a few feet up in hollows in the trees. The Puff Adder is a powerful swimmer and buoyant as it partially inflates itself when in the water. It was not an attractive lakelet for the only craft available were bundles of reeds tied together and these soon became water logged, while at the edge of a swamp the overhang of a huge sloping rock – above which in a small, shrubby tree was a nest of the Goliath Heron *Ardea goliath* – was covered with dozens of combs of vicious wild bees.

The same nesting holes are said to be used year after year; this is well known in India.

In Africa the usual complement of creamy or pale yellowish eggs varies from six to eleven, which differs little from the seven to twelve recorded in India.

Plectropterus gambensis – SPUR-WINGED GOOSE

The nests of Spur-winged Geese though occasionally in trees or on cliffs are mostly on the ground, sometimes a considerable distance from water. I used to know of a number of tree-nests, none higher than 20 feet, in old raptor nests in the woodland at the southern end of Lake Nakuru, in Kenya. Like the Egyptian Goose, the Spur-wing will lay on top of the Hammerkop's massive structure, from which I imagine the young are called down. The Spur-wing, too, nests in rather arid conditions on elevations of nearly 6,000 feet above the 3,000 feet high western scarp of the great Rift Valley, at Uganda's extreme north-east corner. Goslings are seasonally seen there on some of the numerous pools, many of them saline. Ground nests are usually well hidden in dense, long grass, not far from water, or in reed beds, but the Spur-wing seems to prefer to nest on dry ground rather than on the water – where standing space on a nest is extremely limited. Nests vary from large, bulky grass structures, when in swamp, to shallow hollows scantily lined with grass; there is no down. Nests have been found on termite hills; another was under a low bush 15 yards from a river bank.

The usual complement of large, ivory-white eggs is hard to judge as records vary from six to twelve, but sets of six and seven *fresh* eggs do seem to suggest incomplete sets. Unusually large sets of 15 and 16 eggs are known, but as a rule I think sets consist of eight to twelve eggs. This goose and its young are much preyed on by crocodiles.

The Spur-wing will lead its brood to water from a considerable distance; both parents look after the brood. At the Whipsnade Zoological Park, in Bedfordshire, one of these geese hatched her brood of ten some half-a-mile distant from the nearest water and when the parents and their goslings, on the move, were set upon by a pair of aggressive Sarus Cranes *Grus antigone* the geese successfully saw off the attackers.

Alopochen aegyptiacus – EGYPTIAN GOOSE

The nesting habits of this well-known, noisy, quarrelsome species are bewildering in their diversity for it may nest on the ground or as high as 80 feet in trees or in a variety of other sites, and at altitudes from sea level to nearly 13,000 feet, though the latter occurrence (Hachisuka, Bull. B.O.C., 52: 18-19, 1931) is quite exceptional. Tree-nesting is a characteristic of this goose, but as nests above the ground are likely to attract attention it is possible that undeserved prominence has been given to its tree-nesting proclivities. I am inclined to believe that only a relatively small proportion of Egyptian Geese nest in trees and that the majority of nests are on the ground where they are rarely found. Nests are of grass and similar material, profusely lined with the parents' down which is used to cover the eggs when the bird is away from the nest. Nests on the ground or at ground level may be in a reed bed, in grass or rushes, on floating water plants, on low, flat grass-covered islands, in matted vegetation near water, amongst rocks on islets, in a rocky cleft on a river bank, among boulders in a rock cleft in a cave, frequently on a river bank, amongst the broken stonework of a lake pier, on an ant-heap, in the disused burrows of porcupines and ant-bears, and in an old boat-house.

The Egyptian Goose is thoroughly at home in the trees and is equally adept at perching on the tops of flat-topped thorny acacias as on solid boughs. It frequently appropriates the old nests of other species. Nests of my own finding include: in a Fish Eagle's nest at the top of a flat-topped acacia 80 feet above the ground and a Goliath Heron's nest at the top of an *Albizzia* about 60 feet up – in both these cases the goose nests which are usually well shaded were very exposed to a fierce sun, but I also found another goose nest on the flat top of a lofty rock which must have been excessively hot for the brooding bird except when it was dull or raining. On a ledge a few feet below this goose nest was the occupied nest of a Lanner *Falco biarmicus*, but its young flew before the goslings hatched. Others were in a hollow of a cliff face some 12 feet above water level on an islet; on top of Hammerkop nests (several); in the broken stonework of a pier; on a tiny islet, in scrub, amongst several nesting crocodiles – all about 11 feet; and on another islet which harboured many sluggish, massive Puff Adders and large (6 feet to 8 feet) Black-lipped Cobras – how the eggs successfully hatched and the brood survived, as it did, was quite astonishing. But at certain seasons ample food was available for the snakes from a large nesting colony of Grey-headed Gulls *Larus cirrocephalus* and ground-nesting colonies of Sacred Ibis *Threskiornis aethiopicus*. Crocodiles are accustomed to lie above their buried eggs (incubation period c. 90 days) to protect them from predators such as the voracious Monitor Lizard *Varanus niloticus* and Hyenas. These crocodiles always return to the water by the same runway. The goose nest found on the Crocodile breeding islet was

in an old runway, with runways in use on either side of it. How did it know where it would be safe? An unusual site in South Africa was on a small islet in the centre of a breeding colony of some 300 pairs of the Greater Flamingo *Phoenicopterus ruber*. Even stranger is a 1963 record from South Africa of an Egyptian Goose unmolested sitting on ten eggs on a small island where a female Cape Otter *Aonyx capensis* and three young were living. The island was strewn with hundreds of duck eggs which the otters had collected for food from nearby islands. Layard (1875–84) records finding a nest in South Africa on a ledge of rock amongst a breeding group of eight Cape Vultures or Kolbe's Griffons *Gyps coprotheres* from which it possibly derived a measure of protection, as the Vultures were friendly disposed towards it.

Other nests have been recorded in the fronds of a palm tree about 15 feet above the ground; 10 feet from the ground in a stunted thorn tree on a kopje overlooking a perennial stream; in hollow trees; on flood debris in a bush; at various heights on cliffs; and on precipices sometimes as much as 200 feet above water. It is unusual for nests to be far from water; occasionally they may be a quarter of a mile distant and rarely as much as a mile; all the nests I found were close to water. Egyptian Geese nest very commonly on the top of the enormous structures built by the Hammerkop. Van Ee (1963) records finding three Hammerkop nests occupied *inside* by Egyptian Geese which contained 6, 10 and 15 eggs, all of which hatched with the exception of two infertile eggs in the last. He records 'In watching the approach of the geese to the nests I noticed that one flew straight in to the somewhat bigger opening while the other two clung to the nest before entering'. Ten goslings in one nest 25 feet above the ground, in the Zoological Gardens at Bloemfontein, were not carried down by the parents but fell, after the two parents were observed calling from the ground. Even when goose nests are as high as 60 and 80 feet there is a possibility that the goslings may be 'called' to jump down, for I noticed there was always an abundance of secondary growth, to break the fall of the youngsters, beneath such heights – but this is just a conjecture.

In the western region of the Serengeti National Park in Tanganyika Myles Turner (*in litt.*) has twice seen an Egyptian Goose and a Hammerkop using the same nest. The Hammerkop on arrival perched on a low branch below the nest, which was about nine feet above the ground and then dived into the nesthole. The sitting goose fussed a bit, but not unduly. Another time a Hammerkop was seen to emerge from a nest on which an Egyptian Goose was perched. The goose and Hammerkop were never observed to come into contact on the top of the nest. According to Turner, the Egyptian Goose seems to breed all the year round in the Seronera region of the Western Serengeti, in Tanganyika.

The usual complement of creamy-white eggs varies from six to ten, but sets of 11, 12 and 15 (two were infertile) are known. Nests of my own finding varied from seven to nine eggs. Records I have of several dozen nests include more than two dozen sets of nine and over a dozen of eight, figures which may indicate the normal clutch size; sets of six and seven, too, are numerous.

Early wastage amongst the broods seems common, for though 7 to 11 goslings may hatch and reach the water and are constantly guarded by both parents, they are subject to attacks by four-footed, feathered and aquatic predators, and are soon reduced. In the water coarse fish such as Cat-fish (Silurids) and Eels, Nile Perch (*Lates*), (which in the past annually took the whole gosling broods which hatched in the Giza Zoological Gardens at Cairo), Monitor Lizards (*Varanus*), Water Tortoises *Pelomedusa subrufa*, which cause much loss to goslings in parts of South Africa, and Crocodiles (where they occur) are all responsible for considerable wastage. Crocodiles too have been seen to take adult Egyptian Geese and at Entebbe, on Lake Victoria a 5½ foot, enormous Lungfish *Protopterus aethiopicus* choked itself to death trying to swallow a full-grown Egyptian Goose.

Polygamous behaviour of *Sarkidiornis*

Many dams were created all over Uganda, from 1945 onwards. Most of these attracted small populations of Knob-Bills, but I never came across any nests, though seasonally broods would be seen on them. The most interesting feature of these populations was their composition, which definitely suggested polygamy, for the Knob-Bills were always in groups – rarely more than one or two groups unless a dam was of considerable extent – which consisted of one male and three or four females. Much of the day was spent by a group perched in one dead tree. There is no evidence of polygamy in South Africa, but this may be due to the sexes being equally represented, for where the females preponderate – as has been recorded in West Africa – polygamy is likely. It has been recorded that to keep Knob-Bills successfully in captivity there must be a considerable preponderance of females to males,

otherwise a male will constantly pursue and exhaust a female during the breeding season. This behaviour seems to indicate a natural tendency towards polygamy. The male is more than twice the size of the female.

Major Ian Grimwood, Chief Game Warden of Kenya, has kindly sent me the following comments. 'I have no evidence pointing to Knob-bill being polygamous and the only three nests I have found have all been solitary in position. Even in the breeding season these birds seem most frequently to be found in parties but sex-ratios seem to be completely flexible, e.g. three males in "full knob" with five females or 1 male and three females which were on my dam at various times last rains.

'Curiously enough a professional hunter was yesterday, 27 February (1964), talking of a small pan on which he had just been camping in Tanganyika which was occupied by two males, four females and two broods of Knob-bill ducklings compared with one male, three females and two broods last year.'

Despite Major Grimwood's opening remarks, these records do seem to suggest a degree of polygamy, more particularly the occurrence of a male with three females and two broods.

Polygamy by *Sarkidiornis* in India does not seem to have been suggested. This divergent behaviour may not be so strange as might at first seem for in India the curious Painted Snipe *Rostratula benghalensis* is polyandrous which my own observations certainly indicate, yet in East Africa where I, and others, have had considerable experience of this species there is no evidence to suggest that it is other than monogamous.

Roosting and flighting

Sarkidiornis

The Knob-bill is not so nocturnal as most ducks, though resting a lot by day. In India where its habitat is normally associated with trees it has been described as 'strictly tree-loving' and it is probable that there it always roosts in trees; but in the tree-less swamp regions of Africa it rests on mud-banks and floating islets. In the well-treed parts of Africa where I was familiar with this species it certainly spent much of the day perched on trees, particularly dead trees standing in the water of recently created dams. A check with a torch revealed that the Knob-bills roosted on these trees for much of the night.

Plectropterus and *Alopochen.*

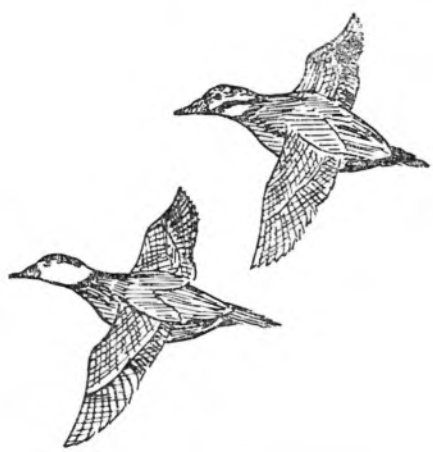
When the white man first penetrated Southern and Eastern Africa *Alopochen* and *Plectropterus* were widespread, abundant and tame, but the introduction of firearms quickly put an end to such a happy state and numbers all too rapidly dwindled. Only fifteen years ago I still knew of utterly wild places in Uganda where in the early morning dozens, mainly in pairs, of confiding, fearless *Alopochen* grazed right up to one's tent and would scarcely move out of the way to let one pass. This is a wonderful recollection of something which will never happen again for 'progress' long ago decreed the disappearance of these refuges. In East Africa I have exceptionally come across flocks (or concentrations) respectively of *Alopochen* and *Plectropterus* of several hundreds, though as a rule they are a good deal smaller. These flocks mostly consist of a number of family parties and are usually seen either in shallows, on sandbanks, on land close to water or when feeding. It has been recorded that *Alopochen* by night rests on the water – it would be safe from crocodiles where the water is about 20 feet deep and over – and that *Plectropterus* roosts on a convenient bank or similar safe site. My comment is that I have often come across *Alopochen* far out on a lake late at night, and have occasionally in the darkness disturbed *Plectropterus* roosting on land, but I hesitate to say more than that my own experience would sometimes appear to support the record. Before leaving the subject of flocking it can be mentioned that where the three larger species are common one will sometimes see – especially *Alopochen* and *Plectropterus* – several broods together in the water particularly when the juveniles are fairly large. Parents may be absent, but there is usually an adult or a sub-adult with them. Associated with flocking is flighting and where *Alopochen* and/or *Plectropterus* are numerous there will be evening and morning flights to the feeding grounds whether they be natural grazing, cultivated grassland or stubble. In the Chad region of Northern Nigeria it has been recorded that in these evening and morning flights *Alopochen* invariably preceded *Sarkidiornis* and *Plectropterus*. Some forty years ago near Lake Nakuru in Kenya I was able for several weeks to witness the flights of *Alopochen* and *Plectropterus* to the maize stubbles and I can confirm that it was the former which first flighted on to the feeding grounds; the regularity of their timing was remarkable. The flight, varying considerably in intensity according to the weather, usually lasted from twenty to thirty minutes, and inevitably in the middle of the flight there was an overlap of the two species. Skeins varied in size from about a dozen to a few score birds, some of which were calling as they flew. Although these

geese regularly were shot at they did not become unduly wild, and seemed reluctant to change their normal lines of flight. One authority has recorded how wary is *Plectropterus* when flighting to a feeding ground which it will circle more than once before coming down. This was not my experience at Nakuru where both *Plectropterus* and *Alopochen* despite much shooting habitually flew straight to their goal and when unmolested settled immediately.

Feeding and damage to crops

The Egyptian Goose is usually found in pairs or groups of pairs or in small flocks of sub-adults but in parts of South Africa it joins up seasonally into vast flocks to raid the wheatlands where it becomes a real pest and causes tremendous damage. Spur-wings can also cause severe damage, by trampling, when feeding in flocks in growing crops. Like Egyptian Geese, they are very partial to ground-nuts and to sweet potatoes. The tops of the sweet potatoes are eaten and the tubers are ruined by nibbling.

Spur-wings are mainly nocturnal feeders, though by day they are sometimes found on grasslands far from water. These big birds can create havoc amongst growing crops of beans and ground-nuts which they are accustomed to visit as dusk falls and just before dawn, but though easily scared from cultivation, I have frequently seen them unconcernedly raiding a particularly tempting crop in broad daylight. Geese and ducks are incredibly destructive to ground-nut plots, for to get at the nuts they destroy the plant. The birds do not dig for the nuts but pull out the plant, with the nuts attached to the roots. I imagine that the nuts were originally found by chance when a goose accidentally pulled up a plant. It is a simple matter for the powerful goose to jerk the plant out of the ground, but not so easy for a duck. Not being strong enough to uproot the plant directly, the duck, having firmly seized the plant in its bill, gyrates around it, meanwhile pulling hard, until achieving the desired result. This is an example of the type of curious complaint so often received by a Game Warden in Africa – havoc caused by ducks to numerous ground-nut plots. It sounds highly improbable, but investigation confirmed its truth; and the culprit, the Fulvous Tree-Duck or Whistling Teal *Dendrocygna bicolor* was not only caught in the act, but had a crop stuffed with ground-nuts; every plot examined had really been devastated and around each uprooted and discarded plant were the unmistakable signs of the *modus operandi* of the marauder.



White-headed Ducks in West Pakistan

CHRISTOPHER SAVAGE

Summary

An influx of White-headed Ducks *Oxyura leucocephala* was observed in West Pakistan in December, 1964. Five specimens were caught and sent to Slimbridge. Some notes are given on their behaviour and measurements.

The White-headed Duck *Oxyura leucocephala* is known in India and Pakistan from less than thirty published records over the last hundred years, from which it is classi-