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February / février 2010

S 122862 22.v.1964 Rybachi, Russia, 55° 11' N, 20° 49' E.
2.ii.1966 Vom

H 190545 17.iv.1964 San Benedetto del Tronto, Italy
5.iv.1965 Vom

* These are the dates reported, I have queried whether they are the dates when the birds were found.

Schedule III - Recaptures

Tree Pipit Anthus trivialis

19116	Ringed Vom	30.iii.1964
	Recaught	19.iii.1965
19073	Ringed Vom	26.iii.1964
	Recaught	24.iii.1965

Whitethroat Sylvia communis

25543	Ringed Nguru	4.ii.1965
	Recaught	2.i.1966

Sedge Warbler Acrocephalus schoenobaenus

18576	Ringed Kano	19.iii.1964
	Recaught	16.iii.1966

Redstart Phoenicurus phoenicurus

18988	Ringed Kano	30.x.1964
	Recaught	19.x.1965

NOTES ON A MIXED CORMORANT AND HERON BREEDING COLONY NEAR MALAMFATORI (LAKE CHAD)

Jane Hopson

To the west and south of Malamfatori (13° 40' N, 12° 25' E) a large area of marshland is flooded each year from November to June by the rising waters of the River Yobe and Lake Chad. The floods reach a peak in January, and then the waters begin to recede until most of the marsh is dried out by June. During the winter of 1963-64, a large breeding colony of cormorants, darters, herons and ibises was discovered in the centre of this area of marsh.

In 1963-64, the colony was visited briefly twice only, but through the following winter we made a more detailed study of it, visiting the site whenever possible in December, January, February and March, and observing it from a distance in April and May (see below). We made observations on the breeding of the following species :

Long-tailed Shag Phalacrocorax africanus
White-breasted Cormorant P. lucidus
Darter Anhinga rufa
Great White Heron Casmerodius albus
Yellow-billed Egret Mesophoyx intermedius
Little Egret Egretta garzetta
Black Heron Melanophoyx ardesiaca
Squacco Heron Ardeola ralloides
Sacred Ibis Threskiornis aethiopicus
Spoonbill Platalea alba

Description of Site.

The breeding colony was situated in an isolated grove of Acacia nilotica, half-submerged in water and bordering a deep winding channel - one of the old meanders of the R. Yobe. The only means of access to it was by boat. The grove measured approximately 600 metres by 200 metres, with the long axis running North-East to South-West. It was fringed with more-or-less impenetrable thickets of low Acacia scrub, and entry was possible at only two points, the north end and the south-east corner.

The trees inside the grove, varying in height from ten to about 30 ft., stood in deep water which in the early part of the season was open and free of vegetation, allowing us to move about among the trees in a light canoe. By mid-January however, the rapid growth of aquatic plants (chiefly Polygonum and Pistia) made movement within the grove restricted. Access to the colony became increasingly difficult as the season advanced, due to the growth of tall grasses in the surrounding marshes. After the end of March, no further observations by boat were possible. By the third week in May the floods had receded enough for us to approach close to the colony on foot at the north end. A sketch-map of the site is given in Fig. 1.

Breeding of Phalacrocorax africanus and Anhinga rufa.

P. africanus and A. rufa were the first species to colonise the grove in large numbers. They began to arrive in early December, and by December 20th had established nests in most of the trees of the northern half of the grove. At this stage, their numbers were still countable and the trees were accessible. In the course of the first three visits to the colony in December and January, 37 trees in the central axis of the grove were numbered and labelled, and an accurate census of nests was made. Later P. africanus was present in such large numbers and occupied so many trees, most of which were inaccessible,

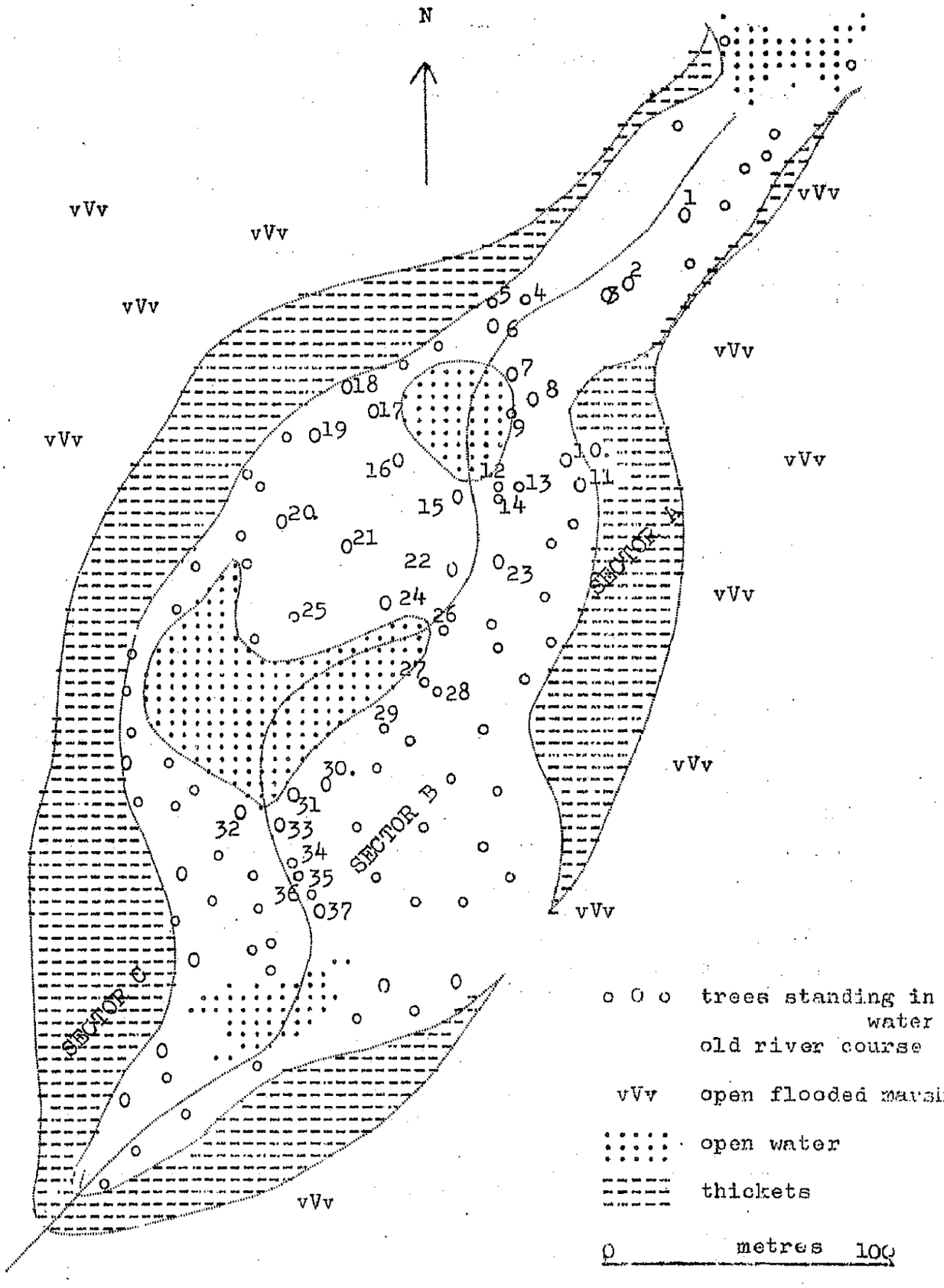

Figure 1. Sketch of the colonised marsh at Malamfatori.

that the job of keeping accurate counts became impossible. For this species therefore, and for A. rufa, only approximate numbers are given for February and March.

On 20th December, approximately 1 000 adult P. africanus were occupying trees in the inner part of the grove together with 80 A. rufa. The remainder of the grove was as yet uncolonised. 410 nests of P. africanus were distributed among 37 trees (Fig. 1), and

of these, 337 were complete and contained eggs. None of the broods had hatched. The birds were occupied with incubating, displaying and nest-building. 35 complete nests of A. rufa were present, all containing eggs.

Throughout January the numbers of P. africanus continued to increase, and they established nests all over the grove. On 24th January a total of 1 322 nests were counted. Table I shows their distribution in the grove.

TABLE I

Number and Distribution of Nests of P. africanus on 24th January, 1965

Outlying trees to north of grove		17	nests
Trees no. 1-37		547	"
Sector A	approx.	60	"
Sector B	"	289	"
Sector C	"	409	"
Total	"	1 322	"

A few nests were still under construction, but the main influx of birds was over by then. The majority of nests contained clutches. The eggs laid in December had all hatched. Up to five young were seen in a nest, but four was the commonest number. Many of the young birds in these first-established nests could already leave their nests when alarmed, to clamber about in the branches.

The numbers of A. rufa had also increased all over the grove since 20th December (Table II).

TABLE II

Number and Distribution of Nests of A.rufa on 24th January, 1965

Outlying trees to north of grove	6	nests
Trees no. 1-37	58	"
Sector A	3	"
Sector B	56	"
Sector C	78	"
Total	207	"

Most of the A. rufa nests in the older part of the colony (i.e. the numbered trees) now contained young birds. Up to four were seen in a nest.

More birds continued to arrive at the colony into late February. By 14th February, the numbers of P. africanus nests in the peripheral thickets had increased by approximately 100. Also a separate

colony of P. africanus together with A. rufa and P. lucidus had been established in a group of trees about 1/3rd mile to the south of the main grove. In the peripheral areas (Sectors A, B and C) a few nests still contained early-stage young, and one or two were still incubating; but most of the young birds from the central parts of the colony were now almost fully fledged, some flying from the trees to the water, while others on falling from nest or branch into the water were able to climb back with comparative ease. Most of these advanced young had left their nests (at least during the day), and were perching on branches.

On 14th February, the population of A. rufa was at roughly the same breeding stage as that of P. africanus. The majority of broods had hatched except for a few still incubating in Sector C. In Sectors A, B and C there were still some early downy nestlings, but the majority of nests in the central colony were advanced with partly fledged young readily leaving their nests and diving into the water.

By 28th February most broods of P. africanus and A. rufa were fully fledged, and appeared quite independent of their nests. Most of the nests in the central colony were empty, with the young perching about in the trees like adults. Several juvenile P. africanus and A. rufa were seen circling overhead with adults. A few nests of both species still contained downy young in Sector A, B and C, especially in the southern extremity of C where late nests had appeared.

By the end of March all rearing of young of both species was finished, and most birds had left the area of the breeding colony. On 29th March, we observed approximately 30 P. africanus and about ten A. rufa perching in the trees. During April we did not attempt to reach the colony, but observing through glasses at about 200 metres range on 18th, we saw no P. africanus or A. rufa and concluded that they had all gone to feeding grounds in the Lake or along the River Yobe.

Note on Nests of P. africanus and A. rufa.

The nests of P. africanus consisted of a fairly compact platform of Acacia nilotica twigs about 5 - 8" deep and 12" in diameter. They were lined and bound together with fresh strands of Echinochloa sp. There was a shallow depression in the top. Nest building sometimes continued after the first eggs had appeared, with the addition of grass stems. The nests were placed anywhere above 2½ ft from the surface of the water, either in forks or along the tops of branches. Very little headroom was required (in contrast with P. lucidus , see below), and the nests were often very close to one another, sometimes almost touching.

The nests of A. rufa occurred in the same trees as P. africanus, and close alongside them, but in considerably smaller numbers. They were scattered evenly throughout the colony and not grouped in enclaves. A. rufa appeared completely 'at home' with P. africanus, and we saw no signs of aggression between the two species. The nests were flat platforms of A. niloticus twigs from 18" to 2 ft in diameter, and 4 - 5" deep. The shallow depression was lined with fresh Echinochloa stems. The nests were placed either in the top of a tree, or anywhere where there was a clear space of three or fout feet overhead.

The newly-hatched young of both species were naked and helpless. In a few days, they became covered with fluffy down, jet black in P. africanus, and light buff changing to bright orange-chestnut in A. rufa. The young of both species had similar throat pouches, which were erected when the birds were begging and retracted when at rest. During begging the nestlings strained their long necks vertically upwards as far as possible, and swayed to and fro, their heads trembling violehtly with throat pouches expanded.

Phalacrocorax lucidus.

All numbers given for this species are accurate, since the nests were all located on the tops of the highest trees and easily visible at a long distance. Moreover, the birds were conspicuous due to their large size, and deep guttural croak. A total of only 64 adult birds attended the breeding colony in 1964-65, of which six were non-breeders. Birds arrived at the colony in early December, and nesting started in mid-December. Only one complete nest was present on 20th December. An adult bird was sitting on the nest, probably incubating eggs, as no young could be seen when the parent flew off. Six other adults were perching, displaying and nest-building in the vicinity of the first nest.

By 20th January, 11 nests were completed but no young birds were seen; similarly on 24th January none were seen. The nests were too high to see into them, and the parents were sitting, so it is possible that some of the eggs had hatched by then. On 14th February, 14 nests were counted in the main colony, and eight more had appeared in trees about 1/3rd mile to the south of the grove together with P. africanus and A. rufa. Young birds were present in 11 of the nests in the main colony.

By 28th February all the broods had hatched. The birds remained in the colony throughout March. On 18th April we observed the colony with glasses from 200 metres distance, and no P. lucidus could be seen. We concluded that all had completed rearing young by the 1st or 2nd week of April.

Breeding of Herons.

In December no herons were noted in the grove during the day time. At night however, large numbers of herons including Casmerodius albus and Mesophoyx intermedius roosted in and near the grove, together with flocks of Platalea alba and Threskiornis aethiopicus.

On 20th January over 40 C. albus with nests were seen in Sectors A and B, and a few (about 10) M. intermedius were also observed in the grove.

On 24th January all Sectors were examined as closely as possible and a census of birds and nests made. A total of 130 C. albus were counted in Sectors A, B, and C and approximately 30 M. intermedius nests. Also four M. intermedius were seen perching without nets in Sector C. About 15 Melanophoyx ardesiaca were noted skulking in their characteristic furtive way in the thickets, but the majority of species had not yet begun to build. Only one nest was seen, in Sector A. Four Egretta garzetta and four Ardeola ralloides were observed perching and displaying, but no nests had been built. Casmerodius albus were mainly occupied in incubation. 3 or 4 sky-blue eggs were seen in all accessible nests, except one which contained three newly-hatched young. The nests were all located in the dense peripheral thickets of Acacia nilotica in Sectors A, B and C, and placed at a height of 3-4 ft above the water, occasionally higher. All the nests were more-or-less screened with foliage unlike those of P. africanus, a species which seemed to prefer building on dead trees completely open and unprotected by foliage.

M. intermedius were also occupied in sitting on nests. Accessible nests were examined, and all contained 2 pale blue eggs. No young were seen on 24th January. The nests were all located in Sector A in the same thickets as those of C. albus, but were usually placed lower than the latter.

On 14th February most broods of C. albus in Sector A had hatched out, but there were still many nests containing eggs in Sectors B and C. M. ardesiaca were by now sitting throughout the colony, but the actual numbers were difficult to estimate. This bird is difficult to see amongst foliage because of its extreme shyness, and also the matt black plumage has a concealing effect in shadow. All nests examined contained four sky-blue eggs. They were from 2 to 4 ft above the water, well within the canopy of branches, and fairly well concealed. No Egretta garzetta or Ardeola ralloides were seen but it is likely that a few had begun building nests (see below). M. intermedius was present in all sectors but in smaller numbers than C. albus. About 200 birds were seen, and no nests contained young.

On 21st February most broods of C. albus had hatched, but all nests of M. intermedius seen still contained eggs. There had been an

increase in the number of nests of this species in both northern and southern extremities of the colony. M. ardesiaca had increased throughout the colony. One newly-hatched brood was seen in Sector B but otherwise the birds were still incubating.

E. garzetta had also become commoner and there were no birds nesting in Sectors B and C. About 20 birds were seen in these two sectors, but it was impossible to approach Sector C closely, and it is likely that many more E. garzetta were hidden in the trees. One of the nests was seen to contain young. The most striking change since 14th February was the influx of A. ralloides, now seen in small numbers all over the colony. About 18 were seen, one building a nest in Sector B.

On 28th February most broods of C. albus had hatched in all three sectors, but most nests of C. intermedius still held eggs (one more nest containing young was seen). There were notable increases in numbers of nests of C. albus and M. intermedius in the north and south extremities of the grove. It was estimated that in the whole grove, there were at least 200 nests of C. albus and at least 60 of M. intermedius. About as many nests of M. ardesiaca contained young as eggs. All the young birds seen were still covered with fluffy black down. A total of 46 nests was counted. 17 nests of E. garzetta were seen at close quarters, and none contained pulli. The nests, although all near the periphery of the grove, tended to be in the older trees of the colony alongside the most advanced P. africanus. Numbers of A. ralloides were now seen nesting, especially in the outlying trees to the north of the colony and in Sector A. 27 nests were counted and over 50 birds were seen. The nests were usually concealed in the heart of thickets or on branches well-screened by leaves, often close to those of M. intermedius and M. ardesiaca. None of them contained young.

By the end of March many C. albus young had fledged, but many advanced nestlings remained and a few (less than 10) nests still contained small downy young. It appeared that the majority of the young birds were still associated with their nests, though observations were limited to Sector A and the extreme north of the grove only, due to the high growth of marsh grasses. M. intermedius appeared to be slightly less advanced than C. albus. Most of the nests inspected contained small or medium-sized downy young; a few had advanced young on the point of fledging, but no juveniles were seen flying. E. garzetta was even less advanced - all the nests contained only small or medium-sized downy young. M. ardesiaca was a little more advanced than M. intermedius, but less so than C. albus. Most of the young birds seen were advanced and looked ready to fledge; a few downy young were seen, but the numbers of

birds seemed to have decreased generally, and it is probable that some had left the nests already. A. ralloides were very numerous, nesting and perching in the trees in the northern extremity of the grove and in Sector A. Over 200 birds and about 100 nests were noted, but this is probably a low estimate for the nests as it is extremely difficult to count them.

The colony was visited for the last time on 23rd May 1965, when we approached the northern end of the grove by land. The water had receded considerably by then, and only a shallow muddy pond about 30 metres wide separated us from the grove, which still stood in the deeper water of the channel. Most C. albus had left the area of the nesting colony, but we saw about 20 adults and juveniles perching in the trees. They were not associated with nests. The majority of M. intermedius had also gone away, and only six were seen perching on outlying trees including three juveniles begging for food. We saw four E. garzetta in the trees, again not associated with nests. However M. ardesiaca was still present in considerable numbers, though all the young had fledged. There were at least 200 juveniles and adults perching in the open all over the grove, but chiefly in the northern half, and walking in the pond together with juvenile Platalea alba and Threskiornis aethiopicus (see below). All were able to fly, and several were begging for food.

A. ralloides was still numerous about the colony. All the young could fly and did not appear to be associated with nests. About 200 birds were counted, including many young begging and being fed by parents.

By mid-June the pond had dried out and the grove was deserted.

Notes on the Breeding Colours, Display, etc. of C. albus, M. intermedius, E. garzetta, M. ardesiaca and A. ralloides.

1. Casmerodius albus.

All breeding adults had completely black bills, with the exception of one which had yellowish patches on the bill. Dekeyser (1955) noted that the bill of a female captured from a similar breeding colony near Diafarabe in the Republic of Mali was entirely black. The bare skin on the face of our birds was a bright malachite green (cf. Dekeyser op. cit. - "Veronese green"), in contrast to the yellow skin of non-breeding birds.

As regards behaviour, C. albus showed tolerance of other birds approaching close to it when incubating. In this respect it differed markedly from M. intermedius, M. ardesiaca and A ralloides (see below). It was not particularly timid or cautious of humans, and would only leave the nest if we approached noisily. If alarmed, the birds would

get up and fly off to a safe distance. They would soon return quite openly (in contrast to M. ardesiaca , see below), and resume sitting.

2. Mesophoyx intermedius.

The bill of breeding birds is red at the base for more than half its length and yellow-orange at the tip. The skin around the eye is a bright acid green, changing to yellow between the eye and the bill. The legs are crimson to below the tarsal joint and black below. (In non-breeding birds the legs are yellow to below the tarsal joint). The feet are black.

The ornamental plumes hanging from the scapulars are exceptionally long and lacy. They extend well beyond the tip of the tail, sometimes almost reaching the feet. When approaching the nest on foot, also when standing or sitting on the nest, the birds areliable suddenly to erect the plumes and the head crest. The plumes are spread into a fan and brought forwards. The effect of this mass of dazzling white lacy plumes is extraordinarily beautiful. The birds almost invariably do this as they sit down on the nest. The feathers gradually subside a few seconds after the bird has settled down onto the nest.

M. intermedius is somewhat aggressive towards other birds, of its own or other species, when sitting on the nest. If other birds approach too close, it will erect its plumes and rear up croaking loudly. It did not appear to be particularly afraid of human intrusion, and showed no caution on leavingor approaching the nest.

3. Egretta garzetta.

Some birds were seen with red feet instead of the usual yellow. This species was quieter and more timid than either of the preceding two. It was seldom heard to utter cries when sitting on the nest, and would easily become alarmed and leave the nest at the approach of humans. We observed it to erect its plumes often at the approach of other birds, but apart from this sign of disturbance it was not aggressive towards other birds.

4. Melanophoyx ardesiaca.

Occasional birds had red feet instead of the normal orange. This species is notably shy and nervous during the breeding period. At the slightest sign of danger, e.g. humans approaching, the bird gets up quietly from its nest and steals furtively away on foot. It will only return to the nest after a long period of watching, and then not directly. It stands close to the nest for several minutes looking about suspiciously before gaining enough confidence to resume sitting. We seldom saw one actually sit down on the eggs again after being disturbed by our arrival. This behaviour is in marked contrast with that of C. albus and M. intermedius, which often

remained sitting while we watched them from a distance of about ten feet, and which always returned to their nests quite openly, often alighting directly onto them from flight.

Besides this extreme timidity, M. ardesiaca shows marked irritability and aggressiveness towards other birds while incubating, and in this respect it is similar to A. ralloides. At the approach of other birds of its own or other species, it rears up from the nest and strikes at them, uttering harsh cries. The head plumes are generally raised during this behaviour.

5. Ardeola ralloides.

The bill of breeding birds is china blue changing to black on the distal half of the upper mandib er mandibles. Between the eye and the blue of the bill there is an area of bright green skin. The mantle, breast and and plumes are a warm cinnamon -buff. Some long white streamer-like feathers, edged in black, hang from the nape of the neck.

Squacco Herons are very aggressive when incubating. If any other bird approaches within three feet of the nest, they raise all the neck and back plumes into a spiky mass, and rear up squawking loudly and strike at the intruder if it comes too close (cf. M. ardesiaca). As the nests are often very close together, sometimes almost touching, this performance happens very frequently.

They react to approaching humans by crouching lower onto their eggs and remaining silent and watchful. If the humans approach too near or alarm the birds in any way beyond a certain point, they get up in a hurry and run away through the branches. On returning to the nest, the plumes of the neck and back are raised as the bird settles onto the nest, and then the plumes gradually subside.

Platalea alba.

28 pairs of P. alba bred in the colony during the winter of 1964-65. Adult birds were seen in increasing numbers perching and displaying on the tops of the highest trees in Sector C during December and through January, but the majority did not begin nesting until late January. A single nest containing three eggs was found on 24th January in Sector C. The nest was located about two feet above water level on a creeper-covered platform which also supported 14 nests of T. aethiopicus closely adjacent to it. It was slightly more than two feet in diameter, with a shallow depression lined with dried guinea-corn stalks. The eggs were off-white covered with pale brown blotches. No other nests were found on that day although a flock of 18 adult P. alba were perched, some displaying, on a similar platform nearby.

By 28th February, there were 28 nests in Sector C. None contained young birds as yet, and the solitary nest found on 24th January still contained eggs. Roughly half of the nests were close to the water on

the top of flat creeper-covered thickets two to three feet high. The remainder were scattered about on the top of a tree about 20 feet high. They were all quite open to the sky. The birds were remarkably tame on the nest, allowing us to approach to within ten feet in the open before flying off to a discrete distance. They would return to the nest after a few minutes and take no further notice of us provided that we remained perfectly still. On 21st February there was no increase in the number of P. alba nests, and as yet none of the broods had hatched. But on February 28th we found one nest with two newly-hatched young and one unhatched egg. The adjacent five nests on the same platform still contained eggs, but we could see that some of the higher nests contained recently hatched young. The young were covered in white down, and had bright orange beaks which were flattened dorso-ventrally, but only barely expanded distally. The parent fed them by regurgitation. Standing over the young birds with legs slightly straddled, it bent its head so that the half-open beak pointed down towards the nestlings. As the food - a porridge-like mess - trickled down the inside of the lower mandible, the nestlings pecked at it, sometimes directly from the parents bill and sometimes from the floor of the nest where it fell. It was not possible to get near to them after the end of February because of the heavy growth of Pista, and we did not see P. alba again at close quarters until 23rd May, when we watched a group of fully-grown juveniles walking about with adults in the pond at the north end of the colony. They were in company with adult and juvenile T. aethiopicus, and juvenile M. ardesiaca.

The begging behaviour of the juvenile P. alba was interesting. A juvenile would attach itself to a particular adult and follow it persistently as it walked about . The juvenile walked just behind the adult in a bent over position, with neck thrust out horizontally bobbing its head up and down rhythmically, and uttering repeated cries. After doing this for some time with no success, it would approach closer to the adult, and come up to one side of it increasing the loudness of its cries , and jerking the head more violently up and down. It would then extend one wing and place it over the back of the adult, just as a person may put an arm around the shoulder of another. This usually, but not always, caused the adult to stop and feed the juvenile. Sometimes this performance continued for two or three minutes before it had the desired effect, and sometimes an adult would be followed by two juveniles, each vieing for its attention.

Threskiornis aethiopicus.

In the winter of 1964-65, about 130 pairs of T. aethiopicus bred in the colony. Birds began to arrive at the grove in the

second half of December and the numbers continued to increase throughout January into early February. The main body of breeding birds arrived in thelast week of January. Between 24th January and 14th February the number of nests increased from 30 to 130. After that date very few new nests were seen.

Nest building began soon after the first birds arrived in late December. The main egg-laying period was over by the first week of February, and the first-established broods began to hatch in mid January. The majority of broods were hatched by 28th February, and by the end of March most of the juveniles had left the nests and could fly, but a few nestlings remained. No observations were made in April but it is probable that all the nests were empty by the end of the second week of April.

The nests of T. aethiopicus were about two feet in diameter, and fairly substantially constructed out of Acacia twigs with a thin lining of fresh grass (Echinochloa sp.). They were often only one to two feet above the water, but they could also be located up to 20 feet high in trees. They always tended to be grouped close together in enclaves of up to 16 nests. Frequently the nests were completely exposed to the sky, but sometimes they were overshadowed by branches. The eggs were a very pale chalky blue, with a zone of fine reddish-brown scribble-marks around the broad end. The clutch was 2 - 4.

Epilogue.

It is worth noting that no birds nested in the grove during the winter of 1965-66. The floods this year were not so extensive or deep as in the previous three years, and the water did not reach the groves until the second half of January, and even then the water was very shallow. Presumably the birds did not find the conditions suitable in December at the time when they would normally begin to occupy the grove, and so went elsewhere. It appears that at least some of the species discussed above require to nest in trees which are standing in fairly deep water. A mixed colony of P. africanus, C. albus, M. intermedius and A. ralloides described by Dekeyser (1955) near Diafarabe in Mali, was in a similar situation to our colony - a grove of trees half submerged by flood-water.

Dekeyser also noted that the birds in the Diafarabe colony were nesting in October, which is two months earlier than the Malamfatori colony. It seems likely that the breeding season of the birds in different regions is adapted to fit local conditions of flooding, and that they begin nesting as soon as the annual inundations have started

SUMMARY

The breeding of ten species of cormorants, herons and ibises in a large mixed colony at Malamfatori, Lake Chad, is described.

On 20th December, 1 000 Phalacrocorax africanus and 80 Anhinga rufa were present, in the central part of the colony, and respectively 337 and 35 nests with completed clutches were counted. By 20th January, these nests contained advanced young, and peripheral parts of the area had been colonised giving totals of 1 332 nests of P. africanus and 207 nests of A. rufa. More adults continued to arrive at the site throughout January and February, so that on 14th February a few of both species were incubating, a few others had small pulli, but most broods were more-or-less fledged. At the end of February most juveniles were fully fledged, but a few nests still held downy young. At the end of March only 30 P. africanus and 10 A. rufa were seen, and none at all were noted on 16th April.

The dimensions and locations of nests of these two species are described.

64 Phalacrocorax lucidus arrived at the site in early December and had commenced nesting by mid-December. 11 nests were completed by 20th January, and 22 by 14th February when 11 held pulli. All broods had hatched by 28th January, and fledged about the first or second week of April. No birds were seen in mid-April.

Herons roosted in the grove in December at night, but were absent by day. The breeding period of the larger species is longer than that of the smaller species. Egg-laying commenced at different times, in the order albus, intermedius (clutches complete by the end of January), ardesiaca, garzetta and ralloides. By the end of March about half of the albus nests had fledged, a smaller proportion of ardesiaca was fledged, and a smaller proportion again of intermedius. At that time nests of garzetta and ralloides held small pulli.

Numbers of all species increased owing to new arrivals of adults throughout February. Maximum nest counts were albus, c.200; intermedius, c.60; ardesiaca, 46; garzetta, 17, and ralloides, c.100. At the end of May very few herons remained except for ardesiaca and ralloides.

Notes on the colour of soft parts and on aggression and general behaviour of the heron species are given.

28 pairs of Platalea alba nested in the colony, and egg-laying commenced in late January. The situation of nests is described. The feeding of the young in the nest, and the begging behaviour of juveniles are described.

130 pairs of Threskiornis aethiopicus bred in the colony, the main body arriving in late January. Nest-building commenced immediately on arrival, and the peak egg-laying period was the first week of February.

NESTING OF THE CUT-THROAT WEAVER

J. Stickley

The status of the Cut-throat Weaver Amadina fasciata at Zaria, where these observations were made in early 1966, is uncertain. Skinner (1965, Bull. Nig. Orn. Soc. 2 (6) : 53) reported the