

NOTES ON THE BIOLOGY OF TWO BRAZILIAN SWIFTS,
CHAETURA ANDREI AND *CHAETURA CINEREIVENTRIS*

BY HELMUT SICK

Recent papers on the North American Chimney Swift, *Chaetura pelagica*, make it of interest to compare some phases of behavior of two of its relatives in Brazil that have also taken to nesting in chimneys and inside buildings.

The Ashy-tailed or André's Swift, *Chaetura andrei*, has an extensive South American range; the nominate race is known only from Venezuela, but the larger *C. a. meridionalis* breeds south of the Equator in eastern and central Brazil, northern Argentina and Paraguay, with records, presumably of migrants, in northern Colombia and Panama (Peters, 1940: 240). In size and sooty color of head and back, *C. andrei* resembles the Chimney Swift, but has the throat, rump, upper and under tail-coverts and most of the very short tail a pale ash gray, while the breast and abdomen are dark gray. The Gray-rumped Swift, *C. cinereiventris*, ranges (with many subspecies) in tropical lowlands from Nicaragua to the state of Rio de Janeiro, Brazil (Peters, 1940: 238). The race I have studied, the southernmost, *C. c. cinereiventris*, is about an inch smaller than *C. andrei meridionalis*, has glossy black upperparts (except for sooty gray rump and upper tail-coverts), and mainly dark sooty gray underparts. These species are sympatric in parts of Brazil, including Rio de Janeiro. The breeding season of both in southeastern Brazil usually begins in September or October and ends in February or March. Elsewhere I have described nests of these species, as well as certain aspects of their biology (Sick, 1948, 1950, 1955, 1958).

1. *Re-use of nests and carrying of nesting material.*

Late in 1953 at Niteroi, state of Rio de Janeiro, I saw my first attic nest of *C. andrei*, under the roof of a house. Previously I had found nests only in the hollow of *Mauritia* palms (Goiás and Mato Grosso) or in chimneys (Rio de Janeiro). A pair returned annually to the same attic site. The 1953 nest fell in 1954 and was rebuilt on the same spot. It was re-used in 1955 and 1956. In 1957 it fell again and was rebuilt on the same spot. It was also used in 1958, but dropped down during brooding of young. The adults rebuilt the nest on the same spot, and each year successfully reared young.

The Gray-rumped Swift, *C. cinereiventris*, seems to act similarly. A pair nesting in a chimney in Rio de Janeiro in 1958-59 lost in one season two nests with young several days old, so that no young were

reared that year. Nevertheless the following year a pair returned to the same chimney, although on at least three previous occasions (Dec. 1953, Nov. 1958 and Jan. 1959) nests with eggs or young had been lost (4, 3 and 2 per nest). One gains the impression that nests in chimneys are apt to drop off because soot keeps the nesting material from adhering firmly to the wall. This disadvantage does not prevent the birds from re-using the location once it has been chosen. Similar reports have been published of the Chimney Swift (Dexter, 1952).

In November 1953 I observed a *C. cinereiventris* during the period of nest-building flying with a small twig held crosswise in its bill.

2. *Laying of eggs in one nest by more than one female.*

On December 15, 1955 I was called to Niteroi by the owner of the house in the attic of which *C. andrei* was nesting again. I was told that there were so many young that there was not room for all in the nest. I found this: two young were in the nest, six more young were hanging from the wall about a foot from the nest, and one dead young was lying on the floor. The total was nine young (Plate 21, *Below*). The difference in age of some of the young was marked. Four of the young hanging close together had quite a few well developed feathers, and may have been twelve days old. One young hanging alone below the nest may have been one day younger, the two in the nest were about two days younger. The young hanging farthest away from the nest was still quite small, almost quite naked and blind, possibly seven days old. The dead young was still smaller; it may have fallen two days before and, if so, may have hatched on the same day as the youngest living bird. (Estimates of the age of the young are based on the pictures in Fischer's 1958 paper on the Chimney Swift.) There were at any rate three age groups: 4 large, 3 medium and 2 small young.

When I arrived at the spot, in addition to the young, there was one adult hanging near the nest. The adult soon flew off and no other adult appeared as long as I remained. I left the attic before dark and returned after fifty minutes. Seven of the young had regained the nest. The only one missing was the youngest, which was hanging on the same spot as before. Near the nest three adults were hanging; six other adults were hanging further away on the same wall as the nest.

This curious case can only be interpreted by assuming that two or, more probably, three females laid their eggs in the same nest. The normal clutch at this site of *C. andrei* seems to be three or four. In Mato Grosso I twice observed five eggs (Sick, 1948; 517). As previ-

ously reported (Sick, 1958), a breeding pair of this swift is frequently joined by one to three other individuals. An even greater number has occasionally been noted. With *C. pelagica* only one or two additional birds at a nest have been reported (Dexter, 1952). Dexter gives for the Chimney Swift many details about the age, sex, mating combinations and assistance in brooding and feeding of these extra birds. However, laying of eggs in one nest by more than one female of the Chimney Swift has apparently not yet been reported.

While I was unable to revisit the Niteroi nest during the 1955 season, I was informed that the young developed well and flew off. In December, as in October and November, usually seven adults spent the night against the wall where the nest was located. At this site the first *C. andrei* arrived on September 5, 1955. The breeding season ended in the middle of April 1956 when the last of the swifts, a group of nine, disappeared. This period corresponds with the Southern Hemisphere spring (September–October) and summer (November–April), which is the usual breeding season of these swifts in southeastern Brazil.

3. *Downward head position in gaping and sleeping of young.*

According to Fischer (1958: 99), young of the Chimney Swift beg with heads pointed up, and to feed them the adult, after settling on the nest, bends down its head, which is encompassed by the upturned head of the nestling. The young of *C. andrei* have a tendency to beg with the head hanging below the nest. I first noticed this while photographing the attic nest at Niteroi, which permitted observations not possible in chimney and tree nests.

When I first visited the Niteroi nest on November 29, 1953, the young may have been nine days old. They were good-sized but still blind, with backs and wings fairly well covered with pin-feathers. The sleeping young had their heads hanging down over the edge of the nest. In this strange position the little swifts were fed during the one feeding that occurred during the three hour period of observation. The adult fastened onto the brick wall below the nest, while the three young begged downward over the edge of the nest (Plate 21, *Above*). After being fed in this position, the young rested their heads on the edge of the nest.

I observed downward begging of *C. andrei* in the same manner two years later at the same location—the only check I could make. I saw no actual feeding, for the parents were disturbed by my presence. I received additional observations about downward begging from Mrs. Abendroth of Teresópolis, Rio de Janeiro. She observed it several

times in young *C. andrei* still blind, which were reared by her. Recently she observed the same with a young bird that could already fly. The bird closed its eyes when it begged.

While this manner of begging does not seem unusual with *C. andrei*, sleeping with head downward appears to be exceptional in birds. I had observed this once previously with young manakins (*Pipra erythrocephala*).

I made the following notation about the manakin: "Alto Xingú, Mato Grosso, December 3, 1947, 12:43 p.m.—the bigger one of the young, 13 days old, drops its head over the edge of the nest in his sleep. The head is dangling vertically as if the bird were dead. 12:44 p.m.—feeding (normal, from above!). 12:45 p.m.—both young resume a resting position with eyes closed. The bigger one has put its bill on the fork of the branch that supports the nest. After half a minute his head slips off. It moves its head up holding it free in a horizontal direction. Shortly after this the head begins to tremble and soon the head falls down and hangs again over the edge of the nest. This position is maintained for more than one minute. Then the young raises its head. This action is repeated twice. One is reminded of a man falling asleep sitting-up, unable to find a rest for his head. Finally the young turns in the nest and crawls partly over the sibling, younger by one day, that almost fills the nest completely and goes on sleeping with its head resting securely."

Sleeping with *outstretched* neck is not uncommon among newly hatched birds. If the nest is quite small (swifts, manakins), or if the young are relatively large, the curious drooping position may occur. It will not claim attention unless there is no support for the head. Generally it is the gullet that rests on the support; in some cases it is the side of the head, as for example with a Tropical Screech-Owl, *Otus choliba*, raised by me. This was also observed by Michaelis of a European Eagle Owl, *Bubo bubo*—"sleeping in baby position" (1952: 40). The same was noted by Goethe (1955: 409) in a one day old Herring Gull, *Larus argentatus*, and by Seitz in a Eurasian Curlew, *Numenius arquata* (1949: 37). Seitz writes that the young curlews try from the start to put their heads on their backs, although not succeeding during their first few days.

4. *Releaser mechanism in feeding.*

At the Niteroi nest it could clearly be observed that the young started to beg upon hearing the wing noises of an approaching adult. These young were seven to twelve days old. Therefore, begging was stimulated by hearing. When rearing a clutch of *C. andrei* in a basket, Mrs. Abendroth noted some years ago that even a draft would start begging. Barton (1958) relates the same about the Chimney

Swift. Fischer states in his thorough paper that the reactions of the young of *Chaetura pelagica* change with age. Always, however, it was the sound of approaching wings which brought forth the strongest begging.

5. *Sitting on the nest at night by both parents.*

We have no observations on this with *C. andrei*, but we do have one with the related *C. cinereiventris*, which I was able to observe at a chimney nest in Rio de Janeiro in 1953. The parents were sitting close together on the nest during the night so that only the tails and wing-tips, protruding over the nest, could be seen from below. At the time of my observation the nest of *cinereiventris* contained four eggs. This is similar to Fischer's (1958: 54, 113) description of the behavior of Chimney Swifts.

6. *Snapping of wings and "thundering."*

With *C. andrei* one may not infrequently hear a snapping of wings at the nest and at the collective winter roost (Sick, 1958). It is a single snap, sounding like "flap", which is repeated after short intervals. How do the swifts produce this noise? I noted the following at the nest in the attic at Niteroi: The bird, which was hanging from the wall, moved its wings back until their coverts touched, making a rustling noise. Then it moved its wings violently back to their normal resting position causing a loud snapping noise. Before seeing this I had assumed that the opened wings were hitting the wall (Sick, 1950).

C. andrei make this snapping noise when they are disturbed; for example, when a man approaches their nest. First they snap as they hang from the wall near the nest. If the disturbance continues, they slowly crawl sideways and upward in the direction of the flight hole and there clap again. Finally they fly off. The clapping seems to have the function of a threat.

The Chimney Swift acts in a similar manner. Fischer (1958: 91) has an excellent photograph with the caption "to scold an intruder, the chimney swift snaps its wings together while in flight. After slowly arching its back and raising its wings, as shown here, the bird springs backward into flight and produces several loud snaps before coming to rest." From this it appears that *C. pelagica* snaps in flight.

Eigsti (1947) reports that Chimney Swift when disturbed at the nest may produce noise in a different manner. One bird, observed in Hastings, Nebraska, after a light drove it from its nest, started to drum the upper side of its wings against the opposite wall of the chimney.

Here, too, it was the upper side of the wings that produced the clapping noise; in this instance, according to Eigsti, against the wall—an occurrence possibly caused by the narrowness of the chimney.

This noise, which Eigsti calls "fluttering" or "drumming", reminds one of the other noise of uncertain origin occasionally heard when swifts fly in and out of chimneys or hollow trees. With *C. andrei* one hears a rustling noise if they are in narrow chimneys. If they are in wider chimneys the noise is deeper, more like a "thundering," or rumbling. From my observations, the "thundering" of *C. andrei* is not produced by beating against a wall, but by clapping their wings without touching the inside of the chimney, while the birds are sliding down or fluttering upward. I have not heard "thundering" inside attics. Moore (1946) quite rightly draws attention to the acoustic factor. The "thundering" can only be produced under certain physical conditions. It is for this reason that many observers have never heard swifts "thundering."

SUMMARY

Various aspects of nesting behavior of two Brazilian swifts, *Chaetura andrei meridionalis* and *Chaetura cinereiventris cinereiventris*, are described and compared with the behavior of the North American Chimney Swift, *Chaetura pelagica*. Both Brazilian swifts now often nest in chimneys and *C. andrei* also in attics.

Re-use of nests and rebuilding at the same sites for many years is frequent in *C. andrei* and *C. cinereiventris*.

Transportation of nest material in the bill was observed in *C. cinereiventris*.

At one nest of *C. andrei* in an attic eight living and one dead young were found, probably the progeny of three females. There were usually from seven to nine adults around this nest at night.

The nestlings of *C. andrei* have a tendency to beg for food, and to be fed, with their heads hanging downward. They sometimes sleep in this position.

Begging reactions in nestlings of *C. andrei* were released both by wing noises of adults and by drafts of air.

Sitting at night by both adults on a nest containing eggs was noted in *C. cinereiventris*.

When disturbed, *C. andrei* gives loud single wing snaps, produced by hard beating of the wings. Other noises heard in chimneys in Brazil occupied by swifts are a "thundering" or rumbling and a crackling, to be observed only under certain acoustic conditions.

LITERATURE CITED

- BARTON, A. J. 1958. A releaser mechanism in the feeding of nestling Chimney Swifts. *Auk*, **75**: 216-217.
- DEXTER, R. W. 1952. Hazardous nesting of the Chimney Swift. *Auk*, **69**: 289-293.
- DEXTER, R. W. 1952. Extra-parental cooperation in the nesting of Chimney Swifts. *Wilson Bull.*, **64**: 133-139.
- EIGSTI, W. E. 1947. "Drumming" in the Chimney Swift. *Nebraska Bird Rev.*, **15**: 9-11.
- FISCHER, R. E. 1958. The breeding biology of the Chimney Swift, *Chaetura pelagica* (Linnaeus). *New York State Mus. Bull.*, no 368: 1-141.
- GOETHE, F. 1955. Beobachtungen bei der Aufzucht junger Silbermöwen. *Zeitschr. Tierpsych.*, **12**: 402-433.
- MICHAËLIS, H. VON. 1952. *Birds of the Gauntlet*. 223 pp. Hutchinson, London, England.
- MOORE, A. D. 1946. Chimney Swift "thunder". *Auk*, **63**: 70-72.
- PETERS, J. L. 1940. *Check-list of Birds of the World*, vol. 4. 291 pp. Harvard Univ. Press, Cambridge, Mass.
- SEITZ, A. 1949. Über das Verhalten zweier isoliert aufzogener Brachvögel (*Numenius arquata* L.). *Orn. Ber.*, **2**: 32-39.
- SICK, H. 1948. The nesting of *Chaetura andrei meridionalis*. *Auk*, **65**: 515-519.
- SICK, H. 1950. Apontamentos sobre a ecologia de *Chaetura andrei meridionalis* no Estado de Rio de Janeiro. *Rev. Bras. Biol.*, **10**: 425-436.
- SICK, H. 1955. Nistweisen brasilianischer Segler. XI Congr. Int. Ornith. Basel 1954: 618-622.
- SICK, H. 1958. Geselligkeit, Schornstein-Benutzung und Überwinterung beim brasilianischen Stachelschwanzsegler *Chaetura andrei*. *Vogelwarte*, **19**: 248-253.

Fundação Brasil Central, Avendia Nilo Peçanha 23 III, Rio de Janeiro, Brazil.

FUERTES RESEARCH GRANT OF THE WILSON ORNITHOLOGICAL SOCIETY

Applications for grants during 1960 are now being received. The committee recommending the grants wishes to emphasize that any type of ornithological research may be supported and that recipients need not be affiliated with educational institutions. In fact, the committee hopes to encourage the development of research by amateur ornithologists. The important criterion in making awards will be the potential contribution to knowledge intrinsic in the work envisioned.

Information and application forms may be obtained from Harvey I. Fisher, Department of Zoology, Southern Illinois University, Carbondale, Illinois.