

peared: outstretched necks, gaping bills, fluttering wings, hunger cries. For the next few weeks the simple expedient of blowing gently across the nest never failed to arouse this response if the young were hungry.

It seems clear that the parent birds must approach the nest from directly above because of the characteristic choice of nesting site in this species. As they do so, they open their wings abruptly to check their fall. These opened wings generate a sudden air current, which apparently releases the feeding response of the young.

The concurrent processes of discarding a supposed ancestral habit of responding to the vibrations engendered by the parents' landings on the nest and of ingraining in its place the specialized behavior just described must have taken a very long time. Chimney Swifts, then, must have long been nesting in situations which afford only a vertical access; situations in which also the nestlings are completely sheltered from vagarious drafts.—A. J. BARTON, *The Stony Brook School, Stony Brook, L. I., New York*.

Distribution and Nests of *Panyptila cayennensis* in Brazil.—The Lesser Swallow-tailed or Cayenne Swift is found not only in the northern and eastern parts of Brazil south to São Paulo (Peters, 1940: 254), but also through the Amazon basin. At Fordlândia, Pará, in the lower Tapajós valley, I found nests in 1951 under the eaves of roofs and even inside deserted buildings. On the upper Tapajós in southern Pará (Serra do Cachimbo) and northern Mato Grosso (Teles Pires River), and also on the upper Xingú, Mato Grosso (Kuluene River), I saw nests attached to various large forest trees. This swift seems to prefer the smooth barks of the Bombacaceae (including the cotton-tree *Ceiba pentandra*) and Leguminosae (e.g. the Jatobá-tree, *Hymenea* sp.) for its long felted nests. In Pará and Mato Grosso I found *Panyptila* nests occupied in June, July, August and September. In Rio de Janeiro well-feathered young were in a nest in November. There is some evidence that in Brazil *Panyptila* stays about its breeding place throughout the year. If this is confirmed, it would contrast with the status of the *Chaetura* swifts in southeastern Brazil, which have a well-defined breeding season (September–April), and disappear during the cool part of the year (Sick, 1950).

On the two occasions (at Rio de Janeiro and Tapajós) when I was able to check for nestlings, there were two. At Fordlândia I was told that eggs and nestlings often fell out of the nests, and that two fallen nestlings were successfully reared by men—which suggests that even healthy young may fall out. Both parents roost in the nest, dashing in, perhaps a minute apart, about fifteen minutes after sunset. I have noticed that when the swifts fly into the nest the structure sometimes quivers. The coming and going of the parents may be the cause of eggs or young dropping off the small incubation shelf (see fig. a). It is difficult to observe details of this swift's behavior, for usually one merely gets a glimpse as a bird shoots into the nest, giving a high pitched *djíp-djíp-djíp*, that increases in strength as the pair meet within the nest. Occasionally I have noted a single bird foraging high above the forest, and once near Belém, Pará, I saw a loose flock of a half dozen birds hunting low over a road near the Guamá River in June, 1951.

Nest shapes fall into two main patterns (Sick, 1947): the long, straight type, sometimes attached along its entire length to a vertical tree-trunk or wall; and the shorter kinked type with a wider more bulbous upper section attached from above and a narrower sleeve-like entrance-tube hanging free (Pl. 10). The kinked nests sometimes suggest a thick woolen stocking, fixed by its sole to a branch. The lower end of the sleeve or tube is sometimes turned slightly outwards—which may facilitate entrance.

The variation in dimensions (table) and general aspect (use of feathers) is great. Whether the variation is geographical remains to be determined.

Haverschmidt (1954) mentions a nest successively enlarged during three years of use, but the very large Kuluene nest (480 mm. long) (see table and Pl. 10) was certainly new. Goeldi (1898: 435) refers to a nest from Pará as nearly one meter long, and comments on a nest, presumably of this species, erroneously ascribed by Barbosa (1875: 84-85) to the Bat Falcon (*Falco albigularis*) and said to be only about 200 x 50 mm. Nest locations I have measured ranged from 7-16 meters above the ground.

Nests are composed largely of plant down, worked into a stiff felt by application of the swifts' saliva. The usual fawn color does not always come in Brazil from kapok of cotton-trees, but may come also from *Forsteronia* (Apocynaceae). The silky white floss, used particularly in the lining, generally comes from *Tillandsia* (Bromeliaceae). Two nests from Rio de Janeiro look very different because of the use of many brightly-colored feathers on the surface. Another from Espírito Santo

TABLE
DIMENSIONS OF NESTS OF *Panyptila cayennensis*

Locality	Length and width in millimeters	Weight in grams
Nicaragua (Richmond)	240 x 90	
Panama (Merritt in Salvin and Godman)	240 x 90	
Panama (Greenway)	400 x 100	
Surinam (Penard)	300 x 110	
Brit. Guiana (Beebe)	355 x 75	
Pará (Mus. Nat. Rio)	280 x 100	
Pará (Mus. Nat. Rio)	355 x 105	
Pará (Mus. Nat. Rio)	360 x 100	
Pará (Mus. Nat. Rio)	480 x 110	
Kuluene, Mato Grosso (Sick) (Pl. 10)	480 x 165	55.7
Espirito Santo (Mus. Nat. Rio) (Pl. 10)	300 x 110	32.5
Rio de Janeiro (Euler*)	300 x 100	
Isla Grande, Rio de Janeiro (Sick) (Pl. 10)	355 x 85	31.5

* Nest erroneously identified as that of *Chaetura andrei meridionalis* (See Sick, 1948b: 515).

contains many feathers chiefly in the lining of the sleeve. Feathers identified included those from honeycreepers (*Dacnis*), tanagers (*Thraupis*), cotingas (*Pyroderus scutatus*), cuckoos (*Piaya cayana*), pigeons (*Leptotila*), woodpeckers, goat-suckers, parrots, domestic fowl, and others. Doubtless the swifts gather the nest material in flight from high trees and epiphytes (*Tillandsia*, *Forsteronia*), or from the air, where downy seeds, feathers, and other light material may be floating.

There is great variation in the thickness of the nest walls. The large Kuluene nest (Pl. 10) has a thickness at the top of 100 mm., and consists of several layers, loosely glued together, suggesting puff-pastry. The hanging sleeve-like entrance tube is of more thinly woven stuff (1-5 mm. thick). The outside of the nests is much rougher than the interior, but sometimes there are silky areas on the surface, especially in the bulging upper part.

I have never seen a *Panyptila* nest near a wasp colony, which Beebe (1910) suggested might be a form of "symbiosis." I have observed termite galleries stuck on the outer wall of the nest, sometimes seen thick spider webs about the upper part, and once found a hive of stingless bees (Meliponidae) near a nest; but I regard these as accidental neighbors. In two old *Panyptila* nests, I noted empty cocoons of

Diptera, probably *Philornis angustifrons* (Muscidae), which indicates that, like so many other South American birds, these swifts suffer from parasitic flies.

There is a special evolutionary interest in comparing the nest of *Panyptila* with those of the Palm Swifts (*Reinarda*, *Tachornis*, *Micropanyptila*, and *Cypsiurus*). Most swifts must find a site for their nest in a dark hole or crevice of a tree, in rocks, under leaves, or in some man-made substitute. Like *Panyptila*, the South American Fork-tailed Palm Swift (*Reinarda squamata*) has developed a method for building

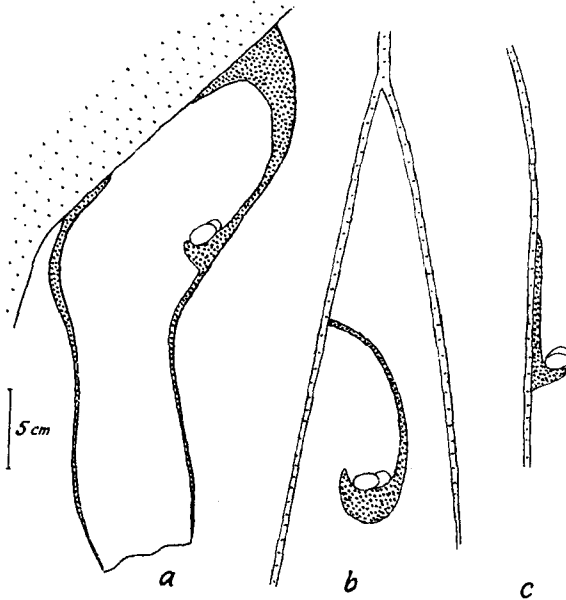


FIGURE. Sectional diagrams showing different principles of nest-building in certain swifts. a. *Panyptila cayennensis*. A tube attached to a solid branch or tree-trunk. b. *Reinarda squamata*. A closed nest attached to a pendent fan-frond of a palm (*Mauritia vinifera*). c. *Cypsiurus parvus*. An open nest attached to a pendent fan-frond of a palm (*Hyphaene* sp.). The heavily stippled portions indicate the nest built by the swifts; the lightly stippled portions indicate the natural support of the nest.

its own nest hole (Sick, 1955: 621). In *Reinarda* the nest is less evolved than in *Panyptila*, for the material is not worked into a felt and the nest lacks the sleeve-like entrance (cf. figs. a and b; also Sick 1948a, where the *Reinarda* nest photograph is printed upside down!). The descriptions of nests built in palm leaves by the West Indian Palm Swift (*Tachornis phoenicobia*) (Lack, 1956) and the rare Pygmy Palm Swift (*Micropanyptila furcata*) of northern South America (Bond, 1956) are not sufficiently detailed for me to determine whether they are more like *Reinarda* or like Old World *Cypsiurus*. The nest of the Old World Palm Swift (*Cypsiurus parvus*) is quite different from the *Reinarda*-*Panyptila* pattern and much more primitive, (cf. figs. a, b, c). It not only lacks the solid roof built by *Panyptila* and *Reinarda* and the tubular entrance made only by *Panyptila*, but the egg-shelf is

attached to the side of the palm frond, while in *Panyptila* and *Reinarda* it is attached to structures built by the swifts themselves—a transposition of the eggs support. Apparently the only described nest of the closely allied, but much larger, Great Swallow-tailed or San Geronimo Swift (*Panyptila sancti-hieronymi*), of the Central American highlands, is one taken in Guatemala pictured by Salvin (1863: 191-192). That nest, stated to be two feet two inches long and six inches in diameter (about 660 x 150 mm), was hung from an overhanging rock ledge. It much resembles those of *P. cayennensis*, except for having a false entrance on the side—a feature I have never observed or seen reported as to *cayennensis*.

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An Albino Purple Martin.—Scattered through ornithological literature there are occasional references to partial or complete albinos. An examination of the volumes of 'The Auk' for the past 50 years has brought to light items regarding albinism in no less than 20 species of North American birds as well as a review of a paper (El Honero, 6: 493-496, 1937), dealing with partial albinism in Argentine birds. Robins and English Sparrows are most frequently recorded, but the list includes also, such birds as Fish Crows, Pipits, Barn Swallows, and others. I have been unable to find a record of an albino Purple Martin, *Progne subis* (Linnaeus).