GENERAL NOTES

Species Limitation in Certain Groups of the Swift Genus *Chaetura*.—Dr. David Lack in a recent resumé of the nesting habits of swifts (Auk, 73: 11–12, 26, 1956) has made the tentative suggestion that the Chimney Swift (*Chaetura pelagica*), Chapman's Swift (*C. chapmani*), and Vaux's Swift (*C. vauxi*) might be grouped conveniently as a single species since the first and last, at least, have similar nesting habits, while all three present a color pattern of general similarity. The nesting of the little-known Chapman's Swift does not appear to have been discovered, but that of the Chimney Swift and of the typical race of Vaux's Swift (*Chaetura vauxi vauxi*) are well known, and there is one record for the subspecies *Chaetura vauxi richmondi*. These are similar as to form of nest and location, as Dr. Lack has said. The general agreement in color that he points out also is clearly evident in museum skins and might in fact be extended to include all the American species of *Chaetura*, since all have such close resemblance that care and experience are necessary to distinguish them. The species vary in general body color from plain grayish brown to a black that sometimes has a slight greenish iridescence; while the rump and upper tail coverts—including in some cases, the rectrices also—range from a pale brownish gray to a duller shade that is almost like that of the back. It is obvious that the genus is one in which close superficial similarities are the rule, so that to separate the species it is necessary to scan closely for details that would be disregarded in a group of greater diversity. The Chimney Swift probably is the most abundant, as it is common through a breeding range extending from southeastern Saskatchewan and southern Quebec south through the eastern half of the United States to southeastern Texas and central Florida. In this great area it remains stable in color and size. Vaux's Swift as a species occupies a considerable area also (but with remarkably discontinuous range), from southeastern Alaska and northern British Columbia south through México and Central America to Panamá, with an isolated group in northern Venezuela. Six geographic races, in which the northern and southern groups differ considerably, are recognized. They may be common locally, but are absent in considerable areas of the indicated range. Chapman's Swift, the least known of the three, is recorded from central Panamá (Gatún), northwestern Colombia (Antioquía), Trinidad, north central Brazil (Mato Grosso) and Cayenne. Two geographic races have been proposed. It is possible that its breeding range overlaps that of one or more of the races of *vauxi*, in Panamá and northern Venezuela. With this background of general information the three species may be considered now in detail.

In bulk Chapman's Swift is not unlike the Chimney Swift, but differs in having a wider wing, the inner secondaries being not only longer but also relatively broader, while the primaries are definitely broader. The alula is longer. However, total wing length in the two species is about the same. The under tail coverts in *chapmani* are slightly shorter in relation to the rectrices (a characteristic that needs to be checked with care, since in many museum specimens of *pelagica* the longer under tail coverts have been lost in skinning). Add to these differences the larger feet of Chapman's Swift and its contrasted pattern on the dorsal surface, in which the head, back, and wings are black, or black with a slight greenish sheen, and the rump, upper tail coverts, and tail are grayish brown, compared to the smaller feet and the more uniform pattern of the Chimney Swift, with only the wings black and the rest of the dorsal surface dull brown, becoming only slightly paler toward the tail, and it will be seen that while superficially similar, in detail the two are different.

To pass to the next species, it may be remarked at once that the Chimney Swift,

in addition to its definitely greater bulk (and its impressive migration) differs from the Vaux's Swift group in voice. The note of *C. pelagica* is a clear, sharply enunciated chipper, sometimes uttered at brief intervals, but frequently repeated rapidly so as to form a rattling chatter. The calls of Vaux's Swifts are much weaker, with little carrying power, and are given in a wheezing, high-pitched tone so that even when repeated rapidly they do not approach the notes of the larger species. One is conscious of the presence of Chimney Swifts when they are active because of their notes, but seldom is attention attracted by the calls of the tropical forms of Vaux's Swift, and then only when they are very near at hand.

As to structure Vaux's Swift differs definitely from both *pelagica* and *chapmani* in having much less bulk of body, a fact easily appreciable when museum skins of equivalent style in preparation are laid side by side. The total wing length also is less, and the carpal or "hand" portion that supports the primaries is smaller and shorter. Thus the proportions of the parts of the wing are different. *C. vauxi* agrees with *chapmani* and differs from *pelagica* in having shorter under tail coverts, and differs from both in having shorter upper tail coverts.

Hence it appears to me now, as it has before in going over these matters, that *Chaetura pelagica, C. chapmani,* and *C. vauxi* are to be regarded as distinct species, and that to combine them into one would be misleading and confusing. In the purely theoretical field the Chimney Swift possibly may be older in evolution than the other two, since it would appear probable that it became established in eastern North America during the latter part of the Tertiary; its present migratory habit was then developed through the Pleistocene. Whatever tendencies it has had toward variation have become stabilized, so that its population is quite uniform through an extensive range. Vaux's Swift, on the other hand, exhibits definite variability and may be a younger stock that has extended its range more recently. The little that is known of Chapman's Swift leaves it in an indefinite status, though from its rarity through the extended area in which it has been found it would appear less successful than the other two. Possibly it is an older type that is in the process of disappearance.

As a further suggestion, the pale northern race of Vaux's Swift (*C. v. vauxi*) in comparison with the larger *C. pelagica*—and the darker, more southern *C. v. ochropygia* and *C. v. aphanes* in comparison with the larger *C. chapmani*—seem to offer an analogy of similarity in color pattern but difference in size like that found in the swift genus *Panyptila* with its two beautifully marked species, the large *P. sanctihieronymi* and the small *P. cayennensis.*

As a final word, after many years during which I have observed and at times have collected (or have attempted to collect!) swifts of various kinds, I am reluctant to agree with Dr. Lack that in their feeding they may not emulate or exceed the erratic dodging through which the somewhat similarly formed swallows secure their aerial insect prey. The only obvious difference in the feeding of the two is that swifts fly regularly at higher elevations above the ground than swallows, and thus in the tropics range across extensive areas of high forests. Swallows, however, may join them when high-flying food is abundant, and swifts, conversely, may course low over grassland, so that the distinction is not clear-cut. It would appear that both families of birds have like habits of gathering food, except that in the swifts they are geared to a racing speed where the wing may be quicker than the eye, while in the swallows there is more leisurely movement. Swifts undoubtedly travel farther per unit of food obtained than do swallows, though why this should be necessary appears difficult to understand. Greater restriction in suitable nesting and roosting places for swifts might be advanced as a reason; if this is really a control,

there should be some other adaptation to compensate. Perhaps speed is that compensation. But on the other hand, to resort to an anthropomorphism, may not some birds, like some men, enjoy racing while others are content with a slower pace? It is only necessary to watch a flock of swifts, particularly the larger species, coursing in the wind to realize that there is no evident reason other than enjoyment for the tremendous rapidity with which they often travel.—ALEXANDER WETMORE, *Smithsonian Institution, Washington 25, D. C.*

The First Primary in Swifts.—The object of this note is to follow up in other swifts a point that I reviewed earlier in the species of *Apus* (Ibis, 98: 34–62, 1955). The first primary is about 5 mm. shorter than the second in *A. apus, A. caffer, A. horus, A. pacificus* (except one race), and *A. myoptilus* (5 further specimens seen); but the two feathers are about equal in length, giving a more rounded wing-tip, in *A. barbatus, A. pallidus, A. melba, A. aequatorialis, A. affinis,* and *A. pacificus cooki.* The forms of *Apus* with more pointed wings also have more forked tails, and in *A. caffer* and *A. myoptilus* the outermost rectrix is not only much longer than the next but is much emarginated on its inner web. In what follows, I have used my revised classification of the Apodiforms (Auk, 73: 1–32, 1956), but accepting the corrections by Bond (Check-list of Birds of the West Indies, 4th ed., 1956: 88–90) and Wetmore (Auk, 74: 383–385, 1957) to the effect that *Chaetura martinica, C. vauxi* and *C. chapmani* are distinct species.

Other Apodinae.—The first primary is about 5 mm. shorter than the second in *Cypsiurus, Aëronautes, Tachornis squamata,* and *T. phoenicobia,* and some 2 to 3 mm. shorter in *Panyptila cayennensis.* The difference is relatively greatest in the smallest species (*Cypsiurus* and *Tachornis*), perhaps for aerodynamic reasons. The tail is deeply forked, with a much emarginated outermost rectrix, in *Cypsiurus* and *Panyptila,* well forked in *T. squamata,* less so in *T. phoenicobia,* and but slightly forked in *Aëronautes* (to an extent which, in *Apus,* would be associated with first and second primaries of equal length).

Chaeturinae.—In *Collocalia,* the first primary is about 5 mm. shorter than the second in all 8 species that I examined (the average differing somewhat with the species); the tail is not, or barely, forked. In *Cypseloides* (*sens. lat.*), the first primary is shorter than the second (by about 4 mm.) in only one species that I saw, namely, *C. rutilus.* It is about 1 mm. longer than the second in *C. niger* and *C. fumigatus,* and 3 to 5 mm. longer in the large *C. zonaris, C. biscutatus, C. semicollaris,* and *C. senex.* I did not see the other species. The tail is not forked in most species, slightly forked in *C. rutilus, C. niger,* and *C. biscutatus,* and more so in *C. zonaris.*

In *Chaetura,* as in *Cypseloides,* the first primary tends to be longer, not shorter, than the second: nearly 5 mm. longer in *C. cassini,* about 2 mm. longer in *C. sabini* and *C. leucopygia,* and slightly longer in 9 or 10 other species, *C. ussheri, C. sylvatica, C. melanopygia, C. caudacuta, C.* (*c.*) *cochinchinensis, C. gigantea, C. pelagica, C. vauxi, C. spinicauda,* and *C. cinereiventris.* On the other hand, it is slightly shorter than the second in *C. boehmi* and *C. grandidieri,* some 2 to 3 mm. shorter in *C. novaeguineae* and perhaps *C. andrei* (only one specimen seen), and 5 mm. shorter in *C. brachyura.* These differences run counter to the natural subdivisions of the genus, in which, for instance, all the American forms come close together. The tail is not forked in *Chaetura,* and in five species it is extremely short. Three of these short-tailed species, *C. brachyura, C. novaeguineae* and *C. boehmi,* also differ from most other species in having the first primary shorter than the second; but in the fourth species, *C. cassini,* the first primary is markedly longer than the second. (The fifth species, *C. picina,* was not examined.)