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A NEW GENUS AND SPECIES OF NINE-PRIMARIED OSCINE OF UNCERTAIN AFFINITIES FROM PERU

GEORGE H. LOWERY, JR., AND DAN A. TALLMAN

THE frequency with which hitherto unknown genera and species of birds have continued to turn up in Peru in recent years is indeed remarkable. Among the novelties discovered and duly described since 1964 are 2 new genera and 10 new species[1], some of which have been spectacular (for example, the tanagers *Buthraupis aureodorsalis* and *Wetmorethraupis sterrhopteron*). Also now in preparation by personnel here at this museum and by avian systematists at other ornithological centers are descriptions of at least 6 additional new species (an owl, 2 hummingbirds, 2 flycatchers, and a wren).

This paper describes still another recent Peruvian discovery, a bird that we call the "Pardusco," because that is the name applied to it by our Peruvian field assistants who live near the region where it is now known to occur. An adult male and an immature male were obtained in June 1973 and 8 additional specimens (5 males and 3 females) were taken in June 1974, by our resident assistant Manuel Villar, while a member of our field parties of those years. And, finally, in January, June, and July 1975, the remaining specimens, 22 males and 15 females, were procured by another one of our field parties, composed of Villar, Robert S. Kennedy, Carol S. O'Neill, Theodore Parker, III, and Reyes Rivera A. All encounters with the bird have been in the isolated and semi-isolated wooded tracts of low trees and shrubs (elfin forest) near the crest of the Carpish Ridge of the eastern cordillera of the Andes in the Departamento de Huánuco, above Acomayo. It is the region in

[1] *Synallaxis courseni* Blake, *Percnostola macrolopha* Berlioz, *Grallaria eludens* Lowery and O'Neill, *Conioptilon mcilhennyi* Lowery and O'Neill, *Hemispingus parodii* Weske and Terborgh, *Hemispingus rufosuperciliaris* Blake and Hocking, *Buthraupis aureodorsalis* Blake and Hocking, *Wetmorethraupis sterrhopteron* Lowery and O'Neill, *Cacicus koepckeae* Lowery and O'Neill, and *Agelaius xanthophthalmus* Short.

PARDUSCO, *Nephelornis oneilli*

A NEW GENUS AND SPECIES FROM PERU

From a watercolor painting by John P. O'Neill

which *Buthraupis aureodorsalis* and *Hemispingus rufosuperciliaris* were discovered and is still the only location from which they are known. These same woodlands are inhabited by *Ampelion* [*Doliornis*] *sclateri*, a species of cotinga known until 3 years ago only from 2 old specimens from the Departamento de Junín but now found to be fairly common above Acomayo in suitable habitats.

That this region has yielded such unexpected discoveries is surprising, for it lies in a part of Peru that must be considered one of the better known sections of the republic. In 1922 and 1923 John T. Zimmer passed through or within easy striking distance of the forest that these species frequent (see Zimmer 1930), and our own field parties in the 1960's and early 1970's likewise often operated within sight of the same forest. One can only speculate how many more such ornithological treasure-troves await discovery in the rugged massifs of the Peruvian Andes.

From the outset, we have considered the Pardusco to be a bird of uncertain familial relationships. For reasons stated beyond, we cannot affiliate it with any known genus of tanager, honeycreeper, or finch. Because of certain morphological peculiarities, mainly ones pointed out to us by Walter J. Bock following his study of a skeleton and a wet-preserved specimen we were able to supply him, we feel compelled to erect for it a new genus and to leave its familial placement to the outcome of further studies.

Nephelornis gen. nov.

TYPE-SPECIES: *Nephelornis oneilli* Lowery and Tallman.

DIAGNOSIS: A small, nine-primaried oscine with the wing formula $6 > 7 > 5 > 4 > 8 > 3 > 2 > 1 > 9$; wing longer than tail, with the ratio approximately 1.16:1.00; tail slightly graduated, with the central rectrices the longest by approximately 6 to 8 mm; shape of rectrices moderately broad and terminally rounded; culmen distinctly arched; bill small in overall size and approximately half as deep and as wide at the base as it is long; tomium decurved and with a barely perceptible rhamphothecal subterminal indentation that would hardly qualify as a notch; nostrils fully exposed, roughly oval in shape, and with the superior hemisphere of each overhung by a membrane; rictal bristles rather long but weak; a few bristles on the chin and face; toes and the laminiplantar tarsometatarsus conspicuously strong; middle toe (no. III) longest and length without claw more than half that of the tarsometatarsus; toe no. IV without claw slightly longer than toe no. II without claw and both shorter than hind toe (no. I); hind claw fully twice the size and length of the other claws; skull fairly typical of nine-primaried oscines (Fig. 1A and B) with no diagnostic palatal or mandibular features but in general shape and proportions readily separable from the skull of any genus with which it has been compared, including *Hemispingus*, *Chlorospingus*, *Xenodacnis*, *Diglossa*, *Conirostrum*, *Iridophanes*, and a wide array of emberizine finches; the tongue slightly frilled with the lateral edges raised to form a shallow groove (Fig. 2A); the basihyale flattened, as is

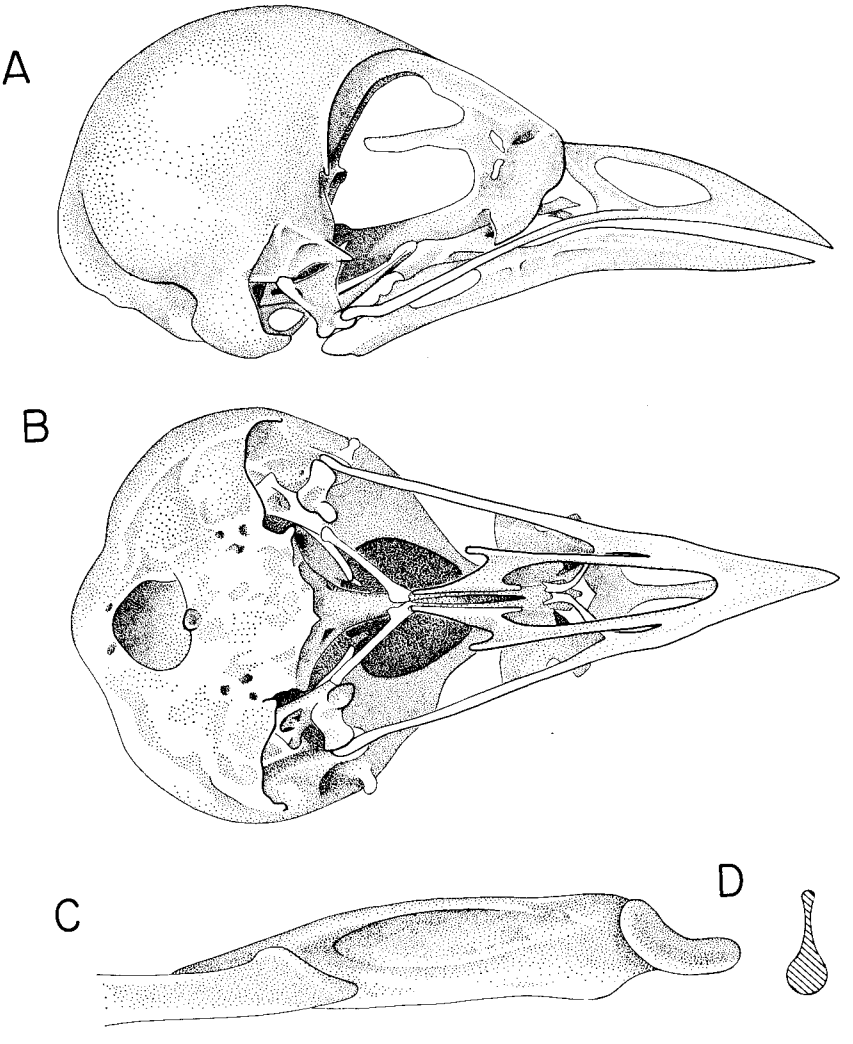

Fig. 1. Skull of *Nephelornis oneilli* (LSUMZ 80122). (A) Lateral view with mandible in position. (B) Ventral view without mandible. (C) Lateral view of basihyale and proximal end of ceratobranchiale. (D) Schematic cross section of basihyale at its approximate midpoint. *Drawings by Dorothea Goldys.*

typical for nine-primaried oscines (Figs. 1C and D); a small slip of M. tracheolateralis inserting onto the proximal end of the ceratobranchiale, a condition seen in many passerine birds but lost in most nine-primaried oscines (Figs. 2B and 3A and B); M. hypoglossus anterior present, a condition found in many passerines but lost in most, if not all, nine-primaried oscines (Figs. 3A and C); the M. ceratohyoideus taking origin partly from the medial surface of the ceratobranchiale as is

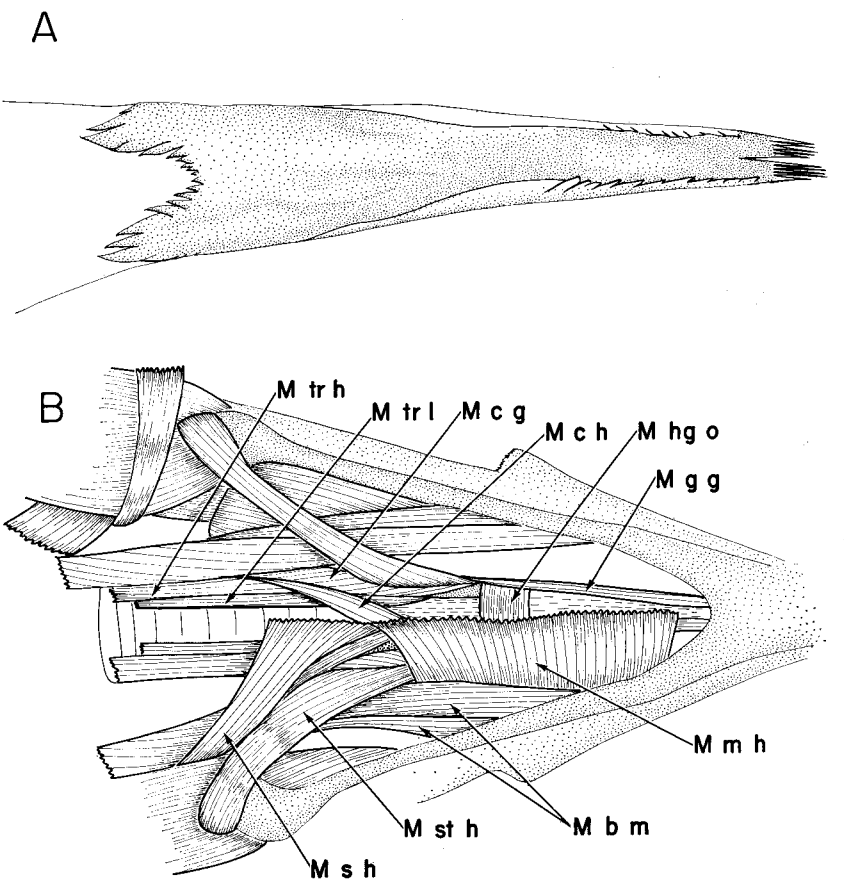

Fig. 2. Tongue apparatus of *Nephelornis oneilli* (LSUMZ 77650). (A) Dorsal view of the corneous tongue to the frilled tip and slightly upturned lateral edges. (B) Ventral view of the entire tongue musculature in place in the head; the M s h and M m h have been removed on the right side. Abbreviations: M b m = M. branchiomandibularis; M c g = M. ceratoglossus; M c h = M. ceratohyoideus; M g g = M. genioglossus; M hg a = M. hypoglossus anterior; M hg o = M. hypoglossus obliquus; M m h = M. mylohyoideus; M s h = M. serihyoideus; M st h = M. stylohyoideus; M th h = M. thyreohyoideus; M tr h = M. tracheohyoideus; M tr l = M. tracheolateralis. *Drawings by Dorothea Goldys.*

usual for most passerines and for nine-primaried oscines in particular, but also taking its origin partly from the lateral surface of the ceratobranchiale, a feature that may be unique among nine-primaried oscines (Figs. 2B and 3A and B).

COLORATION: The only species presently known is rather nondescript, mostly plain brown without streaks, spots, distinct wing bars, a superciliary line, or any facial marks.

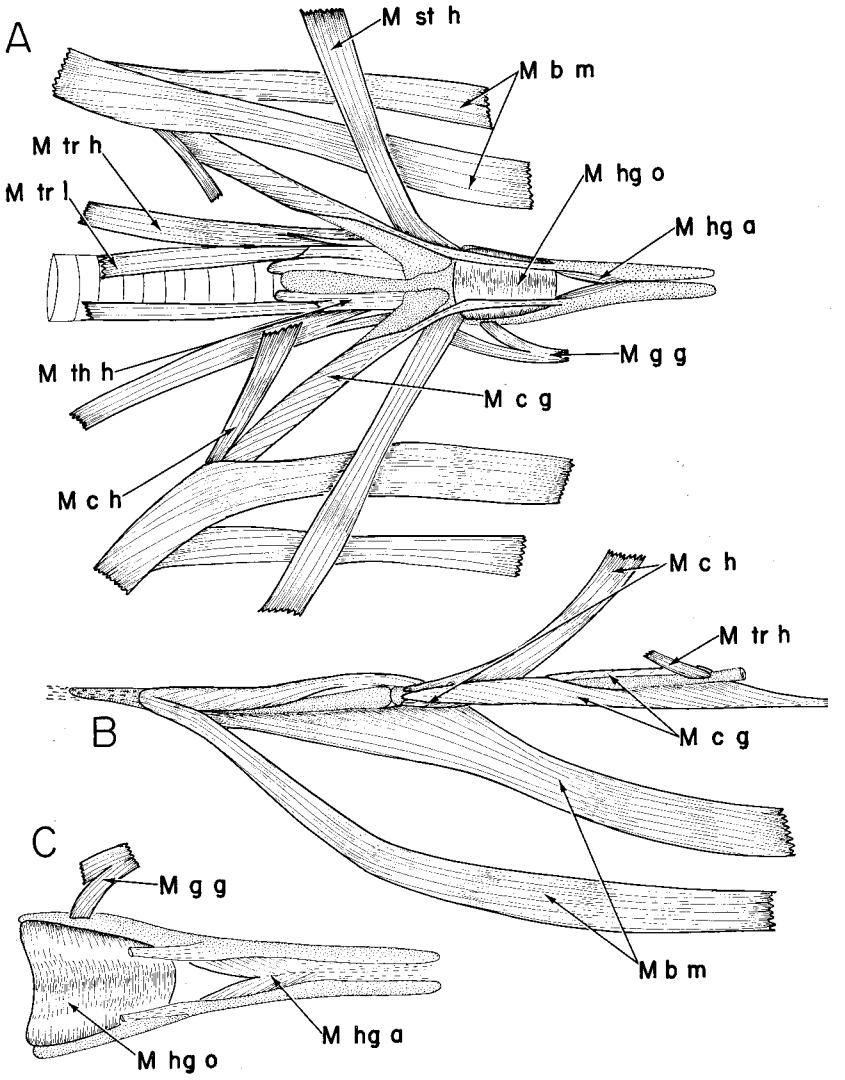

Fig. 3. Tongue apparatus of *Nephelornis oneilli* (LSUMZ 77650). (A) Ventral view of the entire tongue musculature removed from the head and spread out to show the muscles clearly. (B) Dorsal view of the right hyoid horn showing the muscles attached to it. (C) Ventral view of the paired paraglossalia showing the muscles attached to it. See Figure 2 for abbreviations. *Drawings by Dorothea Goldys.*

Fig. 4. A Pardusco following its capture in a mist net at Bosque Unchog. *Photo by R. S. Kennedy.*

SEXES: No obvious sexual dimorphism but females average slightly smaller and weigh less than do males.

Nephelornis oneilli sp. nov.

PARDUSCO

TYPE: Adult male (skull fully ossified); Louisiana State University Museum of Zoology no. 81114; Bosque Unchog, on pass between Churubamba and Hacienda Paty above Acomayo, 09°41′ S, 76°07′ W, elevation approximately 3592 meters,

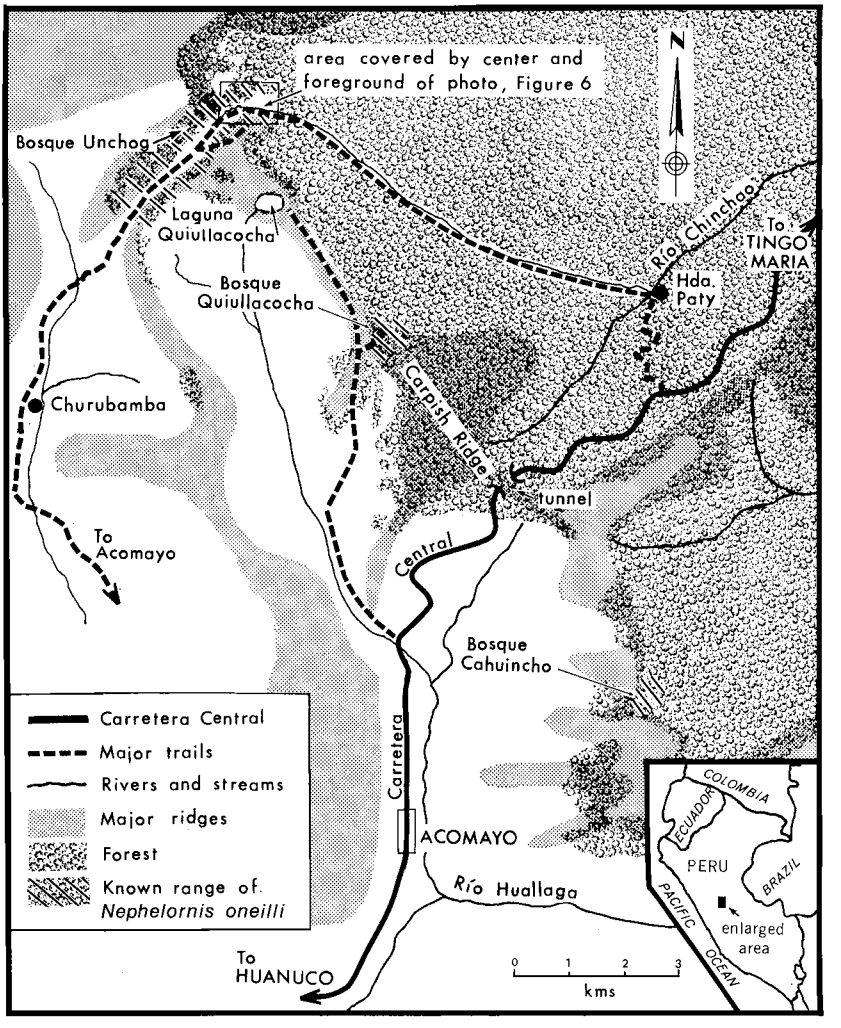

Fig. 5. Map of the Acomayo area of the Departamento de Huánuco, Perú, showing the location of place-names and physical features mentioned in the text.

Depto. Huánuco, Perú; 16 July 1975; collected by Theodore Parker, III; original number 922.

DIAGNOSIS: Same as for the genus, of which it is the only known member.

DESCRIPTION OF HOLOTYPE: General color wholly brownish; entire dorsum Mummy Brown (capitalized color names are from Ridgway 1912); primaries and secondaries Blackish Brown (3), faintly edged anteriorly with Tawny-Olive; greater secondary coverts dull brown, with Ochraceous-Tawny terminal edgings that form an indistinct wing bar; upper surface of rectrices Blackish Brown, with outer web narrowly edged

Fig. 6. A panoramic view of Bosque Unchog, the forested area on the ridge in center and left side of photograph. The woodlands below the crest of the ridge is one of the habitats where *Nephelornis oneilli* is presently known to occur. The low area at the base of the woodlands is the pass between Churubamba and Hacienda Paty. White lines are the trails followed almost daily by LSUMZ personnel during their visits; **X**, a few of the places where specimens of the species were taken; **O**, some additional sites where the species was observed; star, the site where the holotype was obtained. *Photo by R. S. Kennedy.*

with Light Brownish Olive; underparts between Tawny Olive and Ochraceous-Tawny, shading into Light Buff on the throat; flanks and undertail coverts slightly darker than the abdomen; eye-ring almost imperceptibly paler than the face; no superciliary line or differentiation in color between the lores and the remainder of the face. (See Frontispiece and Fig. 4.)

PARATYPIC VARIATION: The type series is remarkably uniform in coloration. Only one specimen, LSUMZ 74730, an immature male in postjuvenal (first prebasic) molt that was obtained on 15 June, shows significant differences from the remainder of the series, and then only to the extent that the juvenal feathers are an appreciably darker brown throughout. Only the pectoral portion of the ventral tract appears to have been largely replaced. The remiges, rectrices, and greater secondary coverts are almost devoid of the pale edgings evident in older birds. We detect no difference in the shape or width of the rectrices in the juvenal specimen other than the possibility that these feathers may be slightly more pointed.

Fig. 7. A close-up view of one of the wooded tracts at Bosque Unchog, where *Nephelornis oneilli* is common. *Photo by R. S. Kennedy.*

The labels of 11 male specimens that show the extent of ossification of the skull indicate that in 10 the skull was fully ossified and that in one it was "partially ossified." But the plumage of the last differs in no way from the remainder. In 10 female specimens where the same information is given, all 10 carry the notation that the skull was fully ossified. Two male specimens, taken on 14 and 16 July respectively, show the size of the testes to have been "enlarged." The measurements of the testes in both specimens are given as 8 × 5 mm. In 10 additional males where the size of the testes is stated the measurements are 3.5 × 2.5 mm or smaller. In 10 females the ovary measured 5 × 4 mm or smaller and in all cases was said to be "not enlarged." Some of the foregoing specimens are almost certainly birds of the year, but they provide no clues whereby they can be recognized as such. Apparently, once the postjuvenal (first prebasic) molt is complete, individuals of different age groups are indistinguishable by plumage criteria.

No sexual dimorphism is evident in the series except that, as already noted, males average slightly larger and weigh more than females.

Color of Soft Parts: Irises brown; maxilla dark brown or horn colored; mandible flesh-colored; tarsi light brown; toe pads yellowish.

Range: So far as known, near the summit of the eastern cordillera of the Andes, in the Departamento de Huánuco, above Acomayo.

Specimens Examined: Forty-seven, including 29 males (24 skins, some with partial skeletons; 3 complete skeletons; and 2 alcohol-preserved specimens) and 17 skins and 1 alcohol-preserved specimen of females, all from the type locality or within a few kilometers thereof at Bosque Cahuincho and Bosque Quiullacocha (see Fig. 5).

MEASUREMENTS IN MILLIMETERS: Males (N = number, next the holotype, then the mean followed by its Standard Deviation, and finally the mensural range in parentheses): wing unflattened, N26, 69.7, 67.6 ± 2.92 (62.0–71.6); tail, N22, 59.3, 58.8 ± 2.28 (54.8–62.5); tarsus, N26, 23.4, 23.4 ± 0.68 (22.2–24.7); middle toe without claw, N26, 14.1, 13.6 ± 0.61 (12.5–14.8); exposed culmen, N25, 11.0, 10.4 ± 0.52 (10.0–11.2); depth of bill at base of exposed culmen, N26, 5.6, 5.2 ± 0.19 (4.9–5.6); width of bill at base of culmen, N25, 5.4, 5.3 ± 0.28 (5.0–5.8). Females (N = 17; first figure is the mean, then its Standard Deviation followed by the range in parentheses): wing unflattened, 64.2 ± 2.05 (61.2–69.2); tail, 56.6 ± 2.03 (53.5–59.5); tarsus, 21.9 ± 0.66 (20.0–22.8); middle toe without claw, 13.1 ± 0.47 (12.3–14.0); exposed culmen, 10.6 ± 0.36 (10.1–11.4); depth of bill at base of culmen, 5.0 ± 0.19 (4.8–5.3); width of bill at base of culmen, 5.1 ± 0.25 (4.6–5.5).

WEIGHTS: Fifteen males averaged 17.5 ± 0.94 (16.0–19.0) grams; 13 females averaged 14.9 ± 0.68 (13.5–15.5). An additional male that was prepared as a skeleton is labeled as having weighed 15.0 grams, but missexing or some other error may have occurred.

ETYMOLOGY: The name *Nephelornis*, "bird of clouds or mist," comes from the Greek words *nephelē*, cloud, and *ornis*, bird, and alludes to the gloomy, fogbound habitat near the crest of the Carpish Mountains where the species occurs. The name is masculine in gender. We take pleasure in applying the specific epithet *oneilli* in honor of our colleague John P. O'Neill, in recognition of the great contributions he has made to Peruvian ornithology in the past decade and a half. In that period he has led a field party to Peru every year except one.

REMARKS: We are greatly indebted to Walter J. Bock for providing us with the results of his dissections of the jaw and tongue musculature of one of our wet-preserved specimens. He finds two characters in particular that are consistent with the premise that *Nephelornis* is a rather primitive offshoot in the radiation of the nine-primaried assemblage: (1) the presence of M. hypoglossus anterior, which, so far as is known, is lost in other nine-primaried oscines but retained in vireos and the Olive Warbler (*Peucedramus taeniatus*); and (2) the fact that M. ceratohyoideus takes origin both from the lateral surface of the ceratobrachiale, as well as from its medial surface. But where in this nine-primaried assemblage its closest generic or even familial or subfamilial relations lie remains enigmatic.

HABITS AND BEHAVIOR

Thanks to the careful observations of Theodore Parker, III, a member of our Peruvian field parties in both 1974 and 1975, we have considerable information concerning the behavior and habits of the Pardusco. In the summary that follows we have drawn freely on Parker's superb field notes.

Within its limited elevational and known geographic range this species is surprisingly common. It occurs in the isolated and semi-isolated forested tracts of low trees and bushes that extend irregularly upward from continuous cloud forest, from 9800 to 11,500 feet (ca. 3000 to 3500 m). The species frequents mainly the edges of these woodlands and the shrubs that dot sphagnum bogs. See Figures 5, 6, and 7. Tree heights in the wooded areas range from 12 to 30 feet (ca. 4–10 m),

while bushes along the edges and in the bogs vary from 3 to 5 feet (ca. 1.0–1.5 m) in height and 2 to 3 feet (0.6–0.9 m) in lateral spread. Both trees and bushes host a wide variety of epiphytic growth, especially mosses and lichens. Grazed grassland sprinkled with ferns separates the isolated patches of elfin forest. The habitat of the Pardusco is usually fogbound for a great part of each day. Rains fall almost daily, especially during the rainy season (November to April). Pardusco habitat, though sparsely inhabited by Quechuas in places, is for the most part too remote and wet for human use. Consequently, though the known geographic range of the species is extremely small, habitat destruction or other pressures appear not to threaten its population.

Parker and his companions found that the Pardusco moved either in conspecific flocks of 5 to 15 individuals or in mixed flocks of tanagers, conebills (*Conirostrum*), and flower-piercers (*Diglossa*). The species could be located from a distance by the "seep" notes uttered constantly by members of a group moving from bush to bush. To Parker they were in this regard reminiscent of the Common Bushtit (*Psaltriparus minimus*) of North America. The contact call ("seep") and a soft "chip" were the only vocalizations heard, but apparently none of the visits of our personnel to the region has yet coincided with the Pardusco's breeding season. The label of a female taken on 14 July carries the notation that an old brood patch was evident, but the specimen shows no signs of postnuptial (prebasic) molt.

Conspecific flocks were usually compact and flock members were constantly on the move, rarely lingering at one foraging site. Though they were not shy and could be easily approached, they did not respond to squeaking sounds that North American ornithologists commonly employ in calling up small birds. Individuals would fly into the mid-portion of a bush and then work upward and out onto the limbs. They seemed to prefer shrubs or trees with dense crowns of clustered, small leaves. They fed deliberately, gleaning lower and (less frequently) upper leaf surfaces and stems. Insects unquestionably make up the greater part of the bird's diet, though plant or insect secretions are perhaps taken from the underside of leaves. The stomachs of all specimens cursorily inspected contained numerous insects. Four preserved stomachs critically examined contained the remains of a spider and numerous identifiable parts of Lepidoptera, Coleoptera, Homoptera, and Diptera, as well as a small amount of fibrous plant material.

Foraging posture was usually upright though Parduscos sometimes hung head downward to reach previously uninspected surfaces or straightened their legs to reach leaves situated above them. On working up through a densely foliated bush to the top, the birds sometimes

perched briefly in an upright position, peering from side to side, and then flew to another bush where other individuals were already foraging. At times, while passing short distances between bushes, individuals employed a slow, fluttering flight, less than a meter above the ground, reminiscent to Parker of some wrens (*Cistothorus*) and furnariids (*Asthenes*), but usually the flight was rapid and direct. In one instance two individuals of a flock descended to the ground in a sphagnum bog, where they hopped about on the moss, probing and gleaning blades of protruding grasses.

Occasionally groups of Parduscos would join flocks of forest tanagers and honeycreepers, and at such times they ascended to the forest canopy, but they seemed definitely to prefer low, edge situations. Species seen in association with Parduscos were *Conirostrum ferrugineiventre*, *C. sitticolor*, *Diglossa lafresnayii*, *Anisognathus igniventris*, *Dubusia castaneoventris*, *Hemispingus xanthophthalmus*, *H. rufosuperciliaris*, *H. trifasciatus*, and *Buthraupis aureodorsalis*. Also observed in close proximity to Parduscos were *Iridosornis jelskii*, *Ochthoeca fumicolor*, *Ampelion* [*Doliornis*] *sclateri*, *Synallaxis gularis*, and *Schizoeaca fuliginosa*. The only possible avian predator recorded in the same woodlands was an occasional *Falco femoralis*.

TAXONOMIC AFFINITIES

Although these behavioral notes are of considerable interest because they concern a previously unknown species and one that still only three ornithologists have seen alive, they provide no substantial clues to the bird's taxonomic affinities. Unfortunately, few of the conventional anatomical features employed in characterizing oscine families and subfamilies are truly diagnostic for all members of a given group. For example, in the assemblage of genera presently constituting the Thraupinae, the presence or absence of rictal and facial bristles varies to almost every degree. In some genera (e.g. *Habia*) rictal bristles are numerous and pronounced, in other genera (e.g. *Tangara*) they are sparse and weakly developed, and in still other genera (e.g. *Thraupis*) they are obsolete or absent. In the Emberizinae rictal bristles are sometimes present and well developed (e.g. *Pipilo*) although usually barely noticeable or lacking (e.g. *Sicalis*). The same difficulty is evident with respect to other anatomical features such as the presence or absence of a nasal operculum. In the Emberizinae, for example, this structure is lacking in most genera but is present in some (e.g. *Aimophila*). In the case of foraging habits, a set method is seldom diagnostic for all members of one subfamily. In most genera of the subfamily Carduelinae, as now constituted, feeding is primarily arboreal, but in some

genera it is terrestrial. In short, in any one family or subfamily, not only do individual morphological characters run a gamut of variation but so do certain behavioral patterns.

The allocation of *Nephelornis* is especially difficult because the bird is by no means readily assignable to one subfamily or another. None of the taxa to which it might conceivably belong is characterized by one or more clearly diagnostic anatomical features. The slightly frilled tongue with its shallow groove has remotely similar counterparts in certain honeycreepers, but unfortunately the genera involved therein are themselves of uncertain systematic affinities. *Nephelornis oneilli* and *Xenodacnis parina* seem to fill similar ecological niches and the two species are behaviorally somewhat alike. But *Nephelornis oneilli* feeds on nectar only secondarily, if at all, and in coloration it does not resemble *Xenodacnis parina,* much less any species of *Diglossa.* Consequently, it is probably not closely related to either of these genera.

Conceivably *Nephelornis* might be relegated to the Thraupinae, for that assemblage as presently constituted certainly contains many diverse types, but its placement there would merely add another anomaly to what is already an extremely heterogeneous group that is possibly even now polyphyletic.

Because a study of the external morphology leads to no conclusive decision with regard to the proper placement of *Nephelornis,* we must fall back on its unique tongue musclature as perhaps the most trustworthy index to its correct taxonomic allocation. As previously noted, it possesses one muscle that is lost in other nine-primaried oscines, and it has another muscle whose origin is different from that of the same muscle in other nine-primaried oscines. The two muscles suggest that *Nephelornis* is a primitive offshoot in the early radiation of the nine-primaried assemblage. Consequently, until new considerations are brought to bear on the problem, we recommend that *Nephelornis* be listed next to *Conirostrum* among the *genera incertae sedis* that immediately follow the Parulinae. This position appears to be as near the base of the nine-primaried oscines as our present classification permits *Nephelornis* to be placed (Lowery and Monroe 1968; Paynter 1970; Storer 1970, 1971, and in litt.). New avenues of inquiry that involve biochemical analyses show promise of eventually revealing not only the true relationships of *Nephelornis* but of other questionable taxa as well.

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Museum of Zoology, Louisiana State University, Baton Rouge, Louisiana 70893. Accepted 12 February 1976. This paper was subsidized by a friend of the L.S.U.M.Z.