

THE DISPLAY OF THE ORANGE-HEADED MANAKIN

By DAVID W. SNOW

In March, 1961, I had an opportunity to watch the display of the Orange-headed Manakin (*Pipra aureola*) in Surinam. Brief though they were, the observations showed that this manakin has as remarkable a performance as any of the species of *Pipra* whose displays have been recorded. To the human observer, however, it is not a very conspicuous display, since the males do not gather in close groups, the advertising calls are given at rather long intervals and the displays at even longer intervals, and the display flight is so swift as to be difficult to see. There seems to be no previous published record of any display of *Pipra aureola*, although it is one of the commoner manakins of the Guianan coastal forests.

The male of *Pipra aureola* is black, except for the head, breast and abdomen which are bright red, shading to orange anteriorly, the inner webs of the flight feathers which are white, and the feathers of the thighs and bases of the feathers round the vent which are pale yellow. The eye is white. (See Parkes, 1961: opp. 345, for colored plate.) The female, as in others of the genus, is olive-green. Among the species of *Pipra* the plumage of the male of *aureola*, with that of the closely related *P. fasciicauda*, is unusual in three respects. The bright color of the anterior region is not confined to the head but extends far down the under surface; there is a conspicuous white wing mark; and the whole vent region (not just the thigh feathers, as in *P. mentalis* and *P. erythrocephala*) is colored. The difference between its displays and those of other species of *Pipra* whose displays I have seen are such as to exhibit these distinctive features to full advantage.

ACKNOWLEDGMENTS

For the opportunity to observe *P. aureola*, I am most grateful to Mr. F. Haverschmidt, who not only showed me a group of displaying males in the forest near Paramaribo and suggested where I might find another group, but several times helped me with transport. Due to his kindness, I was able to spend the greater part of the four and one-half days at my disposal actually watching the birds at their display grounds. I am also indebted to Mr. Haverschmidt for putting his own notes on this species at my disposal. My thanks go also to the National Science Foundation (Grants G 4385 and G 21007) for financial support of this study, which was undertaken while I held the post of Resident Naturalist at the New York Zoological Society's tropical field station in Trinidad.

THE DISPLAY GROUNDS

One of the groups of displaying males was in a forest on one of the low sand ridges behind the plantation "Ma Retraite" near Paramaribo. The other group was found in a small patch of forest at the Agricultural Station on the outskirts of Paramaribo. Both areas were climax forest, with large trees, the former mixed and the latter predominantly of sand-box (*Hura crepitans*). There was a discontinuous layer of small understory trees and a rather thick shrub layer in which species of *Heliconia* and *Psychotria* were important elements.

The display groups were small, barely qualifying for the term. The group near the sand ridge consisted of three males, which occupied perches about 40 yards apart from each other; the group at the Agricultural Station consisted of only two males, occupying perches some 30 yards apart. These groups may have been unusually small; the patch of forest at the Agricultural Station was so reduced that it could perhaps support only a small manakin population.

Each male was found to keep to a limited area much of the time. Within this area it tended to call from a small number of favorite perches 10 to 30 feet above the ground. The individual that was watched for longest, one of the males of the sand ridge group, called from several different perches within an area about 20 yards in diameter, but he displayed mainly on a single perch, 15 feet above the ground, and less often on another perch about 15 yards away and 20 feet above the ground. The same was found for one of the males at the Agricultural Station, whose main display perch was only 10 feet above the ground, and limited observations suggested that the second male also performed on a favorite perch. In these respects *P. aureola* resembles *P. pipra*, in which individual males are spaced many yards apart and call from a number of perches within their display area (Snow, 1961), and differs from *P. mentalis* and *P. erythrocephala*, in which the males are more closely grouped together and each calls and displays mainly on a single perch (Skutch, 1949; Snow, 1963a).

The male that was watched most intensively regularly pecked at and pulled pieces from the leaves near his display perch; in particular he often attacked the leaves of a large aroid at one end of his main display perch, which in consequence were tattered and frayed. Usually he pecked at them in flight, and if he pulled off a piece, he returned to his perch before dropping it.

ELEMENTS OF THE DISPLAY

Advertising calls.—The commonest call is a plaintive, somewhat drawn-out *eeeeew*, uttered with the beak pointing obliquely upward, the throat puffed out, and the tail depressed and fanned. This call was occasionally heard repeated at an interval of as little as 10 seconds, but one call every minute or two, or even less often, was much more usual. It is usually uttered by birds sitting by themselves in their display area; less often it is given by a bird engaged in display with another, when the normal calling posture is enhanced by the humping up of the back feathers and shivering of the wings.

Two other calls were heard less often. Occasionally a bird sitting quietly in his display area utters a sharper, double *chee-weep*, and this was once associated with the display given when a bird in female plumage arrived in the display area. The third call is a much softer *weee-ip*, uttered with the beak pointing upward but with the throat not puffed out. It was heard from males perched in their display areas and from birds feeding away from a display ground.

Several times neighboring males were heard to answer each other's calls, usually with the same call.

Side-to-side slides.—In a curiously hunched posture, with the beak pointing obliquely upward, the head feathers puffed out, and the tail depressed (fig. 1a), the bird moves from side to side on its perch, taking such rapid steps that it seems to slide. The side-to-side movement, first one way then the other, is so fast and jerky that one is reminded of something mechanical rather than of a living bird.

Backward-and-forward sliding.—This is a distinct variant of the previous display. The bird holds its body almost in line with the perch, not transversely, as in side-to-side slides, with the head rather low, back humped and tail depressed (fig. 1b). In this position it makes little jumps, or short slides, forward and backward.

Facing-away and wing-shivering.—This display is usually made when there is another bird on the display perch. The displaying bird faces away from the other, lowers its head, cocks up its tail so that the feathers show yellow round the vent, and shivers its wings, holding them low and partly opened so that the white webs show (fig. 1c).

Click on landing.—When making short flights between perches in the display area, males often make a click with the wings at the moment of landing.

Slow flight.—Twice a male, when approaching a bird in female plumage in his display area, adopted a slow flight, in which the white in the wing was more conspicuous than in normal flight, and sometimes when a male dropped down to a lower perch during the coordinated display described in a later section, he flew with the same slow flight.

Darting back-and-forth.—Mr. Haverschmidt has twice observed males flying rapidly back and forth between two branches, a display which clearly seems to be homologous with the darting back-and-forth of *P. mentalis* and *P. erythrocephala*.

Display flight.—The bird flies about 20 or 25 yards away to another perch rather higher than its display perch. It then flies rapidly and silently back to the display perch, with a trajectory indicated in figure 2. At the lowest point of its flight, when it may be

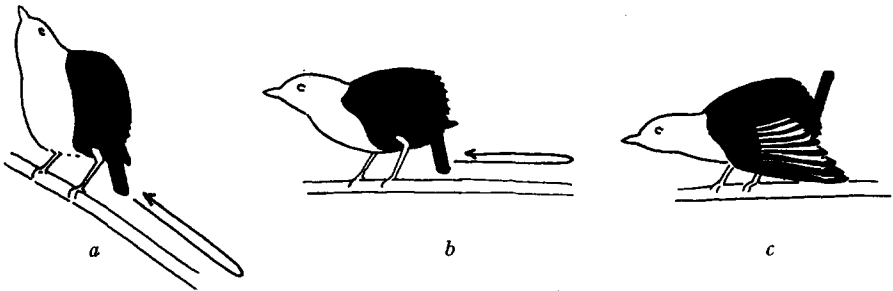


Fig. 1. Displays of Orange-headed Manakin (*Pipra aureola*) in Surinam. *a*, Side-to-side slide, arrow indicates approximate extent of sliding movement; *b*, posture adopted during backward-and-forward sliding, with arrow indicating approximate extent of the movement; *c*, wing-shivering.

only about 5 feet above the ground, it suddenly makes a soft *poop*, a sound that may be imitated by holding a piece of cloth loosely in both hands and then suddenly pulling it taut. Its course then takes it above the level of the display perch and it lands with wings fluttering, so that the white inner webs show conspicuously, turning as it lands so as to face the way it came from. As it lands it utters a single *eeew* or a double *eeew*, *eeew*. The flight is so rapid that unless the observer knows on which perch the bird is going to land the whole display is likely to be missed. But the characteristic *poop*, followed a moment after by *eeew*, *eeew*, indicates infallibly that a bird has just performed a display flight somewhere near by.

Coordinated display between two males.—This was seen in what appeared to be its fully developed form only once, but parts of the same performance were seen on two other occasions. For about three minutes two males performed a beautifully coordinated display on the same perch, according to a set pattern. One male flew off to a perch about 20 yards away and returned in display flight with the usual *poop* at the lowest point of the trajectory. The second male remained on the perch, facing the flying bird. As the flying male made the *poop*, the perched male ducked his head down (fig. 2) and then dropped down to a lower perch just as the other bird landed on the spot where it had been. Just as the flying bird landed, a double *eeew*, *eeew* was uttered. It was not realized at the time, but later observations showed that the first note was probably uttered by the perched bird, or synchronously by both birds, and the second note by the flying bird as it landed. Due to the difficulty of observation (the perch was partly screened by vegetation from my viewpoint), I was not certain whether it was usually the bird that had been perched that then flew off and returned with display flight, or whether the same bird kept on repeating its performance; but I was under the impression that the birds

alternated their roles, at least for a few of the successive flights. There was some movement and mutual display between the two birds between flights, but flight succeeded flight at short intervals for about three minutes.

Later observation of incomplete portions of this display threw further light on it. On one occasion, when a male flew toward another in display flight, immediately after the *poop* the male on the perch raised its head and called *eeeew*, but the flying bird landed on another perch a few feet away and the performance ended. When the display flight was repeated a little later, after the *poop* the male on the perch did not call but pointed its head downward as if to drop to a lower perch; but again the flying bird landed on another perch and the display ended. On another occasion, a male by itself on its display

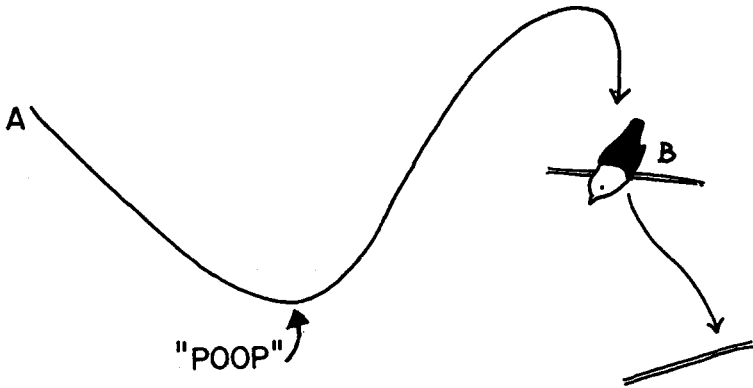


Fig. 2. Diagram of the coordinated display between two male Orange-headed Manakins, as seen from an oblique position so that the trajectory of male A (long arrow) is fore-shortened. For further explanation see text.

perch, after a bout of wing-shivering, suddenly straightened itself up for a moment, pointed its beak upward and called *eeeew*, then immediately dropped to a lower perch with slow flight. A little later it did the same again, but this time it flew off to a more distant perch in preparation for a display flight. On a third occasion, a male did several display flights toward a bird in female plumage that had come to his display perch. Each time, as the male landed, the other bird dropped down to a lower perch.

To summarize, the essentials of the coordinated display between two males seem to be as follows: The *poop* made by the flying bird at the lowest point of its display flight acts as a signal to the perched bird to drop to a lower perch. It may simply duck its head down and then fly down, or it may first raise its head and call *eeeew*. If it calls, its call tends to be followed immediately by the call made by the flying bird as it lands, giving the semblance of a double call by a single bird.

It seems likely that males with neighboring display perches visit each other for the coordinated display, but conclusive observations on this point could not be made in the time available. Observations on the males at the Agricultural Station display ground suggest this. Joint display flights occurred at both display perches, and when they were going on at one perch the male was not seen or heard at the other. But the thick shrub growth made it impossible to follow the movements of the males for long.

DISCUSSION

The small number of observations, combined with ignorance of whether birds in female plumage were females or young males, made it impossible to determine the sig-

nificance of these displays. By analogy with *P. mentalis* and *P. erythrocephala* we may however be sure that they serve to attract females, and it may be presumed that, as in these species, copulation follows immediately after some kind of display flight, the male either landing beside the female and then mounting, as in *P. erythrocephala*, or landing straight on her, as in *P. mentalis*.

But the joint display by two males is reminiscent of the genus *Chiroxiphia* (Snow, 1956, 1963*b*; Slud, 1957) rather than of *Pipra*. Joint displays between two or more males have presumably evolved because they are more conspicuous and so more attractive to females than displays by single males, but they raise their own problems. The first is a problem of evolution. The males must be sexual rivals, and it is difficult to see what advantage a male can gain by helping to enhance his neighbor's display while neglecting his own display perch. His neighbor may on other occasions come to his display perch and enhance his display, but in either case behavior is involved which seems disadvantageous to the individual practicing it. The second problem is a practical one: when a female comes to his perch ready for copulation, how does a male ensure against interference from the neighbors who have been in the habit of displaying with him? In *Chiroxiphia pareola*, when a female comes to a display perch, pairs of males perform a rhythmic joint display in front of her, accompanied by repeated calls, but copulation itself is preceded by a quite different, silent display, performed by a single male, presumed to be the "owner" of the display perch (Snow, 1963*b*). It would not be surprising if in *Pipra aureola*, too, the precopulatory display is different from, and more silent than, the displays described here.

SUMMARY

Observations were made at two display grounds of *Pipra aureola* in coastal forest in Surinam. Males were found to occupy limited display areas, in which they called on several perches and displayed on one or two main perches, which they cleared of obstructing leaves. Neighboring males had display areas 30 to 40 yards apart.

Display included three different calls, several distinct display movements and postures, and two mechanical noises. The most striking display was a coordinated performance between two males, in which one flew with a special display flight toward the other, landing in its place a moment after the perched bird had dropped down to a lower branch. The function of this joint display is briefly discussed.

LITERATURE CITED

- Parkes, K.
1961. Intergeneric hybrids in the family Pipridae. *Condor*, 63:345-350.
- Skutch, A. F.
1949. Life history of the yellow-thighed manakin. *Auk*, 66:1-24.
- Slud, P.
1957. The song and dance of the long-tailed manakin, *Chiroxiphia linearis*. *Auk*, 74:333-339.
- Snow, D. W.
1956. The dance of the manakins. *Animal Kingdom*, 59:86-91.
1961. The displays of the manakins *Pipra pipra* and *Tyrannetes virescens*. *Ibis*, 103a: 110-113.
1963*a*. A field study of the golden-headed manakin, *Pipra erythrocephala*, in Trinidad. *Zoologica*, in press.
1963*b*. The display of the blue-backed manakin, *Chiroxiphia pareola*, in Tobago. *Zoologica*, in press.

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