

occurring in North America. And of these but one, *Chaetura pelagica*, the familiar chimney swift, makes its summer home in the Eastern United States and Canada, where it breeds from Florida to Labrador.

The chimney swift is essentially a bird of the air and is known to remain for sixteen to eighteen hours continuously on the wing. While its length from beak to end of tail is only $5\frac{1}{2}$ inches, its curved wings measure $12\frac{1}{2}$ inches from tip to tip. These disproportionate dimensions, together with its small head and short neck, give the bird a very peculiar shape in flight. It is sometimes called the "bow-and-arrow bird," but it reminds me most of an anchor with a very short stock. The plumage is slate black with some dark green reflections, the under parts being somewhat lighter, and there is little difference in the colouration of the two sexes. Its small weak feet are not very efficient grasping organs. Consequently the chimney swift cannot perch like other birds, and is never seen sitting on a branch, or roosting on the wires like the swallows. Except when on its nest, its only resting position is clinging to a vertical surface, in which posture it is supported by



Spined tail feathers of Chimney Swift; natural size.

the curious spined feathers of its tail. Its rapid wing-beats, alternated by short soarings, sometimes with wing elevated over the back, lack the easy grace of the swallow's flight, but it surpasses the latter in speed and nimbleness. It is said sometimes to use its wings alternately, but I have never been able to satisfy myself of this. Its one and only note, which it keeps up very persistently in flight, has been described as a "rolling twitter." Chimney swifts are no songsters, and their dull plumage is not black enough to be dignified; but the quaintness of their crescentic forms darting across the sky with shrill artless twitter, is a delight to every nature lover. And if not beautiful, the swift is certainly very

useful, for no bird does more to ward off the insect plague that constantly menaces mankind.

Chimney swifts are for us harbingers of summer rather than of spring. They do not arrive in this district until about the sixth of May, some four weeks after the swallows and martins; and it is only towards the end of June that they begin house-keeping. They are now seen frequently flying in threes, which has caused some writers to surmise that the birds are polygamous. But this is an aspersion on their character. What we are really looking at is that thread-bare theme of the novelist known as the "eternal triangle"—the courship of a female by two males. To us the uniformity of plumage among the males would seem to preclude the choice of the female being affected by anything analogous to those points considered so extremely important by the young human suitor, such as the fit of his clothes, color of his necktie or the way he brushes his hair; and it would appear that the lady swift must decide for the wooer with the shrillest voice or the freest wing action. But whether her choice be made on these or some more subtle grounds, she soon picks out a mate, and the serious business of nest building commences.

The chimney swift is one of several native birds that have greatly changed their nesting habits since the arrival of white man in America. A few conservatives of the species still observe the primitive practice of building in caves or hollow trees, and occasionally a nest is found attached to the inner wall of a shed or outbuilding; but the great majority of them justify their popular cognomen by nesting in disused chimneys. All the life activities of the swift, except sleeping, egg-laying and hatching, are performed on the wing, and even the twigs of which it builds its nest are gathered in full flight. Hovering a moment over a dead and brittle branch, it drops with elevated wings, and grasping at a dry twig with its claws, breaks it off and flies away with it. (It is stated that it sometimes breaks twigs off with its bill, but I have always seen it use its claws). Eight or ten feet down inside the chimney it glues these twigs to the wall and to one another with its viscous saliva, building them into a shallow semi-circular nest, about 4 inches wide, and projecting about $2\frac{1}{2}$ inches from its support. The natural glue secreted by the chimney swift seems to be practically insoluble. Prolonged soaking of a nest in water causes the adhesive to swell and soften, but does not melt it. Even boiling water fails to liquefy it, and on drying it becomes quite hard again and holds the twigs together as firmly as ever. No doubt this insolubility ensures the nest holding together in wet weather; but it must be said that sometimes the rain softens the attachment to the wall and the weight of the nestlings causes a disastrous fall.