

PLUMAGE.

Individual Variation. I will first attempt the description of a typical spring specimen, collected April 20th, '98, in Chester county, Penn'a. Interscapular region, sepia; Scapulars, wing coverts and exposed parts of secondaries, hair brown; and the whole barred with deep brown, almost black. Rump white, upper tail coverts white, marked with black. Tail feathers glossy black above, the basal portion of all but the central shafts, chrome yellow; under surface wax yellow, tipped with black. Primaries and secondaries above, dark-brown; under surface with chrome yellow shafts and wax yellow vanes—with the following exceptions: beginning on a line near the base of the first primary and running diagonally to the tip of the first secondary, a deep edging of light chrome yellow extends to the body, and from the same line out to tip of wing an edging of dark-brown, heaviest at the tips, encircles the primaries. Bend of wing pale-yellow, spotted with black. Top of head, sides and back of neck, ashy-gray. Scarlet-vermillion crescent on back of head, and a broad black crescent across the breast. Sides of the head, chin, throat and forebreast, fawn color. Remainder of under parts dull white, with circular spots of black on each feather, becoming cordite on flanks and anal region. Sides and flanks washed with a pale fawn-cinnamon. Bill dead brown-black. Toes and tarsi plumbeous. Iris brownish. Individual variation is very great, particularly in the upper plumage. The back or interscapular region, runs through bistre, sepia, olive and hair brown to drab-grey in different specimens, sepia being the most common; my only example of drab-gray coming from Georgia, where we are led to expect only the darkest birds. The scapulars, wing-coverts and exposed secondaries are usually a shade lighter, often as light as broccoli-brown; the bars vary only in width. The top of the head is occasionally washed with umber or tawny, and the nuchal

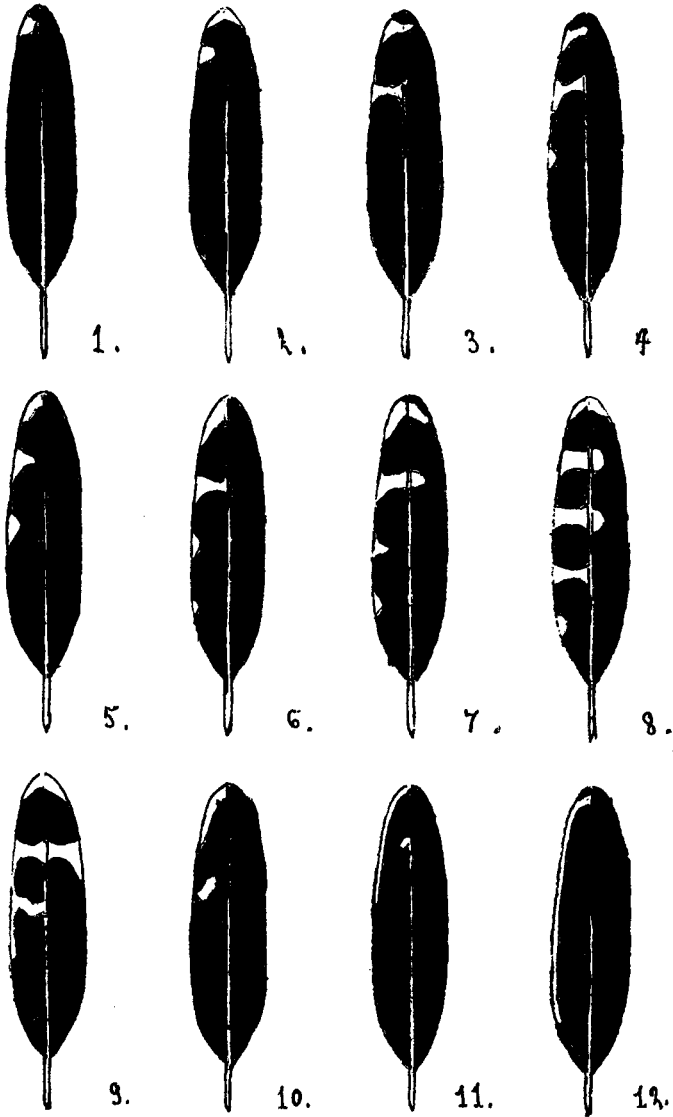
crested varies greatly in extent and in color from scarlet to vermilion. The sides of head, chin, throat and forebreast from drab through fawn, ecru-drab to vinaceous-cinnamon. The black breast-patch being a generic character remains fairly constant. The under parts vary in the extent and depth of tone of the pale fawn-cinnamon wash, and the size and shape of the black spots. In four specimens the bend of the wing is apparently immaculate, but the small black spots are discovered beneath the surface. The absence or presence, number and extent of the light edgings on the tips and outer vanes of the primaries, and the tips, edgings and barrings of the rectrices offer a more complicated study, as variation occurs more frequently in these parts, and can be successfully investigated only with unstinted material.

Aside from the black malar stripes or "moustaches" which vary in length and breadth, a usually greater width of nuchal crescent, and an apparently less frequently spotted condition of the tips and outer vanes of the primaries of the male, I can detect no constant differentiation of sexes. The pattern of coloration of the fully fledged young is very near the same as the adults, but the spots and bars are usually much broader, giving a coarser and darker effect. The immature female as well as the male resembles the mature male in having black malar stripes, and the female in having a narrower nuchal band and in the extent of primary markings. The wings and tail are of a duller yellow and the feathers of the forehead and crown are usually tipped or mottled with scarlet vermilion, dragon's blood or brick-red, posteriorly fading to a rusty brown or burnt umber over the ashy-grey, which extends almost around the eye in some specimens. The lores are frequently blackish, and one specimen has a dusky superciliary stripe. The throat is often tinged with ashy, pronounced in one specimen, and occasionally a dull vinaceous-buff. The black breast tract is shaped more like a semi-circle than the crescent of the adult, and the whole body has a fluffy, lustreless appearance.

The color pattern of the tail coverts is subject to much variation at any period of the bird's life, but ordinarily follows a definite line of progression. Chapman, in *Bulletin American Museum Natural History*, Vol. III., p. 314, illustrates the development of the long upper tail coverts in fifteen figures,

beginning with the barred, running through the intermediates to the concentric or longitudinally striated, and terminating with the white-edged black feather. He says: "If we assume that the phases just observed epitomize a transition which is occurring in *auratus*, and if we further assume that *auratus* is the most recent offshoot of the Neotropical genus *Colaptes*, we should expect the more southern and older species to exhibit only the earlier stages of a color-pattern which in *auratus* has reached its highest degree of development. Unfortunately very large series of the extra-limital species are wanting; so far as my specimens go, however, they seem to support the theory advanced." The posterior upper tail-coverts of two Georgia specimens in juvenile plumage, now in my collection, are black with minute white spot at tip; a distinct and more primitive pattern than any described above, from which I infer it to be a stage almost outgrown and as seldom met with as the white-edged black feather—its present highest stage of color-pattern development. In the variation or transition of the color-pattern of the spurious rectrices, we have a similar condition due mainly to age. This rudimentary tail feather, present in all the Woodpeckers, lies concealed between the present outer and next to outer tail feathers. I consider it of sufficient importance to illustrate in twelve natural sized figures, showing the progression from the primitive dot to spots, cross-bars, and lastly the white-edged black feather, as something seldom occurring. My series of skins is not large enough to contain all stages; hence the sequence may be faulty and is undoubtedly incomplete. Correlative data is incorporated with the explanations on next page.

Seasonal Variation. There are two distinct phases of coloration, autumnal and vernal, although but a single annual molt. The post-breeding molt and renewal results in a somewhat deeper coloring of the upper plumage from nape to rump, and a pronounced primrose suffusion of the under parts, and occasionally the rump. After a few months of wear there is a gradual fading of the upper plumage and a more pronounced change in the lower parts, the primrose or straw-yellow first disappearing from the flanks and anal region, the middle of the abdomen only occasionally retaining a faint yellowish tint. The breeding season is particularly hard on the feathers of



EXPLANATION.—Nos. 1, 2 and 3, Juvenile, 9 examples. Upper tail coverts—black with white dot, incipient bars, or complete transverse bars. Nos. 4, 5 and 6, first renewal, 31 examples. Upper tail coverts—14 barred, 5 concentric, 12 intermediate. Nos. 7, 8 and 9, second renewal, or third stage, 9 examples. Upper tail coverts—6 intermediate, 3 concentric. Nos. 10, 11 and 12, most advanced stage, 10 examples. Upper tail coverts—2 intermediate, 8 concentric.

this bird. Its cavity-haunting habits gradually wear away the light-colored tips which have more or less obscured the bars and spots until all of the darker markings are fully exposed, resulting in a much heavier and darker appearance.

Geographical Variation. Dr. Allen, in the *Bulletin American Museum Natural History*, Vol. IV., p. 36, says: "It has been suggested that the resident form of South Florida would prove separable as a sub-species from the birds at large further north on the basis of its smaller size and darker colors. The average difference, however, as shown by a large amount of material, proves too slight and too inconstant, in either size or color, to make a separation practicable, as is readily shown by comparison of a considerable number of breeding birds from South Florida with a corresponding series from the Middle States or New England. Specimens nearly as dark occur, however, in New Jersey and Massachusetts, so that the average difference in color between Florida and northern birds is not appreciable. There is a lightening of colors as we approach the Plains. This is very noticeable, even in Minnesota specimens, and still more so in specimens from the Dakotas, Nebraska and Kansas." Since the above was written the separation has been made and the southern form given as resident in the South Atlantic and Gulf Coast region. Comparing my series of skins—twenty-three specimens—collected in DeKalb county, Georgia, with those collected in Chester and Montgomery counties, Pennsylvania, Lorain county, Ohio, and Walworth county, Wisconsin, I fail to find any constant difference in coloration, and defy any one to select the so-called *C. a luteus* from the mixed lot with any degree of certainty, except by means of the labels.

A small spring specimen taken in Bradford county, Florida, has a dull, faded appearance, slightly exceeding in size a breeding male, taken in Cleburne county, Arkansas. Both of these birds should belong to the southern form. It strikes me, however, that the stability of a sub-species must be very uncertain when it requires a painful scrutiny in the best light to determine the best shade effects of the upper plumage or a careful and laborious measurement of width of crossbars, combined with the slight and consistent geographical gradations in size, observable in all species having a wide range.

Abnormal Coloration. Albinism is said to be very rare among the *Picidae*. Ruthven Deane described the only example that had come under his notice—*B. N. O. C.*, Vol. V., p. 26—a beautiful specimen, taken near Providence, R. I., in '79, the red nuchal crescent and gold-shafts of the wings and tail being the only normal colors remaining, the rest of the plumage creamy-white. Chas. K. Worthen describes a similar example in the *Osprey*, Vol. I., p. 24, said to have been taken in Lee county, Iowa. It is also cream-white, with the exception of a pink nuchal crescent, and the under parts of the wings a rich yellow. A specimen in the young of the year plumage, taken in New Jersey and now in the Philadelphia Academy of Natural Sciences, closely approaches the albinistic phase, having a general washed-out appearance. One of my Georgia skins, an old male in rich autumnal dress, has a single white feather near the center of the occiput.

Melanism, a yet rarer condition of plumage, is represented by a single case cited by Mr. Deane in the above periodical. Records of the last are extremely unreliable unless the specimens are in hand. In proof of this, witness Mr. J. N. Baskett's experience: His little boy called his attention to a bird on the lawn; it seemed to the eye to be perfectly black, but under the opera glass faint markings characteristic of the Flicker, appeared; the bird's pose, shape and movements already established its identity. As it was Sunday and in town, this apparently remarkable melanistic form could not be shot, and the next day it could not be found. A small boy, however, appeared on the following day with the identical bird, it having been shot by his father while it was engaged in digging holes in the corner of his house. On closer examination its plumage proved grimy and greasy with soot with which it had doubtless come in contact while occupying a used chimney as a resting place. This specimen came from the hands of the taxidermist but slightly darker than normal, he having exceeded his instructions and given it a thorough cleansing.