

only recognition mark thus far developed is the conspicuous superciliary line. The abnormal pattern of the rectrices of the specimen under consideration may be regarded therefore as identical in nature with those variations that must have taken place many generations ago, in the ancestors of species that now have a full complement of well-developed recognition marks.

Probably many, many variations of this kind have occurred, and have failed to be perpetuated, for one reason or another, but who can say at what moment such a variation will be seized upon by natural selection and developed into a new racial character!

The specimen discussed above was collected May 14, 1875, at Indianapolis, Indiana, by Dr. David Starr Jordan.—W. F. McATEE, *Washington, D. C.*

Warblers and Grapes.—At Bloomington, Indiana, during the fall of 1903, from the 24th to the 29th of September, I observed the Tennessee (*Helminthophila peregrina*) and the Cape May (*Dendroica tigrina*) Warblers piercing or 'sucking' grapes. The habit has been frequently recorded for the former, but I believe it is the first time it has been for the latter.

Prof. F. H. King has spoken of the trait in the Tennessee Warbler (*Wis. Geol. Rep.*, 1886), and has protested against condemnation of the bird for this practice which is prevalent for so small a portion of the year. It is this line of argument that I wish to support.

It is evident that the birds can do no harm to grapes in their summer homes. In the parts of their summer range where grapes are found, these are not ripe until the birds have begun their northward movement. Thus it is only during the limited period in which they are present as migrants in a given locality that it is possible for them to injure the grape crop. This period may be as long as six weeks, but in all probability it is generally shorter, and does not include, at the most, more than two weeks during which the species occurs abundantly. If noteworthy harmful, it is only during this very brief period that their depredations would be important.

Careful observations were made at all opportunities during the period mentioned. The behavior of the birds and the condition of the grapes both before and after the birds' visits were noted. Specimens were taken while in the vines and their stomach contents ascertained. Many of the grapes were preserved in alcohol, just as they were left by the warblers.

Both species were constantly busy catching insects on the vines, and on a walnut and some apple-trees near by. Frequently, however, they dashed into the vines and thrust their bills quickly into a grape. Sometimes they withdrew them quickly; again they poked around in the interior of the grape a little, and always after these attacks, they lifted their heads as in drinking. This action suggested a reason for piercing the grapes, that I am satisfied is the true one, that is, the obtaining of liquid refreshment.

From an examination of the grapes preserved, as well as from the investigation of the stomach contents, it was seen that no pulp nor seeds were taken. The grapes show simple openings made by the thrusts, or larger rents due to the drying in consequence of the original wounds. No seeds were disturbed and the pulp had dried down around them in a hard mass. Thus it is shown that grapes cannot be included in the *food* of the Cape May or Tennessee Warblers.

Some of the openings, triangular in shape, have a strip of grape-skin extending across near the base, showing that the bird thrust its open beak into the fruit, probably in an effort to quench an impelling thirst. In the present instance, thirst seems plainly to be the motive for attack. This might be averted entirely by the presence of a bountiful supply of water.

In the arbor under observation, which was a small one, scarcely a grape and not a cluster was missed. The damage, however, was inconsiderable as the birds did not commence to use their appropriated share of the crop until the owner had taken all he desired. However, they might not be thus considerate at all times, but the chances are that in the majority of cases the injury, on account of the late time at which it is done, would be very small.

Prof. King found plant-lice and small heteropterous insects in stomachs of the Tennessee Warbler, and Prof. B. H. Warren reports the food of the Cape May to be larvæ, flies, plant-lice and small beetles.

The results of the investigation of the stomach contents of birds taken at the time of the observations noted above, follow: Cape May Warbler (one specimen), 8 *Typhlocyba comes*, an especial pest of the grape, "an exceedingly abundant and destructive" jassid; 3 *Aphodius inquinatus* and one Carabid, kinds which may be considered neutral economically, but, in case of a departure from their ordinary diet, would on account of vegetarian tendencies become injurious; 1 *Drasterias* sp. (click-beetle), 1 tortoise-beetle, 1 flea-beetle (*Haltica chalybea*), all injurious beetles, the last of which is a particular enemy of the grape, which "appears on the vine in early spring and bores into and scoops out the unopened buds, sometimes so completely as to kill the vine to the roots," and later in the season in both larval and adult stages feeds upon the foliage, and if abundant "leaves little but the larger veins"; 1 *Notonxus* sp., a weevil, with all the undesirability characteristic of the creatures bearing that name; 2 ants, harmful, if for no other reason than harboring plant lice; and a vespoidean hymenapteron (wasp) of neutral significance.

Tennessee Warbler (one specimen), *Typhlocyba comes* (1) again, and another jassid or leaf hopper; 6 caterpillars which were doing all in their power to eat up the leaves remaining on the vines; 2 *Lycosidæ* (spiders); a bug (*Corizus*), another weevil, and one parasitic hymenopter.

This last item is the only portion of the food of these two individuals

that could have served man better outside of a bird, and it constituted only 5% of the contents of one stomach, or only one-fortieth or one-fiftieth of the food of the two. Otherwise the insects eaten were either neutral or potentially or actually harmful. A great per cent of the whole was in the last class, and some of the species eaten are tremendously injurious to grape culture.

The feeding habits of the birds may, from the present knowledge, be declared practically entirely beneficial. In return it seems not too much to expect that we should without complaint furnish, for a few days in the year, the drink to wash the great numbers of our insect enemies down to their destruction; and to consider these two little fellows as among the worthiest as they are among the prettiest of our warbler friends.—W. F. McATEE, *Washington, D. C.*

The Raven in Southern New Hampshire, and Other Notes.—On the afternoon of July 4, 1903, while all the land was dim with fire-cracker smoke, a solitary Raven, coming who-knows-whence and going who-knows-whither, wandered over the rocky ridge of Mount Monadnock, in southwestern New Hampshire. I was sitting outside my camp, midway of the mountain ridge, and several times dimly heard the wanderer's gruff, inarticulate croak, without recognizing it. In Norway or Sardinia, where I have known *Corvus corax* familiarly, this sound would have been instantly intelligible to me; but here, in the Massachusetts hill country of southernmost New Hampshire, unvisited by ravens for many a year, I was slow to grasp its meaning. Two companions were sitting near me, and I credited them with having facetiously uttered the ribald grunts. Nor did these companions at once arouse my interest by exclaiming: "See that crow over there!" I could n't see him without moving, and sat still. But a peculiar and vaguely familiar heavy 'swishing' of wings, coupled with the news that the crow was persistently hovering over our provisions, brought me to my feet to have a look at the bird myself. Stepping around the cabin I beheld, not a crow, but a big, dingy raven, heavy-headed, huge-beaked, and deeply emarginate-winged. He was raspingly beating the air, thirty feet above my outspread provisions and cooking utensils, and scarcely ten paces from where I stood.

Just so I have seen the European Raven flopping about over our vulture-baiting donkey carcass, in the hot fields of Sardinia,—hour-long, day after day. The scene was vividly recalled to me by this strayed carrion-biter of the North American wilderness. He was so strangely unsuspecting that he not only did not veer off when I appeared around the corner, but actually let me walk almost directly under him before he showed symptoms of alarm, and remitted his scrutiny of the victual-strewn ground. Then he started away to the northward along the mountain ridge, flying rather slowly and laboriously, with but little sailing, and presently disappeared behind a rocky knoll, on the northwest side of the mountain.