of Santa Barbara. The bird was shot upon the grounds of the Guadalupe Gun Club at Guadalupe, Santa Barbara County, California, January 14, 1921, and was shipped to me in the flesh for mounting. It was in full plumage, with a marked development of coloration. The carcass, and such parts of the skeleton as were not required for mounting, we forwarded to the University of California Museum of Vertebrate Zoology, with the hope that they might prove of value to the research department there.—A. E. COLBURN, *Los Angeles, California, February 5, 1921.*

A Feeding Habit of the Varied Thrush.—From a ground-floor window of the Museum of Vertebrate Zoology, one commands a view of a bit of ground made shady and leaf-matted by a little grove of planted *Pittosporum* which hugs the eastern side of the building. Abundant rains this winter have kept this leaf-mat water-logged.

Here on January 10, 1921, I watched a Varied Thrush, presumably subspecies *naevius* of *Ixoreus naevius*, as it foraged among the dead leaves. For a little of the time the bird was working within ten feet of my eyes.

Its constant mode was as follows: A short jump forward as it grasped debris in its beak, and a return jump so immediate that the whole was almost a single movement. A clump of debris, sometimes quite a clod, flew backward at one side or the other with each return jump. Usually the debris described a low arc, landing ten or twelve inches away, sometimes more, frequently less. Often successive plucks landed material on alternating sides of the bird with a slight corresponding change of body axis in each succeeding pause. Perhaps as often the leaves were landed for several times successively on the same side of the bird. Each pluck was followed by a moment of "frozen" pause, with head at about body level, after which the bird either repeated the operation or proceeded to devour the food which it had uncovered.

There was no movement of the wings and I was unable to perceive any intentional moving of debris by the feet. Naturally, tiny bits were occasionally disturbed by a claw in the backward jump. But, as a matter of fact, the feet rarely touched the leafy carpet once the bird had started, for it "swept" a rather clean swath down to dirt, like a carelessly shovelled path through the snow. This path was roughly three to five inches wide and decidedly tortuous, and the bird at times even reversed its progress to work over ground already cleaned, and to later start off on a side tangent.

Food seemed to be abundant as the bird picked up and swallowed frequently, apparently tiny morsels and good sized morsels, though I could not determine their exact nature. From its manner of picking and swallowing I guessed that it was eating such lower insect life as was uncovered, and possibly vegetational germinations which look so grub-like. Later I examined this ground, and found, when the leaves were scratched away, an abundance of worm and insect life, mostly larval, and some tiny plant germinations as well.

Naturally a "path" like this bird made would only occur in just such a situation, viz., a complete mat of dead leaves, water-soaked, and with abundant food concealed in and beneath them. Birds working on sod or bare earth concentrate their efforts on scattered spots, and often spend some moments on one hole, making the dirt fly as did the leaves.

On January 15, another bird which I watched from the same station, confirmed this manner of feeding. It moved even greater masses of material (variable moisture content no doubt affects the tenacity of the leaf mat), and at one time pulled away a leaf mass as big as its body. Once, when activity indicated a big morsel, a jay (*Aphelocoma californica oocleptica*) suddenly descended from the tree above, and would surely have alighted on the thrush's back had not the latter scooted off just in time. Two rods away the thrush at once proceeded with its feeding. I noted, too, that the jay had arrived an instant late, and after a disappointed scrutiny of the "diggings" it flew.—J. EUGENE LAW, *Berkeley, California, February 16, 1921.*

Anent Red-winged Blackbirds.—About a year ago, after considerable urging on the part of ornithological friends (?), I undertook a somewhat comprehensive study of the races of the *Agelaius phoeniceus* group, with the idea of possibly being able to find some more exact formulae for their determination and of perhaps being able to consolidate some of the present subdivisions. This work has been carried on as opportunity

permitted, but there have been many and often long-continued interruptions caused by field trips and various other matters demanding attention. However, hundreds of Red-wings have been examined and measured in various ways, and all these measurements have been carefully tabulated. Ratios of certain parts to others have been worked out in the endeavor to find some system that might assist us to describe or to determine the different subspecies with greater ease, especially in the winter plumages. The results of all this work have been far from satisfactory, from my own point of view.

Unfortunately the conclusion has been forced upon me that this undertaking must be abandoned, at any rate for the time being, for the reason that there is so much other work that must no longer be delayed, and which will occupy the greater portion of my time for months to come, with new matters constantly arising to take up what little time there might otherwise be to spare. Hence it seems to me that the only thing to do is to accept the situation gracefully and to leave the field clear to any ambitious mortal who may allow himself to be drawn into this alluring but treacherous current.

There is one point, however, that I would like to touch upon in this short paper before dropping the subject. This is that the Bi-colored Blackbird, *Agelaius gubernator californicus* Nelson, or *A. phoeniceus californicus* as I believe it should be (J. Mailliard, Condor, XII, 1910, p. 66), was described from an intermediate bird. The type specimen is a female, from Stockton, San Joaquin County, California, with the wing of a male tied to it (*Agelaius phoeniceus B. gubernator* [Ridgway] Belding). Now it has been shown (J. Mailliard, loc. cit.) that the Red-wing inhabiting the country at the junction of the Tuolumne and San Joaquin rivers, about forty miles south of Stockton, approaches the San Diego Red-wing (*Agelaius phoeniceus neutralis*); yet the bird found near Stockton in a similar type of country, with no climatic or topographical barrier between it and the Tuolumne junction country, comes a great deal closer to the form inhabiting the region about San Francisco Bay whose habitat extends, apparently, as far south as Monterey Bay along the coast, up the coast through Marin and Sonoma counties, and along the inner coast range as far north, at least, as Snow Mountain, Colusa County. The Stockton bird has enough of the characteristics of *neutralis* to be appreciably different; it shows itself to be more or less intermediate, having a heavier bill than the Bay region birds, less black on the middle wing coverts of the males and, on an average, heavier streaking upon the heads and under parts of the females. It is very unfortunate that the latter was not taken as the type of *californicus*, in which case it might be possible to separate out the Tuolumne River race, although this latter seems to be rather variable, as I have taken specimens which were practically identical with others from Stockton. In fact, the Tuolumne River bird appears to be just about midway between the *neutralis* of southern California and the San Francisco Bay Red-wing.

A singular angle in the distribution of these races is that while the intermediate approaching *neutralis* appears to be the one occupying the greater part of the San Joaquin Valley in south-central California, at the extreme southern end of this valley there is an irruption of what is practically *californicus*. Breeding birds from Buena Vista Lake, Kern County, are not easily distinguishable, if at all, from those breeding at Stockton, while birds from Tejon Pass, a little farther south, are also nearer to these than to *neutralis*, which occurs only a little farther south still. It looks as if this southern interpolation of *californicus* must have reached that territory via the valley of the Salinas River and San Juan Creek through the Carriso and Elkhorn plains, from which there are one or two low passes into the San Joaquin Valley.

In taking measurements of Red-wings I have tried to find some way of expressing in more definite terms the differences in the shape of bills, such as thickness for example, by taking the distance from the nostril to end of bill (placing the posterior leg of dividers or calipers, which must be finely pointed for such work, in the actual opening of the nostril to ensure always starting from the same point), then dividing this by two and measuring the width of bill exactly midway between the two points. While this is a very delicate measurement to get exactly, in conjunction with width at base and length of bill it gives a better idea of the slenderness or thickness of the bill than anything else I have tried out. Its chief fault lies in the fact that it is so small a dimension that one or two tenths of a millimeter mean a good deal, and the slight inaccuracies one is liable to fall into while making a measurement so difficult to get exact, are magnified in importance.

Yet when one finds that this measurement in groups of 11 males from Marin County, 10 from Sonoma County, and 8 from Suisun, Solano County, averages 2.6 mm. in each group, while the distance from nostril to end of bill averages respectively 15.1, 15.8, and 16.1 mm., you have something to compare with a group of males (11) from Stockton, which shows the former measurement to be 3.0 and the latter 15.4 mm., making it apparent that the bill of the Stockton bird is appreciably thicker than any of the above groups. Again, a Tuolumne River group of 13 males has 3.3 and 15.2 mm. for these measurements, showing a still heavier bill than the Stockton bird.

While the variations among different groups of the same species may weaken the significance of this data to some extent, it is still valuable when used in conjunction with other characteristics. However, not having had sufficient opportunity to carry on these studies to a conclusion I will not dwell longer upon the subject, but will close by saying that I shall be glad to be of service, if needed, to any one indulging in this pastime.—JOSEPH MAILLIARD, *California Academy of Sciences, San Francisco, January 21, 1921.*

Pileated Woodpecker versus Cooper Hawk.—On January 31, 1921, while we were on our way to Mirror Lake, Yosemite Valley, we heard the loud, ringing call of the Pileated Woodpecker. Looking up we saw two rather large birds dashing through the treetops. The dark bird with the white wing-patches we recoginzed at once as a Pileated; the lighter colored bird turned out to be a Cooper Hawk. A pursuit was apparently in progress, but as the birds dashed through the branches of the tall trees it was impossible to be sure which of the birds was the pursuer and which the pursued. Both birds quickly left our range of vision, but a little farther on we heard gentle tappings and soon located the woodpecker. The hawk was there, too, perched on a limb a few feet away. The woodpecker was drilling and prying off chips with apparent unconcern, while the hawk looked on with seemingly hungry eyes. While we were watching, the hawk flew to a branch a few feet above the woodpecker. Pileated tilted his head and gave the hawk a sidelong glance and then deliberately flew toward him and drove him from the tree. With the hawk gone, the woodpecker went on with his drilling as though nothing had happened. Perhaps the hawk saw visions of a good meal, but lacked the courage to attack a bird so well equipped to give battle.—CHAS. W. MICHAEL, *Yosemite, California, February 2, 1921.*

Two Unusual Winter Records for the San Francisco Bay Region.—The White-throated Sparrow (*Zonotrichia albicollis*), a rare winter visitor to this region, has once more appeared on the campus at the University of California, Berkeley, after an apparent absence during the winter of 1919-1920. A single individual was observed in company with two Golden-crowned Sparrows foraging in the shelter of shrubbery along Strawberry Creek, December 17, 1920.

On December 19, 1920, a stormy day, with heavy wind, at my home in Oakland, I was attracted by an unusual bird call. I could not identify the bird at this time because it flew too quickly into shrubbery, but subsequent visits proved it to be a Western Mockingbird (*Mimus polyglottos leucopterus*). Other known dates of this bird's visits to my garden, where it has spent most of its time in a large toyon berry bush, are December 26, 1920, and January 2, 16, and 24, 1921. Every visit has been announced by harsh, unmusical call notes.—MARGARET W. WYTHE, *Museum of Vertebrate Zoology, Berkeley, California, February 17, 1921.*

An Afternoon with the Holboell Grebe.—In the last issue of the Condor I read an interesting article on the nesting of the Pied-billed Grebe and its habit of carrying its young on its back. The writer of the article, Mr. Bancroft, says that the young were not carried under when the parent bird dived. Perhaps the following passage from my note-book, which treats of this Grebe habit, may be of interest:

On the afternoon of June 24, 1914, I loaded my canoe in the democrat and went with a friend to Silvermore Lake. After launching our canoe we found nine nests of Holboell Grebe (*Colymbus holboelli*), with 2/3, 2/2, 1/6, 3/1 and 1/4 eggs, respectively. While paddling around we noticed a Grebe swimming along with a young one on her back. At times the young bird was almost invisible beneath her feathers and wings as it moved