

small entrance holes. Twelve swallows were taken before I ended the hawk's depre-dations with a rifle. The female hawk successfully raised her brood of young without making any attempt to duplicate her mate's individual hunting habits.—WINTON WIEYDEMEYER, *Fortune, Montana, January 24, 1935.*

Further Comments on the Cowbirds of the San Francisco Bay Region.—The increase of cowbirds (*Molothrus ater*) in the San Francisco Bay region during the last ten years has been widely noted by local observers. Efforts to secure adult specimens were unproductive until the belated acquisition last year of a breeding pair (Grinnell, *Condor*, 36, 1934, pp. 218-219). Southwestern Alameda County seems to be the present center of abundance of the birds, as also the region of earliest record. Recently I obtained eight specimens near Irvington in this part of the County, through the courtesy of Mr. Nion Tucker and the assistance of Mr. Duke Trempe. These newly acquired specimens provide a more adequate basis for determination of race than has been had previously, and, because taken in early March, they point to per-manent residence of the population.

On February 3, 1935, cowbirds were congregated at the locality mentioned, on the Bay shore, where grain had been put out for the ducks. Mr. James Moffitt and I saw several groups of ten or more and believe there were over fifty in the vicinity. On March 8, when several specimens were taken, one flock of at least thirty birds was seen. Since cowbirds are not known north of the Bay region, except in the interior, it seems unlikely that this group could represent a population breeding any-where except locally. The flocks seemed to me quite comparable to the winter aggre-gations of resident birds in southern California, which disperse in the spring and summer. I doubt that the appearance of cowbirds in the spring in places about the Bay where they are absent in winter should be taken as evidence of migration. More probably these appearances are normal seasonal dispersals that lead to establishment of territories in which egg-laying will take place.

The skins of six males and four females now at hand have been measured. My method of measurement has been made to conform to that used by Dickey and van Rossem (*Condor*, 24, 1922, pp. 206-210), by checking results on specimens measured and reported upon by them. Average and extreme values for the group are: Males, wing, 104.8 (101.8-108.7); tail, 72.5 (70.6-74.6); culmen, 15.7 (14.8-16.6); bill depth at base, 10.2 (9.6-11.0); tarsus, 23.7 (22.0-24.7). Females, wing, 92.5 (9.09-94.4); tail, 62.0 (60.8-63.5); culmen, 13.9 (13.5-14.3); bill depth at base, 9.5 (9.1-10.2); tarsus, 22.4 (22.1-23.1).

Comparing these with Dickey and van Rossem's tables in their description of the race *californicus*, the males are found to equal or to slightly exceed *californicus* in wing length, tail length and bill depth. In length of culmen and tarsus they are as small or smaller than *obscurus* of the Colorado River. The females are in all measurements close to *obscurus*, except for bill depth which is intermediate. The females are colored like *californicus*, even more so than the original female com-mented upon by Grinnell. There is still, however, the element of doubt regarding the state of wear and fade of the *obscurus* series from the Colorado River, which may not be inherently less slaty than *californicus*.

Grinnell (*op. cit.*, p. 219) has referred to the *californicus* race of the San Joaquin Valley as a mosaic of intergrades. To me there appears to be no more heterogeneity in the San Joaquin group than in the Bay region group or than in Los Angeles County birds. All of our populations of the Pacific slope of California show a large, but not exceptional, degree of individual variation. Certainly the Bay group is not properly situated for geographic intergradation between *obscurus* of southern Cali-fornia and *artemisiae* of Nevada. Each of these populations of cowbirds in Cali-fornia has average size values which, if reliable, indicate slight inherent differences. If we are to follow Friedmann (*Wilson Bull.*, 46, 1934, p. 28), Willett (*Pac. Coast Avif.* No. 21, 1933, p. 156) and Grinnell (*loc. cit.*), and conclude that a central California race is not "usefully recognizable" and conceive of a more inclusive, locally variable, *obscurus*, we should not allow this to obscure certain important facts first brought to light by the describers of *californicus*. These, as I interpret them, are that cowbirds increase in average size, perhaps somewhat unevenly, from the Colorado River Valley north through the San Diegan district to the San Joaquin

Valley. We now know of increase in certain average dimensions north on the coast to San Francisco Bay. East of the Sierra Nevada the size increase northward is more pronounced and more abrupt, leading to a large extreme, *artemisiae* of the Great Basin area.

If the Bay region population is the result either of single or recurrent immigrations, as the seeming absence of cowbirds prior to 1922 would indicate, the source of the new population is a matter of considerable importance. The characters of the birds now here suggest two possible modes of origin. The first is by invasion from both the San Joaquin and southern California areas, though invasions from the two areas may not have been equally great or simultaneous. The second is immigration from one or the other of these areas involving individuals which did not represent the average values of the areas of origin. Because of this they would build up a population of slightly different average nature that corresponded to their own genetic constitution. Such an original stock might have been sufficiently heterozygous to account for the individual variation in size now found.—ALDEN H. MILLER, *Museum of Vertebrate Zoology, Berkeley, California, May 14, 1935.*

NOTES AND NEWS

We regret to announce the intention of George M. Wright to leave California as a permanent resident. His duties as chief of the Wildlife Division of the National Park Service call for transfer of his head-

quarters to Washington, D. C. Of course national parks are now well scattered across the full breadth of the country, but their preponderance in the West should often lure him back to our coast. If he behaves like Harold C. Bryant, earlier emigrant to the Washington offices, the return visits will be all too infrequent.—A.H.M.



Fig. 43. George M. Wright: Chief, Wildlife Division, National Park Service; Ex-President, Northern Division, Cooper Ornithological Club; Vice-President, Board of Governors, Cooper Ornithological Club.

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The use of birds in teaching elementary science is fraught with difficulties; they cannot often, in practice, be collected, nor even captured alive, and only rarely do circumstances allow of leisurely observation of them on the part of a group of pupils. Yet the study of birds remains one of the most appealing among elementary science subjects; meager opportunities for seeing what birds do may be supplemented by guided interpretation and discriminating instruction. Gayle B. Pickwell, Professor of Zoology in San Jose State College, with a teacher's knowledge of children and their reactions, and with an abundant background of experience as a first-hand student of bird behavior, has just put out a highly meritorious number of the Science Guide for Elementary Schools (vol. 1, no. 9) dealing with Birds (56 pp., including 17 ills.: published by California State Department of Education, April, 1935). While this "guide" pertains primarily to California, teachers in any part of the United States will gain ideas and inspiration from it. After all, it is an understanding knowledge of animal natural history gained early in life that will bring that tempered point of view, of man toward his biotic environment, which many people now believe will operate for his own best ultimate welfare.—J.G.