

ratory birds spend the winter?" Make outline maps to show the winter and summer homes of a few species, and show the paths of migration by broken lines. Study the nesting range of each as given in Chapman's "Handbook of Birds," or any other good bird-book, and indicate this area by dots.

You will find that the movement of birds is often very extensive; in some cases they migrate thousands of miles, from South America to the northern parts of North America. The data, as given by Chapman for the Kingbird, show that it is an extensive traveller, and breeds over a wide range.

Make a map for this species, also maps for the Bobolink and Redstart.

Why do birds migrate? Is migration an instinct or a habit? Space will not permit a discussion of these questions further than to say, that some modern naturalists think that the change of climate which took place during the glacial period affords an explanation of the phenomenon of migration. But this theory is open to many objections. Read up the subject of migration as opportunity presents.

Study the nests of birds, form, materials of construction, location, etc., etc. Make a map of your locality showing the sites of nests, naming the species owning them, and also giving the name of the shrub or tree in which they are found. Go over the ground again in the autumn, after the leaves fall. Review your map and note how many nests escaped your notice, when the leaves were on. Why do birds take such care to conceal their nests? Correct your map and note that it is in reality a bird census of the locality. Is it rich in insectivorous birds?

Much can be done to increase the bird population of a district by planting trees and shrubbery, by providing food, baths, and nest material, by putting up bird houses, and by eliminating, as far as possible, all their enemies.

Figure 2 shows bird-houses in various stages of construction. Tree swallows, chickadees, martins, and woodpeckers are all glad to nest in man-made houses. They should be made of old weathered boards, and large enough to give each pair of birds a floor space, varying from six inches square for martins, to three inches square for tree swallows, and about eight inches high. A single door, opening near the top, should be made two inches in diameter for the larger

birds, and about one and one-half inches for the smaller birds. The robin is often attracted to a platform nest—a shallow box about six inches square, with the sides not more than two inches high—fastened under the eaves of a veranda, or other sheltered place about a dwelling. They will often use the same box for the second nesting, if the old nest is removed as soon as the first brood is on the wing.

More specific directions are given for making homes, etc., for birds, in REVIEW for May, 1914, pages 253 and 254.

Bird language is something more than song. Do all birds have the gift of song? Although Shakespeare says:

"The crow doth sing as sweetly as the lark
When neither is attended,"



Fig. 3.—THE HAIRY WOODPECKER
Doing his best to reduce insect life.

yet most bird students are more impressed with the variety and volume of his "calls,"—ejaculation, epithets, etc. Study this bird and its language; and also the calls of other species. A little friendly deception in the use of the squeak, or call of hungry young birds, will often draw the old birds from their hiding.

In studying the color of birds, they should be sought in their natural haunts. Lines and markings that were conspicuous in other surroundings, are now a part of their protective coloration. Note that all birds do not enjoy an equal degree of protective coloration. Compare the colors of birds in spring and late summer, also compare the colors of the male and the female.

Food and the relation of birds to man are closely connected topics. Apart from their