

When he makes an excavation he always has a place to use the loam, the sand or the gravel; and he doesn't have to move it twice or three times to get it into its proper place. He plans his work deliberately from the beginning of the season to the end of the season, and he spends the club's money always with due consideration, and gets one hundred cents' worth out of every dollar expended. Above all, he is fair and square with the men under his charge, and he gets an honest day's work from those whom he employs, as evidenced by long service. Most of his regular men have been with him more than ten years. Proper care of a golf course requires experienced man-labor; turnover is a detriment to any course. John sticks to his men and they stick to him. He knows that experienced men do the best work.

Brae-Burn is to be congratulated on having a man who loves his work and his club, and gives to it one hundred per cent efficiency.

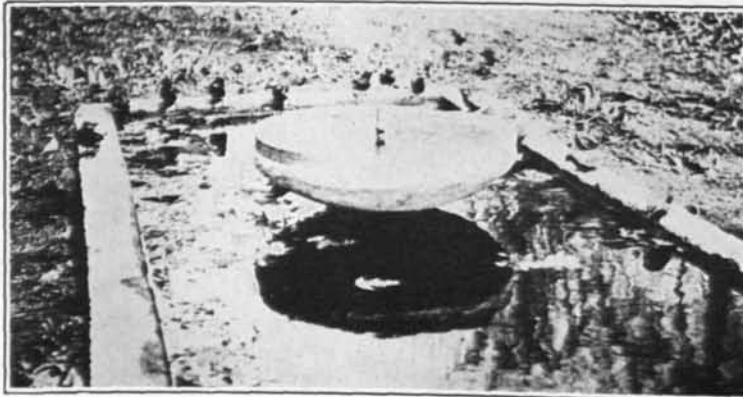
Attracting Birds to Golf Courses

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The preservation, encouragement and increase of useful birds is a national duty in which all organizations able to do so should cooperate. Federal and state legislation affecting the matter, in general, is satisfactory. National, state, cooperative, and private bird refuges are numerous and growing more so yearly. Individual bird protectionists are legion and their organizations for the cause are large and powerful. Golf clubs, a class of organizations broadly interested in the out-of-doors, including its animal inhabitants, and alive to esthetic considerations, can ill withhold their support from a movement so well-established and meritorious. In fact, considering the well-known utility of birds in destroying insect and other pests, golf clubs will only be consulting their own interests in preserving and propagating these natural predators upon the foes of their greens and fairways.

Golf courses, without special modification, present several features that are attractive to birds. The broad expanses of short grass on the fairways



Bird baths are appreciated. Cedar waxwings at the pool.

furnish excellent feeding grounds for robins, meadowlarks, starlings, flickers, and killdeers. The longer grasses and weeds of the rough, and scattered clumps of trees and shrubbery open to full light, support an abundant insect population, an important source of food for our feathered friends. Many birds find nesting sites also in the arborescent growths present, and sally forth for food over the grassed areas, where they are often joined by numbers of those aerial feeders, the swallows and swifts, which find on these unobstructed reaches happy hunting grounds.

Such are the impressions recalled of a season's observations on a golf course well situated for birds. There are courses not so fortunate, but all have the fundamentals of valuable bird refuges and should be improved. The essentials of bird encouragement are protection, food, water and nesting sites. Protected to a considerable extent from trespass, and relatively free from natural enemies of birds, golf courses already have much of the



The housing problem solved. A satisfactory home for a useful citizen, the flicker

safety required for sanctuaries. Birds promptly respond to protection; but it should be as complete as possible. So far as food is concerned, insects are plentiful on most golf courses, but it would help the birds and ornament the courses if shrubbery on the grounds were selected chiefly from species producing fruits fed upon by birds. Most golf courses, again, have water



A close-up and far-away. Houses occupied by the beautiful and beneficial purple martins.

hazards at which birds can drink and bathe; but where these are absent or are far apart, bird fountains could easily be attached to hydrant supply pipes. These not only would be a boon to birds on hot summer days, but if placed in view of rest benches would be a source of interest and entertainment to members and visitors.

Protection, food, water—these are the things that usually are present in some degree and which may very easily be supplemented; but nesting sites, especially for some of the most useful birds, are scarce or lacking on most golf courses. The trees and shrubbery (the latter best if in tangled masses) will accommodate many birds; but the birds that nest in cavities can hardly find a home on improved lands, especially where tree surgeons have been employed. Fortunately these birds will occupy artificial cavities or nest-boxes. In most cases nest-boxes must be supplied if we would enliven and benefit our golf course with such beautiful and useful birds as the purple martin, bluebird, house wren, tree swallow, flicker, white-breasted nuthatch, and chickadee. At least twice as many other kinds of small birds have been known to occupy nest-boxes. These bird homes are manufactured by a large number of dealers in the United States and may be put up without much trouble. Placing nest-boxes is work which can well be done in winter, a season during which, at least on northern courses, employees are but little occupied, and members might welcome something to do out of doors. Names of dealers in bird boxes, bird baths and the like, and bulletins treating all phases of bird attraction methods, as well as advice in special cases, may be obtained by application to the Biological Survey, U. S. Department of Agriculture, Washington, D. C.

Fighting the White Grub at Merion

ALAN D. WILSON

In September, 1920, we noticed large brown patches appearing on several of our fairways, notably the 12th and 16th on the east course. Investigation showed that the turf was not only dead, but was loose and could be pulled away from the ground. On digging down to find the cause, we discovered large numbers of white grubs about three-quarters of an inch in length. These were not the grubs of the green beetle, the ones which throw up small mounds of earth, with which we were familiar, but smaller and of a totally different species. They had very thoroughly eaten away all the roots of the grass. We tried the various common poisons, but had no success in killing the grubs, and we finally dug up large areas of both fairways, picked the grubs out by hand, and re-sodded.

The matter was reported to the Department of Agriculture, and on October 6 the department was kind enough to send an investigator, Mr. R. H. van Zwaluwenburg, of the Bureau of Entomology, who spent two weeks with us trying all sorts of poisons in an effort to find something which would kill the grubs without killing the grass. In all, he used 36 test plots of 2 feet square each, and tried, among other things, Bordeaux mixture, Paris green, nicotine, kerosene emulsion, lime, bichloride of mercury, and the arsenical solutions (such as arsenate of lead and arsenate of soda), but without effect; that is to say, with no killing amount-