

tain region must have invaded the country from the west during the glacial period when a series of great lakes occupied approximately the same area.

A female *Harelda hyemalis* in the molt to the eclipse plumage is figured in colors.

In another paper¹ a pair of Herring Gulls are described in which the male had yellow legs but the wing pattern of *argentatus*; the female grayish white tarsi and pink webs but the wing pattern of *cachinnans*. He regards them as hybrids between the two species mentioned and argues that *cachinnans* is therefore only a subspecies of *argentatus*.

A third paper² records the recapture of numerous birds banded in Sweden.—W. S.

Burleigh on Birds of the Georgia College Campus.—Prof. Burleigh has published an annotated list³ of birds observed on the campus of the Georgia State College of Agriculture at Athens, Ga., during his six years residence there. The area of the campus is 830 acres and 173 species have been observed there of which 73 occur in summer while 100 are migrants. Of the summer residents 50 have actually been found breeding in the area and any of the remaining 23 may be expected to breed. Twenty-three additional species have been found in Athens but not, so far, within the limits of the college grounds.

These campus lists as well as lists for parks or other limited areas are of much interest, especially historically, since changing environment as years go by will undoubtedly reduce their totals.

Dr. Joseph Grinnell has published such a list for the University of California and already records⁴ the disappearance of certain forms. He deplores the indefatigable activities of the "tree doctors" who allow no dead limbs or bunches of dead foliage to remain and whose constant spraying drives away the birds which formerly assembled to devour insect pests in the groves. "The natural check to the caterpillar crop is not noticed by the landscape architect and Faculty Glade becomes quickly silent of Warbler voices." The local disappearance of native bird life parallels the removal of the elements of naturalness in the campus flora. We hope Prof. Burleigh will use Dr. Grinnell's remarks in warning his classes in forestry of the danger of being too one-sided.—W. S.

McAtee's Propagation of Game Birds.—Game bird breeding is becoming a more and more important industry in the United States and a necessary one if hunting is to be maintained, since the native supply of

¹ Den gulfotade gratrutens *Larus cachinnans* Pall., systematiska ställning. Av. Einar Lönnberg. Ibid. pp. 218-222.

² Aterfunna ringmärkta faglar. Av. E. L. Ibid, pp. 227-230.

³ A Preliminary List of the Birds of the Campus of the Georgia State College of Agriculture, Athens, Clarke County, Georgia. By Thos. D. Burleigh. The Cypress Knee, Fifth Annual Edition, 1927. pp. 29-45.

⁴ Phronitistery. By Joseph Grinnell. Univ. of Calif. Chronicle, January, 1927. pp. 104-106.

upland game birds has been largely exhausted and the importation of western stock into the eastern States is yearly becoming more difficult.

In order to encourage this industry the Biological Survey has issued a pamphlet¹ on the subject prepared by W. L. McAtee which gives all desired information on requirements, coops, enclosures, food, pinioning, etc. It is devoted especially to Ring-necked Pheasants, Bobwhite, Mallard and Canada Goose, the game birds that can be most successfully reared, although there is some reference to other species. Numerous illustrations add to the value of the Bulletin.—W. S.

Economic Ornithology in Recent Entomological Publications.—

European Corn Borer.—“In the late winter and spring of 1922 as high as 95 per cent of the larvae were removed from standing cornstalks in some of the small home gardens in the environs of Boston, presumably by woodpeckers.” In such commendatory terms is the work of birds on the European corn borer extolled in a recent publication² summarizing information on the history and present status of that destructive insect in the eastern United States. Although such conspicuous work was found to be exceptional, experiments carried out during the winter of 1923–24 in 47 widely separated localities in New England revealed a destruction by birds of an average of 19 per cent of the hibernating larvae. Downy Woodpeckers were found by direct observation to be responsible for most of this beneficial activity.

Field observation revealed the Robin to be an enemy of the borer, when it was found late in spring feeding on exposed larvae on a pile of cornstalks. Grackles, Blackbirds (presumably Redwings) and Starlings also aided at that season by devouring over-wintering larvae that were migrating in search of suitable quarters for pupation.

Reference is made to work conducted by the Biological Survey in the spring and fall of 1920 when C. C. Sperry of that Bureau made a study of the relation of birds to the corn borer. Stomach examination added the Ring-necked Pheasant to the list of bird enemies and the reputation of the Starling was upheld by the finding of six corn borers in a single stomach.

Citrus Insects.—In more general terms has the value of birds been recognized by one trained to view the problem primarily from the viewpoint of an entomologist.³ J. R. Watson in discussing citrus insects and their control gives ample praise to insectivorous birds. “Except for an occasional tree attacked by sapsuckers, birds do virtually no direct injury to a citrus grove,” the writer explains, a refreshing and reassuring thought

¹ Propagation of Game Birds. By W. L. McAtee. U. S. Department of Agriculture. Farmers' Bulletin No. 1521. March, 1927. pp. 1–56. Price 10 cents. Supt. of Documents, Gov't Printing Office, Washington, D. C.

² Caffrey, D. J. and L. H. Worthley. A Progress Report on the Investigations of the European Corn Borer. Bul. 1476, U. S. Dept. Agric., February, 1927. 154 pp., 52 figs.

³ Watson, J. R. Citrus Insects and their Control. Bul. 183 (revision of Bul. 148), Univ. of Florida Agric. Exp. Sta., June, 1926. pp. 293–423, illus.