

There is now scarcely a country in the world which has not come to realize the importance to agriculture of its insectivorous birds. A. Godard (1917), writing in a viticultural periodical on conditions of vine-growing in France, pleaded for the protection of birds as the natural means of controlling insect pests. "Outbreaks of pests in agriculture always coincide with the disappearance of birds, and this is more felt in agriculture and viticulture than in forestry, woodland birds being less liable to destruction." In New Zealand, of course, the last remark does not hold, since forest-birds are here the most liable to destruction. "In South Africa [to quote an abstract of FitzSimmons's article in the *South African Journal of Science*, 1917] if the native birds were exterminated the human population would in a few years be reduced to a condition of starvation, while the ticks would destroy the domestic animals throughout the country. All natural checks to insect-increase, including parasites, diseases, and fungi, acting together with man's fight against the pest, are considered entirely inadequate, without the aid of birds, to prevent insects from sweeping all vegetation from the face of the world." These are strong statements, but the coldest logic can lead to no other conclusion.

In view of the spread of the cattle-tick in the North Auckland district the relation between birds and ticks in Jamaica is of the highest interest. Buckland (1917) states: "The increase in number of *Margaropus annulatus* (Texas-fever tick) in Jamaica during recent years is synchronous with the decrease of insectivorous birds. Examination of the stomach-contents of one bird showed the presence of seventy-four adult female ticks in an engorged condition. The Island of Jamaica is remarkably suitable for the breeding of cattle-tick; experience has shown that all imported animals succumb to tick-fever. It is therefore essential that, in some way, the insectivorous birds should be encouraged to increase." The subject will be resumed when the writers come to deal with certain introduced birds which destroy ticks in the north of New Zealand.

THE WHITEHEAD, THE YELLOWHEAD, AND THE BROWN CREEPER.

To come now to the insectivorous small birds of New Zealand, there is first a group of three species, the chief characteristics of whose beneficial activities have already been briefly indicated in the article on the birds of the forest (Part II of this series). These are the whitehead (*Certhiiparus albicilla* Less.), the yellowhead (*Mohoua ochrocephala* Gm.), and the brown creeper (*Finschia novaeseelandiae* Gm.)—three birds fairly closely related and performing much the same functions in the zone and object of their insect-hunting. Both the whitehead and the yellowhead are small brownish birds somewhere about the size of a sparrow, but with pale-coloured heads, that of the whitehead—which is confined to the North Island forestry—being white, while the corresponding colour in the yellowhead—a South Island species—is yellow. Both are frequently called "bush-canaries." In those bush districts where the one or the other is still to be found the whitehead or the yellowhead—according to the Island in which the district is situated—shows a habit of consorting in flocks or small travelling-parties, keeping usually to the higher branches, flitting from twig to twig, and uttering incessantly a great variety of notes. When their curiosity is awakened