periods, nymph periods, and so on, without very serious overlapping. Undoubtedly the most important of these natural means of control are climatic conditions and birds. Among the latter the introduced starling (*Sturnus vulgaris* L.) stands pre-eminent. During a period when adult ticks are prevalent the starlings make a speciality of these, picking them from the cattle in the fields. No examination of starlings' stomachs at such a period has yet been made; but in Jamaica, where the value of insectivorous birds as tick-destroyers is widely recognized, the stomach of one bird was found to contain no fewer than seventy fully engorged female ticks. Starlings have not yet been shown to carry seed-ticks, but even if they did bear the usually slight small-bird infestation the harm done in this direction would be overwhelmingly more than counterbalanced by the destruction of adult female ticks.

SUMMARY.

Haemaphysalis bispinosa is shown to be a "three-host" tick—a fact which makes its control a more complicated matter than that of the North American or Australian "fever" ticks, both of which are "one-host" ticks. Cattle are the chief hosts, but other animals, including some of the introduced small birds, are infested. Kiwis certainly, and seagulls almost certainly, do *not* carry cattle-ticks as is generally supposed. The winter is passed as a nymph hidden at the bases of rushes and clumps of rough grass.

This article is to be considered only a preliminary statement. All acknowledgments to the large number of those who assisted in various ways and all references to literature are deferred until the complete report is ready.

NOTE.—Illustrations of *Haemaphysalis bispinosa* and other ticks will be found accompanying an article by D. Miller in the *Journal* for January, 1922.—EDITOR.

PASPALUM DIGITARIA AS A SAND-DRIFT BINDER.

MR. W. H. FIELD, M.P., contributes the following note: "Some time ago, acting on the advice of Mr. B. C. Aston, I tried growing one of the paspalum grasses (*P. digitaria*) in my grass-garden on the sandhills at Waikanae. This grass grows so rapidly and produces such strong shoots that I was induced to try it on a bad "blow-out" on the top of one of the grassed dunes near the homestead. It seemed to me a comparatively short time after this had been planted that I visited the spot again, when, to my astonishment, I found that the grass had become thoroughly established, was rapidly covering the loose sand, and had effectually stopped the drift. I am so impressed with the possibility of this grass that I am trying it on a much larger scale. Stock seem to be very fond of the grass, and possibly it may have to be protected from them in the early stages of its growth, but it is difficult to see how, with its strong rooting-system, they could exterminate it when once it had become established."