

First among these is the fact that operators generally have not arrived at a realization of either the necessity or the advantages of rational silvicultural practices. In other words, they do not consider them profitable under the present conditions. This is no doubt due, primarily, to the fact that virgin stands are still available. As time goes on and as the depletion of the forest progresses, the present attitude towards silviculture in commercial forestry will gradually become altered; in fact, some companies are already looking towards scientific management of their forests with a view to ensuring continuous production. The second difficulty arises from the necessity of having to admit that knowledge of the factors involved is, as yet, extremely rudimentary. One principle seems to be fairly well established, namely, that the application of cultural practices will neither be effective nor profitable in the prevention or reduction of insect infestations unless the conditions that are favourable to the growth of trees are also, at the same time, either unfavourable or less favourable to the development of insects. Experience has shown that, in many cases, such a mutual inverse relationship exists. But there are exceptions. Other generalizations concerning the composition of the stand, the influence of site, density, crown cover, age, cutting methods, etc., cannot be made without considerable caution. The characteristics of each insect, of each tree species, and of each locality need to be investigated.

Cultural practices have been recommended in the case of the spruce budworm, the jack pine budworm, the bronze birch borer, the white-pine weevil, the locust borer, and many other insect pests of the forest; very often, however, many years will be required before such recommendations can be put into practice.

Recently, as a result of recommendations of the Advisory Committee on Forest Entomology and Pathology of the Woodlands Section, Canadian Pulp and Paper Association, arrangements have been made to establish an area in northern New Brunswick for the investigation of the problems of managing a balsam-spruce forest so as to prevent, or reduce to a minimum, loss from spruce budworm outbreaks. The Green River watershed appeared particularly suitable for several reasons, not the least of which was the willingness of one of the leading pulp and paper companies operating in this area to co-operate in the work. This Company has given every assistance possible by making available their records and maps and facilitating examination of the region.

A committee was appointed to plan the work, to study the results, and to make recommendations regarding the management of the area.

The original purpose of the project was to determine for a specific area the kind of management necessary to produce and maintain resistance to budworm outbreaks. This cannot be considered separately from the other objects of management, all of which contribute to the ultimate end, namely, profitable continuous operation of the area. Sustained yield will be impossible if periodic outbreaks are allowed to destroy a large part of the forest. At the same time, the methods used to create resistance to insect damage must also give protection from wind, fungi and fire, and produce the maximum practicable growth of the kind of wood needed. They must aim at regulating the cut so as to create a forest with a distribution of age classes which will permit approximately equal annual cuts of mature timber in the future.

Biological Control.—Of late, most important advances have been made in biological control. Although the use of natural enemies, more particularly insect parasites and predators, in fighting destructive insects has been practised for