

study area, the forest type, and its ecological characteristics, and outlining the regeneration problems following logging. This introduces the familiar problem of deciding the minimum stocking that can be considered adequate, and here the author's somewhat arbitrary choice of 30% milacre quadrats stocked seems rather low for quality logs. The next eight chapters contain the "meat" of the bulletin, in which all aspects of seed production, seed fall, the fate of dispersed seed, and the factors affecting germination and seedling survival, are examined in detail. This part of the bulletin will be of most value to research foresters concerned with methods of sampling, measuring, and recording the various facets of natural regeneration, but there is a concise summary at the conclusion of each section which should be of general interest. The data of most value to the practising forester, however, are contained in the final chapters, which describe the silvicultural methods the author applied in the field and discuss other possible modifications to current logging practice. Means of improving regeneration must either improve the supply of seed or utilise the seed available to better advantage, or both, and Dr Cunningham examines the possibilities in these terms of reference. Considered here are clear felling with seed trees, two-stage logging, strip and group systems, artificial seeding, measures to control seed-robbing insects, and the treatment that probably has most value, pre-logging seed-bed scarification. Beech foresters in New Zealand will heartily endorse a concluding sentence that states "if the distribution of suitable seed beds is inadequate, then regeneration will be inadequate, regardless of seed supply." This "applied" portion of the text is supported by some clear, well chosen photographs.

In this bulletin, there is naturally little that can be applied directly in New Zealand, but as regeneration problems have a similar background, there are several valid comparisons that one can draw from a comprehensive study such as this. The thorough systematic treatment of all aspects, pinpoints deficiencies in our knowledge of the processes governing the natural regeneration of our own indigenous and exotic species, and stimulates the wish that we may some day see a bulletin of similar character written on beech or *P. radiata* in this country. If the research is financed by the timber industry and undertaken in conjunction with a university, as this was, it will be a progressive step indeed.

—E.H.B.

PATTERNS OF FOREST REGROWTH. By C. M. Smith. (Presidential Address, New Zealand Ecological Society, 1959.)

The author is noted for his marked ability to crystallise generalities from his years of extensive observations in New Zealand forests and from his wide reading of ecological and related literature.

In this Presidential Address he formulates four patterns of forest regrowth which he claims form the principal "procedure of regrowth

of one forest community directly after an earlier forest community". He deliberately discards the term "regeneration", which is the one normally used, because of the numerous meanings now given to it. He also warns would-be students of forest regrowth that several other terms in common usage in this field have become similarly debased.

The four patterns are the vegetative pattern, the pioneer pattern, the successional pattern, and the mosaic pattern.

The plants of seven families, the Salicaceae, Pinaceae, Betulaceae, Fagaceae, Araucariaceae, Podocarpaceae, and Myrtaceae are recommended to students for their initial studies of these patterns.

Each type of regrowth pattern is described and samples, including some from New Zealand forests, are given. Every New Zealander can think of large tracts of "pioneer" *Leptospermum* communities; but how many are skilled or experienced enough observers to know what the pioneering community of each site comes from or what it develops into?

The ideas put forward in this address may well be developed more fully by forest ecologists. They represent a welcome return to the detailed observation of plants *per se* instead of statistical analyses of plant numbers, distribution, and so forth, which often pass for ecology these days.

—A.L.P.

NOTES

HAWKE'S BAY SECTION

A preliminary meeting, held on 1 April 1960, to investigate the possibility of forming a local section, disclosed that there were eight Full or Associate Members of the Institute resident in Hawke's Bay all of whom were willing to support the proposition.

At this meeting Mr J. G. Groome was elected Chairman and Mr R. Naylor Secretary, and it was decided to hold evening meetings in the first week of every second month, if possible throughout the year. As many visiting speakers as possible would be invited to give addresses, but in addition symposiums on subjects of particular local interest would also be arranged in which it was hoped as many members as possible would participate. In this way it was felt that the section would fulfil its main duties of providing an opportunity for all interested people to hear the views of visiting New Zealand and overseas foresters and to allow members in the specialised fields to speak on their work or to keep in touch with other local activities.

It has been found that several people working in forestry who have not in the past bothered to become members of the Institute, although eligible to do so, have taken the step because of the stimulus provided by the existence of a local section. In addition