

the emphasis which is placed upon their motivation. The assumptions to be made in applying the statistical methods are clearly stated. In practice, however, it is often laborious to test whether the data satisfied these assumptions sufficiently; so one must rely upon experience.

The reader who wishes to understand the subject more completely may be bewildered rather than helped by the numerous references to other techniques given in standard books. The book is not very satisfactory as a reference work because it has no index, and the main procedures are not formally laid out. These are partly compensated for by good section heads and a glossary of statistical terms and their German and French equivalents. It can be recommended to any experimenter in forest science who concerns himself with the statistical side of his work.

—H.S.F.

DIRECT SEEDING IN THE SOUTH, 1959, A SYMPOSIUM.

Duke U.S.A., University School of Forestry, Durham, North Carolina, 1959. 190 p. Price not stated.

New Zealand foresters with only a slight acquaintance of American forestry will have been aware of the tremendous afforestation boom with southern pines that has arisen in the south-east of the United States in the past few years. This book is a record of a meeting held at Duke University in 1959 to consider the part that can be played by direct seeding and the factors and technique involved. There are contributions, mostly factual, from 29 participants on all facets of the problem; they include information on seed, protectants, site preparation, seeding season, aerial techniques, desired stocking, and evaluation of results.

It is not clear what proportion of afforestation acreage is now accounted for by direct seeding – it is obviously increasing, certainly in Louisiana, where according to one participant, nurseries will be down to 5% of their present capacity in five years. The big “break through” is said to have occurred in 1954, when effective bird repellents and insecticides were evolved. Success varies according to species. Direct-seeding of longleaf pine (*P. palustris*) has a great advantage over planting, with loblolly the chances of success are about equal, but with slash pine the hazards of spring and summer droughts give planting an advantage.

But the value of the book in this country does not lie so much in its results as in its assembly and treatment of the multitude of factors involved in the operation. Anyone interested in direct seeding in New Zealand is advised to consult this work; he will probably find that he is confronting a problem wider than he supposed.

—H.V.H.