

almost inevitable, and it is doubtful if even the adult figures (unstated) would be adequate. Further a birth ratio of 1 : 1 would not necessarily continue in that proportion; elsewhere there is a suggestion that bulls run with more than one nanny because of a shortage of bulls but no suggestion of differential mortality is made to explain this.

The authors consider that the first two and possibly the third are the critical years for young tahr, but the relevant histogram (Fig. 3), has the characteristics of one based on a small, non-representative sample. The most outstanding column is the group one year and under (23%), the size of which would be dependent on the season of sampling unless an adequate sample were taken in each season. Lack of fat in young animals, put forward as a mortality factor in young tahr (p. 31), does not necessarily indicate other than active growth. A net herd increase of 2½% derived from the authors' model and regarded by them as near zero, seems to be inconsistent with the growth and spread of tahr. In view of the potential reproductive rate (with a possibility of more than one kid a year), and with the animals in very good condition, it would seem (from the percentages given) that some explanation is necessary to account for the sudden fall in survival. The late winter 45 : 100 kid : nanny figure implies the death of a great number of young to reach the 8% of total population (Fig. 3); it is stated that 80% of all young die by the end of their third winter. Die-off of immature tahr is attributed largely to "an environmental stress complex", with nutritional deficiencies, prolonged periods of snow and cold weather and lack of fat reserves as the prime causes. The "stress syndrome" has been enthusiastically supported for some years but the hypothesis seems to have been discredited recently; it is doubtful whether stress does occur in a wild population.

The authors have given an attractively presented natural history of a highly regarded game animal, but despite its obvious merits it cannot be used in scientific study or in management because of its lack of objective quantitative data. The general impression gained from the booklet is that the authors have a considerable knowledge of techniques, but that the field resources of the New Zealand Deerstalkers Association have not yet been sufficiently organized for collecting and recording information on the scale and with the detail necessary for such a study.

—M.M.D.

PATHOLOGY OF TREES AND SHRUBS WITH SPECIAL REFERENCE TO BRITAIN by T. R. Peace. 1962. Oxford University Press, London. 753 pp., illus. U.K. price 90s.

This textbook fills a major gap in the literature on tree diseases, for it is the first British review dealing exclusively with the pathology of timber and ornamental trees and also it is first textbook on European forest pathology since Hartig's in 1894. However, its content goes far beyond Britain and Europe. Certainly British work and experience have been thoroughly reviewed, but no more noticeably than foreign work. Besides describing some foreign diseases in full, extensive mention has been made of foreign works on those diseases occurring in Britain. In fact it includes diseases of trees over the whole of the temperate region, including Australasia.

Together with a relatively full treatment of each disease, a very extensive bibliography is given which occupies over 100 pages. Such literature references are particularly useful to the university student and research worker, for which reason they have been included. However, the author has gone to some trouble to cater for the needs of the practising forester by the minimum use of specialized terms, by the use of the older, well established and familiar names for the trees and fungi, rather than the far too numerous recently changed names and by endeavouring to limit the disease descriptions to macroscopic characters. He states in his introduction that "nothing is described which is too small to be seen with a good hand lens". This is not strictly correct but is near enough not to matter.

The text may be divided into two main parts following two introductory chapters. The first part deals with the damage caused by non-living agencies, followed by a short chapter on the influence of man, animals and insects. The second and major part, comprising nearly 400 pages, critically considers those diseases caused by fungi, bacteria, and viruses.

In this major part the diseases are dealt with separately in their general aspects and then specifically under each host genus. Under each host genus, the diseases are considered under standard headings on the basis of the part of the plant attacked. For the most important diseases, the information is divided under the following four standard subheadings: Pathogen, Symptoms and Development, Distribution and Damage, and Control. Such an orderly presentation of the facts greatly enhances their accessibility and usefulness.

A glossary is provided of the few technical terms unavoidably used. The subject index is so arranged that it may be used as a host-disease and a disease-host check list and provides a very ready reference to any particular pathogen or non-living agency in the text.

This tremendous work, so comprehensively written and lucidly presented, can be highly recommended for use by all who are interested in the growing of trees.

—J.W.G.