their existence. In short, the Committee makes an unassailable case for the farm-by-farm integration of agriculture and forestry as the most likely way to arrest and reverse the physical, economic and social deterioration now occurring in many localities.

New Zealand foresters would be impressed, possibly inspired, by this report, even if it were the work of a group of foresters. It covers in small compass, and in the most lucid terms, so many of the land-use issues with which our own country is bedevilled, and which—regrettably—are not yet recognised in perspective by the generality of New Zealanders. But amazingly enough, so far as can be gathered from the nominal list of Committee-members—under the chairmanship of Professor Sir Solly Zuckerman, C.B., F.R.S.—there is not a solitary forester among them. The Universities, industry, trade, agriculture and research are represented, and the Committee acknowledges help received from a wide range of organisations and individuals. All in all we can be sure the Committee's findings are based on all relevant facts, and that no conflict of interests has been left out of account. Thus there can be no suggestion of axe-grinding, a natural inference when questions of land-use are dealt with by an individual or body primarily concerned with one particular aspect of production from the soil.

In making this painstaking analysis of the marginal lands problem the Natural Resources Committee has inadvertently performed no small service to New Zealand forestry. Local foresters would do well to study the report, and to bring it to the attention of their contemporaries in other fields of land-use.

D.K.

STAND VOLUME TABLES WITH PARTICULAR REFERENCE TO *PINUS RADIATA* IN THE A.C.T. by D. A. N. Cromer and L.T. Carron. Forestry and Timber Bureau (Canberra); Bulletin No. 35.

The authors describe the uses and some methods of preparing stand volume tables based on stand height (in this case mean height) and basal area to the acre. The data used in the investigation were obtained from a recent assessment of *Pinus radiata* in two forests in the Australian Capital Territory. After discussing graphical and formulae methods, the authors consider that stand volume can be estimated with reasonably accuracy from an equation involving a simple linear regression. It uses only the product of basal area to the acre and stand height, a constant fixing of the point of origin of the line on the vertical axis and a coefficient fixing the slope of the line. A separate equation was calculated for each of the two forests in this investigation. The equations were tested on the basic data and on independent data from yield and spacing plots in the same two forests. The results were very satisfactory and only a little less precise than those obtained from the more complicated formulae also tested.

As the authors point out, the concept of estimating stand volume directly from the dimensions of the stand instead of the individual trees has been used in Europe for over a century. Yield tables also often include stand volume tables: for example, in the New Zealand Forest Service yield charts and tables for *Pinus radiata, Pinus nigra, Pinus ponderosa* and *Pseudotsuga taxifolia* (F.R.N. Vol 1 (10) and N.Z.F.R.N. No. 5), present and future volumes are estimated directly from the stand dimensions basal area and height.

The claim that stand volume can be estimated on plots in less than one per cent of the time taken by previous Australian volume table methods could be misleading to foresters who are unfamiliar with these procedures. Past Australian methods often required the measurement of d.b.h., total height, bark thickness at breast height, and taper between 5 and 15 ft. above ground, for every tree on a plot. The New Zealand Forest Service method of using two-dimensional volume tables takes little more time than the stand volume table method for conventional ground plots: the field work is the same for both, but the calculation for the volume table method does take about twice the time. However, the development of quick methods of measuring stand basal area from "angle-count" instruments should renew interest in stand volume tables of the kind described in this paper for ground assessments of growing stock.

G.D.

"PLANTATION INVENTORIES WITH AERIAL PHOTOGRAPHS AND ANGLE-COUNT SAMPLING." By D. A. N. Cromer and A. G. Brown. Forestry and Timber Bureau (Canberra) Bulletin No. 34.

The authors describe a test assessment of 8,000 acres of planted *Pinus radiata* forest in the Australian Capital Territory. In addition to examining several aspects of the use of aerial photographs and angle-count sampling, they discuss other related topics, in particular, the derivation of stand volume tables.

As a criteria for stratification, necessary because of appreciable climatic and topographic differences even over this small area, site index and crown density were chosen. The definitions of these factors and their relation to the photography are discussed. Basal area was obtained by the angle-count method using Cromer's Reflectorscope. The sampling intensity, depending on circumstances, was only one enumeration sweep per 10 or 15 acres. This seems very low although, as the authors imply, it may be quite adequate with the stratification used. Nevertheless, it is surprising that, in what is in general a paper which presents all the relevant or interesting data and uses statistical techniques, no attempt to estimate the sampling error under these circumstances has been included.