lacks clarity, although it contains more detail than should be necessary in a book of this type. Baur appears to be trying to cater for a range of readers that is too wide; this chapter would probably confuse a layman and be insufficient for a botanist or forester.

The following chapters are more rewarding, if predictable, and possibly too elementary in parts. Utilization of forest products is given only cursory treatment, but the final chapters on forest management, protection and recreation are very good. The main faults are writing that rambles occasionally, and a lack of satisfactory illustrations. Further, the treatment given to these sections is inconsistent. Rather than inform his readers, Baur appears at times to be trying to convince them. His arguments for clearcutting of indigenous forests, and for the development of new forests, are clear and logical, but the information given on the establishment, tending and harvesting of these forests is comparatively sketchy.

The book is attractively bound and the standard of printing the text is high; the book is thus easy to read. Unfortunately, the contents do not measure up to the book's appearance, although it may go some way to increasing the public's awareness of forestry. Those interested in producing a book for this purpose would do well to read *A Bit About the Bush*, but there is not a great deal to recommend the book to others.

P.W.H.

FOREST INVENTORY (Volume II), by F. Loetsch, F. Zohrer and K. Haller. 1973. English by K. F. Panzer. 493 pp. 153 b & w illustrations. Edited by the BLV Verlagsgesellschaft mbH, Munich, Bern, Vienna. DM 195.

Forest Inventory, Volume I, was published in 1964. The death of Dr Haller, co-author of the volume, has delayed the publication of Volume II until 1973. Despite this delay and the change in co-authorship, Volume II retains the style and character of the earlier work, and the two volumes form a valuable reference work on forest inventory methodology. Volume I was not reviewed in this *Journal*, but covers the statistics of forest inventory (280 pages) and information from aerial photographs (115 pages). Over half of Volume II is devoted to inventory data derived from field measurements and observations. The treatment is traditional. Areas, species, tree size, form, quality, bark, increment, and density are covered with teutonic thoroughness. The accompanying bibliography is excellent, being up-to-date, extensive and international. Not only does it reflect the authors' experience in central European forestry and large-scale tropic forest inventory on FAO assignment, it also includes recent work from North American, Scandinavian and other European sources.

Two further chapters cover the concepts and use of sample plots and Bitterlich methods of plotless sampling. The sources of possible sampling error are discussed in detail, as is the field work in establishing new sample points in the forest. Those readers who suspect that the traditional sample plot

represents perfection of a now out-dated technique will be disappointed that the role of the sample plot in modern forest inventory is not explored. In New Zealand, a considerable body of growth data now exists for the major species, *Pinus radiata*. Sample plots are still required for testing the extremes of the data base, or new practices *(e.g.,* fertilizing), but the description of the average crop is possible by aerial methods. Computerization, and the increasing knowledge and use of statistical techniques, are contributing to a change in the role of the sample plot in forest inventory. The planning, performance and field checking of forest inventories are left to a short, final chapter. This is in keeping with the book's stated audience of "fully qualified professional foresters who wish to specialize in forest inventory". But the practising forester must also remain aware of the non-statistical errors likely in inventory work. Without due emphasis on the design of audits for inventory work, it would be possible to assume that, once the statistical design was completed, all error sources were accounted for.

A welcome feature of this book is the assigning of a complete chapter to data processing in forest inventory. "That modern forest inventory is not conceivable without electronic data processing" is a message yet to be fully heeded in New Zealand. Although this reviewer applauds recognition of EDP, he is left with the feeling that the treatment of it misses the mark. There are 39 pages in the chapter, but it takes 34 of them to discuss programme languages, operating systems, CPUs, binary numbers, teleprocessing, etc. Only the most dedicated foresters, and directed students, would survive until page 35 for the discussion of the application of EDP in forest inventory. The chapter ends four pages later with a one-page treatment of forest simulation!

The advent of computers has changed the nature of forest inventory work. For instance, the likelihood of computation error is lessened but greater care is necessary in the field. There is a tendency to describe fewer trees in greater detail and to increase qualitative description. In a forest inventory text, the effect of computerization on the design, collection and analysis of data is the important topic. The design of the computer system will always be dictated by the available equipment and is best left to a specialist systems analyst.

This criticism is not intended to deter potential readers. With the publication of Volume II the authors have completed a valuable contribution to forestry literature. The book has achieved its objective of providing a reference text for the fully qualified professional forester wishing to specialize in forest inventory. The bibliography for Volume II contains over 1 000 entries, including recent publications from all international sources. The English translation is good; typographical and other errors are minimal, and not misleading. The book is well recommended as a thorough review of traditional forest inventory practice. Taken together, the two volumes present the culmination of forest inventory techniques developed over 200 years of forest management.

But modern forest inventory concepts are changing, not only in the collection and processing of data, but also in the use of such data. In the introduction to Volume I, the authors state that "a tree becomes a saleable product only when the forester decides its felling". Modern foresters involved in maintaining a flow of wood to meet contractual commitments, such as pulp mills or export orders, never decide to fell a tree. Such a decision is exogenous to the forest. However, the forester still retains the responsibility for measuring the forest, and "in which way a measurement is performed depends on the physical properties of the object and on the purpose of the measurement". Forests produce a flow of wood; Loetsch, Zohrer and Haller, in *Forest Inventory*, Volumes I and II, have provided an excellent base of tree and stand measurement for further research into concepts of forest measurement.

C.R.McK.