

## Reviews.

### Forest Planning

*by D. R. Johnston, A. J. Grayson and R. T. Bradley,  
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Growth, in the non-biological sense, tends to be erratic or cyclical and so we are presently in an era when it is the done thing to talk wisely of "Planning" and "Management Techniques". Considering the general business and economic climate of Western Europe in the mid-sixties it was therefore almost inevitable — perhaps I should say, to be with it, that there was a very high probability — that a book or books on this topic and its relevance to forestry would be produced about this time. Does this book help us as Foresters to understand better modern "planning"?

First, let it be said that the authors interpret planning in the broad sense in which it is used in business and are concerned with the concepts and techniques now being applied in many industries. As such their book bears only a fleeting resemblance to the classical works on forest management and planning. The treatment is such that it must cover the whole subject of forestry and to this extent it is different from past trends in forestry as these must all be considered in the general context.

The book is divided into four parts, the first of which deals with policy. An indication of the approach of the authors can be found in the section where they refer to the possible lack of awareness of Foresters of the interaction between forestry and other aspects of national life and of the contribution that other disciplines, such as business management and landscape design, can and should make to forestry. They indicate clearly the influence of political philosophy, the social and economic background of a country both at national and regional level, and the benefits and costs of a forestry programme on how a forest policy should be developed. Stress is also laid on the need to provide an objective basis on which to make guesses which are necessary for management decisions and for advice to policy makers. This is then followed by giving as an example the history and role of forestry in Britain. It seems a pity that after emphasising the importance of setting policy objectives which then determine the criteria that managers can use in their planning, the British State forest policy is not more clearly and quantitatively defined and described. Although dealing largely with national aspects much of this part is relevant to the thinking that private owners should do concerning the objectives of their own forestry holdings.

The second part is, for a book on forest planning, rather enigmatically headed "Planning". The authors attempt to demonstrate the need to set objectives at various levels in the

enterprise and then, while still retaining enough flexibility to deal with changing circumstances, to control the work done against the objectives. They give a brief resume of some of the various planning tools which are now being used in industry, such as mathematical programming, game theory, etc., but the treatment is so sketchy that the reader will be forced to other texts to obtain an understanding of the full power and limitations of these techniques. Considerable attention has been paid to rational planning with selection of best alternatives through various criteria, in particular, investment criteria and not only are various financial measures described but there is also an interesting section on the choice of discount rate. A discussion on costs and prices is dealt with in more detail than foresters frequently have considered this topic and with particular reference to changes over time. Attention has also been paid in this section to the assessment of such things as recreational values. It should, perhaps, have been emphasised that while forestry is certainly a capital intensive industry the capital is largely accumulated by the use of local labour which has extremely important social implications. The chapter on risk and uncertainty is in the reviewer's opinion the best in the book.

Most of this part of the book is concerned with rather more detailed discussion by forest operation headings, e.g., plant supply, crop establishment, crop treatment, silvicultural practices, effects of thinning on growth, economics of thinning, the felling decision, concepts of normality, forecasting, regulating and controlling yield, logging and loading, and marketing. Foresters will feel rather more at home when reading this section but may well consider that too much basic forestry knowledge, such as the definition of a 2 + 1 plant, has been given in a book primarily devoted to planning principles and procedures. Some of this is, of course, needed to provide a readable framework. Your reviewer would very strongly disagree with the suggestion that it is safer on a given site to choose a low production species likely to have a relatively high yield class rather than a high production species likely to have a similar yield class which would, of course, be low for that species as this latter species has obviously the greatest potential for improvement through site amelioration works, etc. It is certainly time that Foresters looked at many of their practices, such as plant spacing, weeding, brashing, fencing, etc., in the way in which Messrs. Johnston, Grayson and Bradley suggest they be looked at and as we move into a period where greater consideration is being given to crop treatments to increase these treatments must be assessed sensibly, e.g., by comparing growth benefits against costs etc.

Many Foresters will be sceptical of the models purporting

to show the effect of thinning on growth and the subsequent use of these "theoretical" calculations to suggest possible methods of thinning to get optimum financial return; chapters which tend to take a hard knock at those who consider the beautiful art of a Forester is in how he wields his marking axe while pondering the individuals of the possible final crop as they will develop within his own personal thinning system. Such Foresters would be well advised to re-read these sections for, while it is relatively easy to accept the need for financial criteria in determining replacement age, degree of fire protection, intensity of roads, etc., here is a section where apparently silviculture is being asked to give way to theoretical management. Yet it is in this very field of model construction and simulation, using many other factors than those listed in this book, that the new management techniques are likely to have their greatest impact on the practising Forester and the ultimate financial success of the enterprise. The models used have tended to be relatively simple and because of this have probably introduced some bias in the considerations of type of thinning regime to be adopted; thus because the price size relationship is given on the mean tree volume insufficient weight has been accorded to those light or no thinning regimes where a very considerable part of the final volume is in trees much greater than the mean. If Foresters can accept that the methods used here (Chapters 18 and 19) have a part to play in forest management then the industry is in capable hands.

The chapters dealing with normality and yield regulation will not make very comfortable reading for those schooled in the ancient tradition of sustained yield yet one cannot help feeling that while there is logic and reason behind the arguments put over in this book the authors have not really put forward a completely satisfactory alternative solution to meet long term objectives.

Part 3 of the book deals with implementation of planning and in particular the organisation of the enterprise, the working plan and labour planning. The chapters on organisation are largely related to a State Forest Service and use the Forestry Commission terminology for the various levels of management distinguishing between functional and territorial responsibilities and indicating the role of specialists in planning. These chapters also differentiate the types of planning required at all levels. In spite of the author's criticism of the traditional working plan in an earlier chapter we have here the suggestion that each forest should have a working plan with a factual and descriptive Part 1, a Part 2 which discusses various alternatives and sets out the major planning decisions and objectives and which the authors consider to be the most important section, and a Part 3 for detailed prescriptions which are in the Forestry Commission

five-year forecasts plus one-year detailed programmes of work, all of which is quite similar to the methods adopted in many countries within the framework of a national plan with planning from above. It must be remembered, of course, that the Forestry Commission work within a fairly strictly controlled annual budget and as such detailed programmes need only go to the next higher level of management for control purposes. One can only hope that the authors' experience that flexibility and continual adjustment to changing circumstances does not result in deviation from the original objectives will continue for a long time. The chapter on labour planning seems slightly out of place here although it is agreed that this is an important field for management.

The fourth part of the book on data collection is disappointing due to the space allocated to topographical surveys and forest inventory with only a short section on forest accounts and the sources of economic data. Surely more information based on the experience of the Forestry Commission methods of collection of data of work done and costs and the detail with which these are recorded would have been of value where control is such a necessary feature of planning.

The book ends with three appendices, namely, Assessment of Labour Productivity, Annual Change in the Real Prices of Wood and Wood Products and Supply, Demand and Price plus a short glossary.

The book has been generally well presented and printed and with remarkably few mistakes. A printing error occurs in the differential equation at the foot of Page 383. Like too many economic texts the book makes frequent use of diagrams with no scale shown on the ordinates. One gets the impression that an attempt has been made to cram too much into the one volume and that certain sections could well be dispensed with while not destroying the value of the text for reasonably well-trained forestry personnel. Thus sections on the calculation of net discounted revenue, effect of geographical factors and classification of growth potential could perhaps have been left out, thereby making the book easier to handle.

This is not a book which will supplant the older classics on forest management, indeed it is doubtful if it should be required reading for university students, although they should certainly be taught the management principles and logical approach to decision taking which runs throughout the work. Every top manager in forestry, for example, Divisional Inspector, Principal Officer, private owner, etc., should be made to read this book and should understand the principle involved. Indeed the book could easily form a good foundation for a series of lectures on management to such senior staff. It is also essential that the next lower management level of District Inspectors, District

Forest Officers, etc., understand what this book is getting at as they too must be prepared to think on similar lines. By its very nature the book is not easy reading and many of this grade will have to make a very conscious effort to go right through it and not give up at an early stage. I would hope that many of those in charge of forests would also try to read "Forest Planning" but I feel that the changes which thinking of this type must bring to general management need to be discussed and explained to Foresters through training courses where there is ample opportunity for discussion. Indeed, the very big and important field of management relating to communications and human relations which must be understood for the implementation of any policy or plan is not really touched at all in this book and due to the size of the subject one must be thankful that it is not but must do further reading from non-forestry sources.

W. H. JACK,

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