

BOOK REVIEWS

Windbreak Technology

"Windbreak Technology" – edited by J.R. Brandle, D.L. Hintz and J.W. Sturrock. Elsevier Science Publishing Company Inc New York 1988 X + 598 pages. ISBN 0-444-430 19-9. \$US221.00

This book was produced as the proceedings of the first International symposium on Windbreak Technology at Lincoln, Nebraska in June 1986. The papers also appeared in *Agriculture, Ecosystems and Environment* Vol. 22-23 (1989).

'Windbreak Technology' is a useful reference book. It is not a 'how to do it book' for the practising forester or farmer. If nothing else its cost would put it well beyond most individuals.

The book consists of 35 papers written by authors from six countries. Most authors were from the USA or Canada with three from New Zealand.

The book contains a series of good review papers on basic shelter concepts and how these influence the growth of plants. It is interesting to see how some of the concepts are developing as a result of more intensive basic studies. Review papers by K.G. McNaughton and by G.M. Heister and D.R. De Walle, for example, argue for a 'quiet zone' of 8× the shelter height, followed by a turbulent 'wake zone'; the length of the quiet zone is less influenced by porosity than once thought. There are also very good reviews of physiological processes which influence plant growth and structure, on basic principles of wind erosion, on energy conservation and on responses by different crops.

A few papers deal with design and management considerations for various circumstances. These are of variable quality. Surprisingly, there was little consideration of integrating design into farm management systems or the need to develop systems on a multiple-farm basis. Nor is the provision of timber from shelterbelts given the consideration that we would expect from a New Zealand perspective. Perhaps it is fortunate, therefore, that J.W. (Hamish) Sturrock, in his keynote address, was able to draw on Peter Smail's data on timber values of well-managed shelterbelts. It was good to see Peter's practical ideas being given the recognition they deserve.

Wellington's Botanic Garden

The Botanic Gardens, Wellington – a New Zealand History 1840-1987, by Winsome Shepherd & Walter Cook Millwood Press Publishers, 1988. 396 pp., 24 colour plates, 287 figs, hardcover \$NZ79.95.

"From the higher ground of the garden . . . may be viewed a grandeur of scenery perhaps unsurpassed of the kind in New Zealand." Thus wrote John Buchanan in 1875 when asked to report on the remaining native bush in the Reserve. These views and many other things in the Wellington Botanic Garden make it a most pleasant place virtually within the environs of the city. Its history, dating back to 1839 when the New Zealand Company gave instructions to make provision, amongst other things, for a Botanic Garden, is of considerable importance. It reflects the development of such a garden at first nationally, because it was used by Government for the importation of plants and animals and their distribution for acclimatisation, and later as a growing amenity for the city and the public.

Few Botanic Gardens would have had their history recorded and interpreted so competently as has been done in this handsome volume. Many original records have been included in it and it has been lavishly illustrated with old and modern photographs.

The book is of special interest to those having to do with New Zealand forestry history. Firstly, it seems strange how in a country busily engaged in making rapid inroads into the magnificent kauri forests and having to cope with dense rain-forest on land settlers particularly wanted, thoughts could be turned to such refinements as a botanic garden. Not only that; one of the reasons given for having a garden was that it "could form the basis of operations for a system of forest propagation throughout New Zealand". Foresters will raise their eyebrows trying to explain how forest trees came to be bracketed with importation essentials such as hops and garden flowers!

But it happened, and on an important scale. The early interrelationship between the Colonial Museum, the Geological Survey, the NZ Institute and the Botanic Garden is described. Sir James Hector was a key figure in all these and

he corresponded with Sir J.D. Hooker at Kew. In those days there was great European activity in plant exploration and introduction. Conifers came in for special attention. New Zealand obtained seed from Kew and a number of other places. The closeness of the North American west coast with its wealth of coniferous forest was a special source of supply.

A chapter is devoted to the introduction, raising and distribution of conifers and the place of the Botanic Garden in these activities. Also the establishment of what was virtually a pinetum in the Garden. Buchanan listed the introduction of 33 species of pines.

Special mention is made of radiata pine and *Cupressus macrocarpa*. They were raised and distributed widely and planted in the Garden. There were later complaints, as early as 1889, about the number of them when the development of the Garden for other purposes was taking place. The virtues of radiata pine were being extolled by horticulturists about the time the first foresters were rubbishing it.

In 1891 the Garden was vested in the Wellington City Council. From then on its horticultural, beautification and recreational aspects have gradually been developed. These are well described. There remains a pocket of native vegetation and many conifers, especially radiata, important for historical and educational purposes. Foresters should be aware of these and of the possibility of including forestry in the training, education and interpretive activities now based on the Garden.

Throughout the history one meets personalities familiar to foresters. It is of great interest to note that Thomas Kirk lived close to Premier Vogel. Kirk was closely connected with the Garden. In 1874 the first Forestry Act was passed and Kirk's help was acknowledged publicly by Vogel. In 1885 Kirk was the Chief Conservator of State Forests organised in the first State Forests Branch of the Department of Lands and Survey. He used the Garden for the raising of tree seedlings.

Amongst the large collection of photographs are many taken by John Johns, the ex Forest Service photographer. The quality is as good as ever.

The Botanic Garden has been published with the coming 1991 Centenary of administration by the Wellington City in mind. This explains its excellent production, although somewhat large to handle, in addition to which it is easy to read. In 1991 the book will have special significance and value.

A.L. Poole

**Dr Don J. Mead
School of Forestry
University of Canterbury**