

BOOKS ON BOTANY AND PLANT ECOLOGY

THE verb 'to botanise' is not one that comes to mind readily, yet one hundred years ago botany was a favourite pastime for millions of people of all ages and classes.

As we might suppose from the name, it consisted of trips to the countryside to look at and collect specimens from the large variety of flora to be found almost anywhere in the country.

Actually, it was a good deal more than that, for it was a way of breaking through the rigid moral framework of the Victorian era. It would have been deemed quite improper for young men and women to go off together unchaperoned but, by some curious quirk, it was perfectly all right if they said they were going to study nature - and, what's more, they could then bring back specimens to prove it!

Today, things have changed, and not just morally, for botany has become a somewhat neglected subject. Far fewer study it at school and university and a quick count in a bookshop will establish the fact that, on the nature-study shelves, the animal kingdom outscores the plant kingdom by about four to one. In spite of David Bellamy!

The earliest book in my library on this subject is *A Manual Of Botany* by Professor Balfour (1849) and it's only interest is that it demonstrates the extraordinary detail available to the student at what now seems such a far-off age. Most plants had been discovered, illustrated, described, identified and classified in every detail. There are modern books equivalent to this, such as the standard school textbook, *Lowson's Botany*. Any edition will do and I picked up one, from 1971, for £1.

I frequently recommend books from the New Naturalist series and a classic here is *British Plant Life* by W.B. Turrill (1953). If you want a book to help you to identify plants on site, *The Excursion Flora Of The British Isles* by Clapham, Tutin and Warburg (1959) is a shortened, portable version of their complete *Flora Of The British Isles*. Bookshops are awash with

books on wild flowers - interesting to us because they are indicators of the underlying soils.

A small modern book is Longman's *Illustrated Dictionary Of Botany*, which is helpful in defining a number of terms we meet. There is a useful introductory section on plant ecology and the final chapters of *Lowson's Botany* are devoted to the same subject.

Plant ecology describes the relationship of the plant to the environment in which it lives and we enumerate the factors that influence this as being 1) climatic, 2) edaphic and 3) biotic - i.e. weather, soil and other organisms (including man).

By Eddie Park

Various natural processes, such as selection, adaptation, succession, etc, are made clear and there are explanations of why particular grasses invade or die out from the sward.

That simplistic description makes it sound a complicated subject, but the basic principles are quite straightforward and, without them, golf course maintenance becomes a lottery. They provide the rules that enable the greenkeeper to predict the future with some degree of confidence.

It is, however, vital to choose a book that really does stick to the basics. My favourite is *Plant Ecology* by William Leach (1933), but you might find it difficult to find, so try *Discovering Ecology* by Patrick Armstrong (1978). Both stick to simple first principles, whereas *An Introduction To Physiological Plant Ecology* by P. Bannister and similar books start to get complicated.

Once you consider plant communities and the way they change, shrink or multiply, you are into higher mathematics and I can manage very well without that!

Much more interesting is a book such as *Plant Ecology* by Hilda Drabble (1937), which looks at differing habitats, or *Introduction To Plant Ecology* by Maurice Ashby (1961), which details the effects of changes in the environment on plant populations.

We are now getting into the most important part of the subject as it affects the practical greenkeeper. The nice thing about plant ecology is that the practical man already knows many of the facts, but he is assisted to present them in a logical framework.

Books such as *Practical Field Ecology* by R.C. Mclean and W.R.I. Cook (1946) describe how to make observations and carry out experiments in the field.

So this is an interesting and useful subject that enables those engaged in golf course management to have a much greater chance of success in deciding both what is required and what will be the effects of their actions. A book already suggested, *Wild Flowers*, by John Gilmour and Max Walters (1954), in spite of its title, is one of the most pleasant introductions to plant ecology I know.

For those who get hooked on the subject, let me just add a word on the general implications. Ecology is very much a modern word. It seems to crop up in politics, conservation and even religion. It also seems to be a word that can be used to prove just about anything! Most of the general principles have been around for a long time. Charles Darwin, with his theories that evolution could explain the origin of all species (including man) strengthened the beliefs of many scientists of his day.

Men were pretty sure that 'climax ecology,' as it was called, was more than just a theory. In plant terms, this

Continued on page 40

the Golf Course

TREES...

Continued from page 31

Standards have to be staked for the first few years after planting, but what is the best length of stake to use? I've explained about the traditional method of using an eight foot stake, but in the last few years the fashion has changed to using a much shorter stake.

The reason for doing so is this. When you stake a tree you do so in order to help the root system become established. Provided that the roots don't move about, the rest of the tree above the ground can look after itself. In fact the trunk benefits from swaying about in the wind. This is because a tree produces strengthening wood in response to the forces acting upon it. When a tree is supported but doesn't build up the strength it needs to withstand the wind. As a consequence, when the stake breaks or is removed, the trunk can't cope with the real conditions of the site and may be damaged by gusting winds.

A standard, staked with a short three foot stake, will develop into a stronger three than one staked in the traditional way. There are also other benefits. Short stakes are cheaper than long ones and are much easier to drive into the ground.

Just a final point about tree stakes. They are only needed to do their job for the first few years after tree planting. Therefore, there is no need to buy the expensive ones treated with wood preservative. You don't want them to be rot-proof and last for ever. It is much better that they rot off at ground level and give the tree a chance to learn to stand on its own feet.

So I think that you'll see from this that the most expensive specification for tree planting isn't necessarily the best. Use short, untreated stakes and no soil additives and your trees will thank you for it.

The next article in this series is concerned with tree maintenance.

BOOKS...

Continued from page 24

simply stated that nature would select the plants best fitted to survive in any particular habitat under the influence of the climatic, edaphic and biotic factors that were present.

Then men started to get clever and believed that, by the use of cultivational and chemical measures, they could get the better of nature and these processes of adaptation and succession.

Nature was not slow to strike back and show that She still had a few tricks up her sleeve!

The first indication lay in the disastrous dustbowls of Mid-America in the 'Thirties, when ploughing-up the prairies to give higher productivity instead gave a chance for wind to erode both

the soil and the seeds and crops therein, which didn't really stop anyone for long, for commercially and politically there was a lot of mileage in using these aids.

Once again, today, we are seeing that nature has defeated modern agricultural methods. It may be possible to eliminate the need for such old-fashioned routines as rotation and, by chemical means, to keep on top of diseases, but there is an ever-increasing price to be paid. We are now seeing that the community is not willing to pay that price.

Copying these methods on golf courses has produced horrific problems and we are all finding that we have no alternative but to return to sounder practices - not right back to pure undiluted nature, but to a more sensible balance and the science of plant ecology is essential to that process.



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