

## Ring out the old

Melvin G.R. Cannell

**Tree Rings: Basics and Applications of Dendrochronology.** By Fritz Hans Schweingruber. Reidel: 1988. Pp.279. Dfl 295, £84, \$149.

*Tree Rings* begins with an apt quotation: "Barriers erected between the different branches of knowledge are at the root of many of our problems". It was Dr Schweingruber's aim in writing the book to break down any barriers between dendrochronologists and people working in other disciplines.

His approach has been to produce a general survey of all the many facets of the subject, in a coffee-table style with numerous, self-explanatory illustrations. The illustrations are a striking feature, making it possible to delve into the book and quickly grasp the main ideas and information. No aspect is treated in depth, and readers may be irritated by oversimplification and the somewhat personal, subjective viewpoint. But, in my view, Schweingruber has achieved his aim.

Tree-ring research has advanced con-

siderably in recent decades; for example, we now have a good 7,000-year chronology for Europe. Such long-term biological records are rare and need to be fully exploited, verified and extended. This book shows that you do not have to be a plant physiologist, wood technologist or statistician in order to become involved, or at least to benefit from the work of dendrochronologists.

The book is divided into five sections. The first deals with the "Origin of the Materials" — that is, the trees and historic timbers from which samples are taken — and includes a simple discussion of site factors and sampling procedures. The second section, "Analysis of the Materials", covers coring techniques, methods of measurement and analysis, while the third describes some of the main findings, that

is, the sources of variation in ring widths and wood density. Next comes an intriguing survey of the ways in which dendrochronology has been applied to solve problems in, for instance, history, climatology, geomorphology, entomology, forestry and the environmental sciences. Finally, Schweingruber provides a personal review of the history of dendrochronology, complete with photographs of the luminaries.

The book is produced to a high standard, on high-quality paper, with clear figures and photographs. The text is of a comparable calibre, with many crisp sentences, and rarely betrays the translation from German. □

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## Small is beautiful

P.C. Turner

**Structure and Function of Major and Minor Small Nuclear Ribonucleoprotein Particles.** Edited by Max L. Birnstiel. Springer-Verlag: 1988. Pp.216. DM 198, £68, \$120.

TO ANY molecular biologist who has the time to reflect, it will no doubt seem surprising that only a decade ago we were (blissfully?) unaware of the existence of the intervening sequences that are present in many of the genes of eukaryotic cells. What seems all the more amazing is how far we have come in that short time in understanding the processes of intron removal and of RNA processing in general. As a testament to how effectively the molecular biological approach has been applied to explore the catalysts involved in these phenomena, Max Birnstiel has put together an excellent collection of complementary reviews from several of the leading workers in the field. These comprehensive, readable articles will provide research students, teachers and specialists with a wealth of up-to-date information on this fast moving field.

The classification, occurrence, structure and RNA sequences of small nuclear RNPs are exhaustively covered in the opening chapter. This is followed by a thorough review of the organization of the major snRNA genes and aspects of their transcription, including the various conserved sequence elements involved. Chapter 3 describes the purification and analysis of snRNP proteins, and culminates in some interesting speculation regarding the possible role of snRNP polypeptides in alternative splicing. The cytoplasmic assembly of small nuclear RNPs and their intracellular transport to the nucleus is concisely and critically

considered in Chapter 4.

The following contribution, the longest in the book, deals with the functions of the abundant U-snRNPs; here the open-minded approach is clearly evident in the evaluation of the data concerning the association of U1 snRNP with the splicing complex, and the special efforts to help the reader through the 'factorology' of the *in vitro* reconstitution studies will be well received. The elegant story of the U7 snRNP and its role in histone pre-mRNA processing is told in Chapter 6, along with that of U11 which seems to be involved in 3' processing of non-histone pre-mRNAs. The snRNP particle RNase P, which matures tRNA molecules by cleaving precursors, is the subject of the next chapter. This review serves to remind us that we do not yet know whether the cleavage/ligation reactions carried out by snRNPs are predominantly catalysed by the RNA or protein components of these particles. Finally, there is an account of some of the successes of analysing yeast snRNAs by exploiting a genetic approach.

There is little overlap between the contributions, and in so much as the book claims to be a review of the literature to 1987, the first seven chapters do this admirably. Chapter 8 on yeast snRNAs, however, reads like the report of a single laboratory. To some extent this is justified because of the particular area covered, but work from other laboratories could have been mentioned in order to perpetuate the feeling of critical, unbiased assessment of current work that characterizes the rest of the book. Could it be that this chapter is more dated than the rest? Nevertheless this is a timely and useful publication, a small and beautiful guide to small nuclear ribonucleoprotein particles. I wonder, however, how big the second edition will be. □

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