ACID RAIN, WOOD STRUCTURE AND WOOD QUALITY – A CALL FOR COOPERATION

During the Pacific Regional Wood Anatomy Conference held in Tsukuba, Japan, early October this year, an informal meeting was organised to discuss the problems related to the effects of 'acid rain' and other environmental pollutants on tree vigour, wood structure, and wood quality. Some participants gave a summary of the extent of the problem in their respective countries and of current and future research of wood structure and quality as influenced by pollution. It was fully realised that the discussion group was very incomplete, in the absence of some colleagues who have been active in this field for several years now, notably the members of the multidisciplinary team headed by Dr. Bauch from Hamburg.

Dr. Jagels (Maine, U.S.A.) recognised three important fields of enquiry: a. experimental research directly studying the impact of acidic input on tree growth and wood structure; b. dendrochronological studies providing a historical dimension to the analysis of the complex effects of pollution in a given area; c. comparative studies of the same species from localities with different degrees of pollution (using relatively unpolluted coastal sites as a reference). Dr. Bosshard (Zürich, Switzerland) stressed the serious nature of the problem in his country and drew attention to the practical implications for future log storage etc. All agreed with his plea for a holistic approach, combining data from wood anatomy with structural and physiological studies of roots, stems and leaves. Dr. Ohta sketched the situation for Japan, where massive tree decline has not yet been noted, but where air pollution can be a serious problem in industrial areas. Sophisticated studies (partly published in Eur. J. For. Pathol. 13: 30–45, 1984) have only indicated a probability that a combination of pollutants (SO₂, oxone, NOx) does influence tree ring attributes in pines. Mr. Ilic and Dr. Bamber (Australia) could confirm the absence of an 'acid rain problem' on the Australian continent. However, they cited some interesting examples of related problems, demonstrating the potential of several anatomical and physiological approaches.

Based on the confusing situation in the Netherlands, where NH₄OH produced by intensive farming is an additional important and harmful pollutant, I could only stress the necessity to keep an open mind and eye for the indirect nature of the effects of air pollution and soil acidity on tree vigour and that wood anatomists should also look for signs of direct pathogenic influences in the wood of affected trees.

It was realised by all that, in the near future, research on wood structure and quality in relation to pollution will increase; and it was considered by some that inexperience in the complex field of growth-rate/wood structure relationship may easily lead to rash and even misleading conclusions. Therefore, and in view of the desirability to avoid unnecessary duplication, it was decided to form an informal working party within IAWA, which together with IUFRO S 5.01.02 'Natural variations in Wood Quality' could act as a communication vehicle for all interested in the study of wood structure and quality in relation to environmental pollution. The first task of this working party is to circulate an annotated address list and to offer printing space in the IAWA Bulletin for quick publication of news items, directly related to the wood structural aspects of the so-called acid rain problem. All wood anatomists with an active interest in the problems outlined above are therefore kindly requested to write to me (address: Rijksherbarium, P.O. Box 9514, 2300 RA Leiden, The Netherlands) and to give a very brief outline of research projects carried out or started in this field. Lists of publications pertaining to wood structure and pollution are also welcome, and will be considered for the compilation of a selected bibliography. Points of view on the controversial issues of acid rain and wood structure will also be considered for publication in the IAWA Bulletin.

It should be emphasised that IAWA and IUFRO S 5.01.02 will only serve to help coordinate research activities as far as they have a direct bearing on wood structure. It is certainly not our intention to encompass all multidisciplinary studies that will be necessary to solve the problems caused by acid rain and other pollutants. Our only aim is to help guarantee a high standard of quality where wood anatomical data form part of the evidence.

Our working party will report in invited as well as contributed paper sessions during the IUFRO World Congress in Ljubljana, Yugoslavia. Proceedings of these sessions will be published as soon as possible after the congress, which will be held in September 1986.

Please make this initiative a successful one, by sending us your address and identifying your research topics. In the first IAWA Bulletin issue of 1985 we hope to publish an annotated, preliminary mailing list.

Pieter Baas