
Edited by the Secretary Treasurer Zürich, Switzerland
Office: Laboratorium für Holzforschung E.T.H., Universitätsstr.2

EDITORIAL

According to a note in the News Bulletin of December 1956, the undersigned assumed the Secretary-Treasurership from Dr. H.E. Dadswell, Melbourne, Australia in March 1957.

My first action as your new Secretary Treasurer is to thank Dr. Dadswell for the excellent work he devoted to the affairs of our Association for so many years. We have always highly appreciated his promptness and efficiency in attending to our concerns. I therefore consider it a great privilege to express our great gratitude to the retiring Secretary Treasurer.

SCIENTIFIC REVIEWS

The members are invited to co-operate with us in these "reviews" with short communications regarding their personal research work.

Use of the electron microscope in wood taxonomy.

In the light microscope, the inner surface of the tertiary lamella of tracheids and wood fibers appears to be smooth, finely granulated (6) or even provided with warts as in Agatis (1a). The electron microscope permits the granulated patterns to be resolved and submicroscopic warts on many "smooth" surface to be revealed. This especially applies to the inner surface of bordered pits (3,8).

In the conifers there are families and genera the inside of whose tracheids and bordered pits are almost devoid of warts, whilst they are numerous in others. Furthermore, the size of the submicroscopic protuberances may vary considerably, so that small ($< 0.1\mu$), medium sized ($> 0.1\mu$) and large (up to 1μ) warts can be distinguished (6). The first type is invisible in the light microscope, the second may cause the mentioned granulation whilst the third has microscopically measurable features. Table shows some of the observations made in recent years.

The tertiary lamella of wood fibers in broad-leaved trees seems to be granulated as well (7,9), although, for the present, this has been noticed only in a few instances. They are added to Table 1.

Table 1. Warts on the tertiary lamella

	Presence	Size	Author
<u>Conifers</u>			
Cupressaceae	+	{medium to large	4, 6
Widdringtonia	+		6
Taxodiaceae	+		4
Sciadopitys	+		4
Araucariaceae	+		4
Agatis	+	large	1a
<u>Pinaceae</u>			
Abies, Cedrus, Tsuga	+	small	4, 6
Pinus	+ -	medium	2, 4, 5, 6
Picea, Larix, Pseudotsuga	-		4, 6
Podocarpaceae	-		4
Taxaceae	-		4, 6
<u>Broad leaved trees</u>			
Betula	+	small	9
Fagus	+	medium	7
Juglans	+	medium	7

The genus Pinus deserves of special interest, because there are species with and without warts. At first no systematic regularity could be found (8), but a careful study showed that the subgenus Haploxyton with the sections Cembra und Strobis has smooth walls, whilst the subgenus Diploxyton with all the two-needled pines is characterized by more or less numerous submicroscopic warts on the inner side of the bordered pits; further a close correlation between the formation of dentate ray tracheids and the occurrence of warts was established (2). Therefore, the electron microscope seems to be an auxiliary tool for research work in Pine systematics.

Taking into account that there is a substantial variability in the number and size of warts, LIESE (5) declares the systematic value of the submicroscopic warts as doubtful and questionable. But his statistical research proves an even better correlation between the extent of dentation in ray tracheids and wart formation than had previously been found (2); and since the dentation is - although not an absolutely sure - yet one of the most reliable features for the determination of Pine wood, the same must be true for the extent of wart formation. As both features under discussion are characteristics with a certain amplitude of variation, no taxonomist will look just at one cell to make up his mind, but he will consider an average from different preparations. So doing, he is capable reliably to conclude, from the number of warts, on the intensity of ray tracheid dentation and vice versa.

A more theoretical problem is the question as to what is the developmental background of this correlation. The teeth of the ray tracheids are formations of the secondary wall as judged from their staining reactions. On the other hand the warts stain with Victoria blue and show the same insolubility as the tertiary lamella; further, in one and the same species, their size may grade down from $250\text{ m}\mu$ to less than $25\text{ m}\mu$ (6), so that it is unlikely that they are the manifestation of an organized morphogenetic activeness, but rather the result of some disorganized activity of the cytoplasmic surface layer before it dies away

towards the end of cell differentiation. They may represent a similar formation as the outgrowths in the vestured pits described by BAILEY (1); those highly refractive processes are also formed during the latest stages of development.

A. FREY-WYSSLING

Literature

- (1) BAILEY, I.W., Structure, distribution, and diagnostic significance of vestured pits in dicotyledons. J. Arnold Arb. 14.259 (1933)
- (1a) BAILEY, I.W., oral communication, Cambridge, Mass., 1956
- (2) FREY-WYSSLING, A., MÜHLETHALER, K., and BOSSHARD, H.H. Das Elektronenmikroskop im Dienste der Bestimmung von Pinus-Arten. Holz a.R.u.W. 13.245 (1955), 14.161 (1956).
- (3) HARADA, H., Electron microscopic investigation on the wart-like structure of conifer tracheids. J. Jap. Forestry Soc. 35.393 (1953)
- (4) HARADA, H., The electron microscopic investigation of wood. On the fine structure of the wart-like structure and of the pit membrane. Transactions 65th Meeting Jap. Forestry Soc April 1956.
- (5) LIESE, W., Zur systematischen Bedeutung der submikroskopischen Warzenstruktur bei der Gattung Pinus. Holz a.R.u.W. 14.417 (1956).
- (6) LIESE, W., Beitrag zur Warzenstruktur der Koniferentracheiden unter besonderer Berücksichtigung der Cupressaceae. Ber. dtsh. bot. Ges. 70.21 (1957)
- (7) LIESE, W., Zur Struktur der Tertiärwand bei den Laubhölzern. Naturwiss. 44.240 (1957)
- (8) LIESE, W. and FAHNENBROCK, M., Elektronenmikroskopische Untersuchungen über den Bau der Hoftüpfel. Holz a.R.u.W. 10.197 (1952)
- (9) MEIER, H., Ueber den Zellwandabbau durch Holzvermorschungspilze und die submikroskopische Struktur von Fichtentracheiden und Birkenholzfaser. Diss. Eidg. Techn. Hochschule Zürich 1955 und Holz a.R.u.W. 13.323 (1955).

Symposium on Tree Physiology

During April 8th - 12th, 1957, a symposium on tree physiology was held at Harvard Forest, Petersham, Mass. U.S.A. The following problems have been considered and discussed:

Ascent of sap, maple sap flow, dew absorption by tree seedlings, translocation of metabolites in the phloem, transport of organic nitrogenous material in the xylem, nutrition (diagnosis of mineral deficiencies by leaf analysis), growth (e.g. auxin treatment, aeration of roots, cytoplasmic streaming in the cambium), photosynthesis, frost hardiness, photoperiodism, thermoperiodism and forest genetics.

Three papers dealt with the distribution of water and chemical constituents in relation to taxonomic groups. "A detailed study of seasonal changes in the water-content of the wood and bark of a large number of species by Prof. R. D. Gibbs (McGill University, Montreal) showed that several distinct seasonal patterns may be recognized in hardwoods, and in many cases similarities in these patterns followed the taxonomic relationships of the species. The distribution of turpentines in a hundred species of the genus Pinus has been studied by Dr. N. T. Mirov (California Forest Experiment Station), who was able to relate similarities in the chemical constituents to taxonomic affinities. Prof. R. D. Gibbs described the results of the Mäule test (which indicates the presence of the syringyl group in the wood) on more than a thousand vascular plants. The taxonomic significance of the results was discussed." (Nature, 180.77 (1957)).

Anybody interested in the printed Proceedings of the symposium should apply to Dr. Martin H. Zimmermann, tree physiologist, Maria Moors Cabot Foundation, Harvard Forest, Petersham, Mass. U.S.A.

OFFICE OF THE SECRETARY TREASURER

1. Council

The Secretary Treasurer has asked the members of the present Council, who are elected for the period 1954-1956, to hold office for another three-year term. It is with great gratitude that we announce the readiness of all to continue as Council Members until the time of new elections in 1959. The members of the present Council are:

- Professor I. W. Bailey, Harvard University Cambridge 38, Mass. USA
Dr. L. Chalk, Imperial Forestry Institute, Oxford, England
Dr. M. M. Chattaway, C.S.I.R.O., Box 18, P.O., South Melbourne, Australia
Professor K.A. Chowdhury, Dept. of Botany, Aligarh University, India
Professor J. Collardet, 2 Rue de la Michodière, Paris 2ème, France
Dr. H.E. Dadswell, C.S.I.R.O., Box 18 P.O., South Melbourne, Australia
Professor Dr. A. Frey-Wyssling, Inst. f. Allg. Botanik ETH, Zürich, Schweiz
Professor Dr. B. Huber, Forstbot. Institut, München 13, Deutschland
Dr. B.F. Kukachka, Forest Products Lab., Madison 5, Wisc. USA
Professor F.R. Milanez, Ruo Jardim Botanico 1008, Rio de Janeiro, Brazil
M. Didier Norman, 45bis Av. de la Belle Gabrielle, Nogent-sur-Marne, France
Dr. E.W.J. Phillips, F.P.R.L. Princes Risborough, Aylesbury, Bucks, Engl.

2. Financial

The retiring Secretary Treasurer, Dr. Dadswell, gives the following statement of receipts and expenditure for the period from Juni 1954 to February 1957.

Table with columns for 1954 and 1957, listing financial transactions such as 'Balance at Commonwealth Savings Bank', 'Postages (including air mail)', and 'Subscriptions received for period'.

3. Membership

a. Subscriptions. The membership fee for 1957 has been fixed at sFr.7.-- payable by postal money order on Compte de cheque postal VIII 50938 Zürich, Switzerland. The outstanding amount of subscriptions has reached sFr.3'328.--. At present, the Association is supported by about 130 members. Most of them maintain regular contact with us, but there are some members lacking interest in the affairs of the I.A.W.A. They have not paid the membership fees for more than ten years. Therefore, the Council has decided to exclude all members who, after a last personal challenge, continue to owe fees for more than 5 years, except those who cannot pay because of difficulties in transferring money to Switzerland. - On the other hand we should endeavour to compensate for this loss by inviting new members.

Outstanding subscription should be paid until the November 30th 1957.

b. Mutations. It is with great regret that we have to announce the decease of Mr. W.N. Edwards, Late Deputy Keeper, Geological Department, London.

Prof. Dr. W. Harlow from the State University of New York wishes to retire as active member of the Association.

New addresses are announced from

- CHINA: Dr. Ying-pe Chang, Research Institute of Forest Science Ministry of Forestry, Wan-Shou-Shan, Peking
Dr. Y. Tang, Research Institute of Forest Science Ministry of Forestry, Wan-Shou-Shan, Peking
INDIA: Prof. K.A. Chowdhury, Department of Botany, Aligarh University, Aligarh
USA: Prof. L. Leney, School of Forestry, University of Missouri, Columbia, Miss.
Prof. O. Tippo, Department of Botany, Yale University, New Haven, Conn.

4. Scientific activity.

After having circulated the new Glossary of Terms, Dr. Chalk has taken into consideration several suggestions of our members and settled the definitive text. It will be published in Tropical Woods in due course. We think it will be possible to distribute one free copy to each member of the Association and to collect subscriptions for additional paid copies.

Write for subscription by November 30th 1957 to the Office of the Secretary Treasurer.

The Secretary Treasurer:

A. Frey-Wyssling

The Assistant Secretary Treasurer:

H. H. Bosshard

NEWS BULLETIN

1958 / 1

 Edited by the Secretary Treasurer

Zürich, Switzerland

Office: Laboratorium für Holzforschung E.T.H.,

Universitätstrasse 2

EDITORIAL

Your Secretary Treasurer has the honour to announce the publication of a new edition of the "International Glossary of Terms used in Wood Anatomy" by our Committee on Nomenclature. I should like to thank Doctors L. Chalk, B. Huber, M.D. Normand, E.W.J. Phillips and B.J. Rendle for their thorough work. Our gratitude must be especially conveyed to Dr. Chalk, chairman of the Committee, who had to circulate the preliminary list of terms and definitions to all members of the Association and to gather their suggestions. I am also grateful for the publishing facilities for this catalogue in "Tropical Woods" offered by Dr. W.I. Stern. We are glad to enclose a free copy of the new glossary. The next task will be to translate the English edition into other languages in order to create a comparative multilingual glossary.

Our activity in the near future will centre on the International Congress of Botany in Montreal (Canada) in 1959. Negotiations have been initiated with the aim to establish for our Association a similar status as in the Paris Congress 1954, i.e. to become a separate section in the subdivision Forestry Botany with the possibility of joint sessions or symposia with Plant Anatomy, Morphology, Physiology or Palaeontology if problems concerning trees are treated there, and to get time for an administrative session of our I.A.W.A.

Members are kindly invited to present suggestions for items to be treated in our scientific or domestic meetings as soon as possible, to the address indicated at the head of this News Bulletin.

SCIENTIFIC REVIEWS

The members are invited to co-operate with us in these "reviews" with short communications regarding their personal research work.

Some aspects of the application of high-frequency heating in wood biology

An article on high-frequency heating dealing with a technological problem is not to be expected in the scientific reviews of our bulletin. Therefore it seems necessary to explain why we think it worth while, to publish articles like that as well. The more wood technology develops, the more the wood anatomist is asked to furnish the technologist with morphological data or even to help the technologist in planning his investigations. Knowing that, we will establish a laboratory for microtechnological wood research where wood anatomy is the fundamental science and microscopic and biological techniques are the necessary tools of the investigation of biological and technological problems. One of these questions is the application of high-frequency heating in biology.