J.Hort.Sci. XXVI/3, 1951; XXVIII/1 1953, XXIX/1 1954, XXXI/1 19
XXXI/3 1956, XXXIII/3 1958, Ann.Rep.E.M.R.S. for 1951 (1952), An
Rep.E.M.R.S. for 1954 (1955), Nature 171, 1953, p.974 and 179,
1957, p. 922-24

Mr. Ken Shimaji, Institute of Forest Botany, University of Tokyo, Tokyo, Japan

His published work contains investigations on the anatomy of Japanese timbers and includes papers on the relationship between anatomical features and physical properties. It can be found in:

Bull.Tokyo Univ. Forests, No. 38 (1950), No. 42 (1952), No. 45(195
No. 46(1954), No. 47(1954), No. 48(1955), No. 53(1957), No. 55(1959
Journ.Jap.Forestry Soc. 32/11(1950), Miscellaneous Inform. Tokyo
Univ.Forests, No. 11(1956)

Dr. A.B. Wardrop , C.S.I.R.O., South Melbourne, Australia

Dr. Wardrop's work since 1947 is summarized in the following papers (published under his own authorship or together with coop
ators):

Microscopic and submicroscopic structure of cell walls. C.S.I.R.
Bulletin 221, Nature 160:911, 162:957, 164:366, 168:610, 170:329
Proc. Leeds Phil.Soc. 5 (Part 2), 128, Biochim. et Biophys. Acta
3:549 and 585, 6:36, 13:306, Aust.J.Sci.Res.B. 3(3):265, 4(4):39
5(2):223, 6:299, Proc.Aust.Pulp and Paper Ind.Tech.Assn. 5:204,
6:243, J. Exper. Bot. 2(1):20, Text.Res.J.22 (4):288, Holzforsch
8:12, Aust.J.Bot. 6:299

Nature of reaction wood
Aust.J.Sci.Res. B.1 (1):3, 3(1):1, 5(4):385, Aust.Forestry B, 22
Aust.J.Bot. 3:177, 4:152, Structure and Properties of Tension
Wood 9:97, Proc.Aust.Pulp Paper Techn.Assn.10:30, Nature 178:867
Holzforschung 11:102 and 33.

Physical and chemical properties of cell walls
Proc.Aust.Pulp and Paper Ind.Tech.Assn. 4:198, 9:107, J.Inst.Wood
Sci. 1:2

Development and growth of tracheids
Australian Forestry 15(1), 17, Holzforschung 7 (2/3):34, Aust.J.
Bot. 2:154 and 165, 3:137, 4:193, 6:89 and 96, Biochim. et Bio-
phys. Acta. 21:200, TAPPI 40:225

Structure of cellulose
Aust.J.Sci.Res.A. 4 (3):412.

Zurich, 30th of April 1959

Secretary Treasurer — Assistant Secretary Treasurer

Frey-Wyssling — Bauhard

INTERNATIONAL ASSOCIATION OF WOOD ANATOMISTS

NEWS BULLETIN 1959/2

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

EDITORIAL

Your Secretary Treasurer has the pleasure to report that a joint Council and Member Meeting of the IAWA was held at Sir George Williams College, Montreal (Canada) at 16.15 p.m. on September 25th after a symposium on the anatomy and physiology of wood organized in the section Forest Botany by the IX. International Botanical Congress 1959. The details on these proceedings will be found in a special paragraph of this News Bulletin.

I should here like to mention that pursuant Art. IV of our Constitution the Assembly elected three Honorary Members for their achievements in the advancement of the knowledge of wood anatomy. I am delighted to announce that this honour has been bestowed on

Dr. I.W. Bailey (Harvard University, Herbarium) who has been a member of our Council since the foundation of our Association in 1931 and whose remarkable work relating to our science is collected in the attractive compendium "Contribution to Plant Anatomy" (Chronica Botanica Company) Waltham, Mass., USA, 1954.

Dr. L. Chalk (Lecturer in Wood Anatomy, Imperial Forestry Institute, Oxford, England). His comprehensive experience in and knowledge of the structure of wood made him the predestined chairman of our Committee of Nomenclature, whose activity has been crowned by the "International Glossary of Terms used in Wood Anatomy" (Tropical Woods, Nr. 107, Oct. 1957), which was sent to all our members last year.

Dr. Margareth Chattaway (retiring scientist on the Forest Products Research Laboratories of Australia) whose important contributions to the problem of heart wood formation and bark anatomy as well as her valuable assistance in the administration of our Association 1947 - 1957, when Dr. H.E. Dadswell (Melbourne, Australia) was our Secretary Treasurer, the Assembly wished thus to reward.

On behalf of our Assembly as well as of all our members who were unable to attend the International Botanical Congress in Canada, I wish to congratulate our Honorary Members on their well-deserved election and to thank them for their valuable contributions to our knowledge of Wood Anatomy.

A. Frey-Wyssling
Secretary Treasurer

SCIENTIFIC REVIEWS

Instead of an original contribution this issue contains a number of abstracts from papers which were prepared for the Montreal Botanical Congress and reached the Secretary Treasurer too late for publication in the last News Bulletin.

On the Origin and Development of the Tyloses

by Lubomir Jurasek
Forest Products Research Institute, Bratislava, Czechoslovakia

The physiological conditions of the tylose formation have been investigated in wood from the branches of beech (Fagus silvatica L.). It has been determined that the impulse towards the initiation of tylose growth was the irritation of living parenchymatical cells. This irritation arises from tissue damage by injury, and from the change in capillary relations under the contact of wood with a gaseous phase (air). Both factores mentioned must operate simultaneously. The intensity of tylose formation is effected by the moisture content of wood and its temperature. The most intensive growth of tyloses has been observed in wood with the initial moisture content maintained, providing that all other conditions necessary for the growth have been met. The loss in the moisture content of wood cannot be considered as a necessary condition for the formation of tyloses, and the formation of tyloses does not take place even in wood with 50 percent moisture content. Analogously, the temperature affects only the intensity of tylose formation, but it does not initiate their growth. The optimum is at the temperature of 25° C, the minimum at approximately 15° C, and the maximum at approximately 40° C. The air oxygen affects the growth of tyloses only as a factor necessary for the maintenance of the life of the parenchymatical cells in wood. The increase in the amount of air oxygen above the normal level does not originate the formation of tyloses. An osmotic pressure on the solution in wood vessels lower than the osmotic pressure in living cells is the necessary condition for the growth of tyloses. Such conditions can normally always be observed in wood. The artificial reversal of these osmotic conditions precludes the possibility of tylose formation. The presence of fungal infection in wood cannot be considered to be a necessary condition for the growth of tyloses and their formation, because tyloses are formed even in sterile wood. However, fungi can indirectly affect the formation of tyloses as they damage the living tissue.

Change of Vitality of Parenchyma Cells as a Physiological Basis of Heartwood Formation

by Vladimir Necesany, Forest Products Research Institute, Bratislava, Czechoslovakia

It has been stated in our previous work that the decrease in vitality of ray parenchyma cells in beech wood can be observed in the direction from the cambium to the pith, eventually to the heart wood if this has been formed. Based on these results, the vitality of ray parenchyma cells of the following wood species has been subjected to analysis: Fagus silvaticus L., Acer platanoides L., Tilia platyphyllos Scop., Quercus robur L., Ulmus effusa L. and Pinus silvestris L. The results

of this analysis have been compared with those obtained in our foregoing investigations. The aim of the investigations performed was to determine whether differences exist in the change of the physiological state of living cells, which could evoke the formation of different types of heartwood in these wood species. The state of vitality has been investigated in the stems containing exclusively sapwood (beech), sapwood with ripewood (maple), sapwood with false heartwood (maple, basswood), sapwood, ripewood and false heartwood (beech) and sapwood and true heartwood (oak, elm, pine). As the criterion of vitality based on foregoing comparable studies using various methods of vitality determination, the permeability of protoplasm deduced from the osmotic values of living ray parenchyma cells has been used.

It has been discovered that:

a) the vitality of living cells in sapwood of all wood species studied decreases in the direction from the cambium to the pith.

b) In the stems containing sapwood only, this decrease in vitality continues to the pith.

c) In the stems with ripewood, a strikingly rapid drop in vitality can be observed in the peripheral zone of ripewood.

d) The decrease in vitality in the zone of ripewood shows the same tendency as in the inner part of true sapwood.

e) The values of cell vitality in the sapwood zone (true sapwood + ripewood) of wood species with false heartwood are distinctly higher than in wood species containing true heartwood, whereas the parenchyma cells show a still relatively high vitality near the border line between sapwood zone and the heartwood.

f) The values of cell vitality in the sapwood of species containing true heartwood are lower in comparision with the above-mentioned case, and they decrease towards the borderline marking the sap-and heartwood, reaching the zero values.

g) In the heartwood no living parenchyma cells are found.

From the obtained results of ray parenchyma vitality measurements, the following conclusions have been drawn:

a) The formation of heartwood in all wood species with no exception, is the physiological process, always of the same character, during which the parenchyma cells die either by natural aging, or by the influence of environment with simultaneous formation of tyloses and heartwood substances.

b) In wood species containing true heartwood, the formation of heartwood is effected, above all, by the natural aging in generally less vital parenchyma cells.

c) In wood species with false heartwood, the dying in general of more vital cells is caused rather by the interference of unfavourable

influences of outer environment (frost, dryness, fungi).

d) The difference in the type of lines bordering true and false heart wood is affected by the different vitality of parenchyma cells in the period of their dying.

The Effect of Night Temperature on Tracheid Size and Wood Density in Conifers
by S.D. Richardson, University of Aberdeen

Experiments are described in which seedlings of Pseudotsuga menziesii, Sequoia sempervirens, and Picea sitchensis were grown under a range of different day and night temperatures, in a controlled environment, and over a period equivalent to a complete growing season. In all species, wood density and cell-wall thickness increased with night temperature, but revealed no consistent relation with day temperature or rate of growth. Very little pith was formed in any treatment and there was no measurable variation across the ring in cell-wall thickness or lumen diameter. Tracheid length, however, increased with increasing temperature, day or night, and appeared to vary according to the extent of intrusive growth. It is suggested that cell elongation is a relatively direct function of temperature, while cell-wall thickening is determined by net assimiliation rate. A hypothesis, based on observed changes in net assimiliation rate with age, is proposed to account for differences in density between so-called juvenile and adult wood.

BOOK REVIEW

The American Society for Testing Materials has asked us to announce the availability of the following book to our members

COMPILATION OF STANDARDS ON WOOD, WOOD-BASE MATERIALS AND WOOD PRESERVATIVES - D-7

456 pages, Paper Cover, 6 x 9", $ 5.50

This compilation supersedes the 1954 edition and contains 69 standards of which 37 have been revised, had their status changed or are new. Wood technologists and engineers will find methods for establishing structural grades for wood and timbers, evaluating mechanical and physical properties of wood, methods of chemical analyses, fire tests, tests for panels for building construction, truss assemblies, glued joints, and general test methods.

In addition to wood, the compilation covers: veneers, plywood, fiber building boards, timber, and wood preservatives. The volume further contains description of test methods, definitions of terms and specifications for various related materials.

A.L. Batik

MONTREAL BOTANICAL CONGRESS

August 19 - 29, 1959

Report of the IAWA Business Meeting

The Business Meeting of our Association was scheduled to be held after the two IAWA Symposia on anatomy and physiology of wood. It was directed by the Secretary Treasurer Prof. Dr. A. Frey-Wyssling and attended by 22 members, whereof 3 Council members (underlined) and 6 aspirant members.

Australia: A.B. Wardrop, Melbourne; India: K.A. Chowdhury, Aligarh; K.N. Kaul, Lucknow, Israel: A. Fahn, Jerusalem, England: B. Mosse, East Malling; C.R. Metcalfe, Richmond; B.J. Rendle, Princes Risborough, France: E. Boureau, Paris, Germany: B. Huber, München; W. Müller, Potsdam, Scotland: S.D. Richardson, Aberdeen, Switzerland: A. Frey-Wyssling, Zurich, H.H. Bosshard, Zurich; USA: J.E. Canright, Bloomington, Indiana; C.L. Chen, Yale University; J.H. Isenberg, Inst. Paper Chem, Appleton, Wisc.; M.F. Moseley, Santa Barbara, Calif.; Ph.R. Larson, Rhinelander, Wisc.; P.A. Vestal, Rollins College; M.H. Zimmermann, Petersham, Mass. Canada: E. Perem, Ottawa; J.D. Hale, Ottawa.

1. Secretary Treasurer's Report 1957/59

Members. During the period 1957/59 IAWA lost 4 members who resigned or died; 31 had to be struck from our list because they did not send their contributions for more than 5 years, 18 new members have been admitted.

In August 1959 the total number of members was 122 (against 139 in 1957). They are distributed all over the world as shown by this list: Europe 53, America 43, Asia 14, Australia 10, Africa 2.

A new directory of members will be published during 1960.

We must endeavour to cover the loss of so many unfinancial members by recruiting young men interested not only in pure but also in applied wood anatomy and in wood microtechnology.

Finances. In 1957, my predecessor Dr. Dadswell transferred our capital from Melbourne (Australia) to Zurich (Switzerland). It amounted to sFr. 3.559.60. Meanwhile this capital has increased to sFr. 4.290.43 i.e. not quite $ 1000.-. The small increase within 3 years means that our income is currently consumed by the edition of two News Bulletins per year, so that the members' contribution of sFr. 7.- just covers the expenses of this activity. There will scarcely be enough funds for the publication of an illustrated multilingual glossary of terms. Such an undertaking has to remain within the scope of our capital of $ 1000.- unless considerable raise of our annual contribution is resolved upon.

News Bulletin. Measures are taken to issue our publication twice a year with 8 - 10 pages each number. Several libraries have applied for subscription, so that it has reached a more general scientific

standard and is no longer meant for personal information of our members only. Members are kindly invited to collaborate by contributing summaries or short papers of their current research work.

Glossary of Terms. Our Committee of Nomenclature (Drs. Huber, Normand, Phillips, Rendle, under the chairmanship of Dr. Chalk) has published in Tropical Woods (Editor Dr. Stern), the International Glossary of Terms used in Wood Anatomy which has been sent to all our members. It is planned to translate this Glossary into French, German and Spanish. A Portuguese edition has been prepared by Dr. Ferreirinha, who has issued this translation on his own initiative.

2. Council Members

At the end of this year, the three-year period for which the Council has been elected will terminate. Most of the Council members are ready for re-election for a further tenure of office. Only three have to be replaced: Dr. Chalk in Oxford, Dr. Bailey in Cambridge and Dr. Chattaway in Melbourne have announced their wish to retire. The Secretary Treasurer raised this question at the business meeting and suggested that Mr. Hale, Ottawa, should be elected for Dr. Chalk, Dr. Wardrop for Dr. Chattaway and Dr. Stern for Dr. Bailey. Open discussion was in favour of these three members and they would entertain the proposal. The Secretary Treasurer has therefore taken cognizance of that result and will propose the three nominations in the forthcoming election of the Council (vide page 8).

3. Honorary Members

Article IV of our Constitution stipulates: "Honorary Members shall be persons who, in the opinion of the Council, have rendered notable service to the advancement of knowledge of wood anatomy".

The Secretary Treasurer proposed to make use of this possibility of creating Honorary Members in our Association and nominated Dr. Bailey, Dr. Chalk and Dr. Chattaway, three members who have for many years supported our Association with all their facilities and thus rendered most valuable service. They were elected unanimously (vide page 1). Concerning the subscription fees it has been decided that Honorary Members should be free members.

4. International Glossary of Terms used in Wood Anatomy

Mr. Rendle, Princes Risborough, has reported on the work which Dr. Chalk has already prepared concerning the illustration of our Glossary. In the discussion it has turned out that most of the members would prefer to have an illustrated Glossary. It was not possible to discuss any details of these illustrations, although Dr. Chalk has prepared a questionnaire. It has been resolved that Mr. Rendle should discuss this question of illustrations with Dr. Phillips and Dr. Chalk who wishes to resign as a member of the Committee of Nomenclature.

Concerning the translation of the Glossary, all contributors regarded it as necessary to have a multilingual Glossary at least in

English, German, French and Spanish. For this purpose the Committee of Nomenclature has been newly constituted with Messrs. Huber (Germany), Normand (France), Pillips (England) and Bosshard (Switzerland).

5. Tree Ring Society

Prof. Huber has reported on the endeavours of the Tree Ring Society in Tucson (Arizona). As the work of the society and of this whole field has most recently been complicated by the death of the two best-known tree ring experts, Prof. Huber is afraid, that the whole work might be stalled. He would therefore greatly appreciate official encouragement by our Association. In discussion it was pointed out that our Association would not be in a position to give any financial support, but as far as encouragement is needed, the Association is willing to do its best. Prof. Huber is asked to write a letter to this effect to the board of the Tree Ring Society, which will be signed by the Secretary Treasurer. In the meantime this letter has been written as follows:

Gentlemen:

At its meeting in Montreal IAWA wishes to express its high esteem of the work done at the tree-ring laboratory of TUCSON, University of Arizona by A.E. Douglas, E. Schulman and their collaborators. IAWA hopes that this unique work and the edition of the Tree-Ring Bulletin is continued inspite of the regrettable and untimely death of Professor Schulman.

sig. Prof. Dr. A. Frey-Wyssling Prof. Dr. H.H. Bosshard

6. Miscellaneous

Prof. Huber suggested that the IUFRO-Kongress in Vienna in 1961 could be the next possibility of a meeting of members of our Association.

This suggestion shall be kept in mind, but it will largely be a matter of the personal activity of our members whether there will be a special meeting in Vienna or not.

MEMBERSHIP

It is with great regret that we have to announce the decease of Dr. Wita von Jazewitsch, late scientist in the Institute of Prof. Huber, München, Germany.

New addresses are announced from:

ENGLAND: Prof. Dr. Ing. W. Mörath, 89, Exeter House, Putney Heath, London S.W. 15

JAPAN: Prof. Yoichi Sugiura, Institute of Forest Utilization, The College of Agriculture and Veterinary Science, Nihon University, Shimouma Setagayaku, Tokyo.
Mr. Noborn Yamahayashi, Tokyo Agriculture College, Setagaya-Kut, Tokyo.

USA: Dr. Jeannette M. Kryn, 3414 Dawes Street, Madison 4, Wisc.
Mr. William N. Watkins, Curator, Division of Agriculture and Wood Products, Smithsonian Institution, Washington 25, D.C.

It is planned to issue a new directory of members early in 1960. We would ask you to check the address you have given us and write us in case of error.

We are without the address of Mr. W.A. Rainford, old address: Post Office Box 325, Livingston, Rhodesia. Perhaps it is possible to reach Mr. Rainford through this medium.

Election of the Council Members

The 12 members of our Council have to be elected for a new three-year period. 9 of them are ready to serve again. We have only the anouncement of Dr. Bailey, USA, Dr. Chalk, England and Dr. Chattaway Australia, who wish to retire at the end of 1959. As you may have seen from the report of our business meeting in Montreal, we had the possibility of discussing the succession of these three Council members. We therefore suggest a new Council constituted as follows:

Mr. J.D. Hale, F.P.L. of Canada, Ottawa

Dr. E.W.J. Phillips, Princes Risborough

Prof. Dr. B. Huber, Forstbotanisches Institut, München

Prof. Jean Collardet, Centre Technique du Bois, Paris

Mons. Didier Normand, Centre Technique Forestier Tropical, Nogent-sur-Marne

Prof. Dr. A. Frey-Wyssling, Inst. f. Allgem. Botanik ETH, Zurich

Prof. F.R. Milanez, Jardim Botanico, Rio de Janeiro

Dr. W.L. Stern, Yale School of Forestry, New Haven

Dr. B. Francis Kukachka, US F.P.L., Madison

Dr. K.A. Chowdhury, F.R.Inst. Dehra Dun

Dr. H.E. Dadswell, C.S.I.R.O., South Melbourne

Dr. A.B. Wardrop, C.S.I.R.O., South Melbourne

To facilitate the procedure of election, we should like to ask whether you can accept the new structure of the Council. Without your reply by December 15th we assume your consent. If someone were to suggest replacement of one of the Council members by another member of the Association he should write us at an early date to give us time for the final settlement of the question.

Zurich, October 1959 Edition 160 copies

INTERNATIONAL ASSOCIATION OF WOOD ANATOMISTS

NEWS BULLETIN 1960/1

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

EDITORIAL

Several libraries of research laboratories in different countries have evinced their interest in our News Bulletin, so that its contents need no longer be considered as domestic information letters only, but as scientific contributions of a more general significance. We therefore hope to continue publishing short scientific reports and summaries as was the case with the abstracts of the papers presented in the symposia on wood at the Montreal Botanical Congress.

As a result of the appeal to our members for collaboration in this line, we have received a most valuable review on reaction wood by Dr. Wardrop, which we are delighted to publish as a welcome opening paper. Vivant sequentes!

I am glad to state that our financial position, of which this Bulletin gives evidence, enables us to publish two issues of 8 to 10 pages each year.

The new directory of members announced in our last News Bulletin is distributed along with this issue. We would ask each member to check his address and to inform our office continuously of any intervening change.

A. Frey-Wyssling
Secretary Treasurer