

**A NOTE ON THE INTERCELLULAR SPACES IN THE WOOD OF  
ADENOPETALUM BIGLANDULOSUM (CUNONIACEAE)**

by

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**Summary**

An unusual structure with large intercellular spaces is described in the wood of *Adenopetalum biglandulosum* (Cunoniaceae). It is particularly abundant on the lower side of the trunk of this horizontally growing bush.

**Introduction**

In this short note, an unusual structure is described in the wood of *Adenopetalum biglandulosum* (Cunoniaceae), a Tasmanian bush. This small tree owes its common name ('horizontal') to its very peculiar habit of growing almost horizontally. It is found commonly in the understorey of the *Nothofagus cunninghamii* rain forest of Tasmania, can have a diameter up to 25 cm and is known to impede one's progress through the forest in those places where it is wide-spread.

Interest was attracted to this species during an attempt to obtain some experimental confirmation of Boyd's theories (Boyd, 1977) on the role of lignin and tension wood in stem orientation movements of angiosperm trees, and in growth stress phenomena. Although that initial aim has not been clearly met (Ferrand, 1981) some unexpected structures were found in this species.

**Observations**

The photomicrographs of Fig. 1A and 1B were exposed, developed and printed under identical conditions. Compared with the 'normal' structure (Fig. 1A), some tissues show two peculiar characteristics (Fig. 1B):

- 1) Staining (with methyl violet) has been much less successful, suggesting abnormal lignification.
- 2) There are many intercellular spaces between fibres.

This phenomenon resembles to some extent fibre dimorphism, which has been described for Lythraceae (Baas & Zweypfenning, 1979): in this latter family one finds a special type of tis-

sue where (i) fibres have thinner walls than those of the normal type, and (ii) there are intercellular spaces between fibres.

In our samples, the special tissue described above was very abundant on the lower part of the horizontal trunk of the specimens, and absent or much more infrequent in the other parts of the trunk and in the branches. Additionally the poor staining and the lacunae were always found together; this shows that the observation of brighter sections was not the result of some uncontrolled variation in the staining procedure.

**Discussion**

Only further observations could help to answer some important questions, such as:

- 1) Is this peculiar form of tissue just the same as fibre dimorphism?
- 2) Is it associated with reaction wood, as could be expected from the horizontal growing habit of the species?
- 3) Does it play a direct role in this horizontal development of the bush?

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**References**

- Baas, P. & R.C.V.J. Zweypfenning. 1979. Wood anatomy of the Lythraceae. *Acta Bot. Neerl.* 28: 117-155.
- Boyd, J.D. 1977. Basic cause of differentiation of tension wood and compression wood. *Austr. For. Res.* 7: 121-143.
- Ferrand, J.-Ch. 1981. Recherche des solutions pratiques à apporter aux problèmes posés par les contraintes de croissance des arbres forestiers. Thèse. Inst. National Polytechn. Lorraine, Nancy.

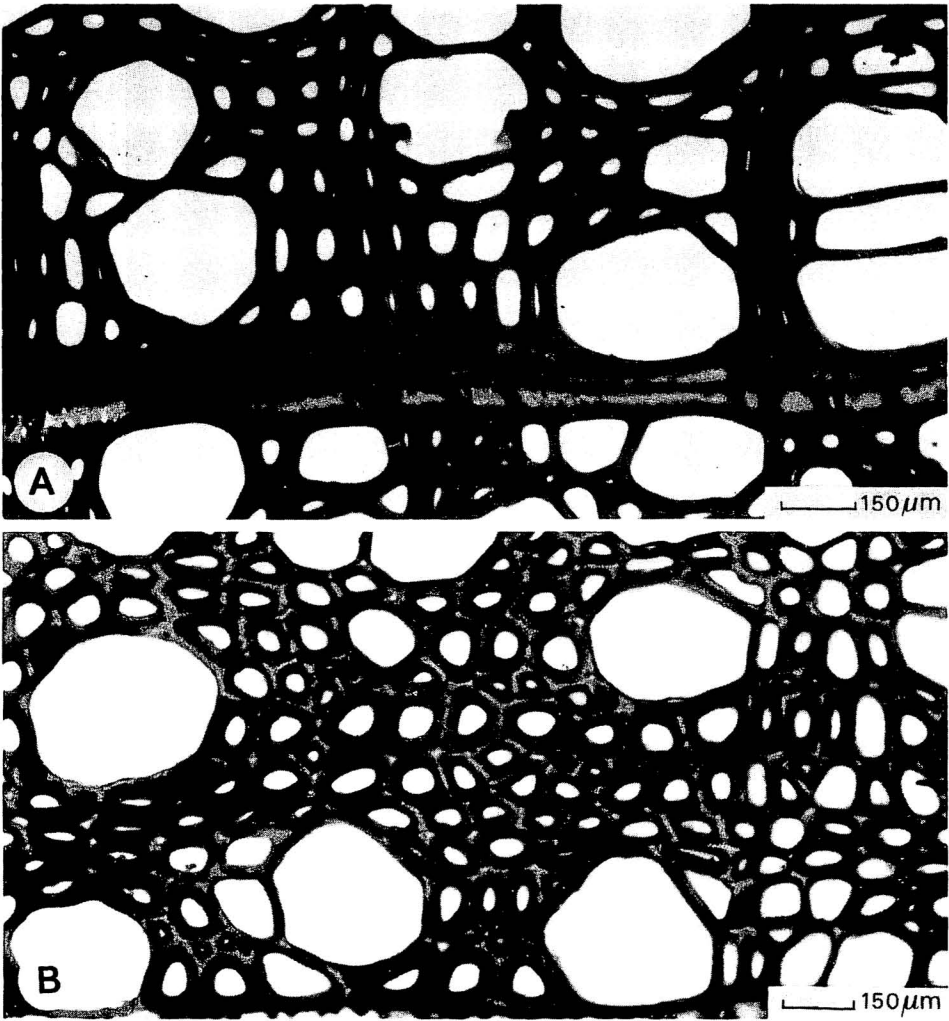


Fig. 1. Photomicrographs of two sections of *Adenopetalum biglandulosum*. — A. 'Normal' tissue (upper part of a horizontal stem). — B. 'Abnormal' tissue (lower part of a horizontal stem): lower staining intensity, presence of many intercellular spaces.