

PHOTOPERIODIC EFFECT ON POLLEN SHEDDING IN *PINUS RADIATA*?*

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Adult material (grafts) of *Pinus radiata* D. Don was grown in a heated glasshouse for 19 months, starting from mid-winter. From mid-summer to mid-summer half the material was given continuous supplementary incandescent light and half kept in ambient photoperiod (Burdon, 1974). All material became largely disentrained from the normal seasonal growth rhythm, and in both treatments pollen cones started to become visible during spring instead of during late summer.

In the second summer the plants with unseasonably formed pollen cones were moved outdoors. However, there was virtually no pollen shedding from mid-summer until close to the normal pollen-shedding season in late winter, even from pollen cone clusters which had started dehiscing before this period. On some shoots two successive pollen cone crops had appeared several months apart but dehiscence at almost the same time (Fig. 1).

It appears certain that during autumn there was a powerful inhibition of pollen shedding by some factor or factors of the external environment. This prolonged inhibition could be explained in terms of an effect of decreasing photoperiod (cf. Jenkins *et al.*, in press.) rather than of absolute daylength or of any particular temperature regime.

REFERENCES

- BURDON, R. D. 1974: Photoperiodic responses in *Pinus radiata* — Preliminary experiments. **N.Z. For. Serv., For. Res. Inst., Tree Physiol. Rep. 19** (unpubl.).
- JENKINS, P. A., HELLMERS, H., EDGE, E., ROOK, D. A. and BURDON, R. D. 1977: The influence of photoperiod on growth and wood formation in *Pinus radiata*. **N.Z. J. For. Sci. 7(2)**: 172-91.

FIG. 1 (opposite)—Graft kept in glasshouse under ambient photoperiod until 6 January 1969, as at 13 June 1969. There are two successive crops of unopened pollen cones separated by a zone of fully elongated vegetative shoot. Pollen shedding in the lower crop appeared imminent by April but did not begin until 26 June 1969. (Photo — R. D. Burdon.)

* A detailed and illustrated account under the same title is available on request from the Editor.

