
Review

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During 1919 comparative cultures of seeds sown at an altitude of 2000 m. in the Pyrenees and at 78 m. at Fontainebleau were carried out. The sowings were made in both stations on July 1 and the observations and measurements recorded in September. The alpine crop all show a decided nanism, both the height of the plants and the size of the leaf being very much reduced, in most cases $\frac{1}{2}$ — $\frac{1}{3}$ or less than that of the lowland crop. Not only is size reduced, but in many cases the form of comparable leaves is altered. In the alpine station a certain acceleration of development is noticeable, the mature form of leaf being reached earlier. Here also there is in general much more development of hairs and in many plants a noticeable quantity of anthocyanin.

R. S. ADAMSON.

NOTICES OF PUBLICATIONS ON FOREIGN VEGETATION

MacCaughey, Vaughan. "Hawaii's Tapestry Forests." *Bot. Gaz.*, **70**, p. 137. 1920.

The term "Tapestry" forest is applied to montane rain forest occurring on very rocky slopes between 800–4500 ft. The slopes vary from 40–80° averaging 50–60°. These very steep slopes have protected the forests from the destructive action of browsing animals which have reduced much of the less steep country to arid and xerophytic wastes.

The tapestry forests owe their name to the varied colourations given by the clothing of the trees. The forests occur on basaltic rocks which are covered by a soil only 4–12 inches in thickness which is a stiffish clay very retentive of moisture, overlaid by a very thin layer of vegetable mould. Such a soil on such steep slopes bears a very stunted forest, the trees being dwarfed and gnarled with very short trunks spreading soon into branches. The form is due not only to the precarious foothold but also to the great exposure to winds.

The foliage of the trees is for the most part composed of simple oval glossy leaves: conifers and cycads are quite absent.

Most of the trees have a marked development of prop roots, which extend downward. At the lower altitudes lianes are abundant and all through epiphytic ferns, mosses and lichens occur in profusion. The upper parts, which are mist-covered for much of the year, show especially an enormous development of mosses.

The tapestry forests give a general appearance of senescence, owing to the absence both of seedlings and of very old trees, but their appearance is due more to the adverse conditions of life than to real decay.

Tapestry forests are continually being partially destroyed by landslides, after which regeneration is very slow, and if cattle obtain access is prevented altogether.

From an ecological standpoint they must be regarded as a transient community whose area of existence is being steadily reduced by subsidence and erosion.

The paper is illustrated by a number of photographs.

R. S. ADAMSON.

Hoffmann, J. V. "The Establishment of a Douglas Fir Forest." *Ecology*, **1**, p. 49. 1920.

Douglas fir forest, which occupies such large tracts in the N.W. States, is a stage in the sere whose climax is a forest of red cedar, *Thuja plicata* and hemlock, *Tsuga heterophylla*.

In seed years, which occur at irregular intervals, Douglas fir forms very large quantities of seed. These are used as food by rodents which devour a considerable proportion of the seed but store up quantities in the soil. These caches are buried and obliterated by snow and rain but the seed remains in a viable state for some time, at any rate six years, and is stored there in conditions suitable for germination.