



## *Witches'-Broom of Douglas-Fir in Washington\**

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**A**N UNUSUAL and apparently heretofore undescribed witches'-broom on *Pseudotsuga taxifolia* var. *glauca* (Mayr) Sudw. (Rocky Mountain Douglas-fir) was collected on March 5, 1950, in Pullman, Washington.

The witches'-broom occurred on a lateral branch of an otherwise normal, open-grown tree, 45 cm. in diameter and approximately 25 m. high, which was associated with other apparently normal trees of the same species.

The irregular, dense, globose broom (Fig. 1) of the drooping, terminal type measured 20 cm. in its greatest diameter and weighed 930 grams when fresh. Due to its compactness, the broom resembled a gall; when sawed open, the individual branches could be traced back to the point of proliferation (Fig. 2).

The surface was densely covered with short slender needles which rarely reached a length of 2 cm. These were interspersed with many terminal buds borne on short axes up to 1.3 cm. long. Most of the reddish-brown needles were dead, but some of the shorter ones still retained the pale green coloration characteristic of fresh spring growth. The majority of the apical buds apparently died without producing needles; the oldest of these had lost both their needles and bud scales, leaving prominent, rough central axes. New growth arose from the closely packed lateral buds which developed immediately behind the apical bud.

The broom differed from those described by Boyce (1948) by reason of

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its extreme compactness, its uniformly slow development in all directions, and the absence of apical growth. At the same time it differed from those described by Weir (1916) by reason of the absence of any indication of the presence of mistletoe, past or present, and of the continuous slow annual growth without the appearance of similar symptoms elsewhere in the tree. Similar, though somewhat less dense, brooms have been observed on species of *Picea*, *Pinus*, and other conifers in Europe by Tubeuf (1933), who considers them to be of genetic origin and, therefore, transmissible by seed. In the present instance attempts to isolate a causal organism have been unsuccessful.

This is apparently the first report of this extremely compact type of witches'-broom on Douglas-fir in North America.

#### LITERATURE CITED

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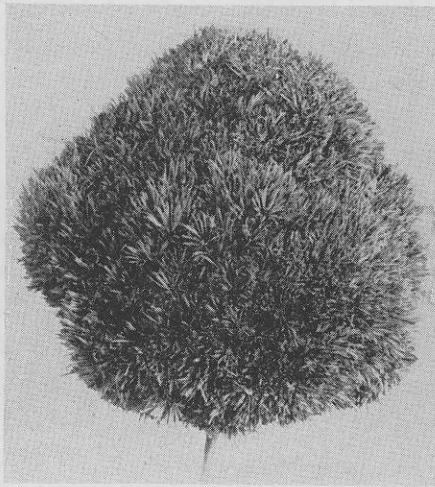


Fig. 1.—Witches'-broom of Douglas-fir

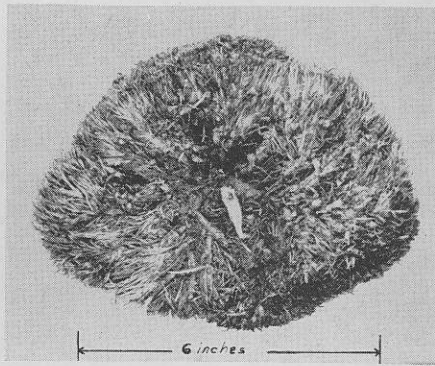


Fig. 2.—Cross section of witches'-broom