

# "Birds Eyes" in Maple *are not due to* Dormant Buds

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EVERYBODY has seen the bird's-eye maple. Its markings are so distinctive that everybody recognizes it. But nobody knows the cause of this beautiful figure in the wood, nor where the future supply of this highly prized wood will be had after



Fig. 1. "Bird's eyes" are indentations in the grain of the wood. The illustration above shows a cross section along three "bird's eyes." Note how the bark extends into the wood.

the present rapidly dwindling supply is exhausted. Consequently the Forest Products Laboratory and the Lake States Forest Experiment Station are conducting experiments in the forests to determine the cause of the figure and whether it can be reproduced.

### Theories as to the Cause of Bird's-Eye Figure

Before embarking upon the foregoing experiment, various theories as to the cause of bird's-eye figure were considered. Some investigators first suggested that woodpeckers or "bird's" "k"ers wounded the tree and that "bird eyes" resulted. However, wounds in the growing parts of a tree usually heal over and disappear as the tree grows, whereas the "bird's eyes" apparently begin as minute dimples, continue in a radial direction, and even increase in size toward the outside of the tree. Other workers advanced the suggestion that tiny buds, which never fully develop but remain dormant in the inner bark, were responsible for this peculiar grain. But here a difficulty intervenes. If the "bird's eyes" were caused by adventitious buds they would project outwardly and contain a small dark core, the pith, which observations on many trees of both small and large sizes failed to disclose.

Other investigators advance the hypothesis that the figure is an inheritable characteristic. On the other hand, recent obser-

vations have indicated that the bird's-eye figure sometimes occurs in trees that have been crowded or for some other reason suppressed in their rate of growth. In view of these latter two opposed explanations, both of which are seemingly equally plausible, it is of interest to observe just where and how "bird's eyes" occur.

### Occurrence of "Bird's Eyes"

The bird's-eye figure is most frequently found in sugar maple, although even in that species, trees with the figure developed to a high degree are relatively rare. This eyelike figure also occurs, but much more rarely, in other species of hardwood, such as soft maple, yellow birch, and white ash.

While it is common to find the "bird's eyes" scattered over the entire length of a tree trunk and even up into the large branches, the figure, however, may be confined to just one side of a tree or it may be in several vertical strips, which encircle the tree. In other cases the "bird's eyes" have been found in irregular shaped patches scattered over a tree trunk with barren, or so-called "blind spots," in between the patches.

### "Bird's Eyes" are Indentations in the Grain of the Wood

The grain of the wood within a single "bird's eye" is distorted in the form of a conical indentation extending toward the pith of the tree. When such grain is cut across, as in rotary cut veneer, the distorted grain roughly gives the appearance of a bird's eye.

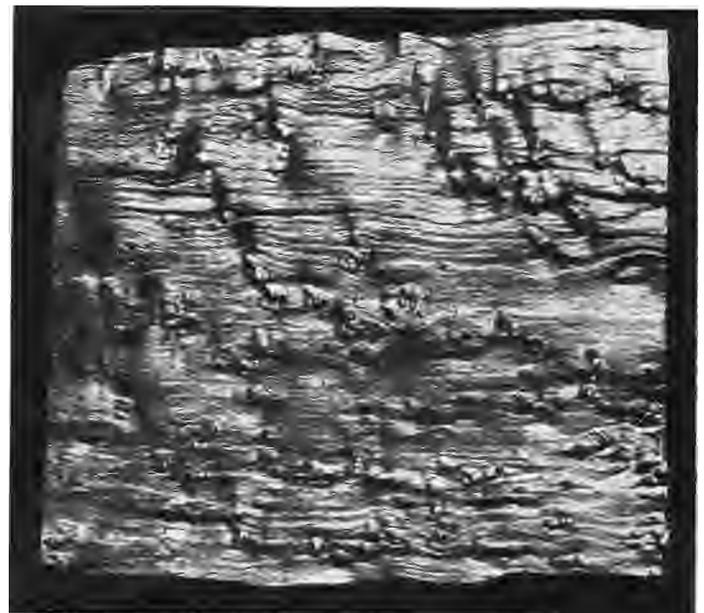


Fig. 2. A surface showing projections upon the face of the piece that was split along the line a-b of the log shown in Fig. 1.

When a log of wood containing such grain is split on a plane tangent to the annual rings of a tree, projections are found upon the face of the piece that has been split from the log. Figure 2 illustrates a piece of wood having such a surface, and Figure I shows a cross-section and the dimension line along which the split was made. When the "bird's eyes" are large in size and numerous, the wood often becomes additionally figured by curly grain, which adds to the attractiveness of veneer panels made from such wood.

In most cases after once becoming started the "bird's eyes" continue to be formed in succeeding annual rings throughout the life of the tree and become larger with increasing diameter of the tree. However, it is reported that veneer manufacturers occasionally find them only after removing two or three inches of the outer portion of a log. At this depth the eyelike markings seem to begin abruptly.

"Bird's eyes" may be found in trees as small as three inches in diameter, and even in trees about one inch in diameter, minute dimples have been observed on the trunks which probably are the beginnings of the "bird's eyes," especially since the "bird's eyes"

increase in size with age. In large trees, these spots may vary in size from some as small as the head of a common pin to others that are a quarter of an inch or more in diameter.

The bark adjacent to the wood containing the "bird's eyes" follows the same contours that the wood does. A cross-section through the middle of the "bird's eyes," so as to expose an end view of both the bark and wood, shows a projection of bark inward into the indentation that constitutes the "bird's eye." (Fig. I.) This indentation is apparent in the bark in the form of rounded depressions, and is the characteristic by which bird's-eye figure is recognized in the tree.

#### **Kinds of Experiments Undertaken**

The preliminary experiments, so far undertaken by the Forest Products Laboratory and the Lake States Forest Experiment Station on whether the bird's-eye figure can be reproduced, consist of grafting methods and of planting seeds from highly figured trees. If the experiments are successful, highly figured trees may possibly be grown under favorable conditions at a rapid rate and in sufficient quantities to satisfy the future demand for quality bird's-eye veneer.