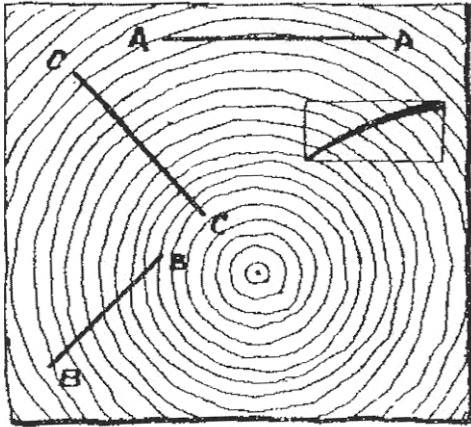


# THE STORY OF BALSAM WOOD

(A story obviously written when most modelers were kids (see last sentence) but good information anyhow)

The climatic conditions under which balsa grows provide an almost uniform texture throughout the log, although a change in the season is definitely marked by an increase or decrease in the rate of growth. However, the degree of change is usually comparatively small so that the texture is fairly uniform. The growth rate determines the strength and texture. A moist set of years will produce fast growth of light but weak balsa. While a dry set of years or high ground will cause a slow growth with consequent heavier and harder balsa. Soft or light balsa is also more likely to be streaked with mineral colors because of the relatively larger pores through which moisture can carry the fine color sediments. This color streaking does not impair the strength since there is no break in the fibers caused by accumulation of foreign material.



The growth of the tree is obviously from the center outward. The structure is similar to a group of concentric tubes very finely fitted & cemented together, each tube representing a period of growth. From this analogy we can see that if we were to cut the log along the C-C line we would get a laminated sheet. A cut along the A-A line would give us a sheet of uniform texture and structure. Physical characteristics of the C-C cut are scallopy appearance, and a resistance to tube bending. The A-A cut has an even and uniform surface and is almost velvet-like. in softer grades, and it can be very easily bent into tubes with very slight or no moistening at all. The B-B cut is anywhere between the two extremes. This cut, is most commonly stocked by the model supplies companies. Also note the end of a quarter grained prop block.

These different grain characteristics plus the weight differences of fast or slow growing can be utilized to provide maximum strength with minimum weight if the grain and weights are properly used.

In construction the C-C cut is used for ribs, sides of fuselages, bulkheads, and wherever a stiff but light structure is needed. This grain will have a slight bent under just-about breaking point. Then it will just snap! The A-A cut will take bending very easily. In thin sheets no moisture is needed, while the thick or heavy sheets just need surface or slight

wetting. It is mostly used in tubular construction and round covering. Fairly large compound curves may be covered if the wood is perfect and the builder has sufficient patience to work out the curves. The importance of graining lies chiefly in thin sheets up to 1/8 thickness. Strips are also best if the largest dimension has the "C" grain as it will hold up better under buckling or twisting. When dimensions are in proportion of less than 2 to 1 the grain can be of any type as long as it is straight grained.

The poundage of balsa is based on the weight of one cubic foot. 3.5 to 5.5 lbs. is used for indoor models and planking strips. 5.5. to 7.5 lbs. finds excellent use in wings for hand launched gliders. 7 to 12 lbs. covers the rubber models. The grading is naturally according to the stress imposed on the structure. 9 to 12 seems to be the favorite. 10 lbs. to almost hardwood characteristics fills the gasoline model needs.

Under the present supply system it is difficult to obtain the exact grade needed, but as a rule most companies have some sort of specifications to make selection easier. If the price of balsa was not so low, the above system of grading and graining would be universal, but under the circumstances very few companies are willing to go through the required tedious production procedure. Perhaps some day when most of us become income tax payers the supply industry will get a break.

## BALSAM WOOD LAMENT

Scratched by tiger's paws, crushed by coiling boas, crunched in the deep Amazon by jaws of scaly amphibians, torn apart by steely teeth, shipped miles over briny deep, parched to dryness by terrific heat, haggled over by a pair of Scrooges, bought by a couple of stooges, who turned out to be balsa butchers. Tis a sad and pitiful end for me the lightest of the jungle trees: