

The Balsa Tree

By ALEXANDER F. SKUTCH

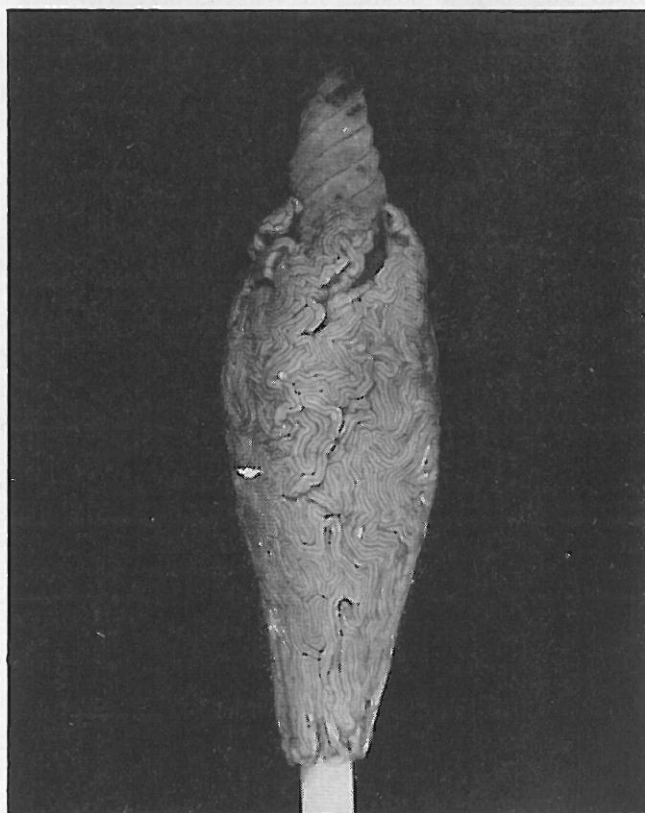
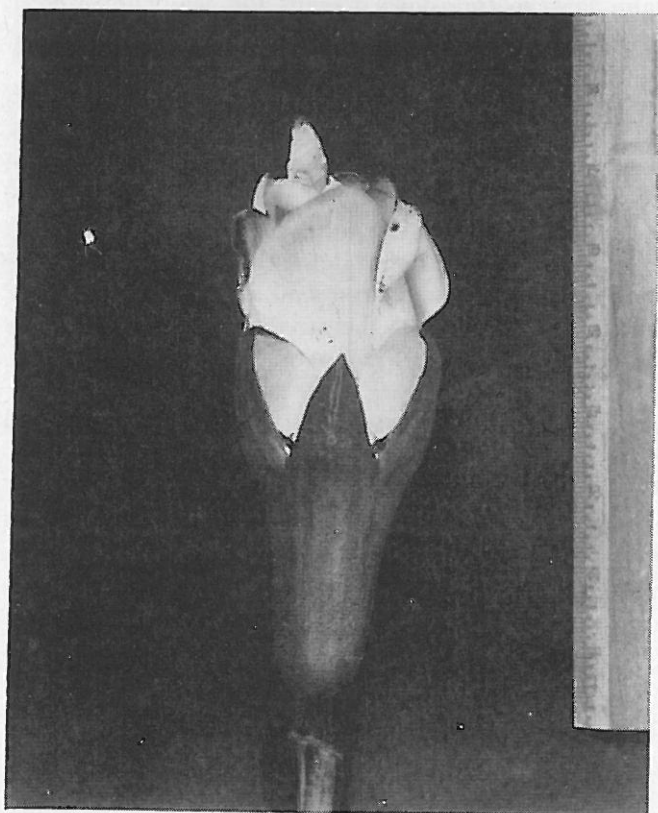
Photographs by the Author

THE Balsa is known far beyond its native home in tropical America as a tree that produces wood of extraordinary lightness, used for life-belts, for heat-insulation, for streamlining airplanes and making models, and for other purposes where strength is not of prime importance. Balsa wood varies considerably in its qualities according to its source. A cubic foot of dry wood of high grade weighs about seven pounds; this is roughly half the weight of cork, one-sixth the weight of oak or mahogany, one-tenth the weight of ebony. The same properties that make the wood light cause it to be a poor conductor of heat; its cells have thin walls and large cavities, which, when dry, are filled with air.

The balsa is a tree of pronounced character, and deserves to be known for a number of remarkable features in addition to the lightness of its wood. It belongs to the genus *Ochroma*, of the Bombacaceae or cotton tree family, and is confined to the Tropics of the Western Hemisphere. Authorities are not in agreement as to the number of species, which are at best difficult to distinguish. Balsa trees do not grow in the heavy primeval forest, but spring up in newly made clearings and along the shores of rivers and lagoons, where they enjoy an abundance of sunlight.



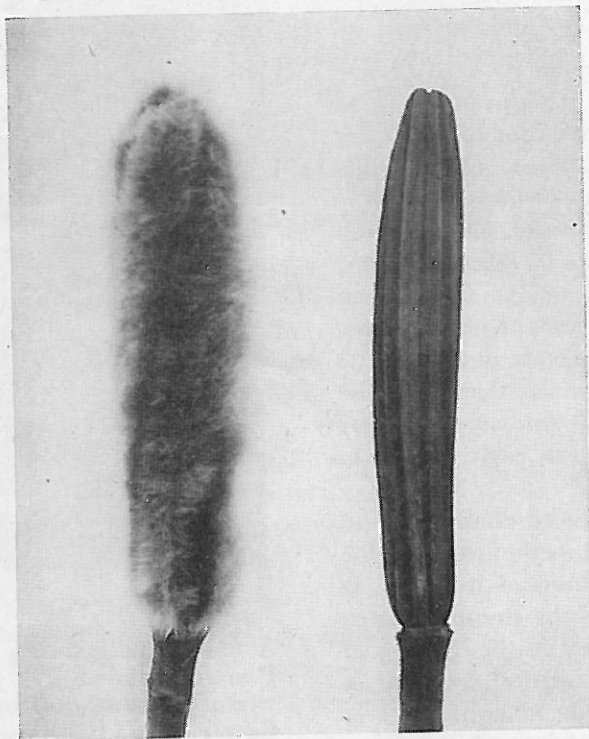
A balsa tree growing on the bank of a lagoon in Panama, showing a form that it often assumes when growing in the open. Below, left, is the flower of the balsa tree. Directly below is a picture of the stamen tube of the balsa, showing the stamens closely crowded together and bent in curious patterns. The spirally twisted stigmas protrude from the end of the stamen tube.



They require also plenty of water and a warm climate, hence are confined to the rainier parts of the Tropics and to low elevations. In Costa Rica the highest examples are found almost 3000 feet above sea-level. The growth of the tree is remarkably rapid, and in comparatively few years it attains full growth, when, under the most favorable conditions of soil and climate, it may have a height of from seventy-five to one-hundred feet, with the trunk two or three feet in diameter at breast height. When growing in close stands the trunk is tall and straight, but in the open it is less regular in form and the spreading crown is sparsely branched. The smooth, lichen-encrusted bark is attractively mottled with shades of gray and brown. It contains a strong fiber sometimes used for cordage; as with a number of other trees with soft, weak wood, the fibers in the bark are probably of considerable importance in the mechanical support of trunk and branches. The ample leaves vary from pentagonal to somewhat heart-shaped in outline; the stalk is long and the blade may reach a foot in length, or, in young saplings, much more.

The flowers of the balsa, which open chiefly at the beginning of the dry season, attract attention by their large size and strange form. They vary from four to six inches in length. The long calyx-tube is thick and fleshy and divides into five lobes at its apex. The thick white petals, also five in number, are arranged in the curious form that botanists call convolute, each having one of its edges outside the neighboring petal on one side and the opposite edge inside the adjoining petal on the other side. Most remarkable are the stamens, which are numerous, united into a tube that surrounds the style, and all strangely doubled and bent into an intricate, close-fitting pattern. The stigmas are twisted together in spiral form. The upright cup of the balsa flower gathers rain-water, which birds and monkeys sometimes drink.

The flower is followed by a long, slender, prismatic capsule, filled with light brown cotton in which numerous small seeds are imbedded. Upon drying, the pod splits into five long, slender valves and the resilient down wells out between them, forming a great fluffy mass. This down makes the softest of pillows, but it is highly compressible and to gather enough to fill the pillow is a time-consuming occupation. Balsa down retains its resiliency for indefinite periods. Once I opened a box in which a pod had been stored away for many years. When the lid was removed the imprisoned cotton began to spring out of the pod and continued until the mass had grown to several times its original volume.



The pod of the balsa, entire (right), and with the soft down escaping between the valves (left).

The word "balsa" is Spanish for raft and was applied to the tree because it is so often used for making rafts. The deep, light alluvial soils along the Rio Esmeraldas in northwestern Ecuador are most favorable for the growth of the balsa tree. While voyaging up this beau-

tiful river some years ago, we passed many rafts of balsa logs floating down toward the sea. They were steered after a fashion by a crude rudder that was merely a broad paddle affixed to the end of a long, stout pole attached at the stern; by much hard pulling on the pole, the helmsman obtained a sluggish response from the heavy, clumsy craft. Sometimes the raft was provided with a little canopy of palm leaves beneath which the occupants took shelter from sun and rain. As they shot down the rapids in the upper river, the rafts danced and shook so violently that they appeared to be in danger of falling to pieces. The cargo was composed of big black balls of crude castilla rubber; tagua or "vegetable ivory," the seed of a palm tree; bananas and other produce. After delivering his cargo at the port of Esmeraldas, the boatman would sell his raft of peeled balsa logs to one of the sawmills near the town. The proceeds would more than cover the expenses of his journey.