Bark Growth in Tropical Trees

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As LaRue (1932) has pointed out, botanists have neglected the study of bark and as a result know relatively little about that portion of woody stems. LaRue (1920) has made measurements upon bark thickness in some temperate zone trees and in the Para rubber tree, *Hevea brasiliensis*. Among his conclusions he has emphasized the rather striking correlation between bark growth and total trunk growth in diameter in temperate zone trees, and the relatively low correlation between bark thickness and total trunk growth in the Para rubber tree.

During a recent collecting trip to Trinidad and Dutch Guiana, the author made a number of measurements upon bark thickness of native and introduced tree species. These measurements of bark thickness and wood diameter were made at 1 meter above the ground. The results are presented in figures 1 and 2. In each group of bars, each bar represents one tree; each group of bars, then, represents measurements on different trees of different sizes in the same species. In figures 3 and 4 are presented measurements made in 1935 of bark thickness and wood diameter of common north temperate zone trees. In figure 5, each group of bars represents measurements on the *same* tree. The greatest diameter is that of the main trunk at 1 meter above the soil line, the lesser measurements are those of branches of the same tree.

The tropical species measured were *Hura crepitans, Pithecolobium saman, Tamarindus indica, Chrysophyllum cainito, Cynometra trinitensis, Couroupita guianensis, Guaiacum officinale, Cotvillea racemosa, Cedrela mexicana, Cordia alliodora, Tectona grandis*, and *Erythrina micropteryx*. The temperate zone trees investigated were *Betula lutea, Acer saccharum, Populus deltoides, Populus tremuloides, Quercus borealis, Quercus macrocarpa, Juglans nigra*, and *Ulmus americana*. Because of space limitations, it is possible to present data on only a portion of these species.

A study of the graphs leads to these conclusions:

1. The bark of the tropical trees measured is significantly thinner in proportion to wood diameter than is the bark of the temperate-zone trees measured.

2. The bark of the temperate-zone trees increases in thickness at a rate roughly proportionate to the rate of increase in diameter of the wood. In the tropical trees, the rate of bark increase is far lower in proportion than that of wood increase.

3. In the tropical trees studied, the thickness of bark above 1 meter from the soil line varies but little on the trunk and main branches. Only upon the branches of the third and fourth order is the bark significantly thinner.

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Bibliography

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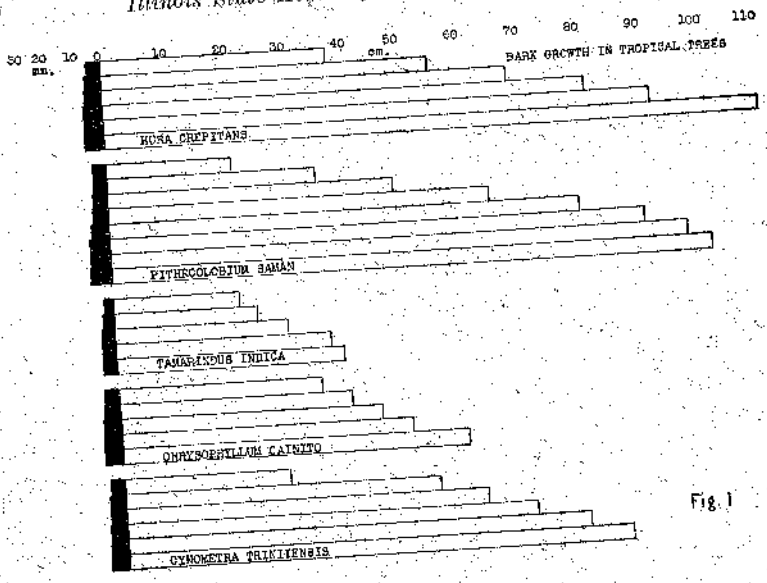

Fig. 1

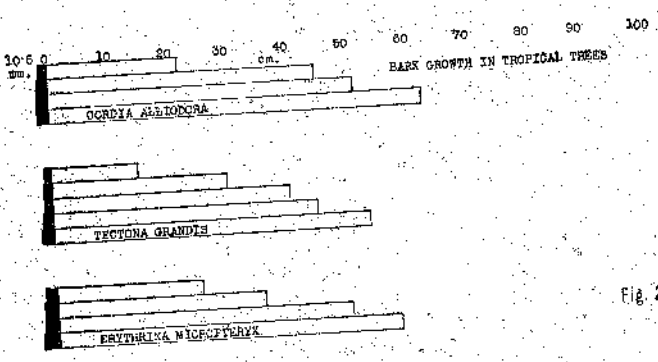

Fig. 2

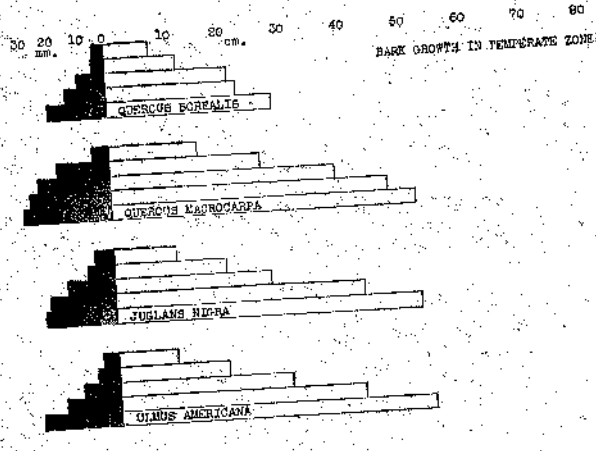

Fig. 3

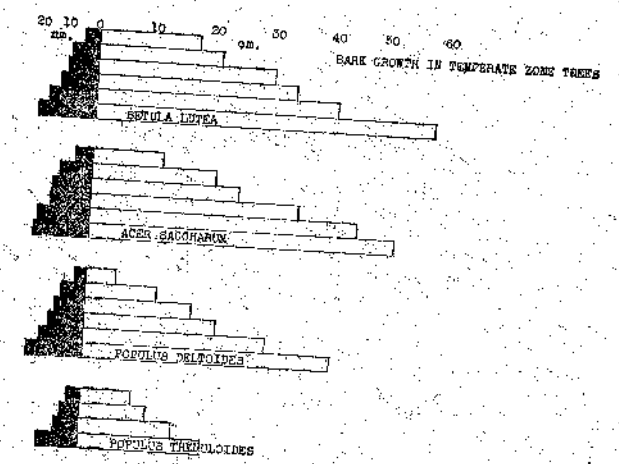

Fig. 4

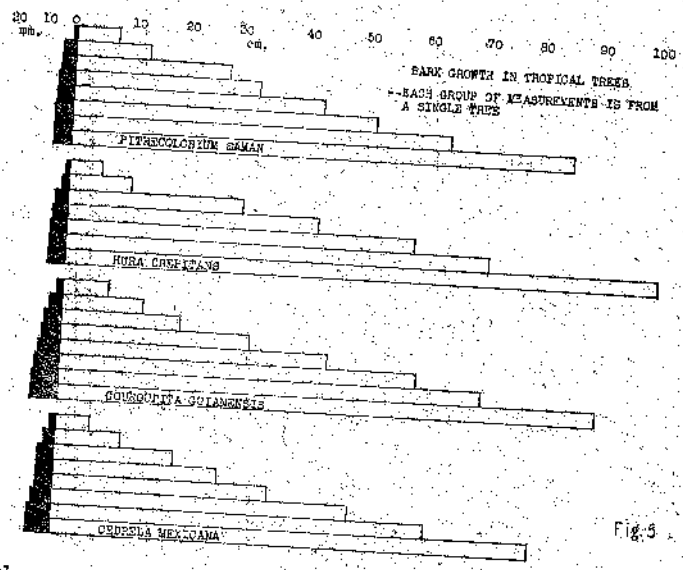

Fig. 5

(In the graphs, the shaded portions of the bars represent bark thickness in mm., the unshaded portions, wood diameter in cm.)