

latex, until, within one to three hours, the yield is obtained. The quantity varies and depends upon whether the tree is full of life or decaying; then again, drought or prolonged rains influence the flow of latex.

Before going further, it would be well for us to study, the botany of the tree a little. The latex or milk, exudes from the bark of the tree, not from the inner wood. Rubber is a hydro-carbon made from the latex secreted by the protoplasm of the intercellular veins of the bark.



Figure 3

These milk-containing veins are really single inflated cells, running longitudinally. When a cut is made in the tree, a sap like goat's milk runs out which is called "latex." To demonstrate this yourself, take a pin and prick the leaf of any rubber plant you may have in your house, immediately a small quantity of "latex" will exude.

The common household rubber plant is not a species of "Hevea Brasiliensis," but of the "Castilloa" species of Central America.

Illustration No. 2 shows you the stem of one of these trees with the latex cells, etc., exposed. You obtain here a good idea of the latex cells, as denoted by A. B, shows you the location of the "Cambium," which is really a bark skin between the cells and the wood. Injury to this means the death of the trees. D, shows you

clearly how deeply the axe may sink, and why it must not go too far.

We will now return to the "seringueiro." The latex is gathered into cans and carried to a hut where the process of coagulating by smoke is carried on. The operator creates a smouldering fire in his hut by heaping some of the oily nuts of the "Urucuri" Palm upon it; on this fire he places a funnel, shaped somewhat like a cone, open at either end. See illustration No. 3.

When the smoke is coming plentifully from the funnel, the operator takes a wooden paddle and dips it into the latex; then he holds it in the smoke, revolving the paddle with his hands. The latex then coagulates or curdles. When it is quite dry, he dips the paddle in again and repeats the operation over the smoke. The ball of rubber grows under this operation until it reaches almost any weight the operator may choose, usually about 30 to 40 pounds. See illustration No. 4.

The forms of Crude Rubber thus obtained are called biscuits. They are transferred by boat to Manaos, and there are cut in two and inspected as to quality, etc. Afterwards they are packed in cases and shipped to the great markets of London and New York.

As before mentioned, there are many different kinds of rubber, from as many different species of plant life. From Central America is obtained rubber from the "Castilloa"; from Mexico the "Argentum Parthenium"; from the Congo district the "Landolphia" vine, etc., each country having its own method of coagulation, quite different from the others.

Ceylon and the Malay States have come to the front during the last eight years only, and the whole system differs from that of any other country; here we find plantations, whereas all other countries obtain their rubber from the forest. The plantations are scientifically conducted, and so enormous has the rubber producing business become, that other staple products, such as tea, etc., are being thrown out. The following table shows the rapid growth in the middle East:

ACRES PLANTED IN

Date of Planting:	Malays.	Sumatra.	Java.	Ceylon.	Other countries.	Total.
1905 and before.....	41,956	1,571	113	30,890	3,461	77,991
1906.....	47,683	4,107	2,595	40,047	10,114	104,546
1907.....	58,804	12,216	7,545	36,956	10,348	125,869
1908.....	57,807	8,304	11,848	25,069	11,009	114,037
1909.....	39,175	9,630	7,849	16,515	6,131	79,300
1910.....	63,149	14,059	18,947	17,170	11,055	124,380
1911.....	71,151	17,743	21,469	12,802	13,424	136,589
1912.....	39,500	6,626	3,710	3,731	2,649	56,216
Totals.....	419,225	74,256	74,076	183,180	68,191	818,928

ACTUAL YIELD

Year:	Malays.	Sumatra.	Java.	Ceylon.	Other countries.	lbs.	Totals. tons
1911.....	22,769,700	1,510,800	329,500	6,044,000	784,000	31,438,000	14,034
1912.....	31,652,200	3,311,300	825,000	10,976,600	1,650,000	48,445,100	21,627

The trees taking five to seven years to come into bearing, it is obvious that the earlier years did not produce any great quantity.

The total product from these countries for 1913, is estimated at slightly under 50,000 tons. The yield per acre, of course, varies, but 300 lbs. is looked upon as a good yield; the older the trees, the greater the yield. The following table gives an idea of what is accepted as good results:

Age of tree.	Yield per acre in lbs.
4 years	75
5 "	150
6 "	200
7 "	250
8 "	300
9 "	325
10 "	350

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