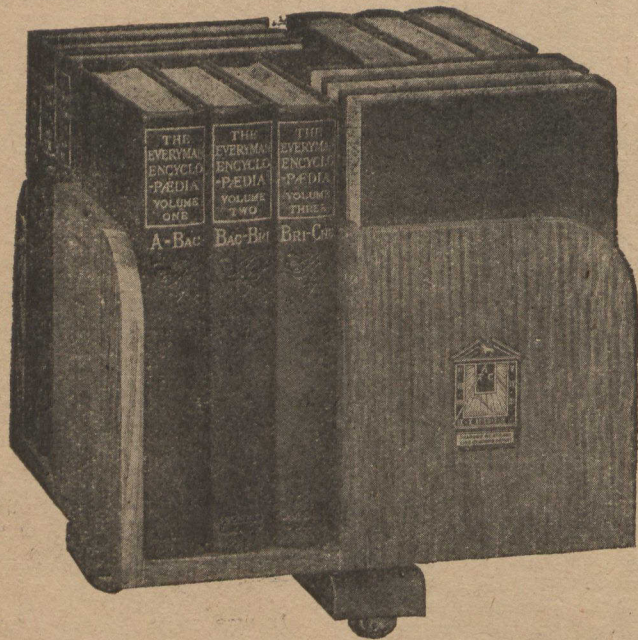


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What's What the World Over

(Concluded from page 13.)

stance. La Condamine spelled the local name as "caoutchouc," and sent specimens to Paris, but it was not until 1770, when Priestly found that the gum would erase pencil marks from paper, that any commercial use was found for it in Europe; small supplies at this time came from the East Indies.

In the year 1823 Charles McIntosh discovered that rubber was soluble in benzine. This meant that for the first time rubber could be "worked," that it could be thinned, spread out in sheets, rendered amenable to industrial processes. He applied the idea to waterproof coats, immortalizing his name.

In 1832 the North American firm of Chaffee & Haskins founded the Roxbury India Rubber Company for the manufacture of water-resisting objects, and thus modestly commenced that North American industry in rubber goods which has since grown to such enormous proportions. A little later Goodwin, connected with the Roxbury firm, found out that sulphur mixed with the rubber solution made it capable of resisting great extremes of heat and cold; this process was given the name of "vulcanization" and did much to promote the industrial use of rubber. From that time crude rubber took its place on world markets and the passage of time has year by year brought it into use in a greater variety; new uses for the resilient gum are constantly being discovered.

The Amazon valley began to send regular exports of crude rubber abroad, but as its commercial use increased other sources also contributed supplies. Tropical latitudes produce scores of different trees yielding a milk which coagulates into a gummy mass, and while the famous hevea brasiliensis was the foundation of the commercial rubber business, and still retains its place as the producer of the best rubber, it has never been the sole source of supply. Before the Eastern plantation rubber came upon the scene there were several world regions producing rubber commercially. India produced rubber from the ficus elastica; the West African wild rubber districts sent about 15,000 tons to market annually about 1910-14; Mexico discovered some years ago that she had a fortune in the guayule shrub growing wild in enormous areas, and a distinct industry was built up in this variety; she also furnishes a small quantity of rubber from the tree castilloa elastica. The same tree is likewise grown profitably in Central America in small plantations, and is wild in Brazil, yielding the rubber exported thence commercially as "caucho."

BRAZIL is very rich in gum-yielding trees, and exports rubber from the mangabeira and manicoba trees, but it is from different kinds of the hevea that the rubber industry of the world, and the fame and fortune of the Amazon, has been built up.

There are seventeen different kinds of hevea upon the Amazon, and it is here alone that the tree is found in wild state; the chief gum-producing kinds are the hevea brasiliensis, hevea guayanensis, and hevea spruceana.

The hevea brasiliensis, the "mainstay of the Amazon," grows in three varieties, differing remarkably in commercial importance as regards the gum yielded. These are known locally as "black," "red," and "white," in the same order in esteem. The black (preta) hevea brasiliensis is almost never found on the islands of the Amazon delta near the sea, but thrives along the upper Amazon, the upper tributaries, and across the Bolivian border; it is this tree which yields the "hard fine Para," or "upriver fine," the best rubber of all rubbers, highest

in commercial estimation on account of its splendid resiliency, and practically inexhaustible in supply.

Rubber from the "white" hevea is known as fraca (weak), and sells at 20 per cent. less than the gum of the black tree; it is good rubber, but less resilient.

Rubber from the "red" tree remains moist and does not coagulate freely—a bad fault in the preparation of rubber for the market.

Discovery of the varying properties of gum from the different trees has been a gradual matter following the development of commercial rubber extraction upon the Amazon; methods of coagulation are probably as old as the aboriginal use of the gum. That in vogue upon the Amazon has certainly not varied for a century and a half.

The milk, caught in mud, leaf or modern tin cups below gashes made with a sharp instrument in the bark, is collected into one big jar or bucket and taken to the smoking hut of the seringueiro. Here he has brought a pile of hard, oily nuts, generally the urucury (cousin of the babassu of Maranhao and the attalea cohune of Central America), to which he sets fire, starting it with a handful of charcoal. A tin cone with a small opening at the top is nowadays generally placed over the nut fire in order to direct the volume of heavy acrid smoke into a convenient compass.

THE worker then takes a stick of wood, dips it into the rubber latex and holds it over the smoke. It coagulates in a few seconds. Other films of milk are coagulated on to the first layer, by dipping or by pouring milk over the paddle from a bowl made of a half-gourd, until the day's collection of latex has all been coagulated. The yield of successive days is coagulated over the first layers until a big round "pelle" has been formed. It speedily turns black on the outside, and these great masses of rubber, varying considerably in size, but often weighing fifty or sixty kilos, are familiar features on the waterfronts of Manaos and Para, on pavements but-side warehouses, in river boats and small canoes. Before shipping, the rubber dealers cut open each pelle to determine the quality of rubber contained in it. Frequently some extremely foreign bodies are found concealed, some perhaps having found their way in by accident, and others probably introduced by the seringueiro in order to make his rubber weigh more: in this way hatchet heads, stones, lumps of hardwood and nails have found a temporary resting-place between the layers of goma.

These are cast out, layers of inferior rubber are torn from the better grade, and when the sorting process is complete the grades are boxed and shipped. This system may be seen in the waterside warehouses of Para and Manaos, and is always going on inside the private warehouses of rubber merchants in those cities; the "bag of mystery" system of the pelle lends itself to the possibility of a certain amount of fraud both on the part of the collector who may introduce inferior gums of many kinds, and of the dealer who may classify arbitrarily.

But the seringueiro has learned how to make a ball of rubber and no other methods are in sight upon the Amazon as yet; the dealer in the rubber cities knows how to handle and ship it; the rubber manufacturers of Europe and the United States are accustomed to dealing with it. Custom is a big factor in the preservation of the pelle, but it has newer defenders also in the consumers of rubber who declare that the quality of the elastic gum is best maintained by Amazonian methods.