

ABOUT INDIA-RUBBER.

When you are drawing, and make a mistake, or a crooked line, you are very glad to have a piece of india-rubber by you, that you may rub out the marks, and try again. At play, you have india-rubber balls that bound from the floor, or, perhaps, india-rubber dolls, or those funny little painted figures, the lower half of which is like a ball, so that when you put them on the table they bob about in all directions, but always stand up straight in the end—"tumbling young gentlemen" we called them in our early days, though indeed, they never tumbled. These are uses of india-rubber that are very important to you, little people, but, after all, they are the least important of all the uses to which it is turned; so we shall first find out where it comes from, and then name a few of the countless things that are made of it.

Most of the india-rubber is brought from a very beautiful place—Para, a province in Brazil, where there are forests, the grandeur of which no words can describe—forests of giant trees, and strange tropical plants, and gorgeous flowers. There bright birds are screaming and calling with wild voices to one another; among the branches monkeys are playing; and where the sunshine comes in there are insects whirling about, or creeping in the warm grass, bright as colored sparks. This is the home of the india-rubber.

When first the Portuguese settlers went out to Brazil, there were many tribes of Indians living in that beautiful country. They were accustomed to give to their guests round bottles, made of a soft, elastic substance. After eating, these bottles were used for squirting water into the mouth, the round part of the bottle being squeezed, and at once sending the water up through a large reed fixed in it. The Indians used the same substance for torches. They made it into hollow tubes, about two feet in length, and these gave a good light, and burned a long time. Such candles as these are still to be seen in the city of Para. The Portuguese learned from the Indians how to get from certain trees the substance of which they were made. They heard it called *cahuchu* by the natives, and imitating the sound they called it *caoutchouc*, which has been adopted as the proper name of india-

rubber. The province of Para has now a rich trade in this one article, and though the trees that supply it are found in other hot countries, the Brazilian india-rubber is the best, as well as the most plentiful.

The tree from which it is taken is one of the giants of the forests, growing to a height of eighty or a hundred feet, and sometimes measuring seventy feet round the trunk. From the extreme top the branches spread, clothed with dark, glossy leaves. It is said that tracts of country may be found where, for hundreds of miles together,

be formed into any shape. Many of the natives are employed in making india-rubber shoes. They take wooden lasts, and cover them with clay to prevent them from sticking to the shoe. Then they pour the thick caoutchouc all over these moulds, hold them for a while over a fire, and then, fastening each on top of a stick planted in the ground, they leave them to dry in the sun. Then the caoutchouc is poured on again, and in this way coating after coating is formed, and after each layer is put on the shoe is held in the smoke of the wood fire, and so it

shoes, newly made, and kept apart by being hung from the ends of poles; monkeys; and red and blue macaws, that were being brought to England, were there perhaps; and screeching parrots on their perches, ready to be sent away to the dealers across the seas; and, farther on, baskets of delicious fruit, and packages of coarse dried fish, and heaps, bales, and vast quantities of great thick pieces of india-rubber. All these things were to be seen about the quays when your india-rubber was lying ready to be put on board the ships at Para; and behind all was the town, in the blazing sunshine, with its long rows of white walls, its church-spires, and its red tiled roofs. Close behind the farthest of those houses were the wondrous forests where the india-rubber trees stand, and from whence came those parrots and monkeys, which were such favorites with the sailors, and which might be seen playing and perching about on the masts and spars of the ship.

Well, our india-rubber was brought to England across the wide Atlantic, and it was sent at once to a factory, where four or five hundred people were at work, many of them being girls and women. Here it had to undergo long preparation to make it good enough for use. In order to clean it, and leave in it only what was perfectly good, it was pulled to pieces and put together again. Amid the thunder of machinery every slab was torn in shreds, and having been washed in water, it was spread out on iron trays and carried away to dry in a room heated by steam. When it was all dry it was crushed under heavy rollers. You know how hot and sticky a piece of common india-rubber becomes when, for some time, you squeeze and twist it in your fingers. In the same way it became soft and sticky under the tremendous pressure of the iron rollers, till it all adhered in one solid mass. Next it was immersed in water, and, while still under the surface, it was cut in thin slices with strong sharp knives, and these slices again were cut in small squares—which you buy for a copper, and use for rubbing out your pencil-marks.

Oh, you little people that live now-a-days, you do not know how lucky you are. You have beautiful books such as your grandfathers and grandmothers never dreamed of; and wonder-



TAPPING THE CAOUTCHOUC TREES.

these mighty trees are growing side by side. The natives come to them with little earthen cups, and, making cuttings in the bark, they leave a cup to fill under each hole. During the course of the day a small quantity (about a tumblerful) of a thick yellowish cream oozes out, and flows down into each cup. When full, they are all collected, and their contents poured into large earthen vessels. This is the caoutchouc, or india-rubber, in its natural state, and by being poured into moulds, and dried, it can now

gets its dark colour, and dries more quickly. The caoutchouc is also dried and smoked when it is being made into the large thick slabs—the general form in which it is shipped from Brazil to all parts of the world.

Your piece of india-rubber saw a busy scene in the old days when it was yet somewhere in one of those slabs, still uncut. There were the ships in the river at Para, coming in, and setting sail; and the quays heaped with Brazil-nuts, and cocoa, and spices, and no end of india-rubber shoes—sticky