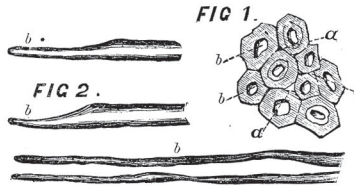


Jute.

THE stems or bark of many plants possess fibres of considerable strength and fineness. Flax has very fine and long fibres; those of hemp are coarse. In the ramie plant, lately so much talked about, (the cultivation of which has been attempted in our Southern States.) these fibres possess a remarkable degree of fineness and strength; in the malva they exist, but are less strong, and in jute they are very coarse, but



very strong. As the last plant is little known, we will give a few details concerning it.

The jute-plant, *corchorus olitorius*, is related to the linden-tree, but belongs to another family, the Tiliaceæ, very different from the linden in the climate required for its growth. Its home is the tropics, especially Southern Asia, where it has been cultivated for many centuries. It grows, like flax and hemp, in only one year, but reaches a height of fourteen feet. Some varieties of the plant are grown for vegetable food. To free the fibre from the plant, it must go through the same rotting process as flax; but a much shorter time is sufficient. For this purpose the stalks are stripped of their leaves and placed in loose bunches in running water. The high tropical temperature causes the decomposition to go on so rapidly that in a few days the outer covering leaves the stalk. The separation of the fibres is then performed in a very primitive manner. The workman steps into the stream, loosens from every stalk a strip of the skin or bark, and, with great dexterity, separates the fibres, removes the adherent slimy substance by rapid motion alternately through the water and through the air, and throws the cleansed fibres on the shore, where they dry quickly and are ready for the market. Notwithstanding the rude simplicity of this treatment, the fibres of jute in commerce are always much cleaner than those of hemp; which, with all the mechanical treatment it has undergone, contains many splinters of bark, woody substance, etc., visible even to the naked eye. Besides, the fibres of jute are much longer than those of

hemp. A length of ten feet is not rare, and sometimes they are twelve to fourteen feet long—as long as the whole plant. The jute is, even in its external appearance, very different from all other fibrous products. It is distinguished by the fineness of the fibres from Manila, Sisal, and Pite hemp, and by their smoothness from the sunn or Madras hemp, (fibre of the *crotonaria juncea*), already found in the London market. It resembles flax and hemp most nearly; but differs from both in its more silky lustre. However, for an unpracticed eye, it is often difficult to determine between jute, flax, and hemp, and a distinguishing reliable test is therefore desirable. The following is such a test: acid sulphate of aniline colors jute intensely gold-yellow, and hemp pale yellow, while it has little or no effect on flax. The cause of this is that aniline colors woody fibres best; and that, of these three materials, jute is the most woody and flax the least so.

But the jute itself is much adulterated with fibrous material taken from other plants, generally inferior, though sometimes equal to jute. Yellowish varieties are the most common, but we often see rather dark brown ones. This is only the case after long exposure to the atmosphere. The Java bags, used for coffee and other substances, are made of an adulterated jute, and are always brown. In this respect this kind of jute is similar to wood which also becomes brown by long exposure to the atmosphere. Microscopic investigation (which, by the way, is the most reliable test to distinguish the origin of different textures) shows that the East-Indian jute is often mixed or adulterated with fibres from various other plants, especially two kinds of East-Indian *malvas*, as durable as the jute itself. These also become intensely yellow when treated with the sulphate of aniline; but they are turned brown or dark by the atmosphere. It is well to know how to distinguish the true jute from these adulterations.

The jute fibres, when taken with a small forceps from the raw material and examined under the microscope, are found to consist not, like cotton, of single very much elongated cells, but, like raw flax and hemp, of bundles of cells. Fig. 1 represents a cross-section, and Fig. 2 a longitudinal section of such a bundle. The intercellular spaces, *a, a, a*, Fig. 1, are filled with air, while the interior openings of the cells, *b, b*, Fig. 1, show very different diameters; a peculiarity not observed in flax or hemp. In examining the cells lengthwise, it is easily seen that the inner cell-walls are not parallel to the outer, and that, consequently, the opening becomes in some places very narrow, (see *b, b*, Figs. 1 and 2,) a peculiarity not possessed by any other fibre adapted for spinning.

In India, the jute is used for strings, ropes, and woven fabrics. The finer kinds are there called *megha*; the coarser, used only for bags, are called *chote*, by a corruption of which the word jute is formed. Many jute-bags reach this country under the name of gunny-bags, and are often used for the packing of cotton. Gunny-bags are, however, often made from the fibres of another plant, the *crotonaria juncea*, called in Bengal *goni*, whence their name. The jute used in Europe is always employed unbleached to make sacks for packing fruits, hops, coal, etc. The finer qualities are called Hessian, after the custom of the Scotch factories. There is an almost universal but erroneous notion that jute can not be bleached. But Mr. J. Burnett, of Dundee, bleaches it very successfully, and gives it a white appearance, intermediate between bleached hemp, flax, and silk.

Another popular prejudice is that jute possesses a disagreeable smell. This is entirely erroneous; its peculiar smell is no worse than that of hemp, as all persons of experience agree. The best kinds of coffee are transported in jute-bags without any deterioration of flavor; and all kinds of grain are occasionally packed in it successfully. This erroneous impression proceeds from the treatment which the material undergoes in many factories, where, in order to facilitate the spinning, cod-liver oil is used to grease the fibres. The material itself is surely not responsible for this

odor. That jute can not stand dampness as well as hemp appears to be true, but this is probably caused by the imperfect mode of its preparation from the stalks. Hemp prepared in an improper manner possesses the same defect.

The consumption of jute in Europe is increasing at an enormous rate. It received a great stimulus during the Crimean war, when the exportation of Russian flax and hemp was almost entirely stopped, and hundreds of thousands of spindles in England and Scotland would have ceased to operate had not the East-Indian jute supplied them with a material, which has since obtained such a hold on the public that now two million hundred-weight of jute fibres are imported yearly for the British flax and hemp-mills.

A new and curious application of jute has recently made its appearance. We refer to its employment as the material for ladies' "coils," "chignons," "waterfalls," and "switches"—a purpose for which the length and lustre of the fibres render it well adapted. The old-fashioned prejudice against false hair seems to have passed away, and it is useless to argue the subject against the fashion. In fact, looking at it from the stand-point of practical economy, it is better that women should have ready-made coiffures, which can be quickly adjusted, than that they should spend hours every day over the toilette; and we do not see why the use of the cheap and clean vegetable fibres of the jute should not be preferred to the expensive and not always wholesome practice of wearing human hair cut from strangers, living or dead.
