

### JUTE RUGS FROM JAPAN.

The benefit resulting from a determined advance in what is believed to be the right direction, no matter at what cost, is shown by the development of the Japanese jute rug trade.

There is a firm in Kobe which is shipping vast quantities of rugs to the United States, and which is introducing the manufacture into Japan in a curious way. Perhaps the most expensive book ever made was produced by this firm. They had artists go to all the great museums of Europe, and copy the colors and patterns of the finest rugs. They bound these patterns in a book, which they sent out to Japan and put into the hands of the workmen, and now these famous rugs are being copied in jute. The jute was brought from India, and the new rugs are equal in color to the originals. They sell for a song, in comparison with the Turkish rugs, and there is a possibility that the Japanese will take up the making of woolen rugs.

"There are villages in Japan that make nothing but jute rugs," says F. G. Carpenter, in a letter from Japan. "I visited one known as Sakai, near Osaka, and I was introduced to the biggest of the manufacturers, a man who employed 3,000 hands. The work was done almost altogether by hand. The proprietor's name was Mitani, and he was a very bright Japanese, indeed. He had 200 houses in his establishment, and he took me to a number of these. Some of the children, who were rug-making, were under six years of age, and there were a number of girls of about ten. They receive from seven to eight cents in silver a day, they work from eight o'clock in the morning until six o'clock at night, having an hour at noon for lunch. They work on Sundays and weekdays, but have two holidays during each month." The Japanese children are not puny or sickly, and rarely exhibit depression. They are a happy, good-humored lot, who seem to take to work as naturally as to play. It is wonderful how cheaply these jute rugs can be made. Take a rug, 3 feet wide by 6 feet long, of the kind that is used for hearth rugs, and which costs at retail about \$2.25. It takes a Japanese about four days to make one of these rugs. The jute has to be imported. It must pay a duty on coming into Japan, and the rugs pay a duty on going into the United States. Altogether, out of this \$2.25, there come about sixteen profits, but the wages are so low that the Japanese can make them.

Hemp and cotton carpet manufacturing is a new industry, and has its seat in the city of Osaka, says Swiss Consul Ritter, who has also been observant of this development. These carpets—called by foreigners Osaka carpets—are cheap, but not durable. All kinds of patterns imaginable, as well as every length and width, are manufactured. . . . To-day, fine imitations of Turkish and Egyptian carpets can be found on the markets. These carpets are all made by children, and, in the low, gloomy rooms of the Japanese houses, troops of little boys and girls are working at this dusty trade with the zeal and intelligence of grown people. These children's pay varies, according to their efficiency, at from three to ten cents a day.

### OLD-TIME PROCESSES.

There is much of interest for those familiar with modern industrial processes in looking into the old-time ways of doing the same things, or what was the nearest approach to them, to which our predecessors attained. Thereby one often comes across some curious things, while a wrinkle or two may be picked up which would be found useful even now-a-days, and possibly one may often prove the truth of the old adage, "There is nothing new under the sun," by finding a record of some forgotten idea or process which has been more recently brought forward as something entirely novel. Such a looking back may give rise to trains of thought which will ultimately lead to new developments in the future.

In 1619, George Wood, by paying into the exchequer of His Majesty James I. the sum of "xii,"—whether shillings or pounds we do not know, says *The Dyer and Calico Printer*—got the monopoly of printing "linnen" cloth in colors for a period of 21 years. It would seem that the printing of calicos or cotton cloths was at that date unknown, and it is quite probable that the amount of

linen printing carried on was not great, or we think the king would have required more for the grant of the monopoly. The same gentleman and James Jenkinson subsequently invented "a new way to print linnen cloth, and for the purpose of acquiring the sole right of using this process they obtained a 21 years' grant from the same gracious king, who appears to have repented somewhat of the low rate he formerly got for the privileges he granted, for this time the payment was increased to "xli."

Madder has been used for dyeing for over 200 years, and, as our readers well know, it is only within the last 25 years that it has been replaced by alizarine. This plant is not a native of England, but in 1624 William Shipman proposed to grow it in this country, but we rather suspect he failed, as the climate is not at all suitable, although he had the sole right of growing it for the space of 21 years—of course, on condition that he paid for the privilege. A certain James Smith was also granted a similar privilege some years later.

William Sherwin was, in 1676, granted a patent for a new and speedy way of printing broad "callicoe and Scotch cloth" with a double-necked "rowling press," that being, it is said, the only true way of East India printing and "stayneing" such kind of goods. What the double-necked rowling press was like it would be interesting to know, especially if it had any resemblance to the roller printing machinery in use to-day.

One of the oldest dyes is archil, and apparently this was introduced some time about the middle of the seventeenth century. Towards its close this was extensively used in Europe, under the name of lackmus, in dyeing crimsons, clarets, blues and purples. Abraham Kemp was the means of introducing it into this country, and he obtained a patent for its production and use, although how he made it is not now known. There were no technical journals in those days.

Laundresses have used blue for tinting their white linen for centuries. At one time indigo was largely used for this purpose and one method of preparation was to grind ten pounds of it very fine with water, then add a pound of lavender water, boil it, and strain through flannel.

To make a red mordant for printing with, there was used, about the middle of the last century, alum, arsenic, white argol, chalk and lead acetate, mixed in a liquor thickened with gum arabic; if darker shades were required, copperas was added.

The parent of the modern roller printing machine was brought out in 1743 by William Keen and Moses Platt. Their machine consisted of three cylinders or bowls suitably mounted in a frame, one behind the other. Above each of these was fixed an engraved roller, and again to each of these a feeding roller for the color was attached. The cloth was printed in three colors by passing it in succession between the three sets of rollers.

It may be remembered that Bancroft paid very considerable attention to the use of cochineal in the production of scarlets on wool, and that he placed the process of dyeing with it on a proper basis. Previous to him, Onesiphorus Paul patented a process for dyeing wool with cochineal and turmeric, using in conjunction therewith argol and tin spirits, which latter body he made by dissolving block tin in a mixture of nitric acid, water, and sal ammoniac. He did not get the full shade all at once, but dyed to about half the depth, then dried and milled the goods, and finished by dyeing up in a fresh bath to the full shade. The main object of this mode of working appears to be the separation of the lints and other vegetable matters in the cloth. These would be partly destroyed by the acid nature of the dye-bath, and were partly picked out by hand, being more readily distinguishable in the half-dyed cloth than in the grey piece.

An old-time method of preparing indigo extract to be used in dyeing Saxon blue was to take one pound of oil of vitriol, two ounces of indigo, one ounce of red arsenic, four ounces of cobalt, and four ounces of "hole armoniak." We have here evidence of the want of chemical knowledge which results in using ingredients that cannot be of any value in the composition. This is not altogether to be wondered at considering the period, circa 1750.

Cudbear appears to have been the invention of George and