

difficult matter, and, in fact, it is impossible except by chance. If a lot of 2,000 pounds to be dyed brown is called for, in many places it would be divided into kettles of 200 pounds each. If you have made the sample and have an exact recipe, generally you will start all of your tubs on the same recipe. You may have six kettles, and when done you will find each one of a different shade, but when all the stock is carded together it will match the sample. Some of the stock may be of an olive shade, some of a red, and some quite dark; still, each had the same amount of dye, and, as nearly as possible, the same quantity of water, and each was boiled the same length of time. You will find the same result if you dye one lot to-day, and one a few days later. Of course, if your superintendent is one who requires each kettle to be an exact match with the sample, you must throw out the dark lot and dye a new lot. The lot is not lost, as it can be dyed into some darker shade. The lighter ones must be shaded to the sample. If you are using the concentrated dyestuff, the liquor must be run off and the stock redyed, as it may call for a few ounces of dye. It may require only an ounce, or even as small an amount as one-quarter of an ounce, if the shade be a delicate one. If the cost of this color be three cents a pound, the extra work will add at least two cents a pound, and will the shade be any better than if you were working for the superintendent who would say, "Try these different lots: weigh out equal parts from each, when dry take to the picker, and after picking have a small sample carded and show me." After doing this you may be a little short of red, and he will say, "what can you do with it?" Supposing, after several trials, 3 per cent of a reddish brown is added, and it matches to his satisfaction, then he passes it. The two ways will give the same result, but the one costs almost double the other. The writer has used both ways and under the latter one was able to turn off double the amount of work, and at half the cost of the first process. I should be very glad to learn the opinion of others as to why the expense is so great in one and so small in the other, but, at the same time, the result the same. Again, the same point is seen in regard to each separate kettle. In one way one must have every fiber of the same shade; in the other, as long as the fibers card to the shade desired it does not matter. There must be taken into consideration the manner in which the wool has been sorted, if sorted at all. No superintendent or overseer has any right to expect even dyeing when there are grades in the wool from the coarsest to the finest, even paint and tag locks. Coarse wool always takes the dye quicker than fine, and in brown will take the red before the fine has any, thus making a very uneven color. If wool of different kinds, as to grease and dirt, is mixed, uneven scouring is the result, for, if the wool is scoured until the greasy portion is clean, the other will be over-scoured; and, if otherwise, grease will be left on part of the wool, so the result is as bad one way as the other, and the dyeing is equally uneven.

There is one way in which this state of affairs can be overcome, but the unevenness will still be there, only it will not be so apparent. Place a picker in the dyehouse, and run the wool, after it comes from the rinsers and has passed through the squeeze rolls, through it; you will pick it up perfectly. This will save time, as one man can do all the picking for a 25 set mill, and save the time lost for breaking it up by hand before putting it in the kettle. This also makes poling easy, and your kettle can be poled double as much as when the hand breaking is done. After extracting, the dyed stock is again put through the same picker, it will dry in half the time, and save at least one picking in the picker house. This picking will not require any more labor, but will save it by saving time, and will make the work look more even, although it is not. Very even color can be obtained in this way, and if the wool is well graded the color will be almost perfect.

THE ORIGIN OF THE IMPORT SILK TRADE IN JAPAN.

An interesting paper on this subject is published among the Transactions of the Historical Society. We think it worth reproducing in an epitomized form. Among the articles brought to Japan by Chinese and Portuguese ships in the early days of foreign trade, observes Yokoi Tokituyu, the author of the paper, raw silk was the chief. In those days Japan produced no silk of her own. Not until about the middle of the eighteenth century did Japanese begin to cultivate the

silk-worm to any extent. Mr. Yokoi says that, when preparing a history of Japanese commerce, he was struck by certain facts connected with the silk trade in its incipient stage and thought them worthy of forming the subject of a separate paper, which he now publishes.

In 1602 a Dutch ship arrived in Nagasaki laden with raw silk. But it was just after the war which culminated in the battle of Sekigahara, and traders were by no means flush of money. The captain of the ship waited in vain for the arrival of purchasers and eventually was so distressed that he appealed to the Nagasaki bugyo for help. The bugyo proceeded to Kyoto and consulted Ieyasu on the matter. The Shogun sent for ten merchants of Sakai and Kyoto, and pointed out to them that if the Dutch ship were allowed to go away without selling her cargo she would not return, and that the country would thus lose the benefits to be derived from foreign trade; he therefore advised them to make offers to the captain for the purchase of the silk. The Nagasaki merchants soon came to hear of the steps the Shogun had taken, and, anxious to share the profits of the trade, asked for permission to purchase a portion of the cargo. Their request was granted, and thus the merchants of the three above-named places formed silk purchasing companies, to which Ieyasu subsequently caused a charter to be granted. This charter, dated May 3rd, 1604, and appearing over the signatures of Honda Kotsuke-no-suke and Itakura Igano-Kami, forbids other parties to buy silk, prior to the conclusion of such purchases as the favored companies wished to make.

It is stated that the first silk buyers lost money over the business and that they appealed to Ieyasu to intercede on their behalf and persuade the Dutch to allow them to make good their losses by cheap bargains the following year, which arrangement was effected. Ieyasu appointed from among these merchants certain persons whose duty it was to superintend the trade. The proportions in which the three towns were allowed to purchase annually were 100 hyo* for Kyoto, 129 for Sakai-ura, and 100 for Nagasaki.

During the early part of the Kanyei period, the merchants to whom the monopoly was first granted made great profits, and consequently an urgent application from the traders of Edo induced Iemitsu in 1631, to grant them permission to purchase annually to the extent of fifty hyo for ordinary merchants and sixty for mercers.† The same privileges were granted in respect of the purchase from the Dutch of woven silk, crape, and other materials. Osaka next applied and obtained permission for ordinary traders to purchase raw silk to the extent of thirty hyo a year, and mercers to the extent of sixty. Charters were granted to other places subsequently, but the quantities allowed to be purchased were comparatively small.

In 1636 a proclamation forbidding Christianity was issued, and at the same time the following restrictions were put on trade. (1) On the arrival of foreign vessels an invoice of the cargo was to be sent to Edo, and permission received for the sale of goods. (2) Within twenty days after the price of silk had been decided, the quantity sold was to be paid for and delivered to the five chartered companies of Sakai, Kyoto, Nagasaki, Edo and Osaka. (3) Other goods were not to be sold till the price of silk had been determined. (4) The sailing of foreign vessels was not to be postponed later than September 20th, unless in case of vessels that arrived late, to which an extra fifty days was allowed. (5) Would-be purchasers of silk were to reach Nagasaki on or before September 5th. Traders arriving after this date were not entitled to purchase silk that year. (6) No sales of silk at Hirado were allowed prior to the fixing of the price for the year at Nagasaki. Judging by the number of presents given to the Shogun by the chartered companies, they must have realized very large profits.

In 1651 the silk trade regulations were withdrawn, and merchants were allowed to purchase how and when they pleased. But it was found that this freedom only tended to increase the profits of the Dutch, who, naturally enough, made good use of the jealousies of competing buyers, and stood out for high prices. Again the Government was applied to, and again it interfered, and the five original companies were reinstated in power. A new method of determining what should be the market price of silk year by year was adopted.

* 1 hyo=30 lbs. (Japanese weight, that is 160 me to each pound or 1½ lbs. av.)
† Mercers in other towns seem to have enjoyed special privileges under the Tokugawa regime.