[Description of the Whole Process of Bleaching]

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Type
Household

Ingredients
water
bran
rye meal
soap
lye
blue ashes
pearl ashes
marcroft ashes
cashub
muscovy, or blanch ashes

Places
Nova Scotia
Edinburgh
Ireland
Netherlands

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Description

Instructions on how to wash coarse and fine linen. Vol. 5, pp. 112-13. Microfilm Reel 8063.

Transcription

DESCRIPTION OF THE WHOLE PROCESS OF BLEACHING

[From Experiments on Bleaching, lately published at Edinburgh]

THE two methods of bleaching, established by a general practice, are the Dutch, and the Irish; one or the other is followed at present by every bleacher. A description of each of these, is then a description of the whole practice. The Dutch method is that much followed for fine cloth by the skilful bleachers; while, for cheapness, they use, in the whitening of coarse cloth, the Irish method, or one very like it. I shall then give a short description of the facts which happen in each. The Dutch method is as follows.

After the cloth has been sorted into parcels of an equal fineness, as near as can be judged, they are latched, linked, and then steeped. Steeping is the first operation which the cloth undergoes, and is performed in this manner. The linens are folded up, each piece distinct, and laid in a large wooden vessel; into which is thrown, blood warm, a sufficient quantity of water, or equal parts of water and lye, which has been used to white cloth only, or water with rye meal or bran mixed with it, till the whole is thoroughly wet, and the liquor rises over all. Then a cover of wood is laid over the cloth, and that cover is secured with a post betwixt the boards and the joisting, to prevent the cloth from rising during the fermentation which ensues. About six hours after the cloth has been steeped in warm water, and about twelve in cold, bubbles of air arise, a pellicle is formed on the surface of the liquor, and the cloth swells when it is not pressed down. This intestine motion continues from thirty-six to forty-eight hours, according to the warmth of the weather; about which time the pellicle or scum begins to fall to the bottom. Before

this precipitation happens, the cloth must be taken out; and the proper time for taking it out, is when no more air-bubbles arise. This is allowed to be the justest guide by the most experienced bleachers.

The cloth is then taken out, well rinsed, disposed regularly by the selvage, and washed in the pot-mill to carry off the loose dust. After this it is spread on the field to dry; when thoroughly dried, it is ready for bucking; which is the second operation.

Bucking, or the application of salts, is performed in this manner. The first, or mother-lye, is made in a copper, which we shall suppose, for example, when full, holds 170 Scots gallons of water. The copper is filled three fourths full of water, which is brought to boil: Just when it begins, the following proportion of ashes is put into it, viz. 30 pounds of blue, and as much white pearl ashes; 200 pounds of Marcroft ashes (or, if they have not these, about 300 pounds of Cashub) 300 pounds of Muscovy, or blanch-ashes; the three last ought to be well pounded. This liquor is allowed to boil for a quarter of an hour, stirring the ashes from the bottom very often; after which the fire is taken away. The liquor must stand till it it has settled, which takes at least six hours and then it is fit for use.

Out of their first, or mother lye, the second, or that used in bucking, is made in this manner. Into another copper holding, for example, 40 Scots gallons, are put 38 gallons of water, two pounds of soft soap, and two gallons of mother lye; or, for cheapness, in place of the soap, when they have lye which has been used to white linen, called white linen lye, they take 14 gallons of it, leaving out an equal quantity of water. This is called bucking lye.

After the linens are taken up from the field dry, they are set in the vat or cave, as their large vessel is called, in rows, endways, that they may be equally wet by the

lye; which, made blood warm, is now thrown on them, and the cloth is afterwards squeezed down by a man with wooden shoes. Each row undergoes the same operation, until the vessel is full, or all the cloth in it. At first the lye is put on milk warm, and after standing a little time on the cloth, it is again let off by a cock into the bucking copper, heater to a greater degree, and then put on the cloth again. This course is repeated for six or seven hours, and the degree of heat gradually increased, till it is at the last turn or thrown on boiling hot. The cloth remains after this for three or four hours in the lye; after which the lye is let off, thrown away, or used in the first buckings, and the cloth goes on to another operation.

The cloth is then carried out, generally early in the morning, spread on the grass, pinned, corded down, exposed to the sun, and air, and watered for the first six hours, so often, that it never is allowed to dry. Afterwards it is allowed to lie till dry spots appear before it is watered. After seven at night it gets no more water, untill it be a very drying night. Next day in the morning and forenoon it is watered twice, or thrice if the day is very dry; but if the weather be not drying it gets no water: After which it is taken up dry if the green is clean; if not, it is rinsed, millwashed, and laid out to dry again, to become fit for bucking.

This alternate course of bucking and watering, is performed for the most part from ten to sixteen times, or more, before the linen is fit for souring; gradually increasing the strength of the lye from the first to the middle bucking, and from that gradually decreasing till the souring begins. The lyes in the middle buckings are generally about a third stronger than the first and last.

Souring, or the application of acids to cloth, is the fourth operation. It is difficult to say when this operation should commence, and depends mostly on experience. When the cloth has an equal colour, and is mostly freed from the sprat, or outer bark of the lint, it is then thought fit for scouring; which is performed in the following manner. Into a large vat or vessel is poured such a quantity of butter milk, or sour milk, as will sufficiently wet the first row of cloth; which Is tied up in loose folds, and pressed down by two or three men bare-footed. If the milk is thick, about an eight of water is added to it; if thin, no water. Sours made with bran, or rye meal and water, are often used instead of milk, and used milk warm. Over the first row of cloth a quantity of milk and water is thrown, to be imbibed by the second; and so it is continued till the linen to be scoured is sufficiently wet, and the liquor rises over the whole. The cloth is then kept down by covers filled with holes, and secured by a post fixed to the joist, that it may not rise. Some hours after the cloth has been in the sour, air bubbles arise, a white scum is found on the surface, and an intestine motion goes on in the liquor. In warm weather it appears sooner, is stronger, and ends sooner than in cold weather. Just before this fermentation, which lasts five or six days, is finished, at which time the scum falls down, the cloth should be taken out, rinsed, mill-washed, and delivered to the women to be

washed with soap and water.

Washing with soap and water is the fifth operation; and is performed thus. Two women are placed opposite at each tub, which is made of very thick staves so that the edges which slope inwards are about four inches in thickness. A small vessel full of warm water is placed in each tub. The cloth is folded so that the selvage may be first rubbed with soap and warm water length ways, till it is sufficiently impreg-

nated. In this manner all the parcel is rubbed with soap, and afterwards carried to be bucked.

The lye now used has no soap in it, except what it gets from the cloth; and is equal in strength to the strongest formerly used, or rather stronger, because the cloth is now put in wet. From the former operation these lyes are gradually made stronger, till the cloth seems of an uniform white, nor any darkness of an uniform white, nor any darkness or brown colour appears in its ground. After this the lye is more speedily weakened than it was increased; so that the last which the cloth gets, is weaker than any it got before.

But the management of sours is different; so they are used strongest of first and decreased so in strength, that the last sour, considering the cloth is then always taken up wet, may be reckoned to contain three fourths of water.

From the bucking it goes to the watering, as formerly, observing only to overlay the selvages, and tie it down with cords, that it may not tear: then it returns to the sour, milling, washing, bucking, and watering again. These operations succeed one another alternately till the cloth is whitened; at which time it is blued, starched, and dried.

The foregoing is the method used in the whitening our fine cloths. The following is the method used in the whitening of the coarse.

Having sorted the cloths according to their quality, they are steeped in the same manner as the fine, rinsed, washed in the mill, and dried before boiling.

In this process, boiling supplies the place of bucking, as it takes less time, and consequently thought cheapest. It is done in the following manner: Two hundred pounds of Cashub ashes, one hundred pounds of white Muscovy, and thirty pounds of pearl-ashes, boiled in 105 Scots gallons of water for a quarter of an hour, as in the process for the fine cloth, makes the mother or first lye. The cloth-boiler

is then to be filled two-thirds full with water and mother lye, about nine parts of the former to one of the latter; so that the lye used for boiling the coarse cloth, is about a third weaker than that used in bucking the fine. Such a quantity of cloth is put into the foregoing quantity of lye, when cold, as can be well covered by it. The lye is brought gradually to the boil, and kept boiling for two hours; the cloth being fixed down all the time, that it does not rise above the liquor. The cloth is then taken out, spread on the field, and watered, as mentioned before in the fine cloth.

As the salts of the lye are not exhausted by this boiling, the same is continued to be used all that day, adding, at each boiling, so much of the mother-lye as will bring it to the same strength as at first. -- The lye by boiling loses in quantity some what betwixt a third and a fourth; and they reckon that in strength it loses about a half, because they find in practice, that adding to it half its former strength in fresh lye, has the same effect on cloth. -- Therefore some fresh lye, containing the fourth part of water, and the half of the strength of the first lye, makes the second boiler, as they imagine, equal in strength to the first. To the third boiler they add somewhat more than the former proportion, and go on still increasing gradually to the fourth and fifth, which is as much as can be done in a day. The boiler is then cleaned, and the next day they begin with fresh lye. These additions of fresh lye ought always to be made by the master bleacher, as it requires judgement to bring succeeding lye to the same strength as at first.

When the cloth comes to get the second boiling, the lye should be a little stronger, about a thirtieth part, and the deficiencies made up the same proportion. For six or seven boilings, or fewer, if the cloth be thin, the lye is increased in this way, and then gradually diminished till the cloth is fit for souring. The whitest cloth ought

always to be boiled first, that it may not be hurt by what goes before.

In this process, if the cloth cannot be got dry for boiling, business does not slop as in the fine; for after the coarse has dreeped on racks made for the purpose, it is boiled, making the lye strong in proportion to the water in the cloth.

The common method of scouring coarse linen, is, to mix some warm water and bran in the vat, then put a layer of cloth, then more bran, water, and cloth, and so on, till the cave is full. The whole is trampled with men's feet, and fixed as in the former process. A thousand yards of cloth, yard-broad, require betwixt four and six pecks of bran. The cloth generally lies about three nights and two days in the sour. Others prepare their sour twenty four hours before, by mixing the bran with warm water in a separate vessel; and before pouring it on the cloth, they dilute it with a sufficient quantity of water. After the cloth is taken from the sour, it ought to be well washed and rinsed again. It is then given to men to be soaped on a table, and afterwards rubbed betwixt the rubbing board. When it comes from them it should be well milled, and warm water poured on it all the time, if conveniency will allow of it. Two or three of these rubbings are sufficient, and the cloth very seldom requires more.

The lye, after sourings begins, is decreased in strength by degrees, and three boilings after that commonly sufficiently to finish the cloth. Afterwards it is starched, blued, dried, and beetled in a machine made for that purpose, which supplies the place of a calender, and is preferred by many to it.

This method used in the bleaching of our coarse cloths, is very like that practised in Ireland for both fine and coarse. The only material difference is that there the bleachers use no other ashes but the kelp or Cashub. A lye is drawn from the former by cold water, which dissolves the salts and not the sulphureous particles of the

kelp ashes. This lye is used till the cloth is half whitened, and then they lay aside the kelp lye for one of Cashub ashes. I am told that their most skillful bleachers have laid aside the use of the kelp ashes.

Annotations

Experiments On Bleaching, Lately Published At Edinburgh

Experiments on Bleaching, by Francis Home, was published in Edinburgh in 1756 and Dublin in 1771.

Description of the Whole Process of Bleaching recipe from Early Modern Maritime Recipes: https://emmr.lib.unb.ca/recipes/42