

and three feet long at its upper surface, which is cut out in such a way as to leave it of the form of a hollow crescent. Moreover, the edges of this rude crescent are smoothed and rounded so as to present to the fibre a completely even and regular surface. A workman then takes the bunches one after the other, and, beginning by presenting them by the thicker end, he lays them on the block and pushes them forward, so as always to have six or seven inches of unbroken stalk beyond the block. Meanwhile, a couple of women, armed with hard, thick sticks, especially clumsy towards the end, something in the style of clubs, beat the end of the bunch as the workman pushes it forward. A single blow is sufficient to crush it, so that if the bunch is twelve feet long, it requires about ten blows from each woman to crush it, the upper extremity which the workman holds in his hand not being subjected to the operation. If the people are expert in this work, a minute will be more than time enough to crush three such bunches. As soon as the man who holds the bunch has advanced it nearly to the end, he leaves hold of it with one hand to seize another, in order to substitute it for the former one the moment he has finished it, and to continue the operation without interruption. That the workman who lays the bunches on the block may continue that task, the woman who brings him the bundles of hemp takes care to place them ready to his hand. The fibre often comes out of this operation completely divested of the woody stem throughout the whole of its length, except at the extremity which the workman held in his hand. Two other scutchings or beatings take place with smaller tools. At the last one, the workman is not content with beating the fibre; he pulls it while it is pressed with his tools, to soften it and clear it from any knots and bits of chaff that may still remain adhering to it. The fibre is then folded in two, and packed in bales to be delivered to the merchant."

The following judicious observations are from the Abbe Rozier, relative to the sanitary precautions desirable to be observed with steeping ponds:

"Whether the water is stagnant or running, and in whatever spot the *rouitoir* may be situated, it is essential to plant rows of trees around it. Poplars are preferable to any others. One of the grand agents which nature employs for the purification of the atmosphere, is the vegetation of plants and trees. They feed upon the impure air given out by steeping ponds, appropriate it, and in return give back pure air to the atmosphere. But even with this resource at hand, it will be seen that the establishment of *rouitoirs* in the vicinity of dwelling houses is an extremely unhealthy and imprudent practice, since the trees cannot entirely absorb the enormous mass of mephitic air which escapes from hemp in a state of putrid fermentation. Spots ought to be elected which are exposed to the wind and open to violent currents of air.

"It is useless to make steeping ponds too broad, at least they are very inconvenient. I should prefer extending them in length, whenever required, particularly if they are to serve for a community of hemp-growers. In that case, every individual finds his own place, without disturbing that of his neighbour, and a smaller quantity of water is required. The bottom ought to be paved, with a slope towards the place where the water is let out. There ought, indeed, to be a double outlet, one at the surface and one at the bottom, either to be used as occasion may render convenient. The sides should slope with so steep an inclination as to allow the workpeople to approach with ease, and not be obliged to enter the water in order to arrange or alter anything in the hemp heap, as will be necessarily wanted from time to time. The sides, if not built of stone or brickwork, should be covered with cement of sufficient thickness. The mud taken every year out of the bottom of the steeping place, makes excellent manure."

Mechanical processes have been proposed as a substitute for the water-retting of hemp. But the reason why these machines must ever be incompetent to perform the office required of them, is clearly explained by the Count Gallesì, the author of an excellent Italian memoir on the culture and manipulation of hemp and flax:

"Macération," he says, "is an operation indispensable to obtain from the hemp plant a tissue suitable for making cloth. It may be said that it can be dispensed with in the case of hemp for rope-making. I do not admit the supposition; but even granting it, the same thing cannot be admitted with regard to hemp destined for cloth. The bark of the hemp is the portion which furnishes the tissue; it is composed of an infinity of longitudinal fibres, lying one over the other, and joined together not only by the force of adhesion proper to vegetable tissue, but still more strongly by a sort of gummy