

normal quantity, yearly cultivated, but it is only in a fair average year, that the yield suffices for the wants of the population.

The average weight of 22 gallons of wheat, (a hectolitre), is 165 lbs; it can descend to 154 and mount to 180 lbs. The latter will produce about 156 lbs of first quality of flour. Flour absorbs 66 per cent of its weight of water; it parts with one-half of this quantity by evaporation when baked, so that bread contains about 33 per cent of water, almost the equivalent to the loss, in bran &c., which the wheat undergoes, during conversion into flour. I may remark here, that an agitation is on foot to replace the manufacture of bread by machinery, instead of the hands. In the South of France, the feet are employed in the kneading trough; now the bakers are almost naked when at work—similarly as the men in the wine vats, and in a perspiration, as they work close to the ovens and in cellars. A healthy man, during ordinary labor, parts with 2½ lbs. of perspiration per day, or about 1½ oz. per hour. Some of this is not pleasant to receive in one's hot morning roll. It is notorious fact, too, that the majority of bakers are consumptive. Another amelioration needed, is the use of the economic oven, so general in Holland and Belgium: it is heated either by hot air or steam, and effects an economy of 75 per cent in fuel.

Coagulated blood is an excellent manure, but its usage is limited; the blood of the slaughter house is rich in nitrogen and mineral matters, but as it decomposes rapidly, it is a dangerous and inconvenient fertilizer. A discovery recently made, enables the coagulating matter to be transformed into a solid, inodorous fertilizer. Fresh blood contains 28.20 of organic matter, and 0.80 of saline substances; the rest being water: dried, it is reduced to one fourth of its original weight; in this state it contains 12 to 18 p. c. of nitrogen and 1½ to 2 p. c. of phosphoric acid. Now sulphate of ammonia contains 20 per cent of nitrogen. The total number of animals annually slaughtered in France for food, is 43 millions, of which number, 1½ millions are oxen and bulls; 7 millions, cows; 1½ million calves; 26 millions sheep, and

the remainder pigs &c. The total of the blood of these animals amounts to 70,000 tons, valued at 300 fr. the ton. The total value of guano imported into France during the last years, was 50,000 tons, at an average price of 350 fr. per ton. In South America, where in some places upwards of 1000 animals are slaughtered daily, there is a grand future for applying the new discovery, and which consists in keeping the blood, when quitted the animal, constantly stirred with a stick to prevent the formation of clot, after which persulphate of iron is added: a kind of paste is then formed, very elastic, and which dries and forms cakes, to be ultimately pulverized. The product is inodorous; and contains from 10 to 15 per cent of azote. In the country districts, an ox yields about 4 gallons of blood, valued at 12 sous, which can manure 120 square yards, or the fortieth of an acre.

Mr Bouilliez—a name *à propos* to his process,—has adopted the following plan for preserving diseased potatoes; he erects immense boilers, in the fields even, cooks the tubers, and places them in trenches or silos, hermetically sealed: to wash, cook, and store the potatoes, represent an outlay of 9 fr. per ton. The cattle eat this preserve voraciously. Indeed it is becoming general now to store all root crops in silos, instead of in cellars: in the latter case, if destined for the market, there is a loss for the seller, if for consumption, for the owner, because potatoes &c, exposed even to the uniform temperature of a cellar, slowly ferment, and lose their nitrogenous matters. Professor Muntz has demonstrated, that all alimentary products undergo a sensible loss of their protein substances when exposed to the air, but that no less whatever takes place if the air be perfectly excluded. Distillery &c. grains are at present in great demand for silo preservation, and mix well with forage or roots similarly preserved.

A very useful implement has appeared; it is a bill-hook, serving at the same time for a hammer.

The cultivation of hops is on the increase, the consequence of deficient vintages: farm schools are henceforth to experiment in this new culture, as in Germany.

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