The Dairy.

Atmospheric Churns.

Nothing has enlisted the attention of inventors in this country to a greater extent than churns. Over a thousand patents have been issued by the U. S. Government for devices for churning alone. Of the time spent in bringing them out and putting them before an appreciative public, and of the amount of money spent in purchasing state, county, township and individual rights, we can form no estimate. The following sketch of the early history of atmospheric churns was written by Charles J. Page, and was first published in his report to the Commissioner of Patents in the year 1849:—

"I have had, during the year, forty-nine applications transferred to my desk, and among them twenty-one applications for churns. Most of these were styled atmospheric churns, and since I have been in the Patent Office I have never witnessed such a mania upon any one invention. It may be well to repeat that the introduction of air plays no chemical part in the production of butter; its separation from cream being merely a mechanical process. And although the atmospheric churns operate to considerable advantage, yet it is by means of more thorough agitation, which is increased greatly by the diffusion of the air throughout the cream. As each portion of air rises through the cream it forms a bubble upon the surface before it escapes, and in some of the atmospheric churns, where the dasher is constantly submerged, the whole mass of cream is converted into a complete mass of foam. From the success of such a churn as that above named in producing butter in a shorter time than other churns, a most enthusiastic speculation was at once commenced upon atmospheric churns, and inventive powers were racked to modify, mystify, and contort a simple principle, with a view of producing novelties rather than improvements. For one invention applications for patents were received from no fewer than seven persons—each a *bona fide* inventor—all claiming the same thing, and about the same time, and all from distant portions of the country. This improvement consists simply in boring a hole through the entire length of a common upright churn-dasher, and placing a valve either at the bottom or top of the dasher. This valve opens downwards, and when the dasher is raised with such rapidity that the cream cannot follow up, the air rushes down through the valve under the dasher, and upon the downward stroke the air is pressed out laterally and escapes by the side of the dasher and up through the mass of cream. It requires not a very quick motion and but little force to effect this, and the agitation is most complete. A full-sized model was exhibited in the office, showing the operation with clear water only. Upon agitating the dasher, the water appeared as if in intense ebullition. Another peculiarity belongs to this churn worthy of note. In the common churn, the dasher has to be raised out of the cream at each stroke, and plunged down with some force, and as this scatters the cream it is necessary to cover the churn tightly, and allow the dasher to play through a small hole in the centre of the cover; but in this atmospheric churn the dasher is kept always under the surface of the liquid, and consequently there is no splashing of the cream, and the cover may be left off with safety, and enable you to watch the operation. A strong recommendation is its simplicity, and one of the inventors stated he could alter any common churn-dasher to this principle for twenty-five cents. Prior to this simple device for introducing air, several complicated inventions had been patented, and many more made and presented to the office, to effect the same purpose.

"A modification of the last named churn has been patented, in which the hole in the dasher at the lower part was large enough to contain a solid plunger, fitting loosely within the dasher, which acts the part of a second valve. There have been, also, several patents granted for ingenious forms of rotary atmospheric churns. These inventors crowded upon the office so numerously that they were examined with the most rigid scrutiny, and on several occasions actual demonstration by experiment of making butter was required of the applicants, to satisfy the office that the inventions claimed justified their pretensions to be real improvements. In most of these cases the results were unfavourable to the inventor, but in some patents were ordered to issue. On one occasion an experiment was performed (humorously characterized by a bystander as a 'churn race') between a patented and a new churn, in which bhey both came out alike, making butter from tew milk in two minutes and a half. Such a rapid separation of the butter, however, is by no means desirable, although this is the general aim of these improvements. We have it upon the highest chemical authority that butter made so rapidly is not likely to be so good as that which is made slowly."

American Cheese in England.

The London *Milk Journal*, for September, has the following report on the cheese market there, dated August 23rd:

English Cheese—In consequence of the excessive heat of the past month, has been in small supply, the risk of carriage being too great to induce factors and dealers to handle the article. Farmers are anxious sellers, but still hold on to the idea of getting prices which there is no chance of their obtaining; this they will find out to their cost, for Americans are steadily absorbing all the demand, not only for common grades, but also for the finest. There are still a few old cheddar and double on hand, which sell very slowly at bad prices.

American—Are in very large supply. The total clearances to Great Britain from New York for the past four weeks have been respectively 66,000, 66,700, 70,500, 60,400, making a total of 263,600 boxes, which is equal to something over five thousand tons. Arrivals have met a ready sale at steadily declining prices; 54s. to 56s. is now the market quotation for fine cheese, which will compare favourably in quality, flavour and condition, with any home-made at 10s. to 15s. more money; whilst some good, clean, meaty cheese can be bought at 42s. to 50s. These prices being much lower than for many years past, and the June make being very good, has encouraged a large consumption.

Dutch Cheese—Still continue dear, and stocks are accumulating. The article, like English, is being driven out of consumption by the American.

The editor of the *Journal*, in another article, calls special attention to these statements, and adds:—"The success of America is to be attributed to the extensive organization of her cheese factories, whereby division of labour is effected, a large working capital used in the manufacture of cheese, and a uniform good make produced, by converting milk into cheese on a large scale; and by the employment of skilled labour, under the superintendence of scientific, enterprising commercial men. The system which has done so much for America can undoubtedly do a great deal for us, and enable us to maintain our ground against all comers. We therefore watch, with a daily increased interest, the success of cheese factories in our own country."

The Milk Mirror.

In a recent visit to parts of Germany in which milch cows are harnessed to waggons, and required to work like oxen, I was curious to see what was the effect of such habits of labor upon the lacteal system, and its outward manifestation. Continued from generation to generation, such treatment would naturally show its results in a modification of the organizations for giving milk, and the visible marks of the same. This I found actually to be the case in all of this class of animals which came under my observation. None of them had well developed udders, or large milk veins, and in no single case did I find a good milk mirror, or escutcheon. On the contrary, the mirrors were invariably imperfect, exceedingly defective ones. This great beauty in a milch cow, and sure sign of the possession of great dairy qualities was well nigh bred out of these animals, and in the place of it they had acquired a good degree of the physical strength and beefy look of steers.

I put this fact on record as one tending to corroborate the doctrine of Guenon respecting the mirror, or escutcheon, as a visible sign of dairy capacity. I believe his views in the main to be correct, and to be of great importance to all persons interested in breeding the improved races of cattle.

I have in my herd of Jerseys a family of females numbering nine, and embracing three generations of cattle, each one of the animals having been sired by a different bull, with a single exception, and each one of which possesses a perfect milk mirror. It is a family of superior milkers and butter-makers; and their full mirror seems to be so well established that no change of bulls can breed it out of them.—*Cor. Country Gentleman.*