Butter-making and Butter.

One of our lady correspondents requests us to give some account of "butter-making"—how and when butter was invented—stating that such information would be interesting to many of our readers.

The origin of butter-making is unknown. From time immemorial butter has been made and used by the natives of Western Europe. Little is said about it by ancient writers. Galen and others do not mention it as an article of diet, and it is probable that neither the Greeks nor Romans employed it in cookery, nor set it up on their tables as food, in the same manner as it is enjoyed by us. As butter melts and becomes liquid at 90° Fah., this may account for the ignorance of ancient authors as to its use in cold countries in their day, because the seats of ancient learning were confined to warm climates, and geographical knowledge was then very limited. Through the indomitable courage and enterprise of modern travelers we have been made acquainted with the customs and habits of almost all tribes and nations—civilized and savage—so that we know of butter being used among many of the barbarous Arab and Tartar tribes inhabiting mountainous regions; and no doubt it has been known to them for many centuries. The Tartar, carrying milk for his frugal meal in a leathern pitcher slung over the crupper of his saddle, would perceive, after a hard ride, that there had gathered on its surface a rich yellow substance, unknown to him before, and which could have been produced from the milk alone. The cause of its development would readily suggest itself, and its pleasant flavor would incite him to reproduce it in the same manner. This is the way butter is now churned by some of these nomadic tribes. The milk is placed in a bag made of skin; the Tartar slings it across his saddle, mounts his steed, and trots up his butter. This, we believe, could not have been the way butter was first discovered by the inhabitants of Western Europe, as their most ancient practice of churning consisted in agitating the milk in wooden vessels; but how or when they discovered the art, we shall never know.

In Palestine, and other warm countries, olive oil holds the same place that butter does with us. As an article of diet, we are only acquainted with the butter made from cow's milk; but butter made from the milk of the sheep, goat, buffalo, and ass are known and used in various countries, especially in Asia. Some tribes of Arabs use the butter (called *ghee*) of the buffalo, which they drink clarified in a liquid state. In the East Indies there are breeds of goats which give a large quantity of milk; and among the hill tribes of the Himalaya mountains they take the same place as the kine tribes with us. One of these goats, lately brought to this city from Calcutta, (and by a Mormon family, strange to tell!) yielded on shipboard from six to eight quarts of milk daily. We really hope that some of our enterprising agriculturalists, who have devoted so much attention to improving live stock, will endeavor to introduce and acclimatize such a valuable breed of animals. They can be raised and fed in mountainous regions where cows would starve. Their milk is good, their flesh excellent, and their hair makes strong and durable fabrics for cold weather. Goats' milk and butter are also common in some parts of Europe.

Butter is the oil of milk, separated by the mechanical action of churning, from its other constituents—casein, sugar, and some salts. It exists ready formed in the milk, as oil does in various seeds, and it can be churned from sweet (but not so quick) as well as from sour milk. It is called by chemists *butyrine* and *butyric acid*. In some dairies the whole milk is churned to obtain the butter; in others, only the cream. By the former method it has been asserted that more, but by the latter, superior butter is produced. It is our opinion that with proper care there is little difference in the results of the two systems. Grass-fed kine yield milk from which beautiful yellow butter is gathered; on the contrary, stall-fed cows give milk which yields a tallowy-looking butter. This latter kind of butter is oftentimes colored to deceive the buyer, by annatto, the juice of carrots, and the flowers of the marigold. The color, therefore, is not always the test of grass-fed milk. Some kinds of feed impart their strong and peculiar flavor to milk. This is the case with turnips, which should never be given to milch cows, except in very limited quantities. In winter, when grass cannot be obtained, the best kind of food is a question of no small importance. Milch kine should receive at least one meal per day of steamed or boiled food. The cheapest and best for this purpose are indian meal, a few pumpkins deprived of their seeds, carrots, hay, and cornstalks; potatoes are excellent, and when cheap should be given freely. Cows which receive one meal per day of boiled or steamed food, during winter, yield at least one-third more milk than those which receive only dry food, the condition of the former at the same time being much superior.

Much has been said about the best methods of treating butter to preserve it sweet and from becoming rancid, under ordinary circumstances. There is no difficulty at all in the matter; and yet the quantity of inferior (bad butter) in proportion to good butter which comes into market, is immensely large. As all healthy, well-fed country kine, produce good milk, no bad butter should be found in our markets. It reflects unfavorably upon the intelligence and thrift of our farmers that such butter is offered for sale. Cleanliness and care are two of the great secrets for making good butter. Holland butter has the highest reputation of any other; this is simply attributed to the great cleanliness of the people of that country, but there are other conditions also necessary. The dishes containing the milk should be perfectly clean, and kept in a cool, dry, and well-ventilated apartment, and the milk or cream which is designed to be churned should never be suffered to become very sour—to have the least odor of putridity. It has been discovered that butter made from sour cream is very liable to become rancid, in comparison with that made from sweet milk, or sweet cream. It is, perhaps, owing to want of attention on this head, during warm weather, that so much inferior butter is made. It requires longer time to churn fresh than sour cream; but the quality of the butter obtained will pay for the use of horse power to churn, even on a farm having no more than five cows. After the butter has *come*, it requires careful manipulation, or working. It makes it tough to work it over a great deal, and the use of much water for washing takes away its fine flavor. The best plan to treat butter is to submit it first to severe pressure, by placing it in a cloth, and squeezing it in a vessel containing a perforated false bottom. This can be done with a cheese press, if not, with a pounder like that employed for clothes. After all the milk is thus squeezed out, the butter should be lifted and worked over carefully, and afterwards receive one or two clean, cool waters, to wash away every trace of milk. It should then be salted with the best salt, containing a minute quantity of white sugar mixed with it, and last of all it should again be submitted to severe pressure. The great object in thus treating butter is to remove all the water and milk from it, because these induce incipient decomposition and consequent rancidity. By churning the cream before it becomes too sour, and removing all the water and milk from the butter, and by careful and thorough salting and working, the best quality will always be obtained.

Book-making.

Book-making must be classed among the fine arts, for indeed it is an art in itself, whether we consider it in its exterior or interior decoration. The English excel all others in the tasty arrangement that is required in a really exquisite work. They understand it in all its minutiæ. The very title-page is a model of neatness and elegance; and of such importance is the superintendence of this labor, that artists, trained men in their vocation, are employed in most of the large establishments to attend to it in all its artistic capabilities. The art has been carried to a high degree of excellence and finish in France. Many have acquired great renown there in this department of handicraft. The French books are remarkable for the firmness of their boards, the smoothness of their leather, and the delicacy, the richness of design, and the sharpness of outline of their gold tooling. The designs upon one of Beauxonnet's copies or Lortios' books seem hardly to be stamped upon the leather, but rather to be inlaid in it. But for pleasure and convenience in use, the work of the French binders is inferior to that of the English, as books bound by the former are very stiff—that is, they open with difficulty, and require constant pressure to keep them open. No nation, however, can compete with America in the all-important item of cost. We make our books to sell, and to be read, and not to be laid on the drawing-room table, to have merely their outsides admired and their contents disregarded.

Is Charcoal liable to Spontaneous Combustion?

Messrs. Editors—I enclose a paragraph cut from the *Evening Bulletin* of Saturday last, respecting the spontaneous ignition of powdered charcoal when damp. This has greatly surprised me, and I cannot credit it. In several places in my woolen mill where steam pipes were exposed to the cold air, I protected them by wooden boxes filled with powdered charcoal; and in one place particularly, I know that the dropping water from a cock kept the charcoal wet, yet there has been no ignition. I preferred charcoal to sawdust or hemp, or cotton, for the reason that I believed the heat of the pipes would not ignite it, nor dampness produce that effect; but if certain chemists of Philadelphia are correct, there is danger, and I beg your opinion on the subject, having confidence in your judgment.

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Norristown, Pa., December, 1857.

[The following is the paragraph referred to:—

"The Origin.—Fire Detective Blackburn has made a careful investigation into the cause of the recent fire at the freight depot of Davis & Steel, Market st., above Eighth. It seems that there were several bags of powdered charcoal stored in the car-house; and several chemists whom Mr. Blackburn has consulted state that powdered charcoal, when damp, is liable to spontaneous combustion. The atmosphere was very wet at the time of the fire, and the coal, no doubt, absorbed considerable moisture. As the fire made its first appearance in the precise spot where these bags were stored, the strong probability is that it originated from spontaneous combustion."

It is our opinion that the fire alluded to in the above extract was not caused by the spontaneous combustion of powdered charcoal; and we will hold to this opinion until some of those Philadelphia chemists or other persons afford us satisfactory proof that charcoal in powder, either in moist weather or when wet with water, will spontaneously ignite and burn. We have seen charcoal dust exposed for long periods of time to moisture and the atmosphere, and never knew an instance of spontaneous combustion caused thereby. We do not doubt that impurities (such as pyrites) ground with charcoal into dust, may, when moistened with water, generate sufficient heat to induce spontaneous combustion in the coal; but we mean that good common charcoal could not have produced the results specified in the above paragraph. There are many curiosities in chemistry, and the above may be one of them; but it has generally been held that carbon-charcoal will not burn, nor unite chemically with oxygen under a red heat, to produce combustion.—Eds.

A Dial Thermometer.

Messrs. Editors—Mr. Simeon Halton, of this place, an ingenious mechanic, has just brought out a dial thermometer, in which the use of liquid of every kind is dispensed with. The instrument is about the size of a common watch, (which it very much resembles,) only it is not quite so heavy. It is self-registering, and may be carried or placed in any position without affecting the accuracy of its indications or the arrangement of its parts, which are very firm, and not liable to get out of place. It is very sensitive, and capable of indicating with perfect accuracy any degree of heat or cold, showing with the same facility the temperature of the boiling-point and that of the poles. The dial may be made of any desired size, and either of the thermal scales placed thereon. Such are the claims of its inventor; and the tests to which it has been subjected thus far fully sustain them.

T. H. McLeod.

Middlebury, Vt., December, 1857.

[We seldom pay attention to notices which are frequently sent to us respecting new inventions, made here and there throughout the country, especially when they come merely as commendatory testimonials, without descriptions of the inventions. The above has come to us in this shape, but nothing of the mere puffing style, we are sure, was intended by our correspondent. His letter deserves attention, from the very nature of the subject. If Mr. Halton has invented a solid thermometer which can measure low temperatures equally as well as high temperatures, then he has accomplished a most important object. If not, he has invented nothing new or important, as dial solid thermometers, for measuring high degrees of heat, are old and well known.

All bodies expand by heat, and contract with cold. The above mentioned thermometer, we presume, is made of a coiled slip of metal; but while some solids are better than fluids for measuring high degrees of heat, they are inferior for measuring low degrees, owing to their small amount of contraction at low temperatures. They are also not so good as the usual fluids, mercury and alcohol, for constant *common* service, because, by very frequent expansions and contractions under heat and cold, the metal soon loses its elasticity, and becomes incapable of performing its functions accurately. Solid thermometers called *pyrometers*, have long been empleyod for testing the heat of furnaces, and the melting point of metals. The most improved instrument of this character, we believe, is that of Professor Daniels, of London. The part of it on which the heat acts is a small round platina rod, placed within a tube of baked graphite, and secured by one end to its bottom. To the other end of this rod is attached a fine platina wire, which passes twice round the axis of a wheel, and is fastened to a spring to maintain its tenison. The teeth of the wheel on this axis take into a pinion, on the axis of which is a pointer, the movements of which around a stationary dial indicate the expansion and contraction of the platina rod, and the consequent degrees of heat to which it is exposed. It is a dial solid thermometer. That of Mr. Halton may be different in construction; but if it can measure very low degrees of temperature as well as mercury, it is certainly superior to the pyrometer of Professor Daniels.—Eds.

Practical Application of Volcanic Matter.

The waters of the Bay of Volcano (in the island of Santorian, twenty-six leagues north of Candia,) have the singular property of cleansing the keels of ships. These waters have a fetid smell, and in calm weather, jets of a reddish kind of water are seen issuing from the bottom, as if caused by some secret volcanic agency. Hence it may be presumed that a strong current of sulphureted hydrogen gas is generated, which combines with the oxyd of copper of the sheathing, transforming it into a sulphuret; and as it is the oxyd which cements the shells and weeds together, its transformation destroys their cohesion.