Home Made Cheese ? Why not have a go? You might invent something pretty special....

Have you ever wondered about making your own cheese at home? Most families did well into the Victorian era so why not now? Having done a little research it seems there are 6 basic steps:-

Culturing:-

To make cheese you need brings milk to a temperature required to promote the growth of the bacteria that feed on lactose and thus ferment the lactose into lactic acid. These bacteria in the milk may be wild, as is the case with unpasteurised milk, added from a culture, frozen or freeze dried concentrate of starter bacteria. Bacteria which produce only lactic acid during fermentation are homofermentative; those that also produce lactic acid and other compounds such as carbon dioxide, alcohol, aldehydes and ketones are heterofermentative. Fermentation using homofermentative bacteria is important in the production of cheeses such as Cheddar, where a clean, acid flavour is required. For cheeses such as Emmental the use of heterofermentative bacteria is necessary to produce the compounds that give characteristic fruity flavours and, importantly, the gas that results in the formation of bubbles in the cheese. Cheesemakers choose starter cultures to give a cheese its specific characteristics. Also, if the cheesemaker intends to make a mould-ripened cheese such as Stilton, Roquefort or Camembert, mould spores (fungal spores) may be added to the milk in the cheese vat or can be added later to the cheese curd.

Coagulation:-

When during the fermentation the cheesemaker has gauged that sufficient lactic acid has been developed, rennet is added to cause the casein to precipitate. Rennet contains the enzyme chymosin which converts k-casein to para-kappa-caseinate (the main component of cheese curd) and glycomacropeptide, which is lost in the cheese whey. As the curd is formed, milk fat is

trapped in a casein matrix. After adding the rennet, the cheese milk is left to form curds over a period of time. The amount of time, and of rennet, varies depending on the variety of cheese being made.

Draining:-

Once the cheese curd is judged to be ready, the cheese whey must be released. As with many foods the presence of water and the bacteria in it encourages decomposition. You must, therefore, remove most of the water (whey) from the cheese milk, and hence cheese curd, to make a partial dehydration of the curd. This ensures a product of good quality and that will keep. There are several ways to separate the curd from the whey, and it is again controlled by the cheesemaker.

Scalding:-

If making Cheddar (or many other hard cheeses) the curd is cut into small cubes and the temperature is raised to around 39 °C (102 °F) to 'scald' the curd particles. Syneresis occurs and cheese whey is expressed from the particles. The Cheddar curds and whey are often transferred from the cheese vat to a cooling table which contains screens that allow the whey to drain, but which trap the curd. The curd is cut using long, blunt knives and 'blocked' (stacked, cut and turned) by the cheesemaker to promote the release of cheese whey in a process known as 'cheddaring'. During this process the acidity of the curd increases and when the cheesemaker is satisfied it has reached the required level, e.g. around 0.65%, the curd is milled into ribbon shaped pieces and salt is mixed into it to arrest acid development. The salted green cheese curd is put into cheese moulds lined with cheesecloths and pressed overnight to allow the curd particles to bind together. The pressed blocks of cheese are then removed from the cheese moulds and are either bound with muslin-like cloth, or waxed or vacuum packed in plastic bags to be stored for maturation. Vacuum packing removes oxygen and prevents mould (fungal) growth during maturation, which depending on the wanted final product may be a desirable characteristic or not.

Mould-ripening:-

In contrast to cheddaring, making cheeses like Camembert requires a more gentle treatment of the curd. It is carefully transferred to cheese hoops and the whey is allowed to drain from the curd by

gravity, generally overnight. The cheese curds are then removed from the hoops to be brined by immersion in a saturated salt solution. The salt absorption stops bacteria growing, as with Cheddar. If white mould spores have not been added to the cheese milk the cheesemaker applies them to the cheese either by spraying the cheese with a suspension of mould spores in water or by immersing the cheese in a bath containing spores of, e.g., Penicillium candida. By taking the cheese through a series of maturation stages where temperature and relative humidity are carefully controlled, the cheesemaker allows the surface mould to grow and the mould-ripening of the cheese by fungi to occur. Mould-ripened cheeses ripen very quickly compared to hard cheeses (weeks against months or years). This is because the fungi used are biochemically very active when compared with starter bacteria. Some cheeses are surface-ripened by moulds, e.g. Camembert and Brie, some are ripened internally, e.g. Stilton, which is pierced by the cheesemaker with stainless steel wires, to admit air to promote mould spore germination and growth, in e.g. of Penicillium roqueforti. Surface ripening of some cheeses, e.g. Saint-Nectaire, may also be influenced by yeasts which contribute flavour and coat texture. Others are allowed by the cheesemaker to develop bacterial surface growths which give characteristic colours and appearances, e.g. by the growth of Brevibacterium linens which gives an orange coat to cheeses.

DIY Kits

There are complete kits available with all the equipment you are likely to need to embark on your first cheesemaking experiment. These kits can be bought on-line There are also on-line sources for the various cultures and rennets you might need for a basic cheddar or something a little more exotic

Sources:-

http://www.cheesemaking.co.uk/cheese-making-cheese-making-kits/hard-cheese-making-kit
http://www.ascott-dairy.co.uk/dairy/cheese-cultures-rennets.html
http://en.wikipedia.org/wiki/Cheesemaking