

If among the infinitely small, such as the microscopic fungi, the seeds generally escape a superficial investigation, they exist all the same, since, under the microscope, we see them develop and reproduce themselves before our eyes. Their extreme tenuity allows them to be carried in suspension through the air, and thence to penetrate into the bodies of animals, as well as into all liquids freely exposed to the air.

As we saw just now, the same cell is capable of developing itself into different forms, according to the matters to which it is applied. Now, it seems that the liquids of our bodies contain an innumerable quantity of these cells which, far from being hurtful to us, are indispensable to our health, but become the cause of disease if, by alteration, they are led to develop themselves into a different form. Such is the case with blood, milk, &c., the simple exposure of which to the air for a few minutes is sufficient to bring about the development of the micrococci, which quickly transforms the whole mass. Do the seeds of these ferments come from the air, or are they contained in the liquid itself? Learned men are not yet agreed on this point; but it is certain that the assumption by the cells of new forms is never carried on except under the influence of free air.

That certain vessels of our body contain such seeds, we know from a very striking example—rennet, the interior skin of the calf's stomach which contains the spores of the lactic or butyric fermentation, and causes the curdling of the milk in so short a time.

These spores are very tenacious of life, dried, frozen, heated provided the temperature of 212° F. is not exceeded, they do not seem to suffer at all, and they retain the reproductive power for a great length of time: up to three years and even more.

From what has been stated, it follows that if you wish to preserve your butter and cheese without alteration, you must not expose it freely to the air, from which it might imbibe the *Pencillium*, the seed of the mildew, and thereby furnish to this seed a medium suitable to its development.

It is useless to add that the dessication or the proper salting of articles of food would protect them from the action of the seeds of the microscopic fungi, and frequently from the insects that infest them; for, in addition to their vegetable enemies, there are also animal ones, against whose attacks the products of the dairy must be guarded.

The insects that are known to prey upon butter and cheese are the *acari* or mites, and the *larvæ* of flies. (1)

I class butter and cheese together, though insects seldom attack butter because the brine protects it from their assaults; and when there has not been enough salt used, the microscopic fungi will be beforehand with the insects in invading the butter.

(1) *Larva*—a mask, or fause-face as the Scotch call it. Trans.

It is often remarked that all insects undergo certain metamorphoses, that, before entering into their perfect state, they must remain for a longer or a shorter term in the state of worms or larvæ. However, a great number of insects go through no such changes; they leave the egg in their most perfect form, that in which they pass their whole life, except as regards the growth in bulk which age naturally produces. Nearly allied to the insects are the Arachnidæ, to which belong the *acari*; such as lice, mites, moths, flesh-worms, &c., the kinds of which differ very much according to the species of animal or food they infest, and which are in general very numerous when they are met with at all. Horses, cows, sheep, dogs, hons, furnish examples of this. These parasites are generally called lice or mites. The name mite is particularly applied to those that devour our articles of food, such as sugar, flour, cheese, &c.; but the true name of these is:

*acarus*. The scientific name of insects is more important than may be believed; for it is by means of this name that you will succeed in gaining information from writers on the subject of those enemies—of whom you complain. And without the name, what guide have you in your researches? How can you even understand those savans who have especially devoted themselves to the study of these little beings. The common every day names often serve to recognize the insects in the books, but they often contribute not a little, owing to the variation of their local names, to divert us from the true path of investigation, and make us follow a wrong road. Thus, if you look for the word *Acarus* in the *Dictionnaire des Sciences* of Deschanelle and Foulon, you will find full information about the animalcules. Bescherelle's



RAM AND EWE OF THE BRAEWOLD FLOCK.

dictionary, too, will tell you something about them.

The *acari*, mites, flesh-worms (*cirons*) or moths, as they are called, are always very small; hardly visible to the naked eye. Nearly colourless as they are, and having no crustaceous skin, they are not distinguishable from the substances they frequent, such as cheese, flour, bread, &c. They differ from the true insects in having 8 feet instead of 6; and, in consequence, Latreille has placed them with the spiders under head of Arachnidæ. They are nearly related to the *Trombidia*, the small bright-red velvety spider, which we find so often on the ground in spring.

The cheese-mite has received from Degeer the name of *acarus domesticus*. This mite is distinguished from its neighbours by a pair of feelers, shaped like pincers. Some authors assert that this is the same mite that causes the painful skin-disease which we call the itch; but it is understood now that the latter is very different, both in its form and in its mode of life; its name, too, is different: *sarcoptis* (*sarx* in Greek = flesh. Trans.)

The cheese-mite is usually found on old and dried articles of food, as, bread, dried or smoked meat, preserves, &c.