

That some plants have the principle which will coagulate milk has long been known, but we have no record of extended experiments as to their application for the purpose of cheese-making.

SUBSTITUTES FOR RENNET.

Linnaeus says the solid milk of the Laplanders is prepared by pouring it, warm and fresh from the cow, over a strainer on which fresh leaves of the *PINGUSCULA VULGARIS*, or Turk's hose, have been laid. The milk, after passing among them, is left for a day or two to stand until it begins to turn sour. It throws up no cream, but becomes compact and tenacious, and most delicious in taste. It is not necessary that fresh leaves should be used, and even a small portion of the solid milk will act upon that which is fresh after the manner of yeast. The *PINGUSCULA* belongs to the family of Butterworts.

It will be seen from what I have said that the subject of rennet, in its relation to the coagulation of milk and cheese-making, offers a wide field for experiment and observation; and I hope the attention of cheese manufacturers will be directed to the matter, and that something useful may grow out of their investigations.

The souring of milk, when left at rest at ordinary temperature, is due, according to Hallier, to living vegetable organisms of the same character as mould fungus. The commonest forms of this organism are the thread fungus, designated by the mycologist as *odium lactis* and *mucor-racemosus*, while the latest observations have added still a third—*drityortilium macorides*.

Besides these decided vegetable forms, there are in milk also those lower forms that, by the scientists, are assigned to the animal kingdom, under the name of *monads* and *vibriones*. The chemical nature of milk, especially its higher nitrogenous element, when left to itself, makes a particularly favorable ground for a multitude of those vegetable organisms, which, under the name of mould fungus, originate through the decomposing influence of all organized nature. They are the parasites of organized forms, and, in order to perform a part so significant, their spores are carried everywhere in the atmosphere; and through numerous and different fungus, individuals can by this means deposit themselves on the surface of the milk. Their primary or original form

appears as yet to be milk in vessels for upon the wrinkled its small hollows (FIG. 1.) It was Hoffman, in 1865 development upon especially upon milk upon this form, whose connection affirmed. Both for but upon other *racemosus* is always known that the intestinal secretion *mucor-racemosus*—which is exposed who regarded the milk molds, *penic infesceus*. Yet to the confirmation for the normal development *glancum* (FIG. 5) Letzterer, in 1870 two to four inches recently been phy name of *dietyostel* nicated to the milk from the udder, to of this nature. the atmospheric a temperature. On third their content stream of carbonic to an hour, and to milk, after the growth but after two or