

way. Experiments in the cultivation of various English vegetables are, I believe, carried on at the School of Agriculture, and it would be interesting to know which of such are suited for the lowcountry, and whether they could be grown with profit by our goiyas. Now that the Alfred Model Farm at Kanatte has been given over to the School of Agriculture, we hope for great things in the future. The experiments hitherto carried on in the School grounds could now be extended, and the "will-it-pay" question fully demonstrated and established. A real model vegetable garden near the town of Colombo is a great desideratum. The Alfred Model Farm which is to be worked in connection with the School of Agriculture will, it is hoped, supply this want, and be the means of improving the quality of vegetables supplied to the Colombo market.

THE PREPARATION OF ESSENCES.

(Concluded.)

The preparation of essences is an industry of warm climes, for most of the plants which yield the material for its preparation thrive only in tropical or sub-tropical countries only. In Grasse, Nice and Cannes in Europe it is carried on to a more or less large extent. In India the natives extract essences from certain plants, and this is done at present generally in a crude way. The extraction of essence by expression is only feasible with such materials as contain a large percentage of oil. The skins of oranges, citrons and other aurantious fruits are examples. The parts rich in essence are subjected to pressure in specially constructed presses, when a mixture of the essential oil along with a large percentage of water is obtained. This is allowed to repose till the oily and light substance appears on the top when it is decanted off and the water thrown away. Machinery of various forms is used for the purpose of peeling the skins of the fruits in order to expedite the operation, but in whatever manner the peeling is done, the method remains the same. Distillation is of ancient origin, and up to a recent date only a crude form of still and condenser was used for the purpose; the still, generally made of clay, being heated by an open fire and the vapour collected and cooled in the other vessels. In manufacturing essences out of delicate plants, the interior of the still is divided into two portions by a diaphragm pierced with holes and the plants or flowers arranged over it whilst the lower partition is filled with water. When the still is heated the steam carries with it the essential principles of the materials thus spread, and is as usual collected in vessels kept cool. However good distillation may be in the case of certain plants and flowers, it does not answer well in every case, for there are certain essential oils which when subjected to a temperature of 100°. C. decompose easily, hence maceration has to be adopted in such instances. Maceration is performed by dipping the plants &c., to be treated in fine fat or oil and subjecting it to a mild heat, when the essence or the perfume is easily taken up by the fat. The essence is extracted from the scented fat by means of alcohol. This process is carried on in different ways according to the circumstances of the manu-

facturers, in some places highly complicated machinery being used. A means that will recommend itself to those who cannot invest in costly machinery is the cloth frame. The *Scientific American Encyclopædia* describes it as follows:—Upon an iron frame a piece of white spongy cotton cloth is stretched and then moistened with almond or olive oil: on the cloth is placed a thin layer of the fresh plucked flowers. Another frame is similarly treated, and in this way a pile of them is made. In twenty-four or thirty hours the flowers are replaced by fresh ones, and this is repeated every day or every other day until seven or eight different lots of flowers have been consumed, or the oil is sufficiently loaded with their odour. The oil is then obtained from the cotton cloth by powerful pressure, and is placed aside in bottles to settle, ready to be decanted into others for sale. Sometimes, thin layers of cotton wool, slightly moistened with oil are employed instead of cotton cloth. The native perfumers of India prepare their scented oils in the following manner:—A layer of the scented flowers, about four inches thick and two feet square is formed on the ground, over this is placed a layer of moistened *Sesamum (tala)* seeds two inches thick, and on this another four inch layer of flowers: over the whole a sheet is thrown which is kept pressed down by weights attached at the edges. The flowers are replaced with fresh ones, after the lapse of twenty-four hours and the process is repeated a third and even a fourth time when a highly-scented oil is desired. The swollen *Sesamum* seeds, rendered fragrant by contact with the flowers, are then submitted to the action of the press by which the bland oil is obtained, strongly impregnated with the aroma of flowers. The solution of a few grains of Benzoic acid in any of the oils materially retard the accession of rancidity if it does not prevent it altogether.

W. A. D.

EARLY PADDY AND ITS CULTIVATION.

[BY PRASANNA NATH LAHIRI.]

As rice is a very important article of commerce and is consumed by a considerable portion of the human race, a few notes on its cultivation, based upon the results of a series of experiments conducted by me in my own farm may not be uninteresting to your readers. It is said that paddy, as the rice husk is called, in its wild state, is a native of this country, and that its cultivation has been carried on here from time immemorial, to such an extent that Indian farmers have little or nothing to learn about it. An experienced and accurate botanist, Mr. C. B. Clarke, has said that the hereditary cultivators possess a marvellous intuitive knowledge in recognising the different forms of rice and, what is far more surprising, that they can pick up a handful of dry grain and affirm that it would be more suitable to a particular method of cultivation and soil, while they reject an almost precisely similar grain as unsuitable. With all their knowledge and intuition in the matter of the successful culture of this valuable crop,