

but one method of that simple character which is likely to become of value in the hands of an ordinary experimenter. It depends upon drying the milk on strips of asbestos paper over a sand bath at 100°-105° C. It can as yet hardly be said to have come into practical use.

Regarding the estimation of the fat, there are numerous methods, each of which has its special champions. Adams's method depends upon the absorption of the milk by bibulous paper. The details of the method can only be satisfactorily worked out by those who can enter thoroughly into the work of milk testing. Soxhlet's method of estimating fat, now much in vogue, is criticized by various chemists as to the trustworthiness of its results. It requires special apparatus and conveniences for carrying it out. What is of practical value, however, is the estimation by volume of the cream. It gives a rough approximation of the percentage of fat in the milk. The methods in use are based upon the natural separation of the fat globules on standing, and estimating the volume in a graduated cylinder. Chevalier's creamometer, a type of this class of apparatus, is a cylinder 20 cm. high and 40 cm. diameter. It has a scale graduated from 5 cm. at the top downwards. The milk is allowed to stand from 24 to 48 hours. A centrifugal machine is used in many cases, with advantages over the above. The lactocrite is a special apparatus of this class, which has special parts for separating the cream and reading the amount from a register. It is attached to a centrifugal machine which can be made to revolve at the rate of 6000 revolutions per minute. The milk to be tested is specially prepared by putting in an ordinary test-tube equal portions of the milk and of a mixture of 20 parts of concentrated acetic, and one part of sulphuric acid. The test tube is closed with a cork in which is fixed a glass tube, shaken, and heated for ten or fifteen minutes in a water bath with frequent shaking. This is now placed in special cylindrical boxes, arranged on so as to be revolved, and at a temperature of 50 or 60 C., they are revolved for three to five minutes. At the end of this time the fat has completely separated and its volume can be read on the divisions of the glass tube. It is estimated that with the lactocrite 48 determinations of fat can be made in an hour with only a difference of .05 per cent. between its results and those by the Adams's method (Blythe). Says Faber, "These

very favorable results are of importance as showing that in the lactocrite is at last found the long-wished for apparatus, possessing the two qualities not hitherto combined—simplicity of construction and working, and sufficient correctness for all practical purposes. The lactocrite will, no doubt, be found invaluable for butter dairies or dairy factories buying milk from different farmers, by enabling them to carry out the system of paying for the milk according to the amount of butter fat, which is the only fair system." The estimation of sugar is by evaporation of the water and extracting the sugar by alcohol. It is troublesome and has no practical value for the ordinary worker such as the Medical Health Officer.

The biological examination of milk has not yet been advanced to such a point as to have for the health officer any practical bearing.

#### CLIMATOLOGY.

Aiken (S.C.) as a Health Station.

Through the kindness of Dr. Malloch, of Hamilton, a member of whose family we are pleased to learn is obtaining much benefit from a residence during the winter at this southern health resort, we are indebted for a copy of Dr. W. H. Geddings' (Aiken) pamphlet on the above subject. The work is based upon observations, taken by Dr. Geddings during a period of five years, on the climate of the place. Discussing first the desirability of a study of climate in its therapeutic relations, and indicating its availability especially in chronic diseases, he refers to the height above the sea level as being a point of importance. Aiken differs from Colorado in its being only 500 feet above the sea level, thus making change from sea-level scarcely noticeable. In this regard it would suit well Ontarians, as here the level varies from 200 to 1500 feet. The soil is sandy and therefore warm and dry, while there are forests of pine extending about the town in many directions, both affording protection against the winds and influencing the rainfall. Regarding the second point of temperature, he points out what is now well known, that warmth is a variable term not depending in its subjective effects upon thermometric degrees alone, and states the important truth that "the figure of temperature representing the annual mean is perhaps the least important in forming an estimate of the comparative merits of different health resorts."