gravity of milk is known as the "Quevenne" lactometer. It is usually constructed as a combined thermometer and hydrometer (Fig. 1) and is constructed to give a correct reading when used in milk at a temperature of 60° F.

Fig. 1.

The scale on the lactometer is usually graduated from 14 at the top to 42 at the bottom and each of the twenty-eight (28) divisions between 14 and 42 is called a lactometer degree.

Fig. 2.

If the lactometer is constructed as a combined thermometer and hydrometer, the thermometer scale should be *above* the lactometer scale in the stem, so that the temperature may be read when the lactometer is at rest in the milk.

In taking the lactometer reading of milk, a glass or tin cylinder about one and one-half inches in diameter and twelve inches high (Fig. 2) is necessary. To be strictly accurate, the milk should be brought to a temperature of 60° F. and after carefully pouring the milk from one vessel to another a few times to distribute the fat uniformly throughout the milk, the cylinder is filled with milk to within about one and one-half inches of the top. The clean, dry lactometer is now gradually lowered into the milk in the cylinder until it comes to rest and floats steadily in the milk. The point on the scale which shows at the surface of the milk is at once read and recorded and is known as the lactometer reading (L.R.).

The Influence of Different Temperatures.

As pointed out above, as the temperature of the milk is raised above 60° F. (the temperature at which the lactometer is constructed to be used) the milk expands and becomes less dense; consequently, the lactometer must sink farther into the milk to displace its own weight. Since the lactometer scale is graduated from 14 at the top to 42 at the bottom, the lower the lactometer sinks the lower is the reading. On the other hand, as the temperature of the milk is reduced below 60° F. the milk contracts and becomes more dense and the lactometer does not sink as low in the milk to displace its own weight. This means a higher reading on the graduated stem than if the temperature was at 60° F.

In order to avoid the necessity of bringing the temperature of each sample of milk to exactly 60° F., the lactometer reading is usually taken at whatever temperature the milk may be, provided it is between 50° F. and 70° F. It will be found that if a sample of milk has a lactometer reading of say 30 at a temperature of 60° F., the sample will have a lactometer reading of approximately 29 at a temperature of 70° F. and of approximately 31 at a temperature of 50° F. From this, a rule for making corrections to the lactometer reading on account of the temperature being above or below 60° F. is deducted, viz., for each degree that the temperature exceeds 60° F. add $\frac{1}{10}$ or ·1 to the lactometer reading and for each degree that the temperature is less than 60° F. substract $\frac{1}{10}$ or ·1 from the lactometer reading.

For example, if a sample of milk shows a lactometer reading of 29·5 at 67° F., the correct reading would be 29·5 + ·7 = 30·2; and if a sample shows a lactometer reading of say 31·5 at 52° F., the correct reading would be 31·5 — ·8 = 30·7. This rule gives fairly accurate results when the temperature at which the reading is taken ranges