rich soil of the basin of Egypt.

Messrs. Editors, would you like a trip to the west—to visit the gardens of Chicago just as the cherry tree is sheeted with its mantle of white—pass south through the great corn zone, and feast your eyes on far stretching fields of thousands of acres of the springing blades—away down the prairie slopes into the basin of Egypt—drive among the fruit hills of the "Grand Chain," amid orchards laden with the young fruit and fields of wheat nearly ready for the harvest, and with the forest full-robed for summer? Come, and we will show you the prairie state in its vesture of vernal flora and midsummer splendor, *all in May*. It will be no tiresome ride over plains, across which the iron rail had just been laid, with the cabin of the emigrant or an impromptu village to relieve the grey setting of the prairie, and over which the autumn fires had gathered up the gifts of summer. It will show you the difference between then and now, and between the more exacting climate of the Lake region and the genial skies of the Valley of the Mississippi—between the semi-tropical products of the thirty-seventh parallel, and the hardy cereals of the north at forty-two.

M. L. Dunlap.

—*Country Gentleman.*

The Composition, &c., of Milk.

(*Concluded from page* 209.)

METHODS OF TESTING MILK.

It has been at various times suggested to m to consider whether a ready method of testing the quality of milk might not be devised. It is true that we have instruments—lactometers, as they are called—for ascertaining what is the quality of milk. But the instruments in use lead frequently to erroneous conclusions: they were based—most of them, at least, on erroneous principles. The common lactometer, which is in effect a float, like an ordinary spirit-float, when immersed in milk, indicates by its position the strength of that liquid. Milk which is more dense keeps the float higher: milk which is less dense allows it to sink lower. When water, therefore, is mixed with milk, the float will sink deeper. So it is said by those who constructed this description of lactometer. But there is one consideration which has here to be taken into account. It is this—that the butter in the in the cream is lighter than the whey of milk. Cream, I find by direct determinations, has a specific gravity of 1·012 to 1.019. It varies slightly. It is a little heavier than water, but lighter than the whey of milk, or skimmed milk. Milk rich in cream would, therefore, be lighter than milk poor in cream. By this lactometer an extra quantity of cream in milk is indicated in precisely the same way as an extra quantity of water. In short, this instrument, which measures the density of milk, furnishes very incorrect results. I cannot, perhaps, make this clearer to you than by giving one or two determinations. In testing the specific gravity of good milk, I found it as follows: 1·03 to 0·132. By skimming off the cream the gravity is increased. The lactometer, again immersed in the skimmed milk, now rises five divisions, and indicates 1 037. But if I take off from this milk the cream, and then put 10 per cent. of water to it, I get again precisely the same specific gravity which the new milk originally indicated, namely, 1 032 I believe that the commonest adulteration practised in large towns consists in people taking off the cream, and then if the milk be particularly good, adding a little water. This is not indicated by the common lactometer. Indeed, this was pointed out some time ago, and persons have in consequence sought to construct a lactometer on totally different principles. If the milk is put in a graduated glass and allowed to settle, some of the cream rises, and the quantity can then be read off. In good milk I find from 10 to 12 per cent. of cream by volume; in poor milk there is sometimes as little as from 6 to 7 per cent. of cream. Although this instrument (holding it up) does not give absolutely accurate results, yet it gives more useful results than I was first led to believe it would. It also gives results which are comparable. There are a number of tubes to compare the cream producing qualities of milk; and these might easily be put together in one piece of apparatus in a rack or box. I have here a case which may, if necessary, be filled with cold water. The tubes are graduated from the top, indicating the amount of cream which collects after the milk has been for some time standing. Temperature has, as is well known, an influence on the separation of the cream, but not so great an influence, as I find by experiments, as is generally believed. When the temperature is about 50 degrees, most of the cream is separated from the milk in from 18 to 24 hours. A small quantity only remains in the skimmed milk; about 7-10ths of a per cent. of fatty matter remains in it. However long you may keep milk at rest, it is impossible to separate the cream completely, but the greater portion separates in about 24 hours, and if the process be conducted at a temperature of about 50 degrees longer time than 24 hours will not separate an appreciably larger quantity of butter. I have kept milk in this instrument for 36 hours without getting a larger quantity of cream. The cream, however, is not quite conclusive, for the cream may get denser the longer it stands. It becomes denser when the temperature is increased; it diminishes slightly in quantity when the temp-