plenty of sunlight, generally produce more and better sap than shaded trees in the forest. Sap flows up and down very slowly, but not sidewise. In the spring the warmth of the sun or atmosphere expands the gas in the cells, and the sap is forced down or up and out of any aperture that may be made in the tree. The expansion and subsequent contraction has the effect of a force pump, causing the sap to flow back and forth. Deep tapping gives a larger flow of sap, but of poorer quality. Low tapping gives the largest amount of sap, and high tapping the sweetest sap. There is no difference in the quality of the sap on the north or south side of the tree. As the sap must pass from the branches to the trunk of the tree, there may be some advantage in quantity by tapping on the side of the tree containing most branches. Sugar sand is an inevitable compound in maple sap, and is formed by the precipitation of the carbonate of lime and the malic acid in the sap. The precipitation takes place where the sap is boiled to a density of 218 or 220 degrees, or eleven pounds to the gallon of syrup.

Average maple sap contains about three per cent. sugar, and the average-sized maple tree in Vermont contains about ninety-six pounds of sugar, consequently the tree cannot suffer much from judicious tapping.

All of the addresses at our meeting were intensely practical, and of much value to our sugar-makers.

ALPHA MESSER.

Maple Hill Farm, Rochester, Vt., Feb. 15th, 1900.

Tree Planting and Road Improvement

To the Editor of FARMING:

In a recent issue of FARMING you gave a very pretty country road view representing a side line somewhere in the township of Scarboro'. To my mind there is not enough encouragement given to that side of road improvement. Concluding your observations connected with the view given, you say: "This fine piece of tree planting has had its influence in the community, and the fronts of a number of farms in the same section are adorned with beautiful rows of trees, giving the whole locality a most beautiful and thrifty appearance." How could such a thing of beauty and taste and enterprise have other than an influence upon the community? But do you know that such a thing of beauty, aye, such a thing of utility and valuable climatic influence, is not approved by our authorized road improvement instructors?

That we have a magnificent country here in Ontario most of us are convinced, with pride. That we have the leafy foliage in shrub and shade tree in abundance to make it among the most picturesque and charming lands on earth, we are also convinced. But we are not encouraged to use our natural advantages, develop our tastes, and stimulate our love and pride of country in this direction.

When the road improvement movement was first started by Mr. Pattullo, of Woodstock, I, as another journalist, gave it a hearty seconder and suggested the importance of the picturesque side as well as the improvement of the road-bed. My suggestion was discouraged, on the ground that it would tend to injure the road-bed by shading it too long in the spring time and during wet seasons and thereby keep it damp. Whatever there may be in the argument I do not consider it sufficient to justify the neglect of beautifying all our highways with shade trees and thereby adding beauty to, as well as improving, the climatic conditions of our country.

It is true that the agricultural department offers some trifling encouragement to tree planting. But it might well offer more, and with its offer lay down some fixed rules or definite plan as to how they should be planted. I would not have trees planted along the roadside close enough to do injury to the road-bed by a too constant shade, nor would I advocate planting on both sides of the road. If the owners of the farms are pleased to do it for the beauty of the thing let them do it. But for concession roads running east and west I would plant on the south side; and for side lines running north and south, plant on the east side. The road commissioner would do just the opposite, since my plan will throw the shade mostly upon the road. Better to throw it there than into the farmer's fields and upon his growing crops. And I would never plant closer than thirty-six feet, and at this distance there will always be a sufficient breadth of sunlight passing between the trees to keep the roadbed dry, if the latter is properly constructed.

With such a system of tree planting encouraged and generally carried out, we would soon make of this splendid province of ours a thing of beauty and a joy to every citizen who inhabits it, or the stranger that passes through it. I value FARMING very highly for the excellent work it is doing, and was especially pleased to see it manifesting an interest in this, the picturesque side of rural Canadian home-life.

T. H. RACE.

Mitchell, Feb. 19th.

Commercial Fertilizers.

To the Editor of FARMING:

The letter from Mr. W. A. Topham, in FARMING, Jan. 30th, I presume is intended as a reply to mine of Nov. 7th, 1899, recommending Thomas Phosphate as a manure for clover. Mr. Topham has shown a spirit of cynicism in his letter which is very much to be regretted in a discussion of this nature. Besides recommending Thomas Phosphate on the principle for which it undoubtedly stands, I have seen and corresponded with lots of intelligent farmers who have successfully demonstrated the principle in using it. I can point to a farm where 5 tons were used last year and 8 more since purchased for this. I can point to a man who bought half a ton four years ago and this year has already purchased 150 tons for himself and his friends, after using it for various crops and in connection with clover. I fully recognize that the reports of practical agriculturists on manurial subjects are seldom of much practical value unless we know and carefully weigh all the attendant circumstances in detail, but when once we recognize a scientific principle one can gauge the effect of this or that plan of applying it to practice. But I must point out to Mr. Topham that to carry on a profitable discussion he should stick closely to facts and not speak of the only letter of mine recommending Thomas Phosphate which he ever read, as if it were one of a number.

Mr. Topham pointedly asks why Thomas Phosphate should be recommended so much when it does not contain either ammonia or potash, and its phosphoric acid is not soluble in water. This, no doubt, is a stumbling block to more than him, and yet there are abundant evidences published continually proving the superiority of Thomas Phosphate over mixed fertilizers or superphosphates and bone meal, if the results are taken over a period of years. It is on the field and in the crops a fertilizer must be judged on its merits, and not in the laboratory. This principle applies to soil analysis as well as to fertilizer analysis. But let us get to the Government bulletin which Mr. Topham suggests that farmers consult. He refers to page 25 where an analysis of Alberts' Phosphate shows a total of 15.35 per cent., but he fails to remark that the phosphate as sold tested worth $1.30 more than the standard sample. He does not point out, as does the chief analyst in his report, that the values given are only relative and have no regard to the origin of the fertilizer in particular. The chief analyst carefully points out that the laboratory method does not distinguish between the phosphoric acid of bone meal, rock phosphate and Thomas Phosphate. The same principle, I presume, applies in estimating nitrogen which may originate from poor tannery refuse or more valuable forms, in which the nitrogen is much more valuable to plants. Further than this, I understand that the methods of analyzing Thomas Phosphate found to correspond best with the action of the soil and plant roots upon it as now used by eminent agricultural chemists have not yet been adopted by our government laboratory. I say freely, that