have done it and draw from you questions and discussions and, I expect to learn from somebody in this audience several things I did not know when I came here.

This is your meeting, and to the extent that you enter right into the discussions, ask questions and call out the knowledge of the speakers and your neighbors, just to that extent you will be benefited. I might sit here an hour and listen to some of these gentlemen talk, and they fail to say just exactly the thing that I want to know about, or that that man over there wants to know about, but a single question may be answered in a minute and give us just the information we want.

I thank you again for this welcome and for the large attendance at this first meeting, and I sincerely hope that the attendance and interest will increase in this meeting as we progress.

CLOVER AS A FERTILIZER.

By T. B. TERRY, HUDSON, OHIO.

It is a well-known fact, to farmers who raise clover, on soils where it grows well, that their land will bring a larger crop of wheat after clover, even if the hay is all removed and no manure returned, than it would before the clover was sown. Now here was fertility got from some source. Whence was it? Directly from the plowing under of the clover roots or sod. But where did the clover roots get it? And why could not the wheat have got it just as well? According to our best present knowledge, to put it in simple terms, clover is able to get more nitrogen from the soil than the wheat could. Then when we plow under the clover sod it decays and furnishes food for the wheat.
The clover is a sort of scavenger or coarse feeder as compared with the wheat. Again the roots of clover run down some feet and have the power of pumping up fertility to the surface where more shallow feeding crops can get hold of it. The clover root is much the largest at the surface or for the first six or eight inches, hence most of the material that it has taken to grow the entire root is left where the root decays in the surface soil.

Whether clover owes all its value as a fertilizer to its ability to act as a scavenger and to its power to go down and bring up from the subsoil fertilizing elements that have leached downwards is a much discussed but not entirely settled question. Scientists disagree somewhat on this point. However, the bulk of testimony at present is that it does not get much of any nitrogen from the air. Dr. Lawes says, however, that it is likely to be a subject of inquiry for a long time before the final solution of the problem will be arrived at.

He also says if it should be ultimately proved that the nitrogen of the atmosphere played any important part in furnishing the nitrogen taken up by the plant, it is more probable that the nitrogen enters into combination with some ingredient of the soil, then that it is directly assimilated by the plant itself. This was written by Dr. Lawes in the Country Gentleman for March 17th, and shows that our highest scientific authority stands on the fence ready to jump down on the winning side. In other words, he is not sure that clover does not get its nitrogen from the air.

Clover Tops.

I have spoken only of the roots of clover as a fertilizer. The tops are equally valuable. Probably there would not be much difference in the dry weight between the roots on an acre and the hay. The roots are only valuable to plow under for a fertilizer. But as the tops make choice hay it will usually be wiser to use them for this purpose, or to feed them off in the field with cattle or hogs. The manure, if
carefully saved, may contain about eighty per cent. of the fertility that was in the hay. Under some circumstances it may be wiser to plow under tops as well as roots to furnish fertility for other crops. This will depend on relative prices of different crops, also on distance from the barn to which hay must be drawn and manure returned. Each farmer must figure this out for himself. Clover is sown with your grain this year; next year it brings a big crop, and in the fall it will have arrived at its maximum as regards root growth. Either then or the next spring it should be plowed under for the most valuable results, and some other crop put on to make use of the fertility stored up in its roots. The heavy growth and hence shading of the ground by the clover, undoubtedly helps to make the land more fertile afterwards. Those who have tried pasturing clover and mowing it side by side tell me the mowed land is decidedly the most mellow and productive the following season. This may be owing to the shade from the mowed crop or because the land is not packed by the tramping of pastured stock. Secretary Bonham has found by trial that the root growth is far greater where the field is not pastured at all. I know of parties who have kept their land up in productiveness for twenty years or more by raising clover once in three or four years and simply plowing under the roots, all the hay and grain crops being removed, but I would not advise any such treatment.

Feed out the hay and save all the manure carefully, and feed purchased wheat bran and oil meal with the straw and fodder as far as you are able to. If you have good land you may depend on clover mainly as a fertilizer for a time to get you out of debt or to build you some new buildings; but do not depend on it too much until we know the nitrogen does come from the air. I speak strongly in favor of clover because it helped me out of a tight place. I bought a run down farm, and do not see how I could have done the half that I have without its aid.
The Best Clover for Hay

For hay, the medium clover is best. For plowing under as a fertilizer, the mammoth is considered better. We hear of clover sick lands. Yes. You will hear of more than you will find. Where you will find one acre that is clover sick, I will find you 1,000 sick for the want of clover. Sow it once in three or four years, in your rotation, and never worry about clover sickness. Land gets sick of wheat or most any crop if raised too continuously.

Did I own a farm in Wisconsin that had been rather run down from improper management, my first step towards better things would be to sow clover seed if it would grow, and there are few soils where it will not.

I have heard those who plow under clover for a fertilizer, saving none of it for hay, argue something like this: The use of that land for a year, that is, the interest on the value of it, is $5. One dollar more will pay for clover seed and sowing. This is $6 an acre. Plow the clover under when full grown and it will grow a big crop of corn and wheat, I cannot fertilize in any other way as cheaply.

On some farms, perhaps not. If one had a good silo I think he could so reduce the cost of securing the clover for feed, that it would nearly always pay better than to plow it directly under. In conclusion, I can not better express the matter than in the words of friend Faville, who was asked at an institute last winter the essentials for renovating a worn out farm. He said there were three: The first was clover, the second, clover; the third, clover.