

soil richer in nitrogen than it was before they were grown. Such plants, therefore, must have some other supply of nitrogen than that contained in the soil. Investigation has shown that certain forms of bacteria are associated with the roots of the plants mentioned, and that these bacteria act upon the nitrogen of the atmosphere which permeates the soil, changing it into forms which are suitable for plant food. Thus the lowly organized bacteria perform very important functions for their more highly organized neighbor, and no doubt receive certain friendly offices in return. Strange to say, these wonderful and important little plant-food manufacturers are found associated only with the roots of leguminous plants, such as clovers, peas, beans, lupines, etc. Why they refuse to live with other plants, is not known. Upon the roots of a healthy clover plant may be seen minute rounded bodies, called nodules or tubercles, which are in some way connected with the operations of the bacteria. Thus may be seen the wonderful importance of leguminous plants, especially clovers, in the work of maintaining and increasing the supply of soil nitrogen.

It is also claimed that other bacteria exist in the soil, which perform work similar to that just described, but which are not found associated with the roots of any plants. Their existence is perhaps doubtful: at best, their work is not well understood.

It would be interesting to trace the application of the facts which have been so hurriedly noted; but this paper has already extended far beyond its proper bounds, and the reader must be left to piece out for himself the important practical lessons to be learned from a study of the wonderful operations which are carried on in this small corner of Dame Nature's workshop.

G. E. DAY.

College Patronage.



THE ATTENDANCE at the Ontario Agricultural College this year being somewhat less than it has been for some years previous, to all true friends of the College comes the anxious question, What does this mean? It is the purpose of the present article to find an answer to this query.

The decrease in attendance is, without doubt, caused, directly or indirectly, by hard times. While the population of country districts and of small towns is decreasing; while business men are failing, profits diminishing, and the value of property lessening year by year; while commodities that were considered necessities ten years ago are looked upon as luxuries to-day; while other Colleges, in diminished attendance, are feeling the pressure of hard times very keenly, and some have even been compelled to close their doors; while such a state of things is universal, it is to the Ontario Agricultural College a matter for congratulation that she has so well escaped the effects of the present stringency.

But she has not altogether escaped. The hard times are beginning to tell, even here. And now is the time for her to decide what part she is to take in the future of Ontario. Is the Ontario Agricul-

tural College to be classed as a luxury, which in the present financial depression the farmers of Ontario must forego, or as a necessary part of their equipment; made more and more necessary by the present condition of affairs?

What is the College doing for the country at large and for this Province in particular? Her work is two-fold. By a laborious series of experiments in grain, roots, etc., carried on by the College experimentalist throughout the summer season, by an equally laborious and exhaustive series of tests in milk and cheese carried on by the College chemists; a great deal of invaluable information has been gathered and will be given to the farmers of the country. But that is not all even along the line of outside work. The College entomologist, the horticulturist, the agriculturist, the professors of dairying and veterinary science, the farm superintendent, and the manager of the poultry department,—all these are being called upon continually by the fruit and grain growers, the dairymen and poultrymen of the Province, to give expert advice in their respective departments. It would not, therefore, be unreasonable to say that, in this department of usefulness alone, the College has become indispensable.

But, great though its usefulness in this respect undoubtedly is, this work is only secondary. The primary and most important work of the College is to teach sound, practical, scientific principles to the young farmers of the Province. In the early pioneer days, men could afford to neglect scientific principles of agriculture, because of the great potential energy of the virgin soil. But that energy has been proven to be not inexhaustible, and now farmers are most concerned to know how to restore that energy so lavishly wasted, or, at least, how to prevent any further waste.

To teach these and kindred principles, is what the College professes to do. And now, while farmers on every hand are waking up to the necessities and demands of the new order of things; while Farmers' Institutes, Dairymen's, Fruit Growers', Sheep Breeders' and Swine Breeders' Associations are becoming more and more the order of the day; while thus men shew that they see the necessity of an interchange of thought and opinion, and experience; men must also see that if the farmer of the future is to be master of his business, he must seek that special training and equipment which an Agricultural College alone can give. And the stringency of the times, in which success in any department demands the most thorough preparation, makes a College course all the more necessary. Trusting, therefore, in the sound good sense of the farmers of this country, and knowing that they will rise to meet the demands of the times, the College has no fear for its future, either for its popularity or for the extent of its patronage.

J. B. REYNOLDS.

The faculty of Ohio Wesleyan University has decided that hereafter all students of that institution must abstain from the use of tobacco in any form.