

turned in to the hay stack,—“Shure, if she aits it, she'll aither give milk or die.”

The season, as a whole, had been favorable, and the members had secured a fairly good crop of honey. J. E. Frith, of Princeton, had suffered considerable loss by the tornado which visited his locality.

The adjournment, to meet in May, brought to a close a very good and profitable gathering.

J. E. FRITH, Secretary.

FOR THE CANADIAN BEE JOURNAL.

THE FOUL BROOD BACILLUS (*B. ALVEI*); ITS VITALITY AND DEVELOPMENT.

READ AT THE FOURTEENTH ANNUAL MEETING OF THE ONTARIO AGRICULTURAL AND EXPERIMENTAL UNION HELD AT ONTARIO AGRICULTURAL COLLEGE, GUELPH, ONT., CANADA.

By J. J. Mackenzie, B.A., Bacteriologist of Prov. Board of Health, Ont.

GENTLEMEN,—At the request of your secretary, Mr. Holtermann, I undertook for your Union some investigations on the subject of foul brood, the results of which I purpose giving you in this paper. Although it is almost a year, now, since I undertook this work under the auspices of the Agricultural and Experimental Union, it is by no means exhausted, and there are many points which require to be further elucidated, which I have not had time as yet to touch on, owing to the fact that investigations on foul brood had to be carried on simultaneously with my regular laboratory work. These points I hope to work at next summer, and reserve the privilege of reporting again to your Union on the results of further investigation.

The subject of foul brood is an old one to apiarists, and an intensely interesting one to Canadian beekeepers; but in reading over the Bee Journals one cannot help being struck with the great want of unanimity amongst beemen as to the disease, how it should be treated, how it is spread, and on many other points. Some would have us believe that the disease arises *de novo* whenever unsanitary con-

ditions prevail; others claim that there is a specific infection, and where the disease arises it must have originated from previously existing disease; some claim that the honey is the only method of transmittal, others that it is not, and so on. On every point there seems to be plenty of arguments *pro* and *con*.

I have attempted in my work to take hold of some of these controverted points from a bacteriological standpoint in order to aid in coming to some definite conclusion. Some of these points I should consider settled from the results of previous investigation, but as many beemen do not seem prepared to accept this, my work will have value as confirming what had already been done.

Before an association which includes many practical beekeepers, it would be superfluous to enter upon a minute account of the clinical features of the disease. Most of you know them better than I do. I certainly would not be prepared to “spot” foul brood in an apiary, although I certainly think I can under the microscope. The infectious character of the disease has been generally accepted for many years; but not until Cheshire and Watson Cheyne worked it out scientifically, was it definitely proved. They isolated bacillus (*Bacillus alvei*) which they found in the diseased brood, and which they cultivated on nutrient media for many generations, finally re-infecting perfectly healthy brood from these pure cultures. This evidence to a bacteriologist is absolutely conclusive that bacillus *alvei* is the specific cause of foul brood. Consequently, when I began my investigations on some samples of diseased brood which were sent me through Mr. Holtermann, I looked at once for bacillus *alvei*; microscopically and by means of bacteriological methods I had no difficulty in isolating a bacillus which corresponds in all points to bacillus *alvei*. It is a bacillus similar to that of Cheshire's in size, produces spores which are somewhat thicker, giving the bacillus a clubbed appearance. On agar jelly it grows rapidly, so as to cover the whole surface. In gelatine its growth is very