case so long as it continues to live, it feeds upon itself. The excretions which contain nitrogen are necessarily formed at the expense of its own body, whence it has rightly enough been observed that a starving sheep is as much a carnivore as a lion."—(Elementary Lessons in Physiology, 8th ed., p. 136.)

Prof. Foster says: "The characteristic feature of protoid food is that it increases the oxidative metabolic activity of the tissues, leading to a rapid consumption, not only of itself, but of non-nitrogenous food as well."—(Foster's Physiology, 2nd American ed., p. 599.)

On page 570 Prof. Foster says: "When an animal is fed simply on non-nitrogenous food, death soon takes place; the food rapidly ceases to be digested and starvation ensues."

The foregoing statements are verified by the experience of practical bee-keepers. Prof. Cook says: "I received bees from James Heddon, victims of the cold winter, which were fed entirely on sugar syrup. In these bees we find the syrup so entirely undigested that the characteristic sugar odor and taste is very marked. They died of indigestion." (*Gleanings*, 1885, p. 235.)

When bees, wintered entirely without pollen, have lived till spring their bodies were so reduced in size by their "feeding on themselves" as to be plainly noticeable. James Heddon says: "We prepared 45 colonies without a cell of pollen. During the examinations in early spring the first cover I raised my assistant exclaimed: O! what lean looking things." (*A. B. J.* 1884, p. 405.)

The above statements and experience give a negative answer, once for all, to the question, Is the pollen theory scientific?

S. CORNEIL.

Lindsay, 26th April, 1886.

We have pollen in all our hives and we find temperature to be of the greatest importance in connection with wintering, and pollen of very little, except for brooding purposes in spring.

FOR THE CANADIAN BEE JOURNAL.

DEAD BROOD AND FOUL BROOD.

ON page 69 of C. B. J., I notice that Mr. A. W. Osburn goes *rather strong* for me because I said, on page 748, that in Query No. 52, page 664, we have a case of chilled brood, which, I know from experience, will sometimes cause foul brood, and that I have known foul brood to be by the rotting of the uncared for brood, which is the real and only cause of foul brood. I also said never to put dead brood of any kind in a bee hive.

For the sake of your new subscribers, which have not seen Query 52, I will give it here, and it will also be found in the C. B. J. of January 13, 1886, page 664:

Query No. 52.—"In the spring it sometimes happens that combs of deceased colonies—or even weak living ones—contain dead brood, and upon removing the capping the contents of the cells are found to be a brown colored thick liquid substance. How is this to be distinguished from foul brood? and (2nd) how should combs containing such be treated?"

If Mr. A. W. Osburn will read the answers to the above Query No. 52, from fifteen of the best bee-keepers in the world, he will see that only two out of the fifteen would use such combs as found in Query 52. If I wanted to start a good foul brood nursery, I would want my hives so very weak that they would be in very poor condition, then I would fill them full of such combs as found in Query 52. Then by keeping the hives in a very poor weak state, I would be able to produce the genuine article, foul brood.

Bee-keepers that have never seen foul brood should send eleven cents to D. A. Jones for his pamphlet on foul brood.

WM. MCEVOY.

Woodburn, April 26, 1886.

There is a mild type of foul brood or something approaching it which is often taken for the genuine foul brood, but we believe it is now the opinion of most of our scientists that foul brood cannot be started from decaying or dead matter. It seems to us that a large amount of decaying brood in a hive must be injurious, but whether or not it would start the genuine foul brood has not yet been fully determined. Further experimenting in this direction might be useful. We once placed a nucleus over a hive containing nothing but dead and dying larvæ, and allowed it to remain for a long time. The stench from the decaying matter in the bottom of the hive was almost unbearable; in fact we began to fear that the nucleus would contract some disease even more loathsome than foul brood, but after setting for weeks no bad results occurred. It would be well to experiment further in order to prove the matter conclusively. For this purpose it would be better to take brood from a hive that had no traces of the disease. Drone brood might be taken without much loss, and if collected in sufficient quantities the matter could be pretty thoroughly tested.