covered with about one inch of soil ; if the soil is dry it may be covered a little deeper. As soon as the plants are well up the weeds should be cut with the hoe or cultivator, and when the plants are about two or three inches high they should be thinned to about ten inches apart; the after cultivation should be sufficient to keep the ground clean and free from weeds. The soil should not be drawn away from the plants as in turnip cultivation.

LUNENBURG AGRICULTURAL SOCIETY.

At a meeting held on the 18th December, 1878, the following were appointed officers for the present year, viz. :—Capt. William Young, *President;* Robert Lindsay, *Vice-President;* John Morash, *Treasurer;* James J. McLachlan, *Secretary;* C. E. Kaulbach, for Central Board.

Directors—Dr. Charles Aitken, John Bailley, sen'r, John Anderson, jun'r, E. L. Nash, Andrew Rodenhiser.

CAMPER ON CATTLE DISEASE.

TRANSLATED BY ROBERT MORROW, ESQ.

(Continued.)

OF THE SIGNS OF CURE AND OF DANGER.

After having heard the symptoms of the disease spoken of, it is natural that you should be curious to know what are the signs of convalescense and of cure. But I have little to say upon this subject. The pestilential sores and eczema (F. gale) which some have observed, are in my opinion very uncertain characteristics. The large quantity of ichorous matter which runs from the nostrils and the eyes, as well as the violent stools, likewise deceive and take place also with those which die. The only and true signs of the convalescense of the animals are when they begin to eat and to ruminate, when the cough decreases, and that from time to time they cough without difficulty. But the desire to eat, which is always feeble at the beginning, may lead to error. Death is certain when the stomach of the animal swells much ; and it is the same when the froth which I have found in the trachea begins to flow from the nose and the mouth. It is possible that they do not die until the eleventh day. I look upon the disease as dangerous as long as they moan, and allow the head to hang and do not ruminate. When they are convalescent, the horns and ears return to their natural heat, because the fever leaves them ; and they then begin to move insensibly the tail and the ears.

Abortion proves nothing, because there are some instances that cows with calf have retained their fœtus ; but these calves are susceptible of being affected with the disease. However, we notice, in general, that calves dropped by cured cows also escape death, or at least there is some hope that this may be the case. In addition, I do not know any sign which may serve to point out that an animal has had the distemper ; for the loss of the tuft of the tail is not a certain proof of it, though some look upon it as such. All the cattle struck with the distemper, which I have seen escape death, have, one only excepted, preserved this tuft of hairs ; and the others lost it in consequence of lying upon it; this mark, although it may sometimes be sure, is very deceitful with such animals. Therefore it is only the honesty of trade which can serve as a guarantee in this respect.

OF THE CAUSES OF THE DISTEMPER.

I pass now to the most difficult part of our researches, to the causes of the distemper. All that I have said up to the present time, we have learned from our own observations or taken from the writings of others ; but who can flatter himself that he may be able to seize upon the secret cause of this contagious virus, which the Supreme Being has been pleased to conceal from our knowledge ? I will follow then the example of Cicero, who, before speaking of the Gods, chose rather to confess his ignorance of their origin, and left to posterity the trouble of making this great discovery.

Some consider as the principal causes of this disease, severe winters, checked perspiration, worms which during certain periods lodge in the blood or in the liver, and lastly corrupt food, of whatsoever nature it may be. I will speak here only of the physical causes abandoning to our theologians those which belong to the moral.

Some have looked upon severe winters as the cause of the contagion, because it was in 1710, after the winter of 1709, that they observed the mortality of the horned cattle, and that that of 1740 was followed by the contagion of 1741, which spread itself very far ; and not to speak of many others, that which prevailed in 1768, after the rather severe winter of 1767. But we have no sufficiently exact observations upon this disease before the year 1711, as I have already said. It must also be remarked that it prevailed for the first time, and with the greatest violence in the southern parts of Europe, in the mountains as much as in the low and cold countries. The great winter of 1727 was not followed by the contagion, so it seems that the great cold or mildness of the winter contributes nothing to it ; this will appear the more evident if we add to it that according to the testimony of the irrevocable Goelicke, (ibid præf. 1, or page 715) the contagion did not cease to prevail in Germany from 1717 until 1730, but that it always made ravages there, either in one part or in another.

Others among whom must be counted M. Engelman,* think that it ought to be attributed to checked prespiration, and that the horned cattle should be covered during the autumn nights, and bedded in the stable during those of spring (ibid., page 312 and 313), etc. Supposing that this was true, the contagion should prevail less, or even not at all in Guelders, in Veluwe, in the Province of Drenthe, and elsewhere, where in order to save the manure, they keep the animals in the stable during the night, as much even during all the summer as in the spring and autumn.

However, according to the observations which the learned and estimable M. Van Lier has been pleased to communicate to M. Van Doeveren and me, it is certain that this has not caused any alteration in the Province of Drenthe. M. Van Doeveren, brother of my colleague, has written the same thing of Dutch Flanders ; and M. De Man, doctor of the town of Nimeguen, has done me the honor of informing me at my request, that in the district of Cleves the cattle generally remain in the stable during the night, and that nevertheless the mortality has there been considerable, having commenced during the summer of 1767, at Hoog. Elten, from whence it spread itself by slow degrees towards Betuwe.

But supposing that this was true, how is it then that there has been no mortality in Switzerland ? where, according to M. Engelman himself (ibid., page 314 and 315), the contagion is not known, although the great Haller of Berne replied to me, the 14th January, 1769, upon some questions which I asked him, "That the horned cattle pass the night in the pastures as long as the season permits." From whence we must conclude that the building of sheds in the meadows, in order to shelter the cattle at night, would be of no service.

Some philosophers have attributed the cause of the distemper to worms which reside in the blood ; such was the opinion of Kircherus, of Bernardino Bono, of Andry, and particularly of Vallisneri,† upon the occurrence of the distemper of 1713. But all the hypotheses of men have only a season ; at this period they ascribed all diseases to worms, in the same manner as the chemists have attributed all to alkalies and acids. They should begin by showing that these worms really exist in the blood, in order to reason after upon it at ease. It is the same

* Harl. Verh., tom VII., page 297.

† Nuova idea del mal contagioso de'Buoi tom II op. omnia, page 12.