lactic acid fermentation. For the same season, it won't do to mix much cake mucilage with other food, and to let it be a long time. If soon consumed after the addition of the cake really, no harm is done; but if left too long after the addition, incipient putrefaction and mould, both of which are highly injurious to the preparation of cattle food, become perceptible in the mess. The more nitrogenous matter in the material employed, the greater its tendency to putrefy. When malt combs are soaked in water and then mixed with chaff, lactic acid is readily formed if there is sufficient water present and the temperature is sufficiently high. Sugar, in the presence of much water and a sufficient quantity of albumious matter, becomes changed into lactic acid—an acid which has the same per-centic composition as milk sugar itself. Too much or too little albumious matter is alike unfavourable to the production of lactic acid."

Mr. Frere stated that he gave each of these animals every day "11b. of malt combs, 3lbs of linseed, 2lbs. of cotton cake, 3lbs of bean meal, 2lbs. of carob or locust bean, 21lbs, of mangel wurzel, and 8lbs of straw." His impression was that there were more economical modes of preparing food for cattle than by boiling.

Mr. Lawes did not think there was any saving effected by cooking food for cattle, if the increased labour and cost of fuel were taken into consideration; nor did he believe that although the use of cooked food might produce a greater quantity of meat than dry food, that the increase of meat produced by the former mode was as valuable as that which was produced by the latter, although less, perhaps, in quantity. Meat produced by the use of cooked food was not satisfactory to the consumer, as it "boiled away," because all animals as they fatten have a certain amount of water displaced; that is to say, they contain less and less water as they approach "ripeness" when fed on uncooked food; while the water in the flesh increases, as well as the fat, instead of being diminished, when the food given is cooked, and he illustrates this by the following statement:—

"Some time ago he fed one animal on steeped barley and another on dry barley, with a view of testing the merits of the two systems of feeding. The animal which was fed on the steeped barley increased very fast, while the increase in the case of the one fed on dry barley was comparatively small. They were both killed; the loins and other parts were cooked on the establishment, and it turned out that there was much more fat in the former than in the latter."

Notwithstanding his own opinions as to the relative value of meat produced by cooked and uncooked food, Mr. Lawes considered that sufficient facts were still wanting to enable any one to speak confidently on the subject; but, on the whole, he thought that cooking was only valuable when food was exceedingly scarce.

Mr. Dent spoke in favor of pulping, having known many gentlemen who had given up the use of cooked food, but none who had abandoned pulping after having once tried it. He was anxious to learn, however, whether the pulped food should be given fresh or in a state of fermentation; also as regarded store beasts, the best proportions of roots and chaff; and whether it was most advantageous to mix dry food or oil-cake with roots and chaff, or to give them separately. He further stated that he had found the use of malt combs profitable in the case of milch cows, as the yield of milk fell off whenever the supply of malt combs ceased, and improved when this description of food was again given to the cattle. Mr. Dent's enquiry as to the propriety of giving the pulped roots in a fresh or fermented state is one of much practical interest, and Mr. Lawes' reply on this point was as follows:—

"It must be borne in mind that all fermentation was the combustion of that which was the most valuable of all the elements of food, namely carbon. An animal would eat till he had got sufficient carbon in his stomach, and then stop. Carbon was the measure of his feeding powers; he stopped eating when he had enough soluble carbon. That was the first substance that would disappear during fermentation; and therefore, he did not think it likely that there was any economy as regarded food in a process of that kind."

Mr. Lawes was, therefore, in favour of giving the pulped food in a fresh state, as

"There was a great risk of fermentation proceeding too far, and he thought many persons had given up the practice of mixing and pulping food, and keeping it in heaps, from the very fact that fermentation went on too rapidly.—Even if it did not putrefy, they lost the most valuable elements of the food."

Mr. Frere having asked for information "as to the influence of food in which incipient fermentation was commencing upon the work of digestion," Professor Simonds referred to this point in the first place, when pointing out the physiological view of the question, which he did in the following manner:

"As regarded the question as to whether the commencement of putrefactive fermentation was likely to interfere with the process of digestion, it was well known that the food of carnivorous animals was consumed chiefly when in a state of putrefaction; but the antiseptic powers of gastric juice were so strong that it was rendered sweet at once. The gastric juice of carnivorous and herbivorous animals did not differ, so that the same action would take place with reference to the consumption of food in which putrefactive fermentation had taken place. He did not, consequently, consider it likely to interfere with the digestive powers of the animal. His opinion with reference to all these matters was that they dealt too much with chemistry, and not