expended in maintaining its heat. However, we all know that confined milch cows never yielded so well-flavoured butter or cheese, as those which are unconfined. Cows living in a natural state eat what they like; stall-fed cows eat what they get. Owing to this cause, the Dutch cheeses have nearly been driven out of our market by the American. In Holland, stall-feeding is the common practice; hence is the produce less palatable than the American, in which country, land being cheaper, the practice is unnecessary. There can be no question about the utility of stall-feeding, but I very much question whether close confinement is equally beneficial with a confinement allowing of some gentle exercise. When the weather is warm, cattle may pasture in the meadows without loss to the agriculturist. The air is then nearer the temperature of their own bodies, besides being more expanded. The animals feel no call for exertion to keep themselves warm, and the gentle motion necessary in the seeking of food, by increasing the healthy state of the body, enables them not only to eat more, but to assimilate better what they do eat. In winter the case is materially altered. The temperature is far lower than that of their own bodies; the air, too, being more condensed, contains a proportionably larger quantity of oxygen. Therefore, *more non-nitrogenized food will be required to combine* with the excess of oxygen; indeed, as we all well know, more food will be required than in warm weather. Here, the peculiar advantages of stall-feeding come to our aid. You will perceive that warmth produces a saving in food; it is indeed an equivalent for food. Everything that cools the body of an animal, causes a proportionate expenditure of food. In stall-feeding, the temperature of the air of the stalls should be equally maintained, and they should be kept clean. The animals should be regularly fed, have plentiful litter, and be kept clean. If, as we have already said, warmth is an equivalent for food, it is obvious that the form in which the food is given cannot be immaterial. The more we facilitate the adaptation of the food for the organs of digestion, the greater will be the saving to us. The farmer cuts up his hay, straw, and turnips to save some expenditure of force, hence of food, by the feeding animal. If the food contain much water of a temperature far lower than that of the animal, it *must be raised to that temperature at the expense of a* part of the food. This is obviated by the process of steaming. An ox, fed by Earl Spencer, consumed in a winter month (the temperature of the air 32°), 60lbs. of mangold wurzel a day. Now, in order to raise the temperature of the water of the mangold murzel to the temperature of the body of the ox, no less than one-twentieth of the food was expended. All feeders of pigs know that they thrive better on dry than on wet fodder, (Mr. B. sat down amidst great applause).

The Chairman then proposed "The healths of Mr. Stokes and of Mr. Allen," who made a few observations on the advantages of giving artificial food to animals in the straw yard. He had himself given oil cake to cattle, and found it to remunerate him.

C. Stokes, Esq., rose to give his testimony to the principles laid down by Mr. Rawson and Mr. Bernays. He could fully bear out Mr. B.'s remarks on stall-feeding.

Mr. Smith wanted to see science brought forward in connexion with agriculture. "We want," he said, "something definite and distinct on the formation of fat and muscle." He wanted defined what would produce most fat, milk, and cheese; and he hoped to provoke one of the gentlemen present, to rise and define it. He hoped they would give them the kind and quantity of food to produce them.

Mr. C. W. Wood, surgeon, of Woodhouse Eaves, said he would direct the few remarks he had to make exclusively to the expressed object of the meeting, namely, the feeding of cattle; and he viewed that as the most important matter with which the practical farmer had to do; in short, his whole life and exertions tended to produce the greatest possible quantity of beef and mutton—if not in the shape of fat cattle, his supply of grain only produced the same effects in man. But before we talk of producing, it is necessary to ascertain correctly what it is we want to produce. All animals are composed of bone, muscle, fat, cellular tissue, wool, hair, horns, skin, and nails, and we find these very substances ready formed in vegetables, the power of nutrition in the animal having *nothing to do but select them from its food, and by means* of the circulation to place them where they are wanted. If your object be, as in the young growing animal, to increase as well as to sustain it, you choose those vegetables which contain a large muscular fibre, or nitrogen and phosphate of lime for the bones, such as peas, beans, oats, barley, &c. If with a full grown animal, your object be to sustain its condition with an increase of fat, you give those vegetables which contain fat ready formed, as lentils, Indian corn, oil cake, &c. But as you have generally a mixed object in view, namely, to produce bone, muscle, and fat also, you must necessarily give a mixed food—the operations of which I will now explain. The composition of the animal and vegetable world is identically the same, and the latter, wherever we find it, contains in a greater or less degree all the elements of the former. The vegetable world is sustained entirely from inorganic nature, the earth on which we tread, and the atmosphere we breathe, occupying a middle sphere, *its whole existence being to collect materials to build up* the animal, consequently entirely subservient to it. The inorganic world, again, is composed of a few simple elements, of which hydrogen, oxygen, nitrogen, carbon, phosphorus, sulphur, and some saline substances, as pottassium, sodium, and calcine, form the chief, the very elements of vegetable and animal life. Geology, chemistry, physiology, are therefore essential to the right understanding of this subject, bearing ever in mind that the lower are always adminstering to the wants and necessities of the higher orders of creation. There is no motion in an animal body, or emotion of mind, but what causes a corresponding absorption of the tissues of the body, and in order to keep up this daily waste, a certain amount of food is necessary. This is called sustaining the body. Thus cattle, working hard, require a larger amount of food than when at rest. This necessity being duly attended to, constitutes health. But fattening, gentlemen, is an unnatural condition, and requires an increase of substance. Hence the necessity of unnatural means, as the absence of exercise, light, and the influences of the atmosphere, a mixed diet (to bring out all the materials of the animal body to the greatest perfection) in a dry warm state. Mr. Childer's beautiful experiments proved that warmth alone with an animal would produce one-third more flesh, and at the expense of one-fourth less food. Mr. Norton also proved that the absence of light with warmth produce still greater results. The reason of this is obvious. Every animal possesses both a nutritive and respiratory apparatus; the one to sustain the body, the other to support its vitality, by producing health or warmth. This first object is effected by the gluten in the food principally, the basis of which is nitrogen. The second by the starch, sugar, and gum, contained in the food, which forms bile, the basis of which is carbon. The bile passes into the intestines, where it meets with oxygen, and thus becomes carbonic acid. In this state it enters the circulation, where it meets with peroxide of *iron (which the blood always contains), the carbon unites* with the iron, and forms carbonate of iron. In this state it passes to the lungs, where it meets with fresh oxygen during inspiration, which reconverts the carbon in the carbonic acid, which passes off during expiration, while the peroxide of iron is reformed, and taken back by means of its carriers to be again transformed into carbonate. The result of this combustion of carbon is heat. The heat of the animal body is nearly 100 degrees; all food, therefore, before it can be assimilated, must be raised to its own temperature, which can only be done by the consumption of carbon, or in other words, food. Potatoes, linseed-cake, and oleaginous seeds, on account of the starch, sugar, oil, and gum, they contain, are well adapted to accomplish this end. If we reflect for one moment on the immense importance of the liver and lungs in the animal economy, is it not strange to see the scores