

animals possess no such power; their food must be supplied to them in the form of those complex and bulky compounds which the plant alone can produce, and which the animal only modifies to a slight extent in the process of assimilation. Hence it follows that it is only theoretically possible to concentrate the food of animals to a very limited extent, because the quantity of innutritious matters each of them contains is small, and it is *practically* impossible to do it at all, because there are no processes known by which the innutritious matters can be removed in such a manner as to leave the nutritive substances in a state in which they can be used as food. In the grains of the cereals the only absolutely innutritious substances are water and a small quantity of woody fibre, of which the latter cannot be extracted without entirely destroying the grain; and, though the former may be expelled by heat it is rapidly reabsorbed from the air. The food of an animal cannot therefore be concentrated, and the introduction of the word "condimental" instead of "concentrated" food by the makers of some of these articles must be taken as a tacit admission that this view of the case cannot be defended. The fact is, that analysis at once shows that in these substances there has really been no concentration. A minute examination of a number of them recently made in the laboratory, which will appear in the forth coming number of the "Transactions," has shown that there has been no attempt to concentrate in the sense in which that word is usually understood, for they all contain just as much water and woody fibre as other vegetable substances, and are, in fact, mixtures of the most ordinary materials, consisting of Indian corn, rice, bean meal, ground carob beans, and other similar substances, along with small quantities of aromatic seeds, and in some instances a bitter substance, apparently gentian. It is absurd to suppose that the contents of a small tin measure holding about half a pint of these substances can be used to replace one half of the ordinary food of an ox or a horse, and their inventors, seeing that as soon as these facts became known to the farmer their position would become untenable, have taken refuge behind the aromatics and bitters they contain, and have asserted that their effect is condimental, and that they act by promoting digestion and causing the animal to extract and assimilate a larger quantity of the nutritive matters of its ordinary food. They have obviously gone upon the commonly received opinion, which attributes to salt and similar substances this effect—a view which the facts by no means countenance. There is, in fact, not the slightest reason to suppose that the substances contained in these foods have any such effect. They consist, in addition to the grains already mentioned, chiefly of fecungree and caraway seeds, and one of those I have examined contain so large a quantity of turmeric that it might almost be described as a curry powder. Nothing definite is known regarding the action of these substances on the system, there being no experiments such as those by which the effects of salt have been determined; and there is no evidence to support the view

that they are capable of producing a more complete assimilation of the food, but every reason to believe the reverse. In fact, when a dispassionate view of the matter is taken, I think that it can scarcely be doubted that, if small quantities of caraway or other aromatic seeds were given to animals, and their weights carefully determined, it would be found that they are quite without effect. It must be noticed that there have been no attempts on the part of the "discoverers" to produce such accurate experiments in support of their views, although there have been plenty of general testimonials, such as every quack medicine can produce by the score, and abundance of vague declamation regarding their wonderful effects. The plain fact is that science does not give the slightest support to the idea that these substances have any effect whatever; and in saying so, I am only stating an opinion in which all chemists will concur, and which has, indeed, been often stated before. Its accuracy has just as often been denied by the makers of these articles, but it has never been disproved, nor will that be possible until they can produce the precise results of trustworthy experimenters in support of their substances. But even admitting the accuracy of all the statements put forth by the makers of their food, there is another question, which merits attention, and that is the price at which they are sold. I have already mentioned that they are composed chiefly of some of the more familiar foods mixed with a small quantity of aromatics. The exact proportion in which these latter substances exists in them cannot be accurately determined, but it is not large, and does not generally exceed 10 per cent. Indian corn, carob beans, &c., cost about £8 or £9 per ton, and fecungree and caraway seeds about £20 to £25. A mixture of nine tons of the former and one of the latter, should therefore be sold at £10 or £11 per ton, in place of £20 or £30, the price actually charged; so that if these goods do produce the alleged effect the farmer is made to pay for them three times their intrinsic value. This fact is of itself a sufficient comment on what has been already stated, and the truth is that the "discoveries" of which the makers of these foods boast are confined to the art of extracting money from the pockets of the farmer. The general conclusion to be drawn from what has been now said may be summed up in a very few words:—

1st, Common salt, which is the most important condiment, has no effect in promoting the assimilation of the food, and, when used in large quantity, has rather a tendency to produce a waste of nutritive matter; 2nd, Both it and phosphate of lime, and probably other mineral substances, may exercise a beneficial effect on its health when the quantity existing in the food is less than the animal requires; 3rd, There is not the slightest reason to suppose that the so-called condimental foods produce any effect in the animal, as they consist only of ordinary grains mixed with small quantities of aromatic and bitter substances, which, so far as our present knowledge goes, do not in any way affect the nutrition of animals.