

ing 1d. per pint), at from 3d. to 3½d.; dried herrings, butter, new milk, cheese and beef, at from 4d. to 4½d.

As to the Nitrogen.

As the relative quantity of nitrogen to carbon is not high in bread, we shall find that numerous articles of food offer the nitrogen at less cost than bread, whilst at the same time the extreme variation from bread is in reference to the nitrogen. Thus, butter milk (costing ½d. per pint) will give the standard quantity of nitrogen for ½d.; skimmed milk (costing ½d. per pint), peas, and South American beef, at from ½d. to ¾d.; skimmed milk, cheese and maize, at about ¾d.; butter milk and skimmed milk, each costing ½d. per pint, and barley meal, at ¾d.; oatmeal, fresh herrings and liver, at from ¾d. to 1d.; fine flour, green vegetables (costing ½d. per lb.); dried herrings, new milk, and skimmed milk (each costing 1d. per pint), and bones at from 1d. to 1½d.; new milk cheese, at a little more than 1½d.; green vegetables (costing ¾d. per lb.); potatoes costing 1d. per lb.; beef and new milk costing 2d. per pint, at from 2d. to 3d.; mutton, pork and green bacon, at from 3d. to 4d., dried bacon, 5½d., and tea at 20d.

These with other facts are contained in the following table:—

TABLE, showing the quantity of Carbon and Nitrogen contained in 1d. worth of various foods at the prices annexed, and also the variation from the pennyworth of various foods to supply as much Carbon and Nitrogen as are contained in one pennyworth of bread (the standard quantity).

Food.	Costing.	Carbon for 1d.		Nitrogen for 1d.		Variat'n from cost of 1d. to supply the stand'd quantity of 1450 grains of carbon and 66 gra. of nitrogen.	
		Grains	Grains	Grains	Grains	Carbon.	Nitrogen.
Bread	1½ per lb.	1,450	66	.....	.....	.....	.....
Fine Flour.....	2 "	1,330	60	1.09	1.1	.....	.....
Barley.....	1 "	2,500	93	.58	.7	.....	.....
Rice.....	2 "	1,380	36	1.05	1.88	.....	.....
Oatmeal.....	1½ "	1,618	76	.957	.88	.....	.....
Maize.....	1 "	2,800	121	.51	.545	.....	.....
Peas.....	1½ "	1,820	170	.796	.388	.....	.....
Potatoes.....	1 "	1,540	49	.94	1.34	.....	.....
Potatoes.....	1 "	770	24½	1.88	2.69	.....	.....
Green Vegetables.....	1 "	1,640	56	.88	1.18	.....	.....
Green Vegetables.....	1 "	820	28	1.76	2.36	.....	.....
Butter.....	1½ "	327	...	4.43	.....	.....	.....
Lard.....	9 "	591	...	2.45	.....	.....	.....
Dripping.....	6 "	886	...	1.63	.....	.....	.....
Suet.....	7 "	651	...	2.22	.....	.....	.....
Sugar.....	4½ "	622	...	2.34	.....	.....	.....
Treacle.....	8 "	746	...	1.94	.....	.....	.....
Beef.....	7½ "	320	23	4.53	2.87	.....	.....
Mutton.....	7 "	415	20	3.49	3.3	.....	.....
Pork.....	7 "	483	18	3.0	3.66	.....	.....
Liver.....	8 "	410	70	3.53	.94	.....	.....
Bones.....	8 "	1,666	48	.92	1.46	.....	.....
Dried Engl'h bacon	4½ "	510	12	2.84	5.5	.....	.....
Green Amer. bacon	4½ "	918	17	1.58	3.88	.....	.....
Dried herrings.....	1 each.	352	54	4.1	1.22	.....	.....
Fresh herrings.....	1 "	480	72	3.0	.01	.....	.....
New milk.....	1 per pint	546	44	2.66	1.6	.....	.....
New milk.....	2 "	273	22	5.32	3.0	.....	.....
Skimmed milk.....	1 "	1,748	174	.82	.38	.....	.....
Skimmed milk.....	1 "	873	87	1.64	.76	.....	.....
Skimmed milk.....	1 "	437	44	3.28	1.62	.....	.....
Butter milk.....	¾ "	2,614	262	.676	.25	.....	.....
Butter milk.....	1 "	838	88	1.15	.75	.....	.....
Whey.....	.....	.....	.....	.....	.....	.....	.....
Skin'd milk cheese	3 "	782	122	1.96	.64	.....	.....
New milk cheese.....	8 "	333	40	4.33	1.65	.....	.....
Tea.....	3 per oz.	.....	3.3	.....	20.0	.....	.....

I have only now to offer an apology for the length of this communication, and to state that with the information obtained I shall be prepared to consider the combinations of foods in private and public dietaries, should an opportunity be offered to me.

Discussion.

Dr. Lankester (responding to the invitation of the chairman) said they must all feel the importance of this subject, and they were much indebted to Dr. Edward Smith for bringing it before the Society. At the same time he felt that the great food question could not be decided merely by a few experiments. This was a subject to be treated with the greatest caution, and all that had been done hitherto, only served to indicate the direction in which further inquiry must go. Our government had been lately paying attention to this question, especially by means of that Committee before which Dr. Edward Smith himself had given evidence, but he (Dr. Lankester) must say that, in certain practical departments, the Government had paid little or no attention to this matter. He formerly held the office of Superintendent of the Food Museum at South Kensington, but he felt bound to say no encouragement was given him or the other officers of that department in the proper development of it. Enormous sums had been expended in the purchase of works of art which, in his opinion, were of little value as compared with the more important matter of the food of the people: and every effort appeared to be made to suppress the development of that department of the museum. Dr. Edward Smith had rather disparaged the experiments of Liebig and his school, but he (Dr. Lankester) must say they were deeply indebted to that great chemist for the light he had thrown upon the subject of chemical physiology; and though Dr. Smith was inclined to disregard the distinction drawn by Liebig between heat-givers and flesh-formers, yet he (Dr. Lankester) thought there was no better mode of describing those articles of food which supplied carbon and those which supplied nitrogen. Dr. Smith appears to have ignored hydrogen, which was a powerful heat-giving agent as well as carbon; consequently when the hydrogen derived from such food as fat and butter was disregarded, a false view of the value of those articles of diet was arrived at. The fact was Liebig was correct when he stated that the value of butter and fats in relation to sugar and starch as heat-givers was as 2½ to 1. Our knowledge of the action of various foods was one to which further contributions were constantly being made. With regard to the influence of alcohol, a subject treated by Dr. Smith before this Society two years ago, the experiments of M. Baudot had materially modified the conclusions arrived at by Messrs. Lallemand and Perrin, and this showed how carefully this subject of food should be approached. He had been at some pains to consider some of the practical questions with which Dr. Smith had more particularly dealt. With regard to the question of brown bread, he could say he had eaten it himself regularly for the last 20 years, with considerable advantage; at the same time, he was free to confess that upon its introduction into families there was a distaste manifested towards it by children, which he was at a loss to account for. With reference to the point urged by Dr. Smith, that brown bread