

disease, and is to be restrained, and, in its less effect, causes the removal of double the amount of nutritive elements from the body which occurs without it, which is recommended by medical men, and taken by the richer classes as a remedial agent to remove constipation, and hence, of necessity, must increase the waste of food, but still it is affirmed to be more nutritive, because it is ascertained out of the body to contain a larger quantity of a chemical element, which, if used by the body would afford nutriment. Such are the hasty deductions upon which this theory has been based; and Dr. Guy, in his evidence just quoted, and in answer to the question No. 3788, "Why would you prefer brown bread?" replied, "the only bread used in prisons should, I think, be brown bread, partly because it is more nutritious and contains more of the muscle-making element in it (the nitrogen which has been spoken of) than white bread does." But how much further, let us ask, can this *non sequitur* be carried when it is known that the bran itself passes out of the body unchanged as may be ascertained by any observer, and as was proved by us in our analyses daily for two months in prisons—this wonderfully nutritive material, which contains so much of the muscle making element, and which must, besides, have the faculty of being in two places at the same time!

The proper place in which the action of bran should be arranged is manifestly that of a medicine (and it would be easy to show that it is a bad one), as stated by Dr. Prout, and as practised by mankind, and therefore to be used when constipation occurs, or when, as is commonly the case, this is accompanied with the excess of food to which the well-fed and under-worked classes are accustomed. Hence, when I was asked by the Committee before-mentioned, No. 987, "Then the general prejudice which prevails amongst the agricultural community that the finest white bread is the best for them, and the most nutritious, is correct." I replied in language not my own, "Certainly, it is correct. Brown bread is the rich man's and not the poor man's diet." I thought this necessarily followed from the statement of the action of the brown bread, which had been given in answer to No. 988, and assented to by Dr. Guy, in answer to No. 3,796 already quoted; but when my answer was read to Dr. Guy, No. 3,797, he replied, "I do not agree with that view of it; I think brown bread is especially the poor man's dietary, not the rich man's. I should reverse that answer." So that the poor man who can scarcely obtain food enough to keep body and soul together, must for his own good take that kind of bread which is less agreeable, and will cause more waste of his food in order to be consistent with a single fact in science. It is clear that science and bran together would be the death of him, only that his own experience had taught him to cast both aside, to leave the physician to them who can afford to take it.

It is, perhaps unnecessary to proceed further in the matter, or I might adduce the experience of persons in feeding horses and pigs with the bran and the inner husk of wheat or sharps. When a bran mash is given to a horse it is given as a medicine, and no one who has had the least experience in feeding pigs would give sharps—the highly nutritious inner husk of wheat!—instead of barley meal,

which contains so much less nitrogen. Moreover, the price of the bran and sharps indicates the estimate which is formed of their nutritive values. Thus:—

1 bushel of seconds flour, weighing 56 lbs.	costs	7s.	9d.
“ bran	“	12	“ 9d.
“ coarse pollard	“	14	“ 10d.
“ fine pollard	“	18	“ 1s. 0d.
“ sharps	“	26	“ 2s. 0d.

I have entered at length into this question on the ground of its importance, both in a scientific and social point of view, and I trust that we shall assent to this conclusion, that at equal cost, brown bread is dearer than white bread, and from its medicinal action should be used intermittently and not continuously (if used at all), and should not be used by the poor man. The relative values when differences of cost occurs must depend upon the amount of difference. Years ago white flour was from 2d. to 4d. a peck dearer than brown flour, but the quantity of the latter which is now made is so much reduced, that when wheat of equal quality is used there is no difference in price in some localities, as in London, and but little difference in country places. Hence there is now nothing in favour of its use by the working classes, but if a large sale of it at the present high prices could be effected, the bakers, buying it in large quantities at a cheaper rate, would make larger profits by it.

Barley bread is much inferior to wheaten bread in the amount of nitrogen which it contains, but it is so much cheaper that, where the flavor and dark color are not objected to, its use is economical. The meal is sold at 1s. and 1s. 2d. the 14 lbs., and if we take the higher sum, we shall find that 2,500 grains of carbon and 93 grains of nitrogen will be obtained for 1d.

Rye alone is not made into bread at the present day, but it is mixed with wheaten flour to make brown bread. It contains more nitrogen than barley and less than wheat, but both are remarkable for the large amount of indigestible husk which is found in the bread.

As the bread in use in this country is derived from the grains already referred to, it will be convenient to consider here the economy of baking the bread at home. The discussions which have recently taken place in the *Times* have shown that not less than 94 loaves of 4 lbs. each, and one baker admitted that 95 loaves of 4 lbs. could be made from 280 lbs. of flour, not necessarily so that every loaf could be sold at the highest price. The quantity varies with the soundness and highly nitrogenised qualities of the flour and the skill of the baker, so that in numerous experiments made at home, I found that the quantity of bread varied from 19 lbs. to 20½ lbs. from the peck of 14 lbs. of flour. 95 loaves to the sack, and 19½ lbs. to the stone, are equal to the quantity of flour multiplied by 1.4, and whilst the quantity of bread should be somewhat greater, it ought not to be less. Where the 4 lb. loaf may be purchased for 5½d., the flour may be bought retail at from 1s. 10d. to 2s. the peck. If we select the former price we shall obtain 16 lbs. of bread for the same price as 14 lbs. of flour, so that the value of 3½ lbs. of bread (the extra quantity which should be produced from the peck of flour), represents the