

water, a definite cryoscopic depression. In harmony with deductions from titration- and conductivity-data¹ the results are such as indicate that casein behaves towards bases, essentially as a mono-basic acid possessing a molecular weight, in solutions neutral to litmus, of approximately 2,000.

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The daily excretion of bacteria in the feces of healthy men.

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During the past year we have examined at intervals of about two weeks the fecal bacteria of each individual in a group of twelve men who were the subjects of a prolonged metabolism experiment. These men were fed a mixed diet, in quantity according to their choice at the beginning of the experiment. Altogether we have examined bacteriologically 266 stools.

The quantity of bacteria in each of these stools was estimated by two different methods of microscopic counting and in about half of them the quantity of bacterial dry substance was also estimated by the gravimetric method of Strasburger.

In the individual examinations the largest number of bacteria observed was 816×10^9 bacterial cells per gram fresh feces, $2,642 \times 10^9$ bacterial cells per gram dry feces. The smallest number of bacteria counted was 124×10^9 per gram fresh feces, 983×10^9 per gram dry feces. By the gravimetric method the largest quantity of bacterial dry substance observed was 42.53 per cent. of the fecal dry substance or 13.2 per cent. of the moist feces. The smallest quantity of bacterial dry substance observed was 14.03 per cent. of the fecal dry substance or 2.6 per cent. of the moist feces. The average of all examinations was 375×10^9 bacterial cells per gram fresh feces; $1,587 \times 10^9$ bacterial cells per gram dry feces; bacterial dry substance in fecal dry substance,

¹T. Brailsford Robertson: *Journ. of Physical Chem.*, 1908, xii, 479, etc.

26.89 per cent. ; bacterial dry substance in moist feces, 7.0 per cent. The average daily quantity of fecal dry substance and of fecal nitrogen was calculated from the analysis of eight-day period collections, and the average daily bacteria and bacterial nitrogen calculated upon these quantities, regarding the bacterial content of the dry substance of the single stool, upon which the bacteria were determined, as representative of the feces for that period. Calculated in this way the greatest values found were 58×10^{12} bacterial cells per day by count, and 9.15 grams bacterial dry substance, containing 1.006 grams nitrogen, per day by the gravimetric method. The smallest values were 14×10^{12} bacterial cells and 1.87 grams bacterial dry substance, containing 0.194 gram nitrogen per day. The average of all examinations was 32×10^{12} bacterial cells, and 5.34 grams bacterial dry substance, containing 0.585 grams of nitrogen, per day.

There was considerable individual variation among the different subjects of the group. For example, the average of all examinations of Subject H was 40×10^{12} bacterial cells and 7.26 grams dry bacterial substance, containing 0.819 gram nitrogen, per day. The average of all examinations of Subject B was 26×10^{12} bacterial cells and 3.56 grams bacterial dry substance, containing 0.393 grams nitrogen, per day.

The nitrogen contained in the bacteria varied from 66.8 per cent. to 23.3 per cent. of the total fecal nitrogen, the average of all examinations being 46.3 per cent. Individual variation in this respect was also considerable. In Subject I the average of all examinations showed 57.4 per cent. of the total fecal nitrogen contained in the bacteria ; in Subject K this quantity was 32.1 per cent. These two subjects were the ones who showed the two extremes (66.8 per cent. and 23.3 per cent., above) for the single examinations.

A detailed account of these experiments will be published in a short time in *The Journal of Infectious Diseases*.