

Variations in weight and cost price of these foods are more noticeable than variations in the character of the food itself. Careful study of Tables I and II will bear out the conclusion that, so far as food value is concerned, the material is fairly constant in character. Thus to take a few examples, the following may be quoted:

Name of Food.	Number of samples.	Caloric value for 1000 grams. Dry. Extreme			Variation.
		Mean.	Maximum.	Minimum.	
Kellogg's Corn Flakes...	17	4011	4064	3902	162
Cream of Wheat.....	16	4106	4125	3909	216
Force.....	18	4001	4026	3937	89
Grape Nuts.....	21	4000	4035	3971	64
Kellogg's Krumbles....	13	3938	3967	3908	59
Post Toasties.....	18	3995	4123	3860	263
Quaker Puffed Wheat...	16	4039	4118	3987	131
Shredded Wheat.....	14	4014	4029	3915	164

The caloric (large caloric) is that amount of energy which, when considered as heat, would suffice to raise the temperature of 1 litre of water through 1 degree Centigrade. It is not however important or necessary that the ordinary reader should bear this fact in mind. It is enough to regard the caloric as an arbitrary unit of measurement for energy (the power to perform work), just as the yard is an arbitrary unit of measurement for distance, or the pound for weight. The value of the term, for purposes such as the present, is entirely comparative. If a man needs 3000 calories of energy per day, he must be furnished with food of such kind and in such quantity as will yield him 3000 calories, if he is to maintain health.

Determination of the absolute calorific value of any form of food is carried out by actual combustion of a known weight of the food under circumstances which permit of the heat produced being accurately measured. The instrument used (Calorimeter) in these determinations is so constructed that the total available heat energy is produced. In other words, combustion is complete.

The digestion effected by the human organism is seldom, or never, so complete as this. Rubner has calculated that at least 8 per cent. of our food, on a mixed diet, passes through the body undigested, or incompletely digested. (Hammers-ten's Physiological Chemistry, Translation by Mandel, p. 585). It follows that in calculating the energy available from a given diet, the calorific values as determined by the Calorimeter must be reduced by 8 per cent. if we would know the actual human energy derivable from such diet.

For purposes like the present it is necessary to refer the various elements of food to a limited number of classes and to ascertain, for each class, a factor which shall, as closely as possible indicate the calorific value of unit weight of this class. It is convenient for this reason, to group together such food constituents as casein, albumen, gluten, myosin, legumin, etc., as proteids, and to use the same factor in calculating their calorific value. This can only be an approximation to actual fact, although a pretty close approximation; and quite sufficiently accurate to form a useful guide in ascertaining food values.