

**THE DIETARY COMPUTER.
EXPLANATORY PAMPHLET: THE
PAMPHLET CONTAINING TABLES
OF FOOD COMPOSITION**

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The Dietary Computer. Explanatory Pamphlet: The Pamphlet Containing Tables of food composition by Ellen H. Richards

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ELLEN H. RICHARDS

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THE PAMPHLET CONTAINING

*TABLES OF FOOD COMPOSITION,
LISTS OF PRICES, WEIGHTS, AND MEASURES,
SELECTED RECIPES FOR THE SLIPS,
DIRECTIONS FOR USING THE SAME.*

BY

ELLEN H. RICHARDS,

Instructor in Sanitary Chemistry, Massachusetts Institute of Technology.

ASSISTED BY

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THE DIETARY COMPUTER.

THE aim of this little pamphlet is to familiarize settlement workers and progressive housewives with a few fundamental principles used in making out bills of fare according to food values. Not that the cook's art is not also essential, but that it is another matter. It can make savory these valuable food materials, but it cannot make one pound of potato worth as much for nutrition as one pound of rice, or one pound of sugar or of fat to yield the nitrogen which is found in meats and legumes.

To do this estimating there is needed, 1st, a list of the common food substances used, giving the grams and calories in each pound as bought; 2d, the composition by weight of the dishes made from these food materials, which makes possible, 3d, the food value of each dish. For the cost of the bill of fare is needed, 4th, the prices per pound as purchased, and, 5th, the amounts to be served a definite number of persons (*a*) when it is the chief dish, (*b*) when it is one of several.

To boil down two or three hundred cook-books into twenty pages is doubtless to destroy the peculiar lightness and delicacy of aroma and to replace it by a dark thick mass which at first sight may have little attractiveness.

And yet many gallons of light-colored foamy cider are boiled down to make one of the dark thick syrup which the old New England housewife used to such good advantage during the long cold winter in flavoring the otherwise monotonous diet.

It was material at hand, and it served her purpose in the days when one small case held her spices and flavorings.

This little pamphlet is just a makeshift like boiled cider, concentrated essence of something more delicate, to be used with judgment and discretion as a wire fence to guide the learner to better sources.

The final object of food is nutrition, and it will do no harm to call attention to the food value of some of the common dishes as found on our tables without obscuring this value by the fancy garnishings or many handlings so common in the modern recipes.

This is no new cook-book, it is only a bald statement of a few facts to help those who really wish to learn. The dishes are therefore arranged in order of food values, and the combinations are made so as to approximate the standard ration. That the same food value is obtained at varying cost is evident, and it should be a simple matter to choose that set of combinations which will suit the purse.

That these combinations might be almost infinitely extended goes without saying. With the aid of any cook-book which gives quantities the dishes in each section may be increased tenfold or one hundred fold. The great difficulty is to find a recipe to quote. A cupful as used in one book means three and one-half ounces, in another four ounces. A tablespoonful of butter in the majority of cook-books consulted means one ounce, in the cooking-school recipes of modern date it means one-half an ounce. In some books three teaspoonfuls equal one tablespoonful, in others four. In many books we do not know what the measures stand for, hence these recipes have that delightful indefiniteness which is supposed to be characteristic of good cookery.

The list of food values in a pound of the different substances on pages 44 to 49 is taken from Bulletin No. 28, revised edition, Office of Experiment Stations, Department of Agriculture, 1899. These figures are in most cases the result of several analyses of products found in American markets, and while no

one claims that they represent the exact food value of the housewife's purchase, they are approximate and may serve as guide-posts to point out her road to a better understanding of the various foods which she furnishes to her family.

The recipes are not warranted to succeed the first time trying, but at least, if variations are necessary, the cook will know whether she is increasing or decreasing the food value, which is the chief thing. Having once had her measuring dishes and spoons standardized, she can keep them for such uses without weighing each time. Any apothecary can give the weight measured by a given cup or spoon, and the dealers in kitchen utensils will provide standard measures just as soon as they are called for. Those at present in the market, even the tin measuring-cups, are not often made with sufficient care.

It was at first intended to give credit to each cook-book for the recipes quoted, but the necessity of assuming weights, where none were given, in some part of nearly every recipe, deterred the author from incurring the just wrath of the cooks.

The success of a dish depends upon three things: 1st. The tastes and habits of the persons before whom it is set; in other words, flavor, consistency, and seasoning must be adapted to the whims of the eaters. 2d. The care and cleanliness with which the ingredients are prepared and the judgment with which they are put together and cooked. 3d. The attractiveness with which the cooked food is served; this includes temperature, quantity, color, form, and arrangement.

"Home cooking" means the peculiar combinations which suit the particular group catered for.

"Proteid" means that which furnishes new material to take the place of that used up in the wear and tear of the active parts of the organism, as well as that which is essential to the building of new tissue. Hence the growing child needs more in proportion to its body weight than an adult. "Fat" and "carbohydrate" (starch, sugar, etc.) contain no nitrogen and therefore cannot take the place of proteid, but

they may to a certain extent replace each other, especially in adult life.

DIETARY ESTIMATES, BASED ON FOOD AS PURCHASED.

Per Day.	Proteid.	Fat.	Carbo- hydrates.	Calories.
	Grams.	Grams.	Grams.	
Man at hard labor.....	150	150	500	4060
Man at light labor.....	125	125	400	3310
Woman at light labor.....	100	100	320	2650
Child of nine years.....	78	45	280	1890

Americans take far more fat in proportion to carbohydrate than any other nation. They are more active. Whether their activity follows from the use of fat is not known, only suspected. Grease-traps must be made to yield their secrets before this can be determined.

Calorie is a unit measure of heat used to denote the energy-giving power of food.

Table II is a list of the total food values and estimated cost of the recipes given in Table V, arranged in order of food value.

Table III gives the same list arranged in order of cost per 1,000 calories.

Table IV gives the same list arranged in order of cost per 100 grams of nitrogenous substance.

In order to plan a dietary of a given composition at a given cost it is necessary to know:

1st. The approximate composition of the food-materials to be used (Table VII). These data vary as our knowledge increases, and can never be more than approximations within somewhat wide limits.

2d. The amount of food materials entering into the composition of each dish. Table V (Recipes). *Only in case this is known* can the food values be computed for Table II. In order to know this it is necessary to have:

3d. Definitions and equivalents of weights and measures.

Those used in this compilation are given in Table VI. At present pounds and ounces are kept ; it is hoped that in a few years all recipes may be given in grams.

4th. The cost per pound is to be filled in, in the blank columns of Table VII, by the user.

It is not always necessary or wise to so plan the food that on each day of the week an exact proportion of the various constituents be maintained, but each week's total should be nearly the theoretical amount. It must be understood, however, that as yet we know too little of the effect on digestibility, of cooking, and of the combination of two or more foods in one dish, or at one meal, to permit of very close calculation.

Individual bodily condition also affects food utilization to an unknown extent, so that no one can rely on mathematical calculations of food quantities without at the same time taking careful record of bodily weight and efficiency.

Various other facts are needed before reliable estimates can be made ; such as wastes in preparation, losses in cooking, in serving, and in the portions taken away with the plates.

In an appendix will be found a table of interchangeable weights and measures.

TABLE I.
CONSTANTS.

Name of Dish.	No. of Recipe.	Cost, Cents.	Proteid.	Fat.	Carbo- hydrate	Calories
Coffee, milk, and sugar.....	<i>a</i>	3.9	6	7	65	353
" cream, and sugar.....	<i>b</i>	7.7	2	11	60	360
Tea, cream, and sugar.....	<i>c</i>	6.7	2	6	59	317
Cereal, milk, and sugar.....	<i>d</i>	7.4	26	16	196	1060
Cereal and cream.....	<i>e</i>	16	24	53	131	1130
Bread and butter, No. 1....	<i>f</i>	2.5	10	25	60	522
" " " No. 2....	<i>g</i>	7.5	32	75	179	1566
Day's supply of bread and butter, milk and sugar....	<i>h</i>	21	79	144	721	4620
Oranges, 6 large, 3 lbs.....	<i>i</i>	10	8	1	115	510
Bananas, 2 lbs.....	<i>j</i>	5	7	3	129	600
Strawberries, 1½ lbs.; sugar, 4 oz.....	<i>k</i>	30.7	6	4	161	726
Prunes (dry, 6 oz.); sugar, 2 oz.....	<i>l</i>	4.8	3	158	662
Dried apple, ½ lb.; sugar, 4 oz.	<i>m</i>	4.2	2	4	161	702
Fresh apples, 2 lbs.; sugar, 7 oz.....	<i>n</i>	8.4	4	3	315	1339
Peanuts, 1 lb., shelled.....	<i>o</i>	6	113	172	108	2560