THESIS

on

Dietetics

Menus, Cost of Food,

and

Dietary Standard of an Average Family

Submitted to the Faculty of the

OREGON AGRICULTURAL COLLEGE

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APPROVED:

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Department of Domestic Science and Art

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Dean of School of Domestic Science and Art
OUTLINE

Introduction

Experiment

Location

Family

Discussion

Method of procedure

Menus and calculations

Theoretical

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Changes found desirable

Conclusion

Menus

Essentials

Cost

Dietary standards

In general

In particular

Comparison with Chittenden's.
Dietetics.

Menus, Cost of Food, and

Dietary Standard of an Average Family.

The experiment under discussion was carried out in Corvallis, Oregon, during the week beginning Sunday April 3, 1910 with a family of six persons,—consisting of a mother, who acts as a housekeeper and housemother; a young man, an instructor in the college; two boys, one in college and the other in grammar school; and two girls, both in college. Each person enjoys eating, seems to be in good health, and aside from a few personal likes and dislikes eats the general menu as served. At breakfast, one drinks coffee, four cocoa, and one milk. All are fond of jelly, and if any milk is left in the evening, some one drinks it. This surplus of milk has not been counted in the calculations following.

The method of procedure in the experiment was as follows and may interest any one not acquainted with food values, dietary standards, and planning of menus, and will show just what such work involves:—

Method of procedure—

Menus for the week determined after a careful consideration of:

Cost.
Seasonable foodstuffs.
Work necessary in preparation.
Fuel used.
Food combinations.
Use of leftovers.
Convenience.

Easily prepared meals on Tuesday on account of washing.

Balance of food principles.

Daily
Weekly

Calculation-

Theoretical-

Recipes-

Amounts of each foodstuff to be used, determining marketing list.

Weight or measure of quantities of each foodstuff used-

Formation of a table of equivalents and costs.

Total amount of each foodstuff to be used during the entire week.

Food value of each of the above amounts as calculated from the
tables of the U. S. Bulletin on "Chemical Composition of American Food Materials".

Summary of total number of calories and weight of each food principle.
Protein in grams.
Fat in pounds.
Carbohydrate

No account taken of water or mineral matter because they take no actual part in food values.

Total costs of each foodstuff to be used reckoned from "total amounts of each foodstuff to be used".

Actual-

All calculations carried out as for "theoretical".

In some instances the food material used was not listed in the bulletin, so a substitute as nearly like the desired food was used in both calculations--theoretical and actual. e.g.

Grape fruit--reckoned as oranges.

Loganberry jelly--reckoned as blackberry jelly.

Spices, salt, vinegar, pickles and coffee were left out of the calculation entirely on account of having little or no food value.
The results, as shown below, do not adequately express the amount of time spent on the experiment, except to the person acquainted with dietetic computations. Nevertheless, a great deal of time and earnest, careful, work, aside from the actual preparation for, and the clearing away of meals was necessary. Such an experiment may be made of great value to the family, and should be suggestive to any one interested in such considerations or who might wish to make a similar study. It might be of interest to state that some members of the family did not know at the time that they were part of an experiment.

Menus and calculations:

Theoretical-

Monday-

Oranges

Oatmeal Top milk

Hash on toast

Coffee Cocoa Milk

Cream of celery soup

Croutons

Macaroni and cheese Biscuit

Cocoa
Roast veal   Gravy
Franconia potatoes Kalegreens
Baked apple tapioca

Tuesday-
Cornmeal   Top milk
Toast
Bacon   Fried apples
Coffee   Cocoa   Milk

Boiled hominy
Warm rolls   Honey
Cocoa   Milk

Stuffed heart
Loganberry jelly
Baked potatoes   Lettuce
Float   Cake

Wednesday-
Wheat Hearts   Top milk
Doughnuts   Toast
Coffee   Cocoa   Milk
Cream of corn soup
Hamburger steak
Potato balls

Broiled mutton chops
Mashed potatoes  Boiled carrots
Green tomato pickles
Washington pie

Thursday-
Grape fruit
Oatmeal    Top milk
Bread crumb griddle cakes
Syrup
Coffee  Cocoa  Milk

Boiled rice
Whole wheat biscuit
Baked apples  Cream
Cheese

Roast lamb
Baked potatoes  Creamed peas
Cranberry jelly
Stewed figs  Cream
Friday-

Apple sauce
Cornflakes  Top milk
Graham muffins
Coffee  Cocoa  Milk

Meat croquettes  Succotash
Loganberries

Fried salmon
Mashed potatoes  Stringbeans
Fruit salad
Wafers

Saturday-

Canned prunes
Oatmeal  Top milk
Creamed chipped beef
Toast
Coffee  Cocoa  Milk

Salmon balls
Lettuce and egg salad
Cocoa  Milk
Cold sliced tongue on lettuce
Roasted potatoes Cranberry sauce
Sliced bananas Cream

Sunday-
Wheat Hearts Top milk
Baked beans with Boston Brown Bread
Coffee Cocoa Milk
Rib roast of beef Gravy
Mashed potatoes Apple, nut, and celery salad
Ice Cream Lily cake
Stewed dried apricots
Lily cake
Milk

Actual-
Sunday-April 3-
Wheat Hearts Top milk
Baked beans Brown bread
Coffee Cocoa Milk
Rib roast of beef
Franconia potatoes  Fruit salad
Ice Cream  Lily cake

Stewed dried figs
Bread  Butter
Lily cake  Cocoa

Monday-April 4-

Oranges
Cornmeal  Top milk
Poached eggs on toast
Coffee  Cocoa  Milk

Cream of celery soup
Croutons
Spaghetti with cheese  Biscuit
Cocoa

Roast beef
Franconia potatoes  Corn
Milk
Loganberries  Cupcakes
Tuesday—April 5—
Wheat Hearts Top milk
Egg toast Loganberries
Coffee Cocoa Milk

Baked beans Brown bread
Stewed figs
Cocoa Milk

Meat pie Baked potatoes
Lettuce salad
Float Cake

Wednesday—April 6—
Wheat Hearts Top milk
Boiled eggs Toast
Coffee Cocoa Milk

Bean soup Crackers
Graham muffins
Kentish cherries
-ll-
Broiled mutton chops
Mashed potatoes  Tomatoes
Green tomato pickles
Cream pie

Thursday-April 7-
Grape fruit
Oatmeal  Top milk
Hash  Toast
Coffee  Cocoa  Milk

Bread crumb griddle cakes
Syrup
Cocoa  Milk

Pot roast  Gravy
Franconia potatoes  Creamed peas
Loganberry jelly
Cream pie

Friday-April 8-
Wheat Hearts  Top milk
Rye muffins  Rhubarb sauce
Coffee  Cocoa  Milk
-12-
Boiled rice  Top milk
Rhubarb sauce
Cocoa

Crab souffle
Potato puff  String beans
Cherry pudding  Hard sauce

Saturday-April 9-
Cornmeal  Top milk
Poached eggs on toast
Coffee  Cocoa  Milk

Fresh home made bread
Honey
Leftovers

Meat pie
Creamed potatoes
Canned pears
The menus were planned during the first part of March, but for various reasons could not be used until later. This, in a measure, accounts for changes in the menus, made necessary by inability to obtain certain foodstuffs in April; e.g. apples.

Changes in the menus found desirable.

The week of experiment began with Sunday's meals instead of with Monday's, because as a practice, the odds and ends are used Saturday, that Sunday's meals may be as ideal as possible. This should have received consideration in connection with the theoretical work.

Sunday.

Breakfast-
No change found necessary.

Dinner-
Mashed potatoes--Franconia potatoes
Mashed potatoes were served Saturday.
Apple, nut, celery salad--orange, banana salad
Apples not in market

Supper-
Stewed dried apricots--stewed dried figs.
Stewed dried figs at hand
Milk--cocoa

Cool evening, cocoa more appropriate.

Monday.

Breakfast--
Oatmeal--cornmeal

Heat necessary for Sunday dinner gave opportunity to cook cornmeal preparatory to putting in hay cooker for the night.

Hash on toast--poached eggs on toast.

No meat at hand suitable for hash.

Luncheon--

No change found necessary.

Dinner--

Roast veal--roast beef.

Roast beef left from Sunday.

Kale greens--canned corn.

Kale greens not in market.

Milk to drink

Supply at hand.

Baked apple tapioca--loganberries, cup cakes.

Apples not in market
Tuesday.

Breakfast-

Cornmeal--Wheat Hearts.

Cornmeal served Monday.

Toast, bacon, fried apples--egg toast.

Apples not in market.

Loganberries

Leftover from Monday.

Luncheon-

Boiled hominy, warm rolls, honey--baked beans, brown bread, stewed figs.

Baked beans, brown bread, stewed figs left over from Sunday.

Dinner-

Stuffed heart--meat pie.

Meat left from roast beef.

Loganberry jelly--salad dressing on lettuce.

Dressing supplied desired tart flavor.

Wednesday.

Breakfast-

Doughnuts--soft boiled eggs

Doughnuts had not been made.
Luncheon-

Cream of corn soup--bean soup.

Beans leftover. Crackers served.

Hamburger steak, potato balls--Graham muffins, canned Kentish cherries.

Muffins and cherries easier to prepare, and not so heavy in protein for luncheon.

Dinner-

Boiled carrots--canned tomatoes.

Good carrots not in market.

Thursday.

Breakfast-

Breadcrum-griddle cakes--hash on toast.

Hash made from last of meat pie.

Luncheon-

Boiled rice, wholewheat biscuit, baked apples with cream--bread crumb griddle cakes, syrup, cocoa, milk.

Apples not in market.

Plenty of milk at hand.

Dinner-

Roast lamb--pot roast.

Pot roast less expensive.
Baked potatoes--Franconia potatoes
Franconia potatoes easily cooked around roast.

Gravy--
Pot roast gravy a favorite dish.

Cranberry jelly--loganberry jelly
Loganberry jelly at hand.

Stewed figs with cream--cream pie
Stewed figs served Sunday.
Cream pie left from Wednesday.

Friday.

Breakfast--
Apple sauce--rhubarb sauce
Apples not in market.
Cornflakes--Wheat Hearts.
Wheat Hearts preferred.
Graham muffins--rye muffins.
Rye muffins for variety.

Luncheon--
Meat croquettes, succotash--boiled rice.
Meat, beans, corn, not at hand.
Loganberries--rhubarb sauce.
Rhubarb sauce a change from canned fruit.
Dinner-

Fried salmon--crab souffle
Salmon not in market.
Mashed potatoes--potato puff
Potato puff used leftover mashed potatoes
Fruit salad, wafers--cherry pudding, hard sauce.
Kentish cherries left from Wednesday.

Saturday.

Breakfast-

Canned prunes omitted.
Seemed unnecessary.
Oatmeal--cornmeal
Oatmeal served Thursday.
Creamed chipped beef--poached eggs on toast.
Fresh eggs from our own hens plentiful.

Luncheon-

Salmon balls, lettuce and egg salad, cocoa, milk--
fresh homemade bread, leftovers.
Salmon not at hand; leftovers to be eaten.

Dinner-

Entire menu changed.
Simple easy supper after a busy day.
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--- | --- | --- | --- | --- | ---
Grape fruit  | 2.00  |  .25  |  .012  |  .002  |  .170  |  340
Honey  | .25  |  .07  |  ---  |  ---  |  .203  |  380
Ice cream  | 1.50  |  .25  |  .031  |  .231  |  .241  |  1475
Lard  | .25  |  .05  |  ---  |  .250  |  ---  |  1055
Lettuce  | .18  |  .10  |  .002  |  ---  |  .005  |  16
Loganberries  | 2.75  |  .20  |  .022  |  .057  |  1.551  |  3162
Loganberry jelly  | .50  |  .15  |  .005  |  ---  |  .386  |  727
Milk  | 36.02  |  .83  |  1.224  |  .108  |  1.736  |  1591
Skim Milk  | 15.60  |  .36  |  .514  |  .624  |  .780  |  5070
Molasses  | .62  |  .03  |  .015  |  ---  |  .433  |  806
Mutton (chops)  | 2.00  |  .35  |  .270  |  .566  |  ---  |  2390
Oatmeal  | .25  |  .01  |  .040  |  .018  |  .168  |  465
Oranges  | 3.25  |  .25  |  .019  |  .003  |  .276  |  552
Pears  | 1.00  |  .10  |  .003  |  .003  |  .180  |  355
Peas  | 1.33  |  .20  |  .047  |  .002  |  .130  |  339
Potatoes  | 11.75  |  .12  |  .211  |  .011  |  1.727  |  3642
Rhubarb  | 2.00  |  .10  |  .008  |  .008  |  .044  |  130
Rice  | 1.00  |  .08  |  .080  |  .003  |  .790  |  1630
Spaghetti  | .36  |  .04  |  .043  |  .001  |  .274  |  597
Sugar  | 5.75  |  .34  |  ---  |  ---  |  5.750  |  10695
Tomatoes  | 1.25  |  .07  |  .015  |  .002  |  .050  |  131
Walnuts  | .12  |  .08  |  .023  |  .080  |  .016  |  412
Wheat Hearts  | 2.00  |  .09  |  .201  |  .040  |  1.520  |  3390
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<td>.1748 lbs.</td>
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<td>Per capita per day</td>
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Before actually performing such an experiment as is discussed here in detail, the menus should be carefully planned, the following points receiving consideration:

- Season of year
- Cost of food materials
- Combination of dishes
- Taste
- Appropriateness
- Base in preparation
- Appearance
- Proportion of food principles

Having these in mind, even a poor, ill-proportioned menu may be reconstructed, revised, and made good. An hour or two spent each week in planning the menus for the week will aid the house-keeper materially. Perhaps the menus will be used only in part, but with a skeleton background, hasty and extravagant orders may be avoided and a truer proportion of food principles maintained.

In calculating the cost of the food, merely the food itself was taken into account, excluding cost of fuel, labor, time, water, and wear and tear on utensils. The staple foodstuffs, as in most families, are bought
in as large quantities as can be conveniently handled. Leftovers are used on the table as odd dishes and very little is ever wasted. The low cost per capita per day proves that with due forethought this item in the household expenses may be noticeably decreased.

A dietary standard is one which is found by the average of many classes to be the amount of protein and the total fuel value of the food consumed, or necessary for a day, to the individual of known age and occupation. Aside from age and occupation, climate, and temperament of the person, have a part in determining the individual requirements or standard. All authorities on dietetics base their statements and theories on experiments, either empirical or physiological, or both. Many standards have been advanced during the last sixty years, notably by Voit, a German physiologist, and by the Americans, Atwater, Chittenden, and Fletcher. With the food requirements of a man at moderate labor as common ground, the early standard of Voit is lenient with grams of protein, and calories, placing the standard at one hundred and twenty-five grams or slightly over, and thirty-five hundred calories; Atwater, whose work follows that of Voit, places his standard at one hundred and twenty grams and thirty-four
hundred calories; Chittenden, sixty grams and twenty-eight hundred calories; while Fletcher suggests, "eat less and chew more". At the present time, Chittenden is regarded the best authority. His experiments have been performed with the greatest accuracy and his results are moderate and practical.

According to Chittenden's standard for a man at moderate labor, sixty grams of protein and twenty-eight hundred calories of energy should be sufficient for the requirements of the body. In proportion to this, a woman at moderate labor requires eight-tenths that of the man. Here may be noted a comparison of the calculated standard of the average family with Chittenden's, — using eighty-three grams of protein per capita and twenty-four hundred calories, thus showing an over consumption of protein. In a few months time this excess of the standard amount of protein could easily be reduced to the normal if the reduction was slowly and gradually made. More fat and carbohydrate would make up the loss in bulk and would also supply the lacking calories.

Therefore, judging from this one week's experiment, it would seem that the average family lives reasonably close to the limits of Chittenden's dietary standard,
and, I think that with little inconvenience could profit by conforming more closely to it.