



A dietary study of three institutions in Montana
by Elizabeth C Cooly

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Montana State University
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Abstract:

As a final summary for all the Institutions, I would like to quote from H.A. Pratt and R.D. Milner [Dietary Studies at the Gov. Hospital for Insane 1902-3-H.A. Pratt and R.D. Milner. U.S. Department of Agriculture. Office of the Experiment Station. Bulletin 150.] "Improperly cooked or flavored or unattractively served food may fail to stimulate the appetite; it may be unfamiliar or too familiar in appearance or taste to be palatable." Frequently one of the principal causes for table waste is unsatisfactory preparation of food including cooking, flavoring, and garnishing. When food is well cooked and tastefully served, and attractive to the eye as well as pleasing to the palate, it is much more apt to be economically eaten; — a considerable part of the pecuniary, and indeed the hygienic, economy of nutrition depends upon the methods of handling the food in the kitchen and dining room. Much more attention can be given to this phase in a family than can possibly be given in a larger institution, but even in the latter it is worthy of more consideration than is sometimes given.

Monotony in diet is especially to be avoided as this has a decided tendency to diminish the relish for food.

Foods come to be associated with days of the Week, and pleasurable effect when the meal is a surprise is very much diminished. Waste cannot be avoided but it can be kept at a minimum." It is interesting to compare the calories and per capita cost for the Institutions studied.

Warm Springs Galen Boulder 1. Number served 1,411 150 140 2. Daily calories per capita 2,978 4,339 2,599 3. Cost per capita per day \$.159 \$.529 \$.33 The range is quite wide, but each institution has its distinct problem to meet both as to requirements of those served and as to the money available.

People who have never lived in an institution cannot realise some of the inherent disadvantages of feeding in large numbers, and those in charge of institutions can make improvements only in so far as money is provided them. The science and economics involved in providing adequate and pleasing menus on limited cost, required a background of scientific training and practical institutional experience. It is false economy to leave this vital phase of work in the hands of cooks or matrons with no scientific training, no matter how competent or interested they may seem. Trained dietitians are comparatively new workers in most institutions, but with the few exceptions which prove the rule, are proving themselves invaluable. Their training demands a salary higher than the average paid in institutions, but the saving effected, and, what is more important, the better balanced and more pleasing menu served, prove the wisdom of the added expenditure. Many times, women who are too young to be permanently satisfied with the long hours of service and confinement which usually accompanies institutional positions, are employed, and this has resulted in a large turnover in this line of work. Most of the complaints against dietitians by those in charge of institutions have this basis. It must be remembered that this is a comparatively new field of work, and that time will provide a larger group of experienced mature workers, who will not chafe under the restriction of institutional life.

Montana institutions, with the possible exception of Warm Springs, are comparatively small and the

expense of a dietitian is correspondingly greater. The problem might in part be solved by the employment of an experienced State Dietitian who would work with the State Purchasing Agent and with those In charge of each institution. A more permanent policy could thus be established and the local dietitian or experienced untrained worker, could come and go without too seriously upsetting the routine of the institution. The State Board of Control in Wisconsin has recently adopted this plan. The fact which the public in general and State Officials in particular should recognize is that the field of the dietitian is a specialised line of work and that the average head of an institution does not have, and should not be expected to have, the time or the knowledge to administer this phase of work with the desired efficiency and satisfaction without trained assistance.

A State Dietitian could undoubtedly render service to other institutions of the state as the Vocational school for Boys at Miles City, the Vocational School for Girls at Helena, The Orphans' Home at Twin Bridges, and the Penitentiary at Deer Lodge.

A DIETARY SURVEY OF THREE INSTITUTIONS IN MONTANA

by

ELIZABETH C. COOLY

A THESIS

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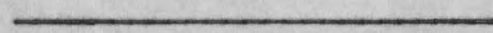
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P R O L O G U E

In writing this survey, I wish to thank Governor Dixon and President Atkinson of Montana State College for making it possible for me to make the visits which I made to Warm Springs, Galen and Boulder. I also wish to thank the Superintendents of these Institutions for the many courtesies shown me during my stay. Especially do I wish to thank the Dietitians, Miss Helen Nowak, Miss Dorothy Miller and Miss Sophie Anderson, and their co-workers for their hearty cooperation, without which such a survey would have been impossible.

To Miss Gladys Branegan and Miss Mirdyaleen Maxwell, I am indebted for their constant inspiration, guidance and helpful ready assistance in compiling the results of the studies.



BOB BOWEN
BOWEN

The first dietary studies of any kind, in this Country, were made between 1880 and 1900. Most of these were carried on in private families, for the purpose of finding the fuel and "nutriment" value of various foods common in American Diets. All of the foods in the diets were analyzed to find their chemical composition. The results of several hundred such studies, carried on in all parts of the United States, have been recorded by Dr. Atwater and Mr. Bryant (a). This period marks the first big advance in nutrition.

The next few years were devoted to studies, mainly of an economic nature, getting typical American diets, from people in various occupations. The object here was to see how the occupation influenced the quantity of food eaten, and how people with moderate or little means could obtain the most energy from foods with the smallest amount of money. While the majority of these studies were carried on with private families, some were also carried on with groups such as the Dietary Studies with the Maine Lumberman and also Dietary Studies with Harvard students. (b) From this work was evolved Atwater's Standards for Daily Diets (c) which are as follows:

- (a) The Chemical Composition of American Food Materials by W. O. Atwater, Ph. D. and A. P. Bryant, M.S. Bulletin 28. United States Department of Agriculture, Office of the Experiment Station.

- (b) Studies of the Food of the Maine Lumberman - 1901-1902 by C.D. Wood and E.R. Mansfield. United States Dept. of Agriculture, Bulletin 149, Office of the Experiment Station.
- (c) Methods and Results of Investigation on the Chem. and Economy of Food by W.O. Atwater. Bulletin 21, United States Department of Agriculture, Office of the Experiment Station.

	<u>Protein Grms.</u>	<u>Calories</u>
1. Woman doing light work	90	2400
2. Woman doing moderate work) Man doing sidentary work)	100	2700
3. Man doing light work	112	3050
4. Man doing moderate work	125	3500
5. Man doing muscular work	150	4150
6. Man doing very hard Muscular Work	175	5500

It was noted in finding the chemical composition of foods that nearly all of them contain ash of some kind. During the third big advance in nutrition, special emphasis was placed upon the kinds of ash, or minerals as they are now called, which are present in the foods we eat. Certain processes of manufacture and cooking remove a large part of these. Calcium, which is essential for bone building, blood coagulation and the normal functioning of the heart muscle, phosphorous, which also aids in bone building and has to do with the nerve control of all muscles, and iron, which aids in the formation of hemoglobin in the blood, are the minerals which are most often and most likely to be deficient in our diets. For this reason the calculations of these minerals with their standards

have been included in this survey (a).

The phase of nutrition which now occupies the center of attention is that of the Vitamins. At present there are three well established ones, Vitamin A, Vitamin B and Vitamin C. Several others are waiting more extensive experiments to prove their identity. Since none of these illusive substances have been isolated chemically, we have no quantitative measurement for them. The relative amounts present or the absence of them in any given food is indicated by plus and minus signs.

(a) Chemistry of Food and Nutrition, 1920, Dr. Henry C. Sherman, Pp. 234 to 308 and 342 to 345.

A lack of Vitamin A causes an eye trouble called Ophthalmia. This vitamin is found in butter fat and cod-liver oil, but it is not found in purified or rendered fats or oils.

When Vitamin B is deficient, there is first a loss of appetite, then loss of nerve control and finally Beriberi develops. This is prevented by the free use of green vegetables.

Of all the Vitamins, Vitamin C is the most apt to be deficient in institutional dietaries, because it is destroyed by heat. Scurvy develops when this vitamin is deficient. Tomatoes, because they contain so much of this vitamin and potatoes because they are generally eaten in large quantities, and do contain some of the substance after they are cooked, are valuable sources of "C". However, as free a use as possible of fresh vegetables and fruits is much to be de-

sired. (a).

From the above it can be seen why it is so important to have a varied diet, and also the importance of having foods in the right proportion to adequately meet the physiological needs of the body.

With these points in mind let us review what has so far been done to find out conditions in public institutions in the United States.

In 1900 Dr. Atwater investigated the dietary conditions of the insane asylums of New York State, under the auspices of the "New York State Commission in Lunacy". The next year H.A. Pratt and R.A. Milner made a similar study at the Government Hospital for the Insane near Washington, D.C. Later Dietary Studies of Public Institution in Philadelphia were carried on by Emma Smedly and R.D. Milner.

(a) The Vitamins - 1922 Sherman and Smith.

Parallel to these studies, H.L. Knight, H.A. Pratt and G.F. Langworthy carried on similar studies in Public Institutions in Baltimore. Several other states have followed the lead of these states; Ohio, Illinois, and Kansas. In Missouri, Miss June Findley reported on four hospitals for the Insane. We had access to Miss Findley's study. However the available literature on the other dietary surveys is very meagre.

Purpose of this Survey

The purposes of these studies were to observe different

types of institutions; to observe conditions of food preparation in them; to find the amount of food used and the amounts wasted; to note food selections, cost and quantities bought; and lastly to note any special ways of keeping tab on patients—first for the information and experience of the investigator and secondly with the thought that the results might be of interest and value to the officials of the respective institutions.

Methods of Obtaining Data

A weeks visit was made at each institution. The first day was generally spent in observation of conditions noting any special features about the diets, patients or methods of keeping track of them. Next, visits to the dining room or rooms, kitchen and storehouse were made.

The menus for two weeks periods were obtained, and in every case those for a month or two before were studied to be sure that the ones for the week of study were typical.

Amounts of food were recorded on cards from day to day. Cost of the food, units of purchase and unit costs were also noted on these cards.

The total number of people served, the total budget and the food budget were also noted.

Calculations of the calories, minerals, cost and vitamin content were made at home. The cost per person, per day with the number of calories, and the minerals received is given

in the summary with each institution. (a). All calculations were made from Rose's Laboratory Manual.

Rose's method for abbreviations of Dietary Calculation with large quantities was used. With one exception it was found excellent. In calculating the last group "Animal products exclusive of whole milk, and fat," the factors did not prove out, so I calculated the total calories and protein calories as usual, and subtracted the protein calories from the total calories to get the fat calories. In no case in the group were carbohydrates considered since they were present in such very small amounts. With this exception the factors were used as they stand.

(a) Mrs. Mary Swartz Rose's, Laboratory Handbook for Diets (Revised Edition 1922)

The Study at Warm Springs

The type or purpose of the institution was one of the first things noted in my visits to them. Naturally great variations were to be expected in the institutions as their problems were so different. Warm Springs, the State Hospital for the Insane, is more than a prison for confining these unfortunates. As the term hospital indicates, medical treatment is provided for bodies and minds, which frequently result in cures. Many are of course incurable. To be sure, the patients have their "disturbed" times, but many of them are perfectly rational much of the time. Most of them are quite harmless. A number of the patients have their daily work to do, though none of them are forced to work if they do not wish to. Generally, the patients are quite willing to do what is asked of them. For this reason there is very little expenditure for help other than for supervision.

Warm Springs is a small village in itself, with well kept lawns and several fine buildings. Superintendent Dr. Hathaway and the officials live in cottages which makes the place seem less of an institution.

The Main Hospital houses, the Receiving Ward, the Epileptic Ward, and the Hospital Proper, and also a Diet Kitchen. The men are housed into the Mitchel Building (where the working men are housed) and the two yards. The women are grouped in their own quarters, according to their condition. The main kitchen is

in a separate building, which contains the bakery and employees dining room. The commissary is located just behind the building.

At the time the study was made, November 4-10, 1923, there were 168 employees, and 1411 patients. Many of the patients worked around doing various things under the supervision of an employee. The attendants worked eight hours a day, and I think fared very well as far as menus and things to eat were concerned. They had a system of raises in salary which tended to make them more permanent. They started in with \$45.00 per month and were raised \$2.50 every three months until they had reached \$65.00 a month, which was the maximum salary among attendants.

Most of the people working in the kitchen were patients. For this reason, they were not always as clean as they might have been, the dietitian having to help watch constantly that their aprons were clean, but the patients did try to keep the equipment and place in fair condition. Miss Nowak, the dietitian, had placed an order for new steam kettles and hoped to have them arranged so that the kitchen would be more convenient. The kitchen itself was light and had plenty of window space for ventilation. The space allotted for baking and the number of bakers was not sufficient to supply the variety for the patients which was given to the employees. All baking for this Institution and the bread for the State Tuberculosis Sanitorium at Galen, four miles away, was done there. This was all in charge

of one baker. If there could have been another more variety could have been provided in the patients' menus.

"In providing for the population of a hospital for the insane, two fundamental principles must be recognized. First that the kinds and amounts of food be adapted to the physiological needs of the patients, and second, that these demands differ with different classes of people."

One important function of the brain is to regulate metabolism. Although very little is yet known of the dietary requirements of the Insane, it seems probable that it would be above that of a normal group of persons.

A 15 to 20% margin should be given in food to allow for these variations. (a)

All the vegetables were peeled by patients, instead of using a potato peeler. Of course nothing had to be paid for patient help, but the average wastes for a week as given by the dietitian were:

Potatoes----28 lbs. per 100

Carrots----25 lbs. per 100

Rutabagas----23 lbs. per 100

Turnips----25 lbs. per 100

(a) *Dietics in Relation to Hospitals for the Insane*, by W. O. Atwater, Ph.D. Annual Report 1904 of the U. S. Department of Agriculture, Office of the Experiment Station.

Aside from this one item, which in an institution of this size, is very large, the waste seemed to have been cut to the minimum.

To two of the buildings, food was carried through an underground passage on trucks, in five gallon containers. To the hospital it was carried in a food cart across the grounds. Often the food reached its destination cold, partly because the containers had no covers and partly because it was often ready quite a while before it was time to take it to the service rooms. There is a need for quite a bit of equipment to make the kitchen and bake shop as efficient as they should be. One thing that would add very much to the comfort of the patients, is to have steam tables installed in the service rooms, as then the food which is supposed to be served hot, may be kept that way.

For the most part food that was not served was returned to the kitchen and made into hash. As was said before, the actual table waste was reduced probably to a minimum. Most of this was in the form of tea or scraps of bread or stew.

The food delivered to the door of the service rooms was taken in and placed in serving dishes on the tables, where an attendant helped the patients to it. An aluminum cup, plate and spoon were provided all patients except those who were not so sick and who could use a fork and knife without danger to themselves or others. These latter patients have separate

dining rooms. Each patient has two slices of bread and a pat of oleo at his place, when he sits down to the table. They have as much to eat as they wish. Coffee is served in the morning and tea at noon and night. Skimmed milk is served with the breakfast food. Some of the patients receive milk toast in the afternoon aside from their regular meals.

On the whole the employees' menus were much better and there was much more variety in them than in the patients' menus. However, I was told that the patients' menus were much improved over what they had been before the dietitian came. For example in the Epileptic Ward there were 68 patients. They had been receiving every night except Wednesday and Sunday, 20 gallons of beans, or over a quart of beans per patient. This was remedied when the dietitian came.

Miss Nowak makes out the vegetable list for two kinds of vegetables, other than potatoes, a day, the week before they were to be used and sends it to the Commissary. They delivered them to the basement of the kitchen the day before they were to be used. There was quite a wide range of vegetables due probably to the fact that many of them were raised on the farm by the patients. The only criticism is that they were all cooked. Might it not have been possible to shred some of the cabbage and serve it raw? This would have increased the vitamin content.

Dried fruits which were to be served very night during the winter were nearly gone until the latter part of my study when the winter shipment arrived. Apples were used in place of these.

The meat, except for Sunday, was always beef stew, and on Sunday it was Roast Beef. The cheaper cuts were used and therefore it was often tough. In this connection I wish to quote from some "Dietary Studies in Baltimore," (a) which says:

"In planning Institution dietaries whether for the aged, the middle aged, or the young, humanity demands that some account be taken of the comfort as well as the nutritive requirements of the inmates, especially when they have become wards of the State through no fault of their own. To what extent the Dietitian is justified in going beyond the minimum ration, which is consistent with safety, or beyond the minimum cost for variety's sake, must depend upon the character of the institution and the funds at its disposal. There are, however, many methods by which variety can be obtained with little or no increased cost."

(a) Dietary Studies in Baltimore.

H. K. Knight, H. A. Pratt and C. F. Langworthy--U. S.
Dept. of Ag. Office of the Experiment Station,
Bulletin 223--page 44.

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Menu for a week

Sunday

Breakfast

Oatmeal
Bread and Oleo
Coffee
Fried Potatoes

Dinner

Roast Beef
Steamed Potatoes
Carrots
Bread and Tea

Supper

Creamed Turnips
Bread
Tea
Hash
Deep Apple Pie

Tuesday

Breakfast

Oatmeal
Bread and Oleo
Coffee
Fried Potatoes

Dinner

Meat Stew and Veg.
Steamed Potatoes
Split Beans
Bread and Tea

Supper

Creamed Turnips
Raisin Bread
Tea
Hash
Dried Apple Sauce

Monday

Breakfast

Oatmeal
Bread and Oleo
Coffee
Fried Potatoes

Dinner

Meat Stew
Rutabagas
Bread and Tea

Supper

Creamed Cabbage
Corn bread
Tea
Hash

Wednesday

Breakfast

Oatmeal
Bread and Oleo
Coffee
Bacon

Dinner

Meat Stew and
Sliced Potatoes
Beets
Coffee Cake-Tea

Supper

Rice cooked in
milk
Tea and bread
Dried Apples
Hash

