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FOOD PROBLEMS IN STATE INSTITUTIONS

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Food selection has been a problem of major importance not only to man, but to all living creatures from the first unicellular micro-organism which absorbed its nourishment from the brackish waters of the sea.

Without food selection we should never have arrived. Were it not for the pangs of hunger we should never have survived. Man's earliest food experiments were matters of selection or rejection on the basis of taste and satisfactory consequences. We marvel when we think of the man who first ate an oyster.

We have progressed a long way since these early experiments, and food selection has assumed the aspect of a science. To a very large degree we are kept well or become ill in proportion as our food selection is sound or faulty. It is therefore of greatest importance that we give thought to the question of what to select and how to feed our patients.

No scientist of today will contend that anyone has found the perfect diet for any class of people, and it is true that one man's meat may be another man's poison. There are, however, known facts concerning food selection and preparation which should be adhered to, and we should be guided by men of known scientific attainments and not by dogmatic statements of food faddists.

It is interesting to note that the American Medical Association has recently added to its council of pharmacy and chemistry a committee on foods. This committee, after investigation as to composition and process of manufacture, gives its stamp of approval to manufactured foods which conform to its standards, and publishes its findings in the Journal.

The dietetic treatment of manifold diseases is assuming greater importance, supplementing and in many cases supplanting drug therapy.

At a previous conference not so long ago the ketogenic diet in epilepsy was ably presented by Dr. Theodora Wheeler, of the Mayo Clinic, and Dr. D. E. McBroom of the State Colony for Epileptics. Papers on foodstuffs and food service in institutions were ably presented by Miss Gertrude Thomas, dietitian at the Minnesota University Hospital, and Miss G. E. Moreland, dietitian at the Northern Pacific Hospital in St. Paul. At this conference Dr. W. L. Patterson presented an excellent and comprehensive paper on food problems in state institutions, giving us an account of the very efficient and satisfactory manner in which food is prepared and served at the Fergus Falls State Hospital.

It is not the province of this paper to go into the scientific aspect of nutrition. There are, however, nutritional factors which have only recently come to light, which we may well consider briefly in their relation to the institutional dietary. These are the vitamins.

A brief but comprehensive definition of a vitamin is as follows: "It is a substance present in various natural foodstuffs in minute quantities,

the continued absence of which from the diet results sooner or later in a definite diseased or pathological condition."

If you lack a vitamin in your diet for a length of time, depending upon the particular vitamin, you will suffer a certain kind of illness. Nothing is gained by getting more than the normal amount, which is infinitesimal. No one vitamin will take the place of others. All are needed.

The known vitamins are five in number, and are vitamins A B C D and E.

Vitamin A is present in butter fat, green vegetables, and is concentrated in cod liver oil.

Its omission from the diet results in cessation of growth, a drying-up of the tear glands, and a general lowering of resistance to agents of infection.

Vitamin B is present in whole cereals, vegetables, fruits, nuts, and, in fact, most foods except meat. Removal of the grain coats eliminates most of it from cereals. Hence highly milled products, such as white flour and polished rice, contain very little.

The absence of this vitamin from the diet results in a multiple inflammation of the nerves and the diseases known as beri-beri, prevalent in India, and pelagra, in some parts of America.

Vitamin C is present in fresh fruits and green vegetables.

Canning and cooking reduce, but do not destroy, this vitamin.

Its absence from the diet results in hemorrhagic lesions, loosening of teeth, and defects in lime deposition in the bones, constituting the disease called scurvy. This Vitamin C is known as the antiscorbutic vitamin.

Vitamin D is present in milk and egg yolk. No other foods are known to contain it in any abundance, although fish oils are rich in this vitamin.

Unlike the other vitamins, its presence in the diet is not essential, for if the skin is exposed to the sun or ultra-violet rays, we can apparently create this vitamin within our bodies, or at least produce something which will function just as well.

The absence of this factor from the diet means failure to utilize properly calcium in the production of bone.

This failure produces rickets in children and causes the withdrawal of calcium from the bones in adults.

Vitamin E is known as the anti-sterility vitamin, first described by Evans and Bishop. It is present in wheat germ, lettuce and meat.

Rats fed on a diet including liberal amounts of vitamins A B C and D, but without vitamin E, in course of time become sterile. Small additions of wheat germ, lettuce or meat prevent this condition.

This vitamin is of no particular interest in the consideration of institutional food problems.

These five vitamins make up the known list to date. There is, however, no evidence that others do not exist.

While it is well that we keep in mind the source of these vitamins, there should be no difficulty in seeing that all are present in the food served our patients.

It is our duty to see that our patients are served a well balanced diet of protein, fats, and carbohydrates, made up of meat, vegetables, fruits, milk, butter, cereals and sugar.

For a balanced diet the food elements as given us by Miss Thomas should be divided as follows:

10% of the calories from protein.

30% of the calories from fats.

60% of the calories from carbohydrates.

From 2000 to 3500 calories, depending upon weight and work performed, is ample to supply heat, energy and body growth. The food should be varied, well cooked, and attractively served.

As a basis for discussion I will endeavor to state how the food problem is being taken care of at the School for Feeble-Minded.

PROVIDING THE FOOD

First we endeavor to raise as much as possible on the farm and in the garden.

Last year the dairy, with 70 cows, produced 747,906 pounds of milk, a daily average of over 2,000 pounds.

Hogs are raised to take care of the garbage, and after fattening are sold at an average yearly profit of $2,000.00.

We depend on ice for cold storage, and put up about 2,000 tons each winter, a never failing crop.

Last year 70 acres of land produced 7,500 bushels of potatoes, which is only about one-half of the potatoes consumed. We plan to increase our acreage another year.

Vegetable gardens cover 85 acres and produce sweet corn, peas, string beans, turnips, rutabagas, onions, carrots, cabbage, and berries, in ample quantities for summer consumption. Four thousand gallons of tomatoes were canned in our kitchen, and corn, peas, string beans and pumpkins are put up for our use in local canning factories.

All other foodstuffs are provided through the Central Purchasing Agency, and you all know the excellency and uniformity of the products furnished by Mr. Richards, the purchasing agent for our state institutions.

As we depend upon ice storage we are not able to hold perishable goods for long periods, and require frequent shipments.

Cereals are kept in a dry and cool storeroom, and only small quantities are kept on hand. If a quarterly supply is ordered in one lot it is apt to deteriorate before being used; this also applies to dried fruits.

THE PLANNING OF THE MENU

Weekly menus for patients, officers, and employes, are prepared by an officer in charge of food service, who is well grounded in food values and costs. She advises with the superintendent and steward in the preparation of the budget, and estimates and has supervision over the preparation and service of food.

The weekly menu is prepared after consultation with the chef, gardener, steward, physicians and superintendent.

Breakfasts consist of alternations of rolled oats, cracked wheat, hominy grits, wheat granules and corn flakes, bread and butter, sauce, which with us means a stewed fruit, cereal, coffee, cocoa and milk. Rolled oats and cracked wheat are well liked, and are prepared twice weekly; hominy, wheat granules, once a week. Corn flakes are served when the milk supply is abundant.

Apples, figs, peaches, prunes, and raisins are served as sauce. Prunes are better liked than figs unless served in a heavy syrup.

Dried fruit should be kept in a dry, cool place and the stock should not be allowed to get old.

Dinners include roast and boiled meats and stews. Roast meats are liked the best, though stews are preferred by some, and pork and beans by others.

Potatoes and one other vegetable are served. A vegetable stew frequently served is liked by everyone. It is particularly satisfactory for the lower grades. Bean and pea soup are each served frequently, and macaroni and beef stock occasionally as a change. Beef stock is used in all soups, such as macaroni, split pea, rice, barley and peas and beans mixed. When fresh vegetables are not obtainable, canned vegetables, lima beans, macaroni and rice are substituted.

Suppers consist of soups with bread and butter, coffee cake, cheese, cornbread, crackers, gingerbread, cornmeal mush, with cereal coffee and tea.

Either gingerbread, corn cake or plain white and dark cake appear on the table at least twice a week. Dried-fruit pies, also rhubarb and pumpkin when in season, are given twice a week.

On Thanksgiving and Christmas we usually have fricassee of chicken with mashed potatoes, vegetables, and cranberry sauce, with mince pie for dinner, oysters for supper.

During the summer ice cream is served occasionally.

Of course special diets, including fresh fruits and vegetables, are given to patients in the hospital, and to others when prescribed by the physician in charge.

Employes' and officers' breakfasts consist of cereals, bread and butter, toast and fried potatoes, hash, bacon, creamed codfish, hamburger steak with coffee, tea or milk. Dinners consist of roast pork, roast beef, pork chops and beefsteak. Fresh fish or salmon loaf is served every Friday and salt salmon occasionally. Vegetables, puddings, pie or fruit,

coffee, tea or milk. Employes' suppers consist of cold boiled ham, hamburger, weiners, pork sausage, beef loaf with fried potatoes, cake and sauce, biscuits, cheese and cookies, coffee, tea and milk.

Chicken is served occasionally for Sunday dinners.

The food is well cooked and attractively served.

When eggs are cheap they are served twice a week to the employes, and at Easter time to all.

Sauerkraut is a popular dish, and served once a week during the winter.

The following quantities are used weekly:

Flour, 55 barrels.
Beef, 3800 pounds.
Butter, 950 pounds.
Milk 14,000 pounds or 2,000 pounds daily.
Potatoes, 315 bushels or 45 bushels daily.

Practically all meals are prepared in one large Central Kitchen, with bakery attached.

Potatoes and vegetables are prepared in a separate building and conveyed to the kitchen by trucks.

The central kitchen and bakery are well equipped with large ovens, dough mixers, steam roasters and kettles. The steamers hold 20 bushels of potatoes, and kettles have a total capacity of 1000 gallons.

Over 3000 feet of underground tunnels radiate from the central kitchen to 18 separate dining rooms, to which food is conveyed in cars hung from an overhead trolley. The longest haul through the underground trolley system is 1,810 feet.

Food for the Colony, a group of cottages which is one-half mile from the kitchen, the dairy cottage, about the same distance, and Springdale, three-fourths of a mile away, is conveyed in a closed, horse-drawn wagon.

The Farm Colony with 20 and Grandview with 60 boys, about four miles distant, each has its own kitchen.

The only other separate kitchen is in a cottage for high-grade girls who prepare their own meals and who are being trained for outside supervision.

All food leaves the kitchen in tightly closed, oblong containers, closely packed; reaches the dining rooms within a few minutes; and is served immediately.

All dining rooms have serving pantries with hot plates, steam tables or ranges, but these are seldom needed as the food is sufficient in bulk to retain its heat.

The number served in the various dining rooms does not vary appreciably, and experience has determined the quantities required. A close check on garbage after meals in the dining rooms and later at the piggery convinces me that there is no material waste.

We have the special problem of feeding the very helpless of whom we have over 200, who are spoon-fed. For these the solid food is passed through a food grinder.

Although our system may be crude, it works without friction. We are fortunate in having a fine group of men and women in the service. There have been only three changes in the personnel in our kitchen in the past two years. The children are well nourished and give little evidence of dietetic disturbances, unless it be over-weight in some of our adults whom we have difficulty in inducing to take sufficient exercise.

We have few complaints, and with very few exceptions our patients and employes and officers are reasonably satisfied with their meals.

Mr. Coleman: Thank you, Doctor Murdoch, for your excellent paper. Doctor Kilbourne will open the discussion on this paper.

Arthur F. Kilbourne, M. D., Superintendent, Rochester State Hospital: Mr. Chairman, Ladies and Gentlemen, I am not going to take into consideration the food of the employes, because if it is not satisfactory you soon hear from them. It is good policy to keep them well fed.

I know my talk may be a little monotonous for I am going to speak of the cost of foods. The per capita cost of a breakfast consisting of oatmeal with milk and sugar, white and graham bread, butter and syrup, and coffee with milk and sugar, with a population of 1,441, is $.039. That is a pretty cheap breakfast, so I suggested the addition of prunes. It is easy enough to suggest adding something to the menu, but those conversant with the facts know that it costs money. The addition of prunes to that breakfast increased the cost $10.75, the per capita cost to $.0464; the calories from 600 to 700.

The following dinner was served at our institution early this month: Vegetable soup- By the way, I think vegetable soup and meat stew contain the proper calories and are the most nutritious foods you can give the patients, but there is something besides nutrition, there is the satisfaction it gives. Nature has given us certain pleasures and one of them is eating. It is not a question of mere nutrition; it is a question of the stimulation of the appetite by change in food and by the pleasure given in eating the particular food set before you. We had vegetable soup, boiled beef with gravy, steamed potatoes, creamed carrots, white or graham bread, syrup, sago pudding, tea with milk and sugar. The cost of this meal was $108.54, or a per capita cost of $.0753; minimum calorie value, 910.

For supper: Pearled barley with milk and sugar, white or graham bread, butter, syrup, dried prune sauce, tea with milk and sugar. This food cost $68.49 or a per capita of $.0474; minimum calorie value, 680. Outside workers get more. They are given a diet for working men and eat in a separate dining room. They get meat for supper. I am not including the cost of the employes' wages in the dietary department; just the cost of the food.

The total cost of the food for the day was $233.31 or a per capita cost of $.1617.

I had those calories checked by Miss Foley, dietitian for the Mayo Clinic. She thought the menu was fairly well balanced, but suggested the use of either fresh vegetables or fruit with the supper about three times weekly.

Here is another dinner: Codfish creamed with whole milk, mashed potatoes, stewed beans with salt pork, white or graham bread, syrup, tea with milk and sugar. Total cost $86.48 or a per capita cost of $.06.

Supper: Macaroni cooked in tomato sauce, cottage cheese, white or graham bread, butter, peanut butter, syrup, tea with milk and sugar, dried prune sauce. It took 30 gallons of tomatoes for the macaroni. That supper cost $82.24, or $.057 per capita.

On Sunday the dinner runs up to $172.09. That is twice as much as any other day. The per capita on that day is practically $.12 for dinner.

For Sunday supper the total cost is $70.24; per capita cost, $.0484.

Breakfast cost, $69.83; per capita cost, $.0484.

Total cost for Sunday is $312.16, or a per capita cost of $.2166. That isn't so bad.

The total cost of food listed on the weekly menu beginning February 3 and ending February 9, 1930, amounted to $1,687.02, an average cost of $241.00 daily. The per capita daily cost was $.1665 or an average cost per meal of $.0555. These figures do not include items which are a part of the patients' daily menu but not enumerated; that is, fresh eggs. We seldom have to buy eggs. One hundred and twenty to two hundred and forty eggs are used daily with whole milk for the making of eggnogs. Their use is limited to those whose physical condition necessitates extra diet. The wages of employes in the culinary department and the fuel used add 2¾ cents to the daily per capita cost.

Lunches are served weekly to the different departments that employ women; that is, in the sewing room, laundry and industrial therapy or the different wards during housecleaning. The lunches for these do not vary much from this menu: Bread and butter, salmon salad or cheese, coffee, cream and sugar, jelly or peanut butter. This lunch is for the workers only. The value of these items added to the weekly cost would be quite noticeable and would no doubt increase the per capita cost per meal to about $.06 or $.18 daily.

Milk is an item the quantity of which varies. Our milk at the present time is about 800 lbs. short of what it will be later on in the summer, and with the more abundant use of fresh vegetables at that time the daily per capita cost will be increased to about $.20 or $.21.

There is quite a wide range in the cost of meats. Roast pork is the most expensive thing you can use. Roast pork costs us $102.00; while boiled or roast beef costs $65.83; beef stew, $43.00; meat loaf, $47.55; codfish, $12.50; weiners, $45.87. These prices cover cost per meal.

During the last six months of the fiscal year we used 19,305 lbs. process butter at a total cost of $7,604.81, or an average cost per pound

of $.3991, nearly 40 cents a pound, and 6,780 lbs. creamery print butter at a total cost of $2,927.50 or an average of $.4318 a pound, a difference in price of $.0317 a pound. Print butter averages about one cent more per pound than tub butter. Using the number of pounds of butter for the last six months of the fiscal year as a base, 19,305, and the difference in price, $.02991, between creamery butter and process butter, the added cost would have amounted to $1,154.82, or an added yearly per capita cost of $.80.

I have here a circular describing the Giant butter cutter. Maybe some of you know something about it. I am satisfied that there is considerable loss in serving tub butter unless you have some way of cutting it. If you can divide your butter into one-half-ounce pieces, I believe we could serve print butter at the same price that we have served process butter.

We are dependent upon fresh vegetables; we should have more of them. The question is, how are you going to get a continuous supply? It is almost impossible in winter to provide fresh vegetables, but I think that at least in the summer time, where we are dependent upon climatic conditions for a crop, everything should be done to increase the supply. The recently invented process of quick freezing may eventually solve the problem of fresh vegetables for winter use in our institutions.

As Doctor Murdoch has said, the nutrition depends upon caloric value and upon the vitamins.

The supplying of food is one of the great economic problems in our institutions and might involve the necessity of cutting out some other items in the current expenses. The remedy for that is either to appropriate a certain amount to be spent for food irrespective of any other expenditure or to increase the amount of the appropriation for current expense.

Mr. Coleman: They say you are very partial to stews in Rochester.

Dr. Kilbourne: We took away stews and the patients were so greatly disappointed that we have had to continue serving them.

Mr. Coleman: Doctor Burns, we should like to hear from you.

H. A. Burns, M. D., Superintendent, State Sanatorium for Consumptives: Whenever the question of diet comes up I am always reminded of the dinner which that master of hosts, Lucius, gave when he entertained his brother, Vitellius, the newly appointed emperor of Rome. Vitellius had been commander of the Roman legions in southern Germany, I believe, and had come back to Rome to celebrate his coronation. Lucius gave him a dinner at which 2,000 dishes of fish and 7,000 dishes of fowl were served. Not long thereafter Vitellius was dragged to the Gemonian stairs and killed.

I do not believe it is possible for any institution or any group to satisfy more than one hungry individual on one diet or one menu. It is entirely a relative thing, dependent upon the background of the individual whether or not he is satisfied with the food he obtains. As Doctor Kilbourne says, one of our pleasures is the eating of food, and many people possibly pay a little too much attention to this particular pastime.