

CAMP COOKERY.

by

GEORGE GARFIELD McDOWELL.

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CAMP COOKERY.

General Egbert L. Viele, a veteran of the Mexican and Civil wars and numerous Indian campaigns, has well said: "A bad cook is a man's worst enemy, and a soldier has more reason to dread this enemy of his health than the open enemy in the field."

This enemy, in conjunction with the various camp diseases, has proven a most disastrous one to all armies in the past. From statistics of comparative losses by bullet and by disease in past wars it seems a wonder that a nation so far advanced in military science as the United States should give this ever present foe so little attention.

It would, perhaps, be well to give the comparative losses in several modern wars, resulting from these two causes. They are as follows:

WAR	SIDE	LOSS BY BULLET	LOSS BY DISEASE.
Civil war	North	78200	149200
Crimean war	English	120400	429200
Franco-Prussian	German	28200	12800
Grecio-Turkish	Turkish	1000	27000
Spanish-American	American	300	2625

These figures are all given in round numbers, and show that the losses resulting from disease in all late wars of any import, except of the Germans in the Franco-Prussian War, have been far greater than those resulting from the bullet. But you may ask what camp cookery has to do with bringing about these losses. I will give the views of two eminent authorities in the subject.

Mary Ronald, the author of the Century Cook Book, tells us: "It is upon the kitchen that the health and comfort of the family greatly depend." Dr. Gilmore Thompson, author of Practical Dietetics and the recognized American authority on the mixed diet, says: "Food improper in quality and deficient in quantity, is sure to be, not only a source of disease, but, indirectly, by lowering the vitality of the body, it leaves it an easy prey to epidemic and contagious diseases of every sort." This fact, so clearly stated by Dr. Thompson, has been one of the principal causes of so great losses from disease in all wars.

My own theory of the relation of proper cooking to the strength of an army is based on the consideration of the soldier as a machine for the transformation of energy. He receives a certain amount of energy daily in the form of a ration, which, when eaten, is transformed into physical or bodily energy. Part of this energy is consumed in the digestion of food, and part in other ways. We need to consider, at present, only three of these others; in carrying out the will of the commanding officer; in resisting the attacks of

various disease germs, and in resisting the various degrading moral influences of the camp. It follows that if more energy is consumed in the digestion of food, less will be available for these other purposes. Improperly cooked food not only requires more work to be done in digesting it, but gives less nutriment in return, for the amount of work done. So improper cooking has worked in two ways in its ravages of armies. First, by opening a way by which disease germs may enter the system and, secondly, by giving the body less chance to withstand the attacks of these germs. Tho the proper sanitation of camps does much toward the prevention of disease, it is a recognized fact that the camp cannot be kept absolutely free from the bacilli of infectious diseases. Hence, the surest method of preventing disease in camp is to keep the body in a state of perfect health by providing it with properly cooked food. This does not mean that we wish to detract anything from the importance of the other health preserving factors, such as proper sanitation, sufficient exercise, etc., but only to lay more stress on this most important factor to which so little attention is today given by army officers.

Proper cooking, besides increasing the actual fighting force of a man, increases the fighting capacity of the individual soldier by increasing the amount of energy that can be utilized in other ways than digesting food. This increase may be obtained in two ways: first, by increasing the amount of available nutriment in any given

food; and second, by reducing the amount of work necessary to assimilate this nutriment. Both these ends are attained by proper cooking. This is a very important factor and is given much weight by all modern athletes.

There is still another consideration in estimating the value of proper cooking. That is its effect on the moral life of the soldier. It is a recognized fact that those who habitually overeat, or eat moderately of improperly cooked foods, cannot be as good men morally as those fed moderately on properly cooked food. This fact, tho it is of great strategical value to the general in the field, is of far greater sociological value to the country and the world at large.

To illustrate: A company of one hundred and six men, fighting as our soldiers are at present, in the tropics, have an average of not over seventy-five men in the firing line, during actual fighting. Of the remainder, not over twelve are on other duties. The remaining nineteen are on the sick list from such preventable diseases as dysentery, fever, etc. We are confident from a little experience and some study, that, with a suitable ration, properly cooked, this last number could be reduced by two-thirds, and over and above this, the powers of endurance and the moral standing of the command could be raised at least ten per cent. By "suitable ration" is meant one that will adequately meet the demand of the soldier as well as the commissary department. By "proper cooking"

is meant the application of heat to the various ingredients of the ration in such a way as to render the greatest possible amount of the nutritious matter available to the body with the least possible expenditure of energy in its assimilation.

It has been said that a sick man is worse than a dead one when considered from a strategical standpoint. If this be true, our army is sustaining, at the present, a permanent loss of over ten per cent of its fighting strength, which loss, with the rigid application of proper cookery, could be converted into a reinforcement of strength, equal to the present loss. Such an advantage, if it could be secured by ordinary reinforcements, by better protection from the enemy's fire, by longer range guns, or by any other ordinary means known to strategy would be striven for with untiring labor by our generals. Why should they not expend as much labor in securing the same ends by improving their methods of cooking. There is no other reason apparent to the writer than that there is a widespread lack of knowledge of the value of proper cooking among our army officers.

Having given you my idea of the value of proper cooking to an army, I will now try to give some ideas which I have gleaned from various sources, regarding the camp kitchen, the utensils, the ration, methods of cooking, etc. These subjects will be considered under two main heads. First, the value of proper cooking to the well; and second, the value of proper cooking for the sick.

Let us first consider the company kitchen or "cook shack", as it is better known in the army. These are better or worse as the command is in permanent or temporary camp or on the march, or as the cook is educated and energetic or ignorant and lazy. The company kitchen is located at the end of the company street, opposite the officers' quarters and on a line with the men's quarters but somewhat separated from them. Its general plan usually includes boxes or roughly improvised tables facing the company street, from which the cooked food is dished out to the men. Back a little from this is the cooking apparatus, such as the field range, Buzzacott outfit or fire trench, and back from this, or to one side, is the storage tent, in which all supplies are kept. In some convenient place, often the fire trench, all solid refuse, such as bread, meat, potatoes, etc., are burned. For the liquid refuse, a sink is provided down the company street, care being taken, if the camp be located on a pervious soil, that there is no filtering thru from the sink to the source of the water supply of the camp. It is often necessary to cement the sink to accomplish this end. In all permanent camps, the only safe method of disposing of liquid refuse is by means of a sewerage system much like those of great cities. The company kitchen is, at present, put in charge of a non-commissioned officer, usually a corporal, who is held responsible for its policing and general management. Below the non-commissioned officer is the chief cook, and two or three men detailed for set periods as kitchen police or kitchen mechanics.

At present, altho there are regulations against it, almost any one may enter the company kitchen, and do about as he chooses while there. I have seen the cook and assistant cooks sleeping in the storage tent, using it as a place in which any "good-fellow" might come to take his drinks or chance his money, and for various other purposes, equally unhygienic or degrading. If the health of the soldier is considered a matter of any importance, such practices should be checked with an iron hand. None but the proper officers and those employed about the kitchen should be allowed to enter it. With such regulations enforced, a good cook will be able to keep the kitchen in a perfectly hygienic condition, but without them the best cook must fail.

The policing of the kitchen is a matter of the utmost importance. It should be thoroly performed at least once a day. Every piece of kitchen furniture should be thoroly washed and disinfected at least once a week. The storage tent should be properly ventilated at all times, and the greatest of care taken in preventing the accumulation of scraps or filth in or about the kitchen. Disinfectants should be used freely but only by those who are well acquainted with their properties and uses.

The kitchen considered in this discussion is that used in temporary camps. It may be much improved by erecting a shelter over the cooking place, making tables and other conveniences which will

prove a great aid and comfort for the cooks.

The utensils used in the company kitchen are provided by the quartermaster's department. The nature of their use requires that they be light, durable, and so constructed as to occupy the least possible space when packed. Thus the latest field range has an equipment so constructed that the stove, and nearly every article used in connection with it, can be packed into a box of sufficient size to hold the stove when set up, the supplementary articles being placed in the oven.

It is needless to enumerate the various kitchen utensils, but let us not pass over this subject without considering for a few moments the best outfits used with the open fire, and with the closed fire. The best outfit used with the open fire is what is known as the Buzzacott outfit. It consists of boilers, roasting pans and a complete outfit of other necessary utensils, packed in a strong angle iron crate. The crate is used to hold the utensils off the fire when in use. When the crate is closely fitted into a trench, as deep as the crate is high, the Buzzacott outfit becomes nearly as good as the modern field range for camp cookery.

The field range, which approaches the household range in its number of good qualities, is made of heavy sheet iron, on the plan of the ordinary range with all the fancy trimmings removed. The accompanying outfit is so constructed as to pack snugly in the oven. The stove is large enough to hold three large boilers on top, and

two baking pans in the oven. It is light enough to be easily handled by two men. With ordinary care, an educated cook can prepare food on it as well as on any other stove. The field range is rapidly replacing all other forms of camp stoves.

Passing now to the care of the utensils, we will consider only those that come in direct contact with the food. These should, at all times, be kept scrupulously clean. The commanding officer of each company should see that this simple hygienic principle is carried out perfectly. The neglect of this has cost many a soldier his life, and the only reason that can be given for this neglect is the lack of care on the part of the officers. I have seen cooks in different volunteer organizations, in the last war, wash the kitchen utensils in water so cold and so covered with grease that a person of any refinement would loath to work in it. The utensils when taken from this water and wiped with a cloth, too foul to be touched with clean hands, were set aside to be used in the preparation of the next meal. Is it any wonder that there were dysentery and fever in our camps? Who but the officers could be blamed for such criminal negligence, when there were means about the camp to do a hundred times the work required to keep the camp in perfect hygienic condition.

The cooking utensils, besides being thoroly washed, should be exposed to the sun, at least once a day to keep them fresh. They should occasionally be washed in borax water, or some other antiseptic

solution, as an additional means of disinfecting them. The borax is not supplied at present by the quartermaster's department, but it is so necessary to a hygienic kitchen that it should be supplied at once.

The utensils issued each soldier for field use are few, but they make his complete kitchen outfit and his fancy table set, when on the march. They are a meat can, a cup, a fork, a knife and a spoon. These are furnished by the ordnance department, and are made heavy enough to stand the wear and tear of field use. The meat can consists of two oval dishes fastened together, face to face, the two pieces being held together by a folding handle on the deeper. When on the march, the meat ration is carried in the meat can, but when halted, the part with the handle is used for cooking purposes, the lid for eating purposes.

The matter of cleaning these individual utensils is sadly neglected in most cases. Every soldier should be provided with a drying towel and soap, and be required to wash his "eating tools" thoroly after each meal. I mention this especially because it is so generally neglected by our soldiers, and because an unwashed dish affords so good a place for the breeding of disease germs. I have seen as high as fifty per cent of a company eat their food, meal after meal, from their meat cans, which had had no other cleaning than a hasty wiping off with a crust of bread; and often this was poorly done

The materials used in making the various utensils lack in three main points. They are not strong enough, not light enough, and not hygienic enough. These three will all be overcome by one stride: the advent of cheap aluminum. When that day comes, nearly every utensil, including the stove, used in the camp kitchen, and by the soldier will be made of aluminum. One other point on utensils and then we will turn our attention to rations.

Tho a double boiler may be easily improvised from the utensils in the company kitchen, its constant use in proper cooking demands that it be added to the list of cooking utensils. This could be done without adding any weight to the outfit, by simply substituting it for a couple of the large boilers used at present.

A ration is the amount of food issued to each soldier for a period of twenty-four hours. The field ration of the United States Army has the following components:

KINDS OF ARTICLES.	QUANTITY PER RATION.	
	Oz.	Gills.
Meat Components.		
Fresh beef	20	
Or fresh mutton	20	
Or pork	12	
Or bacon	12	
Or salt beef	22	
Bread components.		
Flour	18	
Or soft bread	18	
Or hard bread	16	
Or corn bread	20	
Baking powder	16-25	
Vegetable components.		
Beans	2 2/5	
Or peas	2 2/9	
Or rice	1 3/5	
Potatoes	16	

Coffee and sugar components.	Oz.	Gills.
Coffe, green	1 3/5	
Or roasted coffee	1 7/25	
Or tea, green or black	8/25	
Sugar	2 2/5	
Or molasses		16/25
Seasoning components.		
Vinegar		8/25
Salt	16/25	
Pepper, black	1/25	
Soap	16/25	

The composition of the above ration is approximately:

Protein.....	85 grams.
Fats.....	280
Carbohydrates.....	500...

When enroute troops are issued a ration of the following composition:

ARTICLES	PER 100 RATIONS.
Soft bread.....	pounds.....112 1/2
Or hard bread.....	"100
Beef, canned.....	"75
Baked beans, 1 lb. cans.....	number.....33
Or baked beans, 3 lb. cans....	"15
Coffee, roasted.....	pounds.....8
Sugar.....	"15

The composition fo the travel ration is as follows:

For one ration.

Protein.....	135 grams.
Fats.....	132
Carbohydrates.....	400

Variations in the fare may be had by purchases made from the company fund. This company fund is the money that is obtained from selling the unused portion of the ration, but, in the field, when most needed, this factor is usually lacking.

At this point, a few comparisons with our own rations in the past and the rations of other armies at the present may be interesting. In the Revolutionary War, the ration prescribed by law for the American soldier consisted of one pound of fresh beef, one pound of bread and one gill of rum. In the Civil War this was increased by the addition of fresh vegetables, molasses, and one pint of milk, and substituting one quart of beer for the gill of rum. Since the Civil War great improvements in the ration have been made at different times, till now we have the present ration. This ration is far from perfect, and its improvement affords a chance of easy success for any who may attempt it.

The total weight of the ration of the French, United States and English armies is as follows:

- French army.....51 oz.
- United States army.....59.oz.
- English army.....65 oz.

The French and English armies issue, besides the regular ration, a small money allowance for the purchase of fruit, fresh vegetables and other food to give variety to the diet. The comparative amounts of meat and bread issued in five great armies of the present is as follows:

	BRITISH	FRENCH	AUSTRIAN	GERMAN	UNITED STATES.
Bread	24	35	31	26.50	20
Meats	21	10.6	9.87	6.34	18

This table shows that the Anglo-Saxons are the greater meat eaters. The other nations make up their lack of meats by the use of leguminous vegetable foods.

Water is a part of the ration which nature furnishes. Supplying it in a pure state is often a perplexing question for a commander. In a country where fever or other germ diseases are prevalent, the water should always be boiled before being used for drinking purposes. The boiling process also removes excess of carbonates which are detrimental to the system. Salt water can be made useful only by a process of distillation. When the water is muddy a good filter can be made quickly by the use of two barrells, the bottom of the inner one being full of holes, the outer one being filled one-third full with layers of charcoal and gravel.

Before leaving the discussion of rations, I want to call your attention to a few improvements that can easily be made in our present army ration. First: There should be government canneries where all canned goods made for the army would be canned in the most scientific and hygienic way. This would ensure a reliable article of food for the soldier, and relieve the Commissary department of much of its work of inspection, and a great burden of criticism. The amount of salt pork should be reduced from one-half to two-thirds its present bulk, for the summer season, or for troops in the tropics. A small monthly allowance for fruits and vegetables and other appetizing foods, which can be easily had, would make a soldier's fare

much more agreeable. This allowance is issued in most armies.

A great deal has been said about changing the rations of our soldiers immediately upon their entering the tropics. A sudden change to the food used by the natives would probably be as disastrous as the long continued use of the present ration there. But those who expect to stay long in the tropics and still retain their health must have their diet very gradually changed to one very similar to that of the natives. It is undoubtedly a bad plan to continue the use of so large a ration of salt pork in the tropics, or even in the temperate zone, during the hot season. First, because of the heat producing properties of fat; secondly, because of their laxative tendency, especially in the case of any internal disorder.

Alcohol, in some form, is issued as part of the ration of most European armies, and, I believe, in all armies except our own, operating in the tropics. Captain Woodruff, an assistant surgeon of the U. S. Army and an authority on dietetics, says that alcohol seems to be a necessity to the Caucasian in the tropics, for its stimulating qualities. The only thing that holds him from recommending it as a part of the regular ration is its aptness to result in the habitual use of alcohol to excess by many of the soldiers. On this point, we differ a little from Captain Woodruff, I am thoroly convinced that, with the proper cooking of a ration containing no alcohol, the same results can be attained, giving the individual soldier a longer and better life, and not exposing him to the dangers of alcoholism.

The methods used in cooking in the camp kitchen are the same as those used in any other kitchen: stewing, boiling, roasting, grilling, sauteing, frying, baking and steaming. The only difference is in the way in which they are carried out. In the application of these methods to the cookery of different foods, there are two main points to be constantly kept in mind: a temperature from one-hundred and sixty to one-hundred and eighty degrees Farenheit, for albuminous food, and a temperature of two-hundred and twelve degrees for the cookery of starchycereal and vegetable foods.

The abuses of the methods of cooking arise from two main causes: first, the lack of knowledge, and; second, the lack of care on the part of the cook. For the first we cannot blame the cook, considering the present low standard of army cooks, and the correspondingly low price paid for their services. For the second, no one but the cook can be blamed, for care is the price paid for any good result of labor. It is this lack of care on the part of the cook that causes the men to fare so often on improperly cooked meats, greasy soups and water-soaked, soggy potatoes, etc. This last cause of failure could easily be eradicated by an officer conscientious enough to carry out his orders in regard to being present at the serving of each meal and tasting all food that is issued, allowing nothing to pass that does not, in the soldiers' slang phrase, "come up to scratch."

In the cookery of albuminous foods by roasting, grilling, sauteing and broiling, materials should be exposed to a high temperature (350 or 450 degrees, Farenheit) a few moments, just long enough to coagulate the outer layer of albumen and thus retain the juices within the material used. Starchy foods, as cereals, etc., should be cooked from three to eight hours at a temperature of not less than two-hundred and twelve degrees, Farenheit, extending the time according to the kind of grains---crushed or whole. This process of long cooking and long heat renders the food more easily digestible and gives it a better flavor. In the making of coffee, the water should never be allowed to boil, after the coffee is added, at least not over five minutes, as boiling drives off the stimulant aroma and extracts from the berry more of the harmful caffeine. The spout of the coffee boiler should be kept closed during the entire process. Each of these principles is mentioned because of the general lack of their observance by the average army cook.

The latest manual for army cooks, issued in 1896, is a very useful book for the purpose for which it was published, if only it reached the cooks who were to use it. Often it never gets beyond the captain's hands. The scientific principles in it, however, all need revising. Besides the present content, the book should have definite instructions in regard to the reasons of doing all the important things about the kitchen. Also, a part of the volume should be devoted to cookery for the sick, it often being the case

that the company cook has to provide the food for three or four men not able to stand the regular diet. Passing from the cook's manual to the more important subject, the cook, we will consider him as he is and how he may be improved. At present a man is enlisted with the rank and pay of a sargent to fill this important office. There is no special examination made to determine the applicant's fitness, in regard to his education, experience or character. Thus, it often happens that a man with hardly experience or education enough to wash dishes, or enough good moral character to fit him for a common private is placed in a position hardly less responsible and far reaching in its importance than that of the captain. I have seen such men as bar-tenders, joint keepers, etc., with scarcely any experience or knowledge of cooking, and almost no conviction as to their responsibility for the lives of others about them, holding this position because they were too lazy and worthless to make a good appearance on the drill ground. In such a case, is it any wonder that men suffer from the lack of properly cooked food?

The duties of the chief cook are the general supervision of the kitchen and the cooking. Under him, there is an assistant, and from two to threemen, detailed as kitchen police. The chief cook is held directly responsible by the captain for cleanliness and order in the kitchen, and for the proper preparation of the food. When the company commander has no adequate knowledge of the fundamental principles that are the foundation of proper cooking, and when the

cook is a little slack in his duties, they often go unperformed, and, as a consequence, the men and the army at large have to suffer for the ignorance of one and the indolence of the other.

As remedies for this present evil, which is to be found almost everywhere in our army, we might suggest two things that would be farther reaching in their results than perhaps any others. First, the securing of competent officers, and, second, by employing only educated cooks. An officer, to be thoroly competent, should know how to protect his men from the attacks of the kitchen as well as from the attacks of the enemy in the field. To give officers, the proper training in this last line, a course of cooking should be given at the military academy. This course should be on an equal footing with a course on the construction of defensive works, for it is of as much importance to secure adequate protection from foes within as from foes without. For volunteer organizations, which could not be officered with men who had had the advantages of a training in a military academy, there might be one of these regular army officers detailed to instruct him, and have charge of these important matters.

A cook, to be thoroly competent, should have a thoro knowledge of the theoretical, as well as the practical, side of cooking. Such men will be secured in the army only when certain definite requirements, such as experience, education and character, are conditional to their employment. To have the proper men enlist as cooks, such inducements as a fair compensation for the labor expended, and a

chance to work up should be offered. Competent officers and competent cooks, performing their duties conscientiously, could lessen the death rate from disease in our army, at least one-half. With the prospects of such an advantage, would it not pay the United States to test the value of scientific cookery by a scientific cook, working under competent officers?

Your attention is now called to cookery for the sick.

Dr. Gilmore Thompson says, "There is no disease of long duration and severity which cannot, in a measure, be controlled or benefitted by a thoro study of the nature and uses of food." This fact is taken cognizance of by all the leading physicians of the country, and is given considerable attention by the medical officers in the army. The ration issued for use in the hospital has a different composition from that issued for use in the company. It consists of bread, butter, cheese, coffee, sugar, eggs, milk, beefsteak, ham, beef extract, oatmeal, chicken, mutton, chocolate, oysters, beef teas, rice farina, cornstarch, crackers, potatoes, macaroni, canned goods, and a few other wholesome and nutritious articles. These articles are not given the patient in six or seven iron clad diets, but the medical officer in charge may prescribe such articles, in such combinations, as his judgement tells him will be best adapted to the needs of the case in hand. In the English army the hospital ration is given the patient in seven rigid diets, known as the tea diet, chicken diet, milk diet, beef tea diet, convalescent diet, roast diet and the varied diet. From some one of these diets, the food for each

patient must be obtained, no matter what variations his case may demand. In the French army hospitals, the diets are called the full diet, two-thirds diet, one-half diet, one-fourth diet, one eighth diet, bread diet and absolute diet. The tea diet of the English and the absolute diet of the French hospitals are practically starvation diets, and are prescribed only for those whose digestive organs are in an extremely weak condition. The heavier diets are given as the patient gets stronger, till, when perfectly well, he is returned to the regular army diet. In the light of our present knowledge of dietetics, the method of dieting used in the U. S. Army is much the best, as it leaves the medical officer the liberty of adapting the food to the peculiar needs of any case.

The method by which the food for the sick and the wounded is prepared is the same as that used in preparing the food for the well. Of course, more attention is given to the minute details than in the company kitchen. The utensils are of much better quality, most of them being of granite ware and usually smaller than those used in the company kitchen. Their smallness is due to the fact that often certain recipes must be prepared for only two or three patients. As a rule, the deficiency in size is made up for by the increase in number.

The cooks are much better than those who preside over the company kitchen, being usually men of some experience and education; but it is seldom that one is found who has had a thoro course in

cooking and dietetics. If the United States is to obtain the best results from its hospital cookery, only experienced and scientifically educated cooks should be employed.

Before closing, I must write at some length on the relation of cooking to the treatment of two of the most formidable camp diseases: dysentery and fever. This matter comes in very appropriately here, because of the intimate relation between poor cookery and the cause of these diseases. First, improperly cooked foods irritate the system, and leave it in a state of disorder, when it is especially susceptible to the attacks of disease. This is usually the case when one is affected with dysentery. The fever germs, always present, then obtain a footing in the system, and long, serious sickness results.

Hence, I will speak first of the dietetic treatment of dysentery. The three fundamental principles which lie at the base of the dietetic treatment of all diseases must be observed in the treatment of dysentery. They are: First, avoid the use of all articles that disagree with the conditions present. Second, select such as are best adapted to relieve the digestive organs of all unnecessary work in their digestion. Third, select such foods as have a curative value, if there be any such for the disorder present.

The first and second of the principles need no further explanation, but an illustration would perhaps make the third clearer. Water, when taken during fevers, tho it is not a food, assists in

nourishing the body and in curing disease by washing the toxine out of the system. There are certain foods that have a more marked curative power in some cases than water in the case of fevers.

Among the articles that are adapted to the treatment of dysentery, are Peptonized milk, boiled milk, pressed meat juice, whey, raw egg albumen, and raw scraped beef. In severe cases the strength is supported by the use of alcohol in some form. The articles selected from this list as foods for any particular case must meet the needs of that case in nutritious power, palatability, and digestibility. The patient soon gives outward indication as to whether a food meets the first two of these requirements. If the third of these requirements is met it will be indicated by a tongue free from coatings, a soft abdomen and a natural stool.

During the period of convalescence, only foods that are promptly and easily digested, such as white fish, tender beefsteak, roast beef, broiled chicken, or chicken stew, eggs, custard, blanc-mange, dry toast, junket, well boiled rice or jelly should be allowed the patient. Fruit jellies, sauces, butter and cream should be given very sparingly on account of their laxative properties.

In cases where dysentery becomes chronic, it often becomes necessary to put the patient on an absolute milk diet, giving between one and three quarts a day. As the patient improves, other easily digested foods, such as rare steak, roast beef, stewed chicken and zweibach may be given. The change from this light diet to the

ordinary heavy diet must be made very gradually, care being taken to supply the body with needed nutriment with the least irritation and exertion of the digestive organs.

I will now speak of the dietetic treatment of fevers in general. The principles for the dietetic treatment of disease must be constantly kept in view. Another point to be kept in mind in dieting fevers is that more nitrogenous food is necessary to keep the tissues from wasting than in health, and that an over-supply of nitrogenous matter results in grave disorders. Hence, the supplying of the proper nitrogenous constituents of the food becomes a matter of great importance.

Besides these principles, there are four lesser points to be kept in mind: First to save the tissue waste by supplying exactly the nourishment required; second, to give a liquid or semi-solid food so as not to overtax the digestive organs, third to give plenty of water to relieve thirst, and wash out thru the kidneys, the excess of waste matter, and; fourth, to give alcohol as a food as well as a stimulant. This last statement is questioned by some physicians but it ought to be considered in certain cases.

The staple diet given in the case of fever is milk in some form. It meets the requirements better than any other known food. The principal danger in its use is its coagulation in the stomach, forming a large curd that irritates the lining of the stomach without affording much nourishment. Often too it is not palatable to the

patient. At any rate, the patient should be required to drink it slowly and in small swallows or sips. Often the white of an egg blended into the milk before serving is an excellent addition. It is more wholesome and more readily absorbed by preparing it in this way. Then a fourth of a cup of arrow root gruel may answer the same purpose.

In either case, other food or foods must be found to take the place of the milk. Some of the best articles to substitute for a milk diet are meatextracts and juices, and fruit soups made by boiling fresh or dried fruits with the addition of a little grape sugar or lemon peel. In bad cases the lemon peel should be left out, the oil in the peel hindering the action of certain drugs. When the patient is in condition to stand a little solid food, toasts, soft eggs (cooked at 160 to 180 degrees, Farenheit), beef jelly, plain rice pudding, well cooked cereals may be given to advantage.

b During the period of convalescence, gruels, made by straining well cooked cereals thru cheese cloth and flavoring with cinnamon, nutmeg or lemon peel are very wholesome and palatable. They aid very materially in preparing the patient's system for a return to the ordinary heavy diet. After several days' diet on these gruels, egg albumen in some form and meat broths may be given in addition.

Water is of great value as has been stated, not only as a quench of thirst, but also as a cleaning agent, which washes many of

the toxins formed by the germs and much of the waste matter out of the body. When the patient tires of water, other beverages may be given, such as sour lemonade, barley or rice water. In mild cases tea or coffee may be given once a day and in more serious cases may be used as a flavoring for the milk diet. In mild cases whey, beef tea, and unfermented grape juice may be given in small quantities. All drinks should be given slowly and excess of cold drinks should be avoided.

The use of alcohol in fevers often becomes necessary. It is used: first, for its stimulant effect, and; second, for its food value. The form in which it is usually given is brandy or whiskey, the wines and beer are sometimes used. It is better to withhold its use till the patient's temperature rises to one-hundred and five degrees, Farenheit, because its stimulating effect will be stronger at the time when most needed, and there will not be so much danger of inducing the alcohol habit in the patient.

In period of convalescence the diet should be very gradually changed to the heavy diet, meats being the last to be taken up. In case any food disagrees with the patient, return should immediately be made to the last agreeable food used.

By the careful observance of the foregoing points and principles, much could be done to aid in the prevention or treatment of the diseases in question. So much, that I believe that every army cook should have more than a knowledge of the simple principles of

cookery---a knowledge of the dietetic treatment of the most common camp diseases.

I have considered the dietetic treatment of these two diseases somewhat at length because of their prevalence in the camp and because of the great aid that proper dieting may become in the treatment of them. But I do not want to be understood by anybody as advocating proper dieting as a "cure-all" for these diseases, tho it may become a "prevent-all." Medicine, exercise, hygienic surroundings are some of the other factors in curing disease, along with which, I wish to place proper dieting as a most valuable auxiliary.

The materials which were used in the "Dietetic Treatment of Dysentery and Fevers" have nearly all been obtained from Dr. Gilmore Thompson's book, "Practical Dietetics," as have been many of the facts used in the earlier part of this discussion. Some of the other sources from which material has been drawn are; Dr. C. Dunham's article, Hygiene of the Camp (Rev. of Rev., Vol. 18, P. 415); Dr. Hopkins' article on Hygienic Camps in the Sanitorium (Vol. 43, Page 219); various articles by Captain Charles Woodruff, U. S. A., and Gen. Egbert L. Viele; The Manual for Army Cooks (1896), and various books on hygiene and cookery.

In presenting the matter of camp cookery thus, we do not want to detract anything from the other methods of preserving life in use at present, but wish only to call attention to this one

method, which, if properly attended, will give so great results, and which is so sadly neglected.

I believe that the day is not far distant when modern science and civilization will compel our army to adopt a higher standard of cookery. When this is done a great demand will be created for scientifically educated cooks and those who are prepared will supply the demand.