

FOOD FACTS FOR THE HOME-MAKER

LUCILE STIMSON HARVEY





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Food Facts
for the Home-Maker

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BOSTON AND NEW YORK
HOUGHTON MIFFLIN COMPANY
THE RIVERSIDE PRESS CAMBRIDGE

1920

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TO
E. A. H.

PREFACE

THIS book is intended to be a help to the young house-keeper who is starting out in the new home without either a knowledge of science or the technical training which could help her. This is more often the case of the girl who has been to college and has devoted her time to other subjects outside the home, so that she starts in handicapped on the business of home-making, than it is the case of her sister who has stayed at home and has been trained there by her mother.

The book is also intended to help those women who have kept house for years and who are excellent cooks and careful planners. It should give a scientific foundation to their technical skill, showing them the reasons why they have been doing certain things all their lives, and perhaps showing them ways in which they may shorten processes and thus save time and energy.

In preparing this book I have used material I have been gathering for some years, but this has been modified, or at least clarified, by what I have learned in ten years' experience in my own home, where for much of the time I have done all the cooking. I have used some of this material in my lectures during the past two years and a half in my classes in Dietetics for the Red Cross, in Food Conservation at Wellesley College, and at the Brookline Food Center under the auspices of the Public Safety Committee.

Few women realize the great importance of the proper feeding of the family. Undernourishment among

our children in the United States is far more prevalent than is generally supposed, and is found quite as often in the homes of the well-to-do as in those of the poor. It is the result of ignorance rather than of poverty or the high cost of food. Children need a well-chosen but simple diet.

This book is written primarily to show mothers how they can feed their children easily and economically. A little attention to the subject by the home-makers will make the greatest difference to the nation in producing strong, well-nourished men and women, capable of doing their part in carrying the great responsibilities placed upon our country at this time. I have a great hope that the mothers and home-makers of America will take the lessons of this book to heart and that it may play some real part in giving us a stronger and sterner race.

This book, while it contains some recipes, is not intended to compete with cook-books, but rather to supplement them. I have kept the order of material customarily used in cook-books, that of following the courses of a dinner. This necessitated the present order of the two chapters on fats and sugars. If I had adhered more closely to the discussion of foods according to their chemical composition, these two chapters would have appeared in reverse order.

Acknowledgment is due to the Department of University Extension of the Board of Education of the Commonwealth of Massachusetts for permission to use, in chapter XIV, the material which I prepared two years ago for the Department course entitled "Foods and Nutrition." I also wish to take this opportunity to

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thank the Walter M. Lowney Company of Boston for permitting me to reprint the plates showing the cutting of meat from the *Lowney Cook-Book* (The Walter M. Lowney Co., Boston, 1908). I am indebted to my sister Dorothy Stimson, Ph.D., for her assistance in revising the text.

L. S. H.

BROOKLINE, MASS.
September, 1919

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CHAPTER I

THE IMPORTANCE OF FOOD

THERE is one thing all men have in common with the animals — the necessity for daily food. For rich and poor alike a certain amount of food is necessary to keep the body in good condition. But the three meals a day, three hundred and sixty-five days in the year, are the bane of housekeepers the world over. They must be planned, prepared, and served with unvarying regularity in order to maintain the health and efficiency of the family.

Although each household has different conditions to meet which make the problem more or less distinct, at the same time there are world problems and situations to-day which put us all on much the same footing whether we keep house in our own homes or depend upon hotels and restaurants for our meals. The war has brought us face to face with the fact that each individual, in regard to the food he consumes as well as in other respects, is no longer a unit by himself, but is a part of the community, and is responsible to the world at large for his likes and dislikes, or for the surplus he consumes over and above his actual needs.

The house-
keeper's re-
sponsibility

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This situation is true not for war-time alone. As one result of the war it ought to be brought home to each of us that we have a responsibility for food shortage wherever it exists. We should have a part to play at all times in alleviating and controlling famine conditions whether in Armenia, Serbia, India, China, or wherever else the situation is less favorable than it is for us here in America.

But it is not only these extraordinary conditions in far-away lands which should cause us to take more heed to our food. We have learned some facts here at home during the last two years which should give us pause and make us wonder if we have put all of our great wealth of national resources to the best possible use. Why should such a large proportion of our boys, coming in most instances directly out of our homes, have to be rejected by the draft boards the country over as unfit for service? Would our girls have shown up any better? Why should fifty per cent of our children in our public schools be below normal in weight? Yet such is the case in the cities and towns where investigations have been made. Why should the United States be the only country where the death-rate is increasing between the ages of thirty-five and fifty-five, the period during which the individual should be of the greatest economic value to the State?

Do not all these matters come straight home to the housekeeper? Is she doing her job as well as it ought to be done? No man starts in business at the top, nor in this day does he begin to practice a profession unless he has spent much time in preliminary training. Housekeeping is a profession of vital importance to the health of the

The profes-
sion of
housekeeping

nation as a whole; for a nation is only an aggregation of homes, and as a chain is only as strong as its weakest link, so the strength of a nation is only the strength of its weakest home. The individuals from such a home have to be cared for by the State or the community as a whole. This, then, makes the housekeeper or home-maker the most important member of the community, for the value of her services is judged by the economic worth and fitness for life of the citizens who come from her home.

From this point of view it is evident that in order to make the profession of housekeeping a success, the fundamentals at least should be understood. Even college graduates going into business start at the bottom in order to become familiar with business methods. A mastery of the principles of the business of housekeeping is just as essential. This includes touching on many branches of science, biology, botany, physics, physiology, psychology, economics, and above all, chemistry. Besides this, a housekeeper should have some technical training; for, while experience is the best teacher, we can always gain in quickness of method and sureness of results from the experience of somebody else. This valuable home-maker of ours should also have some imagination and ingenuity, together with self-assurance, so that she need not be bound by a cook-book and prescribed equipment, but could use what material and utensils she has at hand and still produce satisfactory meals. She must also be able to gain variety through change of flavors, or manner of serving — appealing to the senses of the individuals to be served.

Each home-maker must necessarily know the indi-

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vidual requirements of her group and regulate her meals accordingly. Too scanty food prevents growth and lowers vitality, mental as well as physical; so much so that malnutrition is acknowledged by social workers to be a cause of backwardness, drunkenness, and crime. Too much food, on the other hand, dulls the mind and clogs the body. Poor choice may mean loss of a day's work, or the lowering of efficiency because of a headache or other minor ill. How often we hear, "So-and-So has one of her bilious attacks"; or, "Daughter has a sick headache to-day." Improper food also lowers the power of resistance to disease and causes susceptibility to colds.

In order to maintain the highest mental and spiritual life, the physical should be kept in such good working order as to be entirely subconscious. We cannot do our best mental work when we are conscious of the lunch we have just eaten.

Nature plans wonderfully. An animal, when left to itself, will pick out of a wide variety of foods those articles which will be most conducive to its health and growth. Instinct, however, cannot be relied on entirely in the training of children. Complete loss of appetite is usually the first symptom in most illnesses, and an abnormal craving for some one particular type of food may mean the need of the body for some special ingredient in that food. Whims and fancies are very easily acquired, however, and whenever possible should be avoided.

Habits and traditions have also grown up through the years concerning our food, and we still hear an ignorant nursemaid urge a child to eat the crusts in

order to have curly hair, or tell an older child fish will give him brains. A meat diet has had to bear the blame for crime and misery for years. Food habits

Certain of our habits, however, are based on a scientific foundation. There is a reason for eating butter on our bread, or for serving pork with baked beans, or cheese with rice or macaroni. Nutrition is an exact science, and has been built up slowly through the years from the studies and investigations made by many famous scientists, each one adding one more round to the ladder of knowledge. Some of the steps have been: the discovery of the circulation of the blood; the function of oxygen in the body; the evolution and measurement of heat and energy from food in the body; the composition of foods and their relation to body activity; and the recent discovery, the presence or absence in foods of certain substances that are essential to growth.

New discoveries and new studies are constantly being made with which the housekeeper should keep in touch. They are popularized sooner or later in some of the magazines, but the best way to keep accurately informed is to have one's name put on the mailing list for the Farmers' Bulletins, Bureau of Publications, Department of Agriculture, Washington, D.C.

CHAPTER II

THE KITCHEN AS A WORKSHOP

IN these days when human labor is in great demand and can command high wages, it is more necessary **Skilled labor than ever to conserve effort in every possible way.** If the home-maker is paying somebody else to do her necessary housework, she should see that the conditions are such that it can be done with no waste of time or energy; while if she is doing her own work, she should plan so that she will still have time to devote to the enjoyment of her children and to share in activities outside her home, of which there are so many nowadays of interest to wide-awake women. The time has passed when the mother of the family is the household drudge working hard from six or before in the morning until eight or nine at night, often too tired to take any part in the family recreations, and too absorbed within her own narrow horizon to be interested in what is going on in the world around her.

Many of our business concerns are employing efficiency experts to come into the factory or the store or the office, to study the methods used and to make recommendations for the saving of time here, the simplification of books there, or the use of more modern machinery or equipment in another place. Why should we not do the same in our business of home-making? It is easier to go on day after day doing the same thing over and over in the same way. Yet if we stop to think

about it, the saving of one trip across the kitchen here or of two minutes in the washing of the dishes there, each time, would count up to six minutes saved each day, forty-two minutes each week, and in a month to enough time to have amounted to much value if put into good reading.

The old-fashioned kitchen was an attractive place to look at, large and airy, often opening directly out of doors on two sides, with its spotless pine floor and its numerous pantries and closets especially interesting to curious and ever-hungry youngsters. But what a slave the woman was who ruled in such a place, and how hard her work was made for her! For years and years she had to pump, often at some distance from the house, all the water she used, carry it in by bucket and heat it on the stove. Dishwashing then was indeed an undertaking compared with dishwashing today in our modern apartments where we have only to turn the faucet to have scalding water at all hours of the day and night. Then, too, the distances were so great between closet and stove, and stove and sink, that even if the family ate their meals in the kitchen, the cook must necessarily walk miles in preparing a meal. No wonder she was often too weary to eat any of it herself when she finally had it ready for the family.

In planning a kitchen there are two aims which should be kept in mind. The first is to secure cleanliness as easily as possible; the other, to **Plan of** make sure of the comfort and convenience **kitchen** of the worker. Thus the small kitchen has a great advantage over the large one. Where utensils are near at hand, many steps are saved and hence much energy. In these times of economy it is well not to overlook

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the fact that in order to have enough energy we must burn up food in the body; hence by avoiding waste of energy, we have an effective method of saving food.

It should be kept in mind that a kitchen is a place for work, with a definite job to be accomplished — those three meals a day. A carpenter does not keep his hammer and his saw in one closet off at one side of his shop, his nails and screws in another, and his lumber in a third. He has everything close at hand, grouped conveniently about his work-bench. He can stand still and yet reach all his tools. A place for everything and everything in its place. So should it be in the kitchen. To be sure, it does not look as attractive between meals, when everything is cleared away, as does the one that has pretty muslin curtains and pots of flowers in the windows, a rocking-chair in the corner, and blue-and-white portières in all the closet doors, and not a pot or pan, knife, spoon, or brush in sight. But that is a sitting-room, not a workshop.

Everything about the kitchen should if possible be easily washable. Tiled walls are ideal but expensive; and an enamel paint that can be easily wiped off with a damp cloth is very satisfactory. Linoleum on the floor is more easily washed than wood and is softer under foot than tile or concrete. Oilcloth makes a good covering for closet shelves, and so does enamel paint. Tables can now be bought having enamel or a white composition top; they are very easily cleaned and look well also.

If one is fortunate enough to be building a house or can make suggestions at the time of building, it is well to put much thought into the arrangement of the kitchen so as to have it convenient. Plans of model

kitchens can be found in books on Household Management; but there are a few points to be especially noted. The sink should be well lighted both by day and night, so it should be just under or beside a window. Steps are saved by having the stove within easy reach of the sink, for much of the food to be cooked is prepared at the sink and kettles must be filled with water there. A kitchen-cabinet on the wall opposite the sink is far more convenient than pantries. Here the housekeeper can keep all the utensils as well as the materials needed in making breadstuffs, cake, pastry, etc., and has at hand the pastry-board and space for mixing. With an easily moved table on which hot pots can be placed, and the dishes after washing, and with shelves for china, the equipment is complete.

There should be a shelf over or near the stove for salt, pepper, sauces, and flavors used at the stove. There should also be plenty of hooks over or beside the sink for utensils used at the sink, such as soap-shaker, sink-brush and shovel, egg-beater, meat-forks and skewers, vegetable-brush, potato-masher, whisks, etc. Each should have its own hook and should always be returned to that hook. No article should be there that is not in constant use. Also they should hang sufficiently high so as not to interfere with the cleaning of the sink. Articles to be used together should be kept together, such as teapot and tea canister, coffee, coffee-pot and coffee-grinder.

It is best, if possible, not to have the refrigerator in the kitchen itself because of the heat; but it should be easily accessible both for the iceman and the cook. If it can stand in an entry, the iceman does not tramp through the kitchen bringing in dirt from the street.

KITCHEN EQUIPMENT

Many of us have to take our kitchens as we find them, and have no say as to the relative positions of **Labor-saving devices** the permanent fixtures. We can, however, see that the utensils and equipment are as they should be. More and more so-called "labor-saving devices" are to be had until it is easy to conceive of the kitchen in the future in which electricity will not only be the means of light and heat, but will also be the motive force for nearly everything, not only for dishwashers, but also for bread-mixers, ice-cream freezers, egg-beaters, etc. We are so accustomed to the Dover egg-beater, the Universal bread-mixer, the meat-chopper, that we can hardly think of them as being labor-saving devices; yet a woman cooking for a good-sized family would not be without them. The efficient home-maker should be constantly on the watch for new devices that may really be a means of saving time and labor for her.

The ideal system for cooking, whether it be coal, gas, or electricity, is the one which gives the largest **Stoves** possible percentage of its heat for the cooking process itself without waste into the room, and at the same time puts a definite amount of heat under quick control with a great saving of fuel and labor in operating. Measured by this standard, the coal range is not ideal, since it loses much heat into the room, so much in fact that it is customary not to provide any other means of heating the kitchen where there is a coal range. It is also very slow to control, though many like the results obtained, especially from the oven in baking. It also has the advantage over a

gas stove of constant low heat for soups, stews, and other long-process cookery. It is dirty to care for, however, and requires much energy in carrying coal and ashes. On the other hand, both gas stoves and electric ones have the advantage of being easy to control and to keep clean. When used in connection with a fireless cooker separately or as a part of the stove itself, either is far preferable to a coal or wood range for convenience and economy. Gas or electric stoves combined with fireless cookers can be found on the market nowadays.

Whatever variety of stove is used, it must be thoroughly understood and kept in good order. A coal stove should be taken apart and the drafts Care of stoves and dampers studied carefully, so that the effect of each is well known. The underlying principle of all stoves is the same; that is, a fire to burn well must have plenty of air, as all burning is combustion, or the uniting of a substance with the oxygen of the air. In lighting a fire in the stove we empty the grate completely. Then we place the most inflammable material at the bottom — paper, excelsior, or shavings. The less easily ignited comes next — chips or kindling — and the hardest of all on top — coal or large pieces of wood. Before applying a match, we make sure that the drafts are correct. The one in the chimney should be wide open; the slide below the fire-bed should be open and the one above it closed; for the air must come through the fire from below and be able to pass unblocked straight up the chimney. When the fire is burning well, it may be checked by closing the chimney damper all or part way, and also the slide below the fire-bed. Care must always be taken to prevent so great a flow of cold air against the bottom of the fire

as will check its combustion. If the oven is to be used, the oven damper must be closed, which forces the hot air to pass around the oven box before going up the chimney. To check the fire completely, the slide above the fire-bed should be opened to enable the cold air to blow in on top of the coals.

No fuel should come above the bricks in the fire-box, and never should the fire be allowed to get so hot as to make the top of the stove red, as that warps the iron.

The same principle of combustion is found in a gas stove, the air uniting at the point of burning with the gas coming through the pipe. The flame of a gas stove should be blue with a light-blue center. If it burns with a yellow flame, it is not adjusted correctly and the gas company should be notified. The oven doors of a gas stove should always be left open while it is being lighted until all the burners have caught, in order to prevent a pocket of unburned gas from collecting in the oven.

Stoves of all types must be kept clean. They should be rubbed often with paper, and anything spilt in the oven should be scraped up carefully. Gas-burners as well as the tops of a gas stove can be removed and washed thoroughly at the sink with boiling water and washing-soda. Blacking makes stoves look better and preserves the iron.

The principle of a refrigerator is to preserve food through low temperature obtained by the melting of ice. In order to melt, ice must absorb heat, and in a refrigerator it draws this heat from the other compartments. Hence a perfect refrigerator should be so built that it cannot absorb heat from outside and has perfect circulation of air in-

Refrigerators

side. In buying a refrigerator, much must be left to the honesty of the dealer so far as the outside structure is concerned; but the purchaser can see for herself if there is allowance for good circulation inside and if it can be kept clean easily. Every refrigerator should be so built as to have a space between each compartment, so that the warm air rising from the food may pass over the ice at the top and the cold air from the ice-chamber may go down to the compartment below.

A white lining, either tile or enamel, is attractive and dirt is easily seen; but if it cracks or chips easily it is unsatisfactory. Shelves should be removable, and if made of wire permit freer circulation of air than if of glass or slate. If the floor of the refrigerator is flush with the door, it can be more easily washed than if it drops below, though in this case the door must shut very tightly.

It is extremely important that a refrigerator should be kept especially clean. Anything spilled must be wiped up at once, and the whole inside given a thorough washing with soda and water at least once a week. Hot water should be poured down the waste pipe and a long wire with brush end may be used to clean the pipe. If it is connected directly with the sewer, it should have a trap.

Do not forget to wash the inside of the doors when washing the inside of the refrigerator.

If it is possible to have a word about the sink when it is put in, be sure to have it set up high enough for comfort; also to see that it is large enough **Sink** to hold two dishpans comfortably, and that it has a good-sized draining-board on each side if possible. Porcelain sinks require a good deal of effort

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to keep them clean, especially if strong soap-powders have injured the finish; enamel on iron is apt to chip. Soapstone is very satisfactory and can be kept in good condition by frequent scrubbing with soap and a short-bristled brush.

Every housekeeper has her own ideas on the subject of utensils, her favorite type of material and her favorite shape and style. Aluminum is expensive to begin with, but lasts a long time if it is of the best grade and gives very satisfactory service. Where the water is hard, it discolors easily and requires considerable effort to keep it bright. The heavy gray enamel-ware also gives good service and is easy to clean if not abused. As enamel-ware may be unsafe if the enamel has been chipped off, the base metal not being prepared to resist acids in the food, it is well to buy a good quality to begin with and to take good care of it.

The kitchen is more than a workshop. It is a laboratory where food is prepared for family consumption. As such, absolute cleanliness is of first importance with everything pertaining to its preparation. All food delivered to the house should come wrapped up. No town should permit flesh products to be carried through its streets uncovered, or to be hung outside stores for display. Fruit and vegetables should be very carefully washed before serving, as they have been exposed to the dirt of the street as well as to much handling. Dry groceries can be kept in glass or enamel jars to prevent dust falling in them, and should never be left in paper bags or opened cartons.

Cooked food should be carefully covered and cooled

before putting into the refrigerator. It should be removed from the dining-room china or glass and put onto plates kept for that purpose. No food, no matter how small a quantity, should be thrown away. Freshly cooked breadstuffs should be cooled on an open rack before putting away in a well-aired and sunned bread-box.

Plates should be scraped into a drainer in the sink. Very greasy ones could be wiped off with soft paper which is then burnt. All dishes are then piled on the left side of the sink ready for ^{Dishwashing} washing. Rinse the milk and egg glasses with cold water. Use two dishpans, one containing very hot soapy water, and the other very hot clear water for rinsing. Wash glassware first, then silver, then the cleanest of the china, leaving the dinner plates and platter until last. Have a wire or wooden drainer to the right of the rinsing-pan, and as the dishes are rinsed stand them in the drainer. If the water is very hot, they will need practically no drying. If they are washed and put in the drainer in the reverse order from which they can be stacked when dry, it saves handling them twice; that is, if the dinner plates are washed last, they are dried first and can be at the bottom of the pile when ready to put away.

Three towels should be used for wiping dishes and should be kept for their separate uses: a soft linen towel for glass and silver; a heavier linen for china; and a heavy crash one for pots and pans. If towels are used carefully and always rinsed out after each dish-washing, they will last a long time. They should also be given a thorough boiling at least once a week.

No matter how much care the worker in the kitchen

takes with the food and the utensils, it is all of no avail if she herself is not immaculate in her person and her habits. The kitchen is no place in which to wear a dress too old and too soiled to be worn any longer in the parlor; but it demands a suitable uniform of its own. The dress worn here should be a cotton one, easily laundered, and so made as to be perfectly comfortable, with short sleeves, low collar, short skirt, and plenty of room. The hair should be kept very neat and should be confined if possible by a net or close-fitting cap.

It is most essential that the hands and finger-nails should be kept with the utmost care, frequently washed, and *always* after coming from the toilet. Even then the hands should be kept out of food just as much as possible. It is not necessary to use the hands in order to get good results, as many old-fashioned cooks will tell you. Cake and baking-powder biscuit can both be made very satisfactorily without putting the hands in the mixture at all, and if the bread-mixer is used for making bread, that process too may be carried on without handling the dough. A palette knife (and not the finger) should be used for scraping out the mixing-bowl, and never should food be tasted from the stirring-spoon. A tasting-spoon may be kept for the purpose and not put into the whole mass, but some dipped out onto it with the stirring-spoon.

This standard of cleanliness is easily achieved and should be accepted as attainable.

CHAPTER III

THE COMPOSITION OF FOODS

BEFORE looking into the composition of food, it is well to understand just what is meant by the term "food." In order to be a "food" a substance must ^{What is a} be fitted to serve a definite function in the "food" body. The body must be fed in order to live. This living process is twofold, as we will see later. One half is the generating of the power to perform daily duties — walking, eating, breathing — and the keeping of the body warm; the other is the constant adding to the body structure which is called growth or repair of tissue. Hence our definition for "food" is any substance which when taken into the body will either produce heat and energy or build tissue.

Every substance can be taken apart by a chemist in his laboratory in order to show of what it is made. If the parts still maintain the characteristic properties of the whole, no matter into how small particles it may be subdivided, that substance is called an element. For instance, a wedding-ring may be broken up and subdivided into particles so small they could only be seen under the microscope, and still each particle would show all the properties of gold. Gold is an element. So also are silver, lead, iron, zinc, copper, and other substances, both solid and gaseous, to a limited extent, which in combination or singly make all matter as we see it around us.

WATER

Our food substances, like other matter, are made up of certain definite chemical elements. The simplest food substance is water, in which we have a combination of only two elements, hydrogen and oxygen, twice as much hydrogen as oxygen.

Water plays a large and important part in our life, entering into the structure of all matter, even into what appears to the eye to be dry. Since water makes up two thirds of the weight of the entire body, great care should be exercised to see that plenty is provided with the diet. There should be at least six glasses a day for children and eight glasses a day for adults.

It is also important that the water should be pure, for serious diseases may be introduced into the body through a contaminated water supply. Some of these are typhoid fever, diphtheria, and dysentery. It is never safe to drink from streams and brooks receiving the drainage of a valley; and wells should be placed with great care so as not to get either the surface or the sub-strata drainage from cesspools and barnyards.

STARCHES AND SUGARS

When we find a third element, *carbon*, in combination with hydrogen and oxygen, we have a large group of food substances. In some of these the same relation exists between the hydrogen and the oxygen as is found in water, twice as much of the former as of the latter. Hence this group of substances is given the descriptive name of *carbohydrates*. They are just what the name implies, combinations of carbon with hydrogen and oxygen in the same proportion that occurs in water.

Foods of this group are familiar to all and are in constant use. They yield energy to the body, but do not build tissue. *Starch* is one of them, and is ^{Starch} the same substance chemically whether found in the potato or in wheat, in cornstarch or in tapioca, the difference being merely a matter of refining. Foods containing starch — breadstuffs and cereals — make up a larger part of our diet than any one other food; and rightly so, since they are of vegetable origin and are less expensive than meat. They are also less costly to the nation as a whole; because it is better economy to obtain our food from the vegetable kingdom direct than to feed it to animals and then eat the flesh of the animal. Care, however, should be exercised not to have too much starchy food in the diet. It should never make up more than one third of the total bulk, and it should be used with a larger quantity of fruits and vegetables than many housekeepers are in the habit of serving. This will be more fully explained in a later chapter.

Other familiar carbohydrates are the *sugars*. These vary somewhat one from another chemically, but those obtained from the cane, the beet, and the ^{Sugars} maple-tree are all the same. Others are found in fruits and help to give this class of foods their value in the diet. Sugar should be looked upon as a valuable food, but should be used in its proper place with intelligence. It will be discussed more fully in chapter XIII.

There is yet another substance which comes under this head of carbohydrates, although it ^{Woody fiber} is not a food proper in that it does not nourish the body. This is the substance which makes

up the basic structure of all vegetation and is known as *woody fiber*, or *cellulose*. It has its function to play in the diet in the form of bulk, without which the diet becomes too concentrated and binding. If it is not sufficiently plentiful in the form of fruits and vegetables, it must sometimes be introduced by bran muffins and coarse breadstuffs. The tendency is for our diet to be too refined, and this is the chief cause of the great American trouble, constipation. For this reason, if not for any other, it would be well for all of us to return to the coarsely ground meals and flours more in use in the days of our grandmothers.

FATS

We have still another group of food substances containing the three elements of carbon, hydrogen, and oxygen, though they are not carbohydrates. These are the *fats*. In them we find a larger proportion of hydrogen than we do of oxygen, which gives them the power to unite with oxygen to a greater extent than can the starches or sugars. This means that they can burn with greater heat, and are therefore the best heat-producing foods we have. We have fats of both animal and vegetable origin. Because of their great value as food, they should be used with care and thought. We have learned much from the war, and perhaps not the least of the lessons has been the disastrous effect of a shortage of fats upon the health of a nation. It is to be hoped that we have learned this lesson well, and that it will not be necessary in the future to call in the plumber so often to cut out the waste fat from the kitchen drain-pipe. The whole subject of fats is taken up in chapter XII.

PROTEIN

As we continue the analytical study of our food substances, we next come to a group of foods of far greater complexity of make-up than any we have met with so far. It is the group which comprises primarily the flesh products — meat of all kinds, fish, eggs, milk, and cheese. Into this group we can also put two classes of food from the vegetable kingdom, the pulses or legumes (beans and peas) and the nuts. It is found by analysis that all of these substances contain an element entirely lacking in carbohydrates and fats. This is *nitrogen*. Without nitrogen there can be no life, for it enters into the structure of all living tissue. Although it is around us abundantly in the air we breathe, it is impossible for us to utilize this nitrogen for our body structure and we must obtain all that we need from our food alone. Therefore this group of foods is especially important in the diet. Because of the greater variety of flavor, the group has grown to be the most popular of them all and is used far more plentifully than is wise or necessary. The family that “must have” meat three times a day is putting too heavy a burden on the kidneys as well as on the pocket-book.

This food substance containing nitrogen is known as *protein* and is extremely complex in its chemical structure. The nitrogen is in close combination with the elements we have already discussed, hydrogen, oxygen, and carbon, and also with several others — sulphur, phosphorus, and iron. There are many kinds of protein substances that vary from one another in structure and behavior, but when used as food they nearly all have in common the power to build up body tissue. A surplus

of protein material in the diet over and above what is needed for actual body structure, which in an adult is only enough to repair waste tissue, is split up in the body and partly burned for heat and energy, leaving the nitrogenous waste products to be excreted by the kidneys. Thus protein foods can perform both functions of our definition for food. As it is the most expensive class of foods we have, however, it should be kept exclusively for tissue building, and food from the vegetable kingdom should be relied on for all the energy needed by the body.

MINERAL MATTER

If food material is actually burned in a stove, ashes would be found just as from coal or wood; that is, the food would not be completely consumed. The ash is made up of mineral matter which does not readily unite with oxygen at ordinary temperatures. This mineral matter in our food would be largely iron, calcium, sodium, potassium, and magnesium, while chlorine would be driven off as a gas. All food substances contain more or less of these minerals even though it may be only a trace; but because of them one group of foods in particular is especially valuable in the diet. This group is comprised of all fruits and vegetables. Besides being in themselves very watery and also being useful for their woody fiber, they are our chief source of mineral matter, unless we except milk, from which we obtain most of the much-needed calcium.

An average adult human body if burned would leave about seven pounds of ashes. This mineral matter, which makes up the bony structure of the body, enters into the nails, hair, and teeth, and also plays an

important part in the functioning of the different organs and body fluids, must be provided in the food particularly during the period of growth. This is another reason for the importance of having plenty of fruits and vegetables and also milk in the diet, particularly in that of children.

Iron is needed to insure the proper functioning of the blood. Without it the blood is unable to absorb the oxygen taken into the lungs and to carry it to cells where it is needed to burn up the food. A patient who is lacking in iron is said to be anæmic. It is far better to keep up the necessary amount of iron by such foods as spinach and other greens, molasses, oatmeal, and eggs, than it is to give the patient iron tonics. In the one case the iron is in such combination with organic matter that it can be easily assimilated by the body, whereas in the tonic the iron is in inorganic combination and cannot be so well used.

Calcium is needed for bone structure and is to be obtained from milk more than from any other food. The necessary daily requirement for an adult is found in less than 1 1/4 pints of milk or in 2 1/2 ounces of cheese, whereas it would take more than 7 pounds of white flour to obtain it, or 21 pounds of beef, or 2 1/3 pounds of turnips, or 2 1/2 pounds of carrots. It is also needed by the body for certain fluids in combination with both sodium and magnesium.

Sodium is an essential constituent of the blood and other body fluids. It helps in the making of the hydrochloric acid of the stomach. We use common salt, which is sodium chloride, so plentifully on our food that there is no doubt about there being a sufficient amount in our diet.

Potassium, another of the necessary minerals to assist in the proper functioning of the body, is found in green vegetables and fruits together with *magnesium*. If other minerals are in sufficient amounts, these will be also.

It has been found through experimentation with animals that a diet made up of purified protein, carbohydrates, and fats, with minerals in proper proportion, does not maintain life and growth. By introducing one type of raw food after another into this chemically pure diet, it was found that in order to have normal growth, the animal must have two types of substances hitherto unknown. These substances have not as yet been isolated and so have not been given definite chemical names. They are popularly known as "vitamines," but this is not a scientific term. It is known, however, that one type of these food accessory substances is found in a few fats, such as butter fat, egg yolk, and cod-liver oil, in the organs of animals such as liver, kidney, and sweetbreads, and in the leaves of plants. It is known as "fat-soluble A" for lack of a better name. The other is more abundant and is present in all fruit, vegetables, and cereal grains, though it is lost in the highly milled products made from the grain where the endosperm alone is used. It is called "water-soluble B." Here again we have still another reason for the plentiful use of fruits and vegetables, and also for the use of the coarser cereal products.

It is perhaps difficult for the novice to distinguish between all these different types of food substances, but it is certainly easy to remember that the safest diet is a varied one. We will go into this more fully when we discuss the planning of meals.

Hydrogen	}	.....Water
Oxygen		.....Carbohydrates: starch, sugar, cellulose
Carbon		.....Fats
Nitrogen	}	.....Protein: meat, fish, milk, eggs, cheese;
Sulphur		..... pulses, nuts
Phosphorus		
Iron		
Calcium	}	.....Mineral matter or ash: fruits and vege-
Sodium		tables
Magnesium		
Potassium		
Chlorine		

CHAPTER IV

MILK AND EGGS

FOOD substances fall into five distinct groups according to their chemical composition:

1. Those valuable for their mineral salts.
2. Those containing considerable protein: milk, eggs, meat, etc.
3. Those characterized by their starch content: flours, cereals, breadstuffs, etc.
4. Those with a preponderance of sugar.
5. Those largely fat.

The plan is to study the foods of each group separately, beginning with the protein group because of its importance in the diet and the simplicity which governs its cooking processes.

Of the protein group milk and eggs are by far the most important members. It is only necessary to think of the purpose for which nature intended them, to realize how great their value is. In both cases they provide the entire food of the young animal until such time as that animal is able to find food for itself; that is, the milk and the egg not only are sufficient to keep the young animal alive and warm, but are also able to provide the material for building up the body. In the case of the egg, the chicken is fully developed inside the shell and gets no further sustenance than what was originally there until it breaks out of its shell.

MILK

The maintenance of a dairy herd is considered to be one of the industries essential to the life of a nation. Dairy herds are the greatest single factor **An essential** in public health and should be carefully **industry** conserved. Because the public as a whole does not realize the full significance of this fact, the herds of dairy cattle are being rapidly diminished in this country. Not only is milk a valuable source of food, so much so in fact that if all the milk now produced in this country were utilized to the fullest extent it would supply one fourth of all the food needed by the people in this country, but also a better return for a given amount of fodder can be obtained in the form of milk than in the form of meat. Further, it should not be forgotten, when attempts are being made to increase agricultural production, that a dairy herd is also a valuable source of fertilizer.

Milk is called a "protective food" by Dr. McCulloch, since it contains all the essential elements for growth. Its average composition is 87 per **Make-up of** cent water, 4 per cent fat, 5 per cent sugar, **milk** 3.3 per cent protein, and 0.7 per cent ash. It varies, however, as to its fat content, particularly according to the type of cow, a Jersey cow giving the richest milk with often as high as 5 per cent fat, while the milk from a Holstein is the poorest. Most States have fixed the percentage of fat below which the milk must not fall.

The composition of milk is easily seen in the home by noting the changes it undergoes. When left to stand the fat or cream rises to the top. When it grows sour it

separates into a solid, the curd, and a yellowish liquid, the whey. If the curd should be heated, it would grow tough and leathery, showing the same characteristics that the white of an egg does when it is heated. Both of these are protein material. The sugar and mineral salts are in solution in the whey and cannot be identified on sight, but together with a soluble protein give to whey, when it is separated from sweet milk, its value as a food for some invalids. This sugar of milk is not as sweet as that obtained from cane and should always be used in modifying cow's milk for infants. It does not ferment as readily and tends to correct putrefaction in the intestines.

Of the ash or mineral salts present in milk, calcium is especially important. Milk is the chief source of calcium in all our foods and is especially needed for teeth and bone structure. Since 2 per cent of the total body weight is calcium, 67 grams of calcium should be supplied each day in the ordinary diet. This is found in one and one fourth pints of milk, so that, according to Dr. Sherman, "every family should be using at the rate of *at least* one third of a quart of milk per man per day to provide for the calcium requirements of that family." The iron content of milk is low, but that can be made up for by the use of eggs and green vegetables.

One of the points in the value of milk as a food does not show in its composition. This is the fact that it has been proven to contain both of those food accessory substances necessary for growth known as "vitamines." Hence a diet that is lacking in both milk and butter, where the fat-soluble A is found, would be near the danger line for lack of those substances. Dr. Mc-

Cullom asserts that "the greatest factor of safety in the human diet is the regular use of milk." Each adult should use one pint a day, and each child from one and a half pints to one quart a day.

We hear frequently, "It is all very well to talk about the value of milk, but we cannot afford to use it at the present price." When the price of milk went up because of perfectly obvious reasons, such as the high price of fodder and the scarcity of labor, the total amount of money spent for milk was actually less in one city than when the milk was cheaper. And yet milk is a cheap food even at its present price, compared with the cost of other foods and the value received from them. In cutting down the cost of the diet, the last place to cut is milk and the first place to cut is meat. No family of five — that is of two adults and three children — should buy meat until it is using three quarts of milk a day. This is because milk is a food and should not be looked upon just as a beverage to be classed with tea and coffee merely because it happens to be in liquid form. One quart of milk supplies practically as much protein and energy as nine eggs or three quarters of a pound of beef of average composition, and can be bought for less money. When milk is eighteen cents a quart, we get as much food value for our eighteen cents spent for one quart of milk as we should get for:

30	cents	put	into	$\frac{3}{4}$	pound	of	meat	at	40	cents	a	pound;			
45	"	"	"	"	"	"	"	"	60	"	"	" ; or			
45	"	"	"	"	"	"	"	"	9	eggs	at	60	cents	a	dozen.

It can be used as an economical substitute for meat or eggs, though it is not as cheap a food as flour or other cereal products.

This does not mean that milk should be used by the glass necessarily, but it can and should be used in cooking. The top of the bottle may be reserved for use on cereal for breakfast or for dessert at dinner, and the rest of the bottle used in cream soups, as chowders, vegetable soups, soups made from dried peas and beans, etc. It can also be used for cream sauces to make a little fish or meat go farther. These can be served in a variety of ways, on toast, in patty shells, in individual ramekins, or made up into soufflés or scalloped dishes. Then, too, it may come hard for some people to get used to the idea of a dessert being the meat dish of a meal, but such may be the case if the dessert is largely made of milk as in rice, bread, or cornstarch pudding, or in custard, or even ice-cream. When a milk dish is served either as a soup or a dessert, the meat may be omitted altogether, and the rest of the meal made up of breadstuffs, plenty of vegetables, or salad.

Milk is just as good a food for microscopic animals as it is for larger ones, and as these multiply rapidly in a warm medium and are present in large quantities in dust and dirt of all kinds, cleanliness and cold are imperative in order to have good milk. Milk may be easily a disease-carrier, bringing contamination from the cow, the barn, the utensils used, or the men handling it. The greater precautions that are used to keep it clean, the higher must the price be, of necessity; because these involve a greater expenditure for equipment and for labor. It is safe to say, as a rule, that the more we pay for our milk the cleaner it is.

There are several grades on the market varying in

different localities in price and in name. A "certified" milk is a raw milk produced in a single dairy that has been especially inspected and approved by a board of examiners. It is certified to contain not more than a fixed number of bacteria to a cubic inch. Milk of this type is the safest to use for infants and young children.

Grades of
milk on the
market

"Grade A" milk is a good household milk which has usually been pasteurized. Some dealers make the distinction between Grade A and Grade B by having the former come from a comparatively small group of near-by farms, while the latter is an accumulation from many farms often at quite a distance. Milk that has been pasteurized has been heated to 145° F. and kept there for twenty minutes, then cooled rapidly. This is sometimes done with the milk in bulk, then afterwards it is bottled; but it is better to have the milk bottled first and then heated. This process tends to kill the most harmful of the disease bacteria without changing the characteristics of the milk. It must be thoroughly understood, however, that when milk has been so treated, it is not free from the possibility of further contamination. It is still a good culture for whatever micro-organisms may find their way into it.

The process of pasteurization should not be confounded with that of sterilization. This latter is heating the milk to the boiling point three successive times, or holding it at boiling point for thirty minutes. This insures the killing of all bacteria present in the milk, and should always be done if the milk is known to be, or even thought to be, contaminated. It is also wise to sterilize all milk before giving it to a child who runs up a temperature which cannot be accounted for in any other way.

After a reliable dealer has been chosen and a suitable grade of milk purchased, care should be taken in the home that the milk does not become contaminated there. All milk bottles should be washed before opening, especially around the top even under the cap, and should be placed in the coldest part of the refrigerator. No milk should be allowed to stand in an open pitcher or dish in the room where flies and dust may get at it. Only what is needed at the time should be taken from the bottle; if any is left over, it should not be poured back into the bottle for fear of contaminating the rest. If the paper cap for the bottle has been punctured or thrown away, a tumbler may be inverted over the top of the bottle.

All bottles and other utensils used for milk must be kept clean. They should first be rinsed out in cold water and then washed with soap and scalding water.

Special notice should be taken of the value of skimmed milk. It contains all of the food properties of whole milk except the fat, and so is a very cheap substitute for meat. It can be used in cooking where the loss of fat can be made up by cheaper fats, or it can be made into cottage cheese and used in various ways. If skimmed milk is bought as such, it should be used only in cooking, or else it should be thoroughly sterilized, as it is apt to be more carelessly handled than whole milk.

EGGS

Eggs are not as economical a food as milk, and when they soar in price to ninety cents and a dollar a dozen, they should be kept for children and invalids by fami-

lies who wish to keep the cost of food down. They are valuable as being a light, easily digested, nitrogenous food, capable of being used either raw or in many varied combinations.

It should be remembered in cooking eggs, no matter what the process may be, that the temperature should be kept low. Protein material when heated How to to the boiling point of water becomes cook eggs tough and leathery, while it solidifies into a jellylike mass at 175° F. In order, then, to cook an egg without having it become tough, it should be kept below the boiling point of water. When the egg is in the shell this is done by dropping it into boiling water and allowing it to stand away from the fire the length of time desired according to the various tastes of the family, the size of the pan used, and the quantity of water — four minutes for a very soft egg, five or six minutes for a harder one. They should never be boiled. The same is true of a poached egg. In order to obtain a “hard-boiled” egg, the egg may be left in warm water twenty minutes. All custards also and even scrambled eggs are better when cooked in the top of a double boiler.

Eggs should be kept at a low temperature, but not below freezing point. As they readily absorb odors and flavors from surrounding substances, it is Care of eggs well to remove them from the paper box in which they usually are shipped and place them in a clean china bowl. In order to preserve them for some months, they may be placed in large crocks and entirely submersed in a mixture of boiled, cooled water and water glass (sodium silicate), one part of the water glass to nine parts of water. This merely coats the surface of the egg, thereby preventing the evaporation of

the air from the inside and the entrance of germs through the pores of the shell from the outside.

MILK AND EGG RECIPES

CREAM SOUPS

$\frac{1}{4}$ cup oleomargarine or other fat	$\frac{1}{4}$ cup flour	$\frac{2}{2}$ teaspoons salt	$\frac{1}{4}$ teaspoon pepper	$\frac{1}{4}$ quart liquid (1 pint milk and 1 pint liquid in which vegetables have been cooked)
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Melt the fat and stir in the flour. When these are well mixed, add the liquid and heat until it boils, stirring constantly. Add seasonings. To this sauce may be added $\frac{1}{2}$ cup to 1 quart vegetable stock and pulp, according to the strength or flavor of the vegetables. Beans, cabbage, carrots, corn, onions, peas, potatoes, squash, or turnips may be used, mashed through a strainer.

To make peanut soup, add $\frac{1}{2}$ cup peanut butter to the thickened milk, or to make cheese soup, add $\frac{1}{4}$ cup cheese cut in pieces.

CORN CHOWDER

1 can corn	4 cups skimmed milk
4 cups potatoes, sliced	8 squares toast
$\frac{1}{4}$ pound fat salt pork	Salt and pepper
1 sliced onion	

Cut pork in small pieces and try out, add onion and cook five minutes, stirring often that onion may not burn. Par-boil potatoes five minutes in boiling water to cover, add potatoes and water to fat, cook until potatoes are soft, add corn and milk, then heat to boiling point. Season with salt and pepper, add the toast soaked in enough cold milk to moisten.

CREAM OF COTTAGE CHEESE SOUP

1 cup milk	1/3 teaspoon salt
1/2 tablespoon butter	Dash of pepper
1/2 tablespoon thickening	1/4 cup cottage cheese

Use the above ingredients (except the cheese) to make a thin white sauce. Cook thoroughly and cool slightly before adding the cheese. Neutralize acid of cheese with soda if cheese is sour, allowing 1/4 to 1/2 teaspoon of soda to 1 cup of cheese. Dissolve soda in a little milk and blend with cheese. Then stir the warm sauce gradually into the cheese until well blended. Reheat carefully, using as seasoning a slice of onion, a small slice of the yellow of the lemon rind, and a blade of mace or a little nutmeg. Avoid boiling the sauce after the cheese is added.

POTAGE À LA REINE

(Queen Victoria's favorite soup)

1 quart liquor in which one chicken has been cooked
 Season with salt, pepper, celery salt, and perhaps onion
 3 hard-boiled yolks of egg, mashed
 1/3 cup dry bread crumbs, moistened with 1/2 cup cold milk
 White chicken meat, chopped fine

Mix last three ingredients, add slowly to them 1 pint hot milk or cream, then add all to the hot stock. Boil 5 minutes, taste for seasoning and thickness. It should be like a purée.

FARINA CREAM SOUP

3 pints milk, or 2 pints milk
 1 pint water, or 2 pints water
 1 cup farina
 2 eggs
 2 teaspoons salt
 1/2 cup grated cheese

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Beat the eggs slightly and add a little of the milk. Put the rest of the milk and the water into a saucepan, and bring it to a boil. Add the salt and farina. Cook 5 minutes and add the eggs. Cook a little, and add the cheese.

Wheat cream soup is made in the same way, using wheat instead of farina.

Other dishes containing a large amount of milk:

- Creamed chicken, or fish
- Creamed vegetables
- Dishes served with a white sauce
- Scalloped dishes
- Bread and rice puddings
- Cornstarch puddings
- Tapioca cream
- Custards

SOFT OR BOILED CUSTARD

- $\frac{2}{3}$ cup milk
- 1 egg
- 1 tablespoon sugar
- $\frac{1}{4}$ teaspoon salt
- Vanilla

Heat the milk in the top of the double boiler. Beat the egg until smooth but not foamy. Add the sugar and salt to the egg. Pour the hot milk onto the egg and return to the double boiler, stirring constantly. It is cooked enough when it coats the spoon, and when the foam disappears. Strain and flavor.

BAKED CUSTARD

- $\frac{2}{3}$ cup milk
- 1 egg
- 1 tablespoon sugar
- $\frac{1}{4}$ teaspoon salt
- Vanilla or caramel

Beat the egg slightly. Add the sugar and salt to the egg, then the milk. Pour into a buttered cup and set in a pan of hot water in a moderate oven. Bake about 20 minutes or until it does not cling to a knife.

POACHED EGG

Boil water in a greased frying-pan. Add salt, 1 teaspoon to 1 quart of water. Draw to cooler part of the stove and carefully slip in the egg, which has been broken in a saucer. Cover and cook until white is firm, 5 or 6 minutes. Take up carefully with skimmer, season and serve on toasted bread.

CREAMY EGG

1 egg	1/2 tablespoon butter
1/4 cup warm milk	Pepper
1/4 teaspoon salt	

Beat egg slightly and add butter, salt, pepper, and milk. Cook in a double boiler over gently boiling water. As it thickens stir it slowly from the side and bottom, that it may cook evenly. Cook it until it is of a soft, creamy texture, remove from fire and serve at once on toast.

SCRAMBLED EGGS WITH TOMATO

Season 1 pint of tomato with onion, celery, or parsley and sweet herbs. Cook and strain. Put 2 tablespoons butter in blazer, add tomato, when it is hot add 6 eggs slightly beaten, 1/2 teaspoon salt, and 1/16 teaspoon pepper. Stir until contents are creamy. Serve with brown bread toasted.

SCRAMBLED EGGS WITH PEAS SCRAMBLED EGGS WITH ASPARAGUS

Similar to Eggs with Tomato

SCRAMBLED EGGS WITH COTTAGE CHEESE

3 eggs	Salt	Pepper
2 tablespoons cottage cheese		

Beat the eggs slightly, season highly with salt and pepper, turn into hot, well-greased saucepan and scramble very quickly. When firm, stir into them as quickly as possible the cottage cheese. Serve as soon as thoroughly mixed.

This dish is improved if the cheese has previously been mixed with pimento or parsley.

COTTAGE CHEESE OMELET

2 eggs	1 tablespoon chopped pimento
1/4 teaspoon salt	2 tablespoons milk
3 rounded tablespoons cottage cheese	1/8 teaspoon soda

Beat the yolks and whites of the eggs separately. Add to the yolks the salt, the milk, and the cheese which have been blended with the pimento, finally fold in the stiffly beaten whites, pour into a hot frying-pan in which has been melted 1/2 tablespoon fat. Cook the omelet slowly until the egg has set, place in the oven a few minutes to finish cooking and fold over in the center. Garnish with parsley. Other seasoning may be used, such as chopped parsley, green pepper, or minced ham.

SCALLOPED EGGS WITH COTTAGE CHEESE

6 hard-boiled eggs	1 cup white sauce
1/2 cup cottage cheese	1 sweet red pepper cut in strips

Cut the eggs into quarters and place about one fourth of the amount in a buttered baking-dish. Cover this layer with sauce into which the cottage cheese has been folded and sprinkle over it a layer of sliced green or red sweet pepper. Repeat until the dish is full. Sprinkle bread crumbs on top, dot with butter and brown in a hot oven.

which a teaspoonful of butter has been melted. When the under surface is brown, fold the omelet, turn it out on a hot plate, and serve immediately.

FRENCH OMELET

Beat only a little the whites and yolks of two eggs. Add 1 tablespoon of water or milk, $\frac{1}{8}$ teaspoon of salt and a dash of pepper. Turn this into a buttered frying-pan. Keep the mixture disturbed by lifting the edge with a knife or fork. When the omelet is set, fold and serve.

A HEARTY OMELET

1 pint milk	1 teaspoon salt
$\frac{1}{4}$ cup cornmeal	6 slices of bacon
3 eggs	

Scald the milk in a double boiler. Pour it onto the cornmeal and put back on the fire. Cook 15 to 20 minutes, stirring frequently at first. Beat the eggs separately; pour the meal mixture into the beaten yolks, add salt, and fold in the stiffly beaten whites. Have a large frying-pan in which bacon has been cooked; remove bacon and pour off most of the fat; pour the omelet mixture into it. Bake about $\frac{1}{2}$ hour in a rather moderate oven. Serve on a platter garnished with the bacon. Use either white or yellow cornmeal.

SPINACH OMELET

1 cup cooked spinach	$\frac{1}{2}$ cup cream
$\frac{1}{2}$ tablespoons flour	$\frac{1}{3}$ teaspoon salt
2 tablespoons butter	Few grains of pepper
4 eggs	

Chop the spinach fine, and make a sauce of the butter, flour, cream, pepper, and salt, allowing it to boil thoroughly. Combine this with the spinach. Separate the egg-yolks from the whites; beat the yolks till lemon-colored, adding $\frac{1}{3}$

teaspoon of salt and a little pepper. Beat the whites till stiff and dry and cut and fold them into the first mixture. Pour the egg mixture into a hot, well-buttered omelet pan, spreading the spinach over the top. Cook very gently for about twelve minutes till the egg is set and the omelet brown. Fold as usual.

EGGS IN MASHED POTATO

- 2 cups cold mashed potato
- 1/2 cup bread crumbs
- 1/2 teaspoon grated nutmeg.
- 4 eggs
- 1 tablespoon finely chopped parsley
- 1 teaspoon drippings

Mix the seasoned mashed potato with the nutmeg and divide into four parts (if the potatoes are stiff add a little milk). Roll in the bread crumbs and place in an earthenware dish which has been brushed with the drippings. Make a hole in the center of the potatoes large enough to hold an egg. Break the eggs one at a time into the center of the potato nest. Sprinkle the eggs with salt, or add a few slices of bacon. Place in a hot oven and bake until the eggs are set to one's liking. Sprinkle the top with parsley and serve.

CHAPTER V

MEAT

BEEF, veal, mutton, lamb, chicken, and all other animal flesh are included in the general term meat. They vary little in their general structure, composition, or nutritive value. The population of the world is increasing faster than the number of meat animals, so that the price of meat is constantly increasing and there is no immediate prospect of its being lowered. Meat is usually the most expensive part of the diet. Those families who desire to reduce the cost of living can do so by using less meat.

When we look at a piece of raw meat, it is easy to see that it is largely made up of water, the actual percentage being about 62 per cent. We next notice that there are two distinct types of tissue, the red lean tissue which is made up of protein material, and the fatty tissue. Since the fat occurs throughout the lean material as well as in the large sections easily seen, taking the place in the tissues of water, a piece of meat that is well streaked with fat would be more economical than a lean one. The average piece of meat with a moderate amount of fat contains about 18 per cent protein material and from 18 per cent to 20 per cent of fat. There is no carbohydrate in meat, but there is about one per cent of mineral salts.

On further examination it is seen that raw meat is made up of distinct bundles of muscle fiber, giving to meat what is known as "grain." These bundles can be

PLATE A
 SIDE OF BEEF
 BOSTON CUTS



- 1 NECK
- 2 CHUCK RIB
- 3 PRIME RIB
- 4 SIRLOIN
- 5 BACK OF RUMP
- 6 MIDDLE OF RUMP
- 7 FACE OF RUMP
- 8 AITCH BONE
- 9 ROUND
- 10 VEIN
- 11 HIND SHIN
- 12 FLANK
- 13 RATTLE RAND
- 14 BRISKET
- 15 FORE SHIN

pulled apart into still smaller bundles until finally we see under the microscope that each bundle is made up of a group of hollow tubes held together by connective tissue. These hollow tubes or muscle fibers vary in length and toughness of structure with the age of the animal, the use to which the muscle has been put, and the length of time since the slaughter of the animal. Each tube contains a liquid which holds in solution a protein substance similar to the white of egg. It also contains the mineral salts that are in the meat, and the substances called "extractives" which give each meat its own peculiar flavor. The walls of the tubes are another type of protein material, as also is the connective tissue which binds the tubes together and unites them into bundles. Fat globules are found embedded throughout the meat in this connective tissue. When a piece of meat is carved with the grain, the bundles of fibers are not broken open, hence the slice is stringy and tough. When, however, meat is carved across the grain, each hollow tube is cut in small pieces, thus releasing the juice within and making the slice juicy and easier to chew.

As an animal grows older, the muscle fiber becomes tougher, as also does the connective tissue. This also is true of the muscle that has constant use. At the same time, however, the quantity of juice in the muscle fiber is increased and the flavor is developed. A cheap cut of meat is a tough cut, but at the same time a juicy one. Therefore it is preferable for making soup or for the extraction of juice.

In former times the fatted calf was kept alive until the honored guest arrived, since it was impossible to

have refrigerating plants. Because it was used at once, it was a tender, juicy morsel. If, however, the guest had been delayed and the meat had to be kept twenty-four hours, it would have been found to be very tough. This is due to the hardening of the muscle fiber and the solidifying of the juices due to the cessation of the life processes. Because of this fact, meat is hung or kept for different lengths of time, depending upon the variety. This permits the first stage of bacterial action to begin which again softens the tissue. With some kinds of meat this process is allowed to go far, as for instance with venison and game birds. Frequently in country regions a farmer butchers his calf and peddles the meat the next day. The housekeeper buying this meat would find it very tough if she used it that day. If, however, she kept it on ice for four or five days she would find she had a tender piece of veal. Chickens also are better if kept after killing for two or three days, unless eaten immediately after killing.

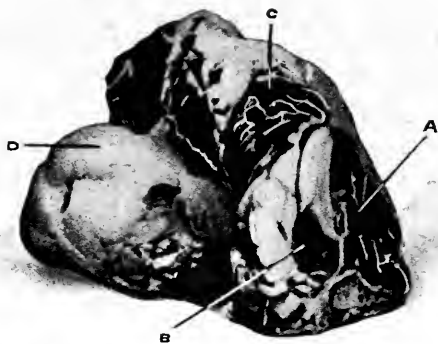
CUTS OF BEEF

There is some confusion throughout the country in purchasing beef because of the various ways in which it is cut in different localities. After the slaughter of the animal the beef carcass is always split lengthwise down the backbone into two "sides." These are hung by the hind legs, and the beef is shipped in this form.

The retailer divides the "sides" to suit his trade, according to the part of the country in which his shop is located. There are two chief ways of cutting a side of beef. One is known as the "Boston cut," and is used generally throughout New England. The other is the "New York or Philadelphia



PLATE B
BOSTON CUTS

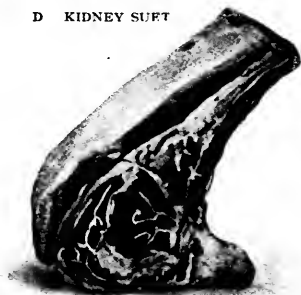


SIRLOIN ROAST

- | | |
|-----------|---------------|
| A SIRLOIN | B TENDERLOIN |
| C FLANK | D KIDNEY SUET |



TIP OF SIRLOIN

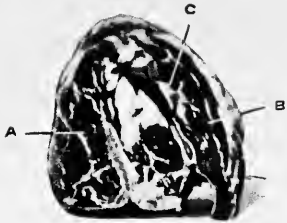


RIB ROAST



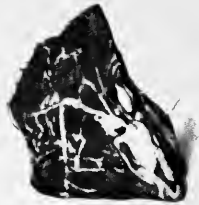
MIDDLE CUT OF SIRLOIN

PLATE C
BOSTON CUTS

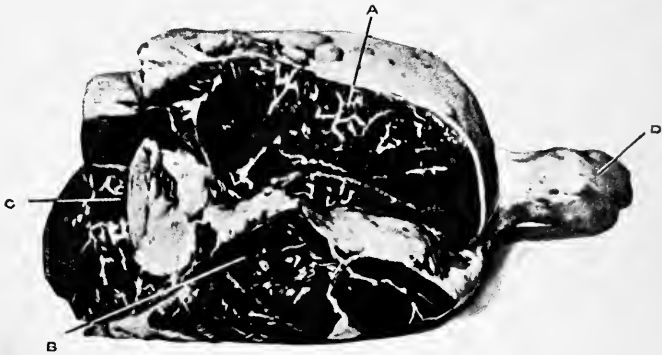


SIRLOIN OR PORTERHOUSE
STEAK

A SIRLOIN B TENDERLOIN
C FLANK

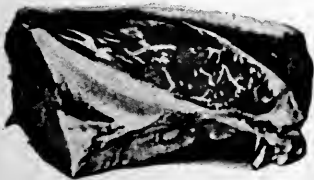


AITCH BONE



ROUND OF BEEF

A TOP ROUND B BOTTOM ROUND
C VEIN D SHIN



BACK OF RUMP



FACE OF RUMP



MIDDLE CUT OF RUMP



cut," and has been adopted quite universally throughout the United States except in New England. The New York method of cutting is used by the Department of Agriculture in their Farmers' Bulletins. It is to be noted that cuts of the same name may be taken from different parts of the animal in different localities. This explains why a New Yorker is puzzled not to find as good beef in Boston as she is accustomed to in New York, and why a Bostonian is frequently heard to complain of New York beef. Accustomed to the best cuts at home under a certain name, they purchase quite a different cut under the same name in the other city.

The side is cut across at right angles to the backbone, making "hind" and "fore" quarters. Here lies the first point of difference. In the Boston "Quarters" cut three ribs are left on the hind quarter, whereas in the New York cut all ribs are left on the fore quarter. This means that the first cut of the fore quarter in New York is the same piece of meat as the first cut on the hind quarter in Boston. A prime rib roast, the same ribs in both cases, is the first cut of the fore quarter in Boston and the second cut in New York.

Plates A and D show the "quarter" division line between sections (3) and (4). The pieces of the fore quarter are used for the same purposes in both methods: the ribs (3) for roasts; the chuck (2) for roasts and stews; the neck (1) for soup stock, stews, and beef-tea; the rattle rand (13) and brisket (14) of Plate A, and the plate (10), navel (11), and brisket (13) of Plate D, are used for corning; and the fore shin (15) is used for soup.

The greatest difference is in the way of cutting the

hind quarter, and the confusion thus brought about is increased by using the same terms for different parts of the quarter. The loin (4) in both plates is cut in slices at right angles to the backbone for steaks or in larger pieces for roasts. The tenderloin is an oval-shaped muscle lying underneath the backbone in this section. It is sometimes removed whole for a roast called a "fillet of beef," but is more frequently sliced with the sirloin muscle to form steaks. The "Club" or "Delmonico" steak is the one in which only the tip of the tenderloin appears. A "Porterhouse" steak is one in which there is a cut of the tenderloin through its thickest part. This relation of tenderloin to sirloin muscle can be seen in the picture of a Porterhouse steak in Plate C. The terms "Club" and "Porterhouse" steaks are used alike in both the New York and Boston systems.

The next section below the loin in the Boston cut is called the "rump" (5, 6, and 7 of Plate A). This part is cut out in a solid piece, and the bone removed. It is then divided into three pieces: the back, the middle cut, and the face. These are used for roasts, or cut in slices for steaks. The back makes the best roast, and is more economical than sirloin roasts, as there is no waste. The other two rump cuts (6 and 7) are sometimes used for beef à la mode or pot roasts.

This section in New York (Plate D, 4) is still cut in slices like the loin to make the large sirloin steaks — the hip-bone, the flat-bone, and the round-bone sirloin steaks. These are not to be bought on the Boston market. The New York rump (Plate D, 5), used for stews and corning, is a cut which includes part of the Boston

PLATE D
SIDE OF BEEF
NEW YORK CUTS



- 1 NECK
- 2 CHUCK
- 3 RIB ROAST
- 4 LOIN
- 5 RUMP
- 6 ROUND
- 7 BOTTOM OF ROUND
- 8 HIND SHIN
- 9 FLANK
- 10 PLATE
- 11 NAVEL
- 12 CROSS RIBS
- 13 BRISKET
- 14 CLOD
- 15 FORE SHIN

rump, the aitch bone, and part of the round (Plate A, 8 and 9).

The round of beef (Plate A, 9, and Plate D, 6) is much the same cut in both methods. It is divided into "top" and "bottom" round (Plate C) ^{Round} according to the way the piece lies on the counter with the leg bone parallel to the counter. The top is used for steaks and roasts, though the farther down the leg the slice is cut the tougher the muscle becomes. The bottom round is tougher than the top and is used for beef-juice, Hamburg steak, and sometimes for stew meat.

The piece cut from the round in Boston, known as the "vein" (Plate A, 10), is used for a roast or for braised beef. It is stringy but juicy. The hind shin (11) is used for soup stock.

	<i>Part Boston cut</i>	<i>Part New York cut</i>	<i>How cooked</i>
Fore Quarter			
Neck		Neck	Stewed
Chuck ribs		Chuck	Roasted, wasteful
Prime ribs		Prime ribs	Roasted, high grade
Fore shin		Fore shin	Stewed and for soup
Rattle rand } Brisket }		Plate Cross ribs (roasted) Navel Brisket	} Corned
Hind Quarter			
Sirloin		Loin	Roasted or broiled, tender and well-flavored
Rump		{ Sirloin steaks Part of rump	Roasted or broiled, juicy, no waste
Part of rump } Aitch bone } Part of round }		Rump	Stewed or corned
Round		Round	Broiled, stewed, or for pot roast
Hind shin		Hind shin	Stewed for soup
Flank		Flank	Braised or boiled

It has been shown by the Department of Agriculture in a long series of experiments that there is practically no difference in digestibility or nutritive value between the various cuts of the same animal or of different types of animals. The sole difference lies in the convenience of handling and in the length of time involved in preparing the meat for use. When the ways given in a cook-book for cooking meat are looked over, it is found that they fall easily into three groups, depending upon the result desired. The first group includes all recipes in which the juices only of the meat are used. This would include meat soups and broths of all kinds. The second group comprises those recipes in which the piece of meat is served as a whole and great care is taken to retain all the juices, such as roasts and beefsteak. All others would fall under the third head, where the meat and the juices are served together. This includes stews of all kinds, pot roasts, beef à la mode, and all so-called "made" dishes, where the juices in the form of gravy are served with the meat itself.

Since it is the juice of the meat that is desired for soup, a cut is chosen from a muscle that has had much use, not only because this is cheaper, but because it contains more juice. Every kind of meat may be used alone or in combination; bones, pieces left from roasts, and trimmings may all go into the soup-pot. It is well to have some bone with the meat, for from the bone as well as from the connective tissue, gelatine is formed on boiling. If the broth is to be used for a child or an invalid, instead of using fragments it is better to buy meat especially for this purpose, either the neck of mutton for mutton-broth,

PLATE E
NEW YORK CUTS



RUMP OF BEEF



LOIN OF BEEF

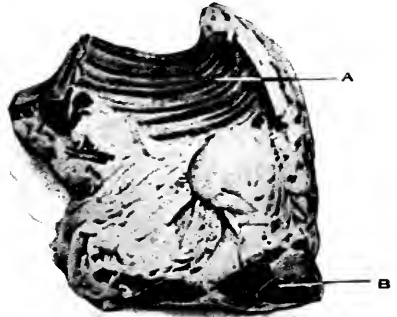
PLATE F
BOSTON CUTS



SIDE OF LAMB



LEG OF LAMB



RIB AND LOIN CHOPS

A RIB CHOPS

B LOIN CHOPS



FOREQUARTER OF LAMB

or the shin of beef for beef-broth. The meat for soup should be cut in small pieces so as to have as large a surface exposed as possible. It should be well covered with cold water, and well salted and allowed to stand for about an hour. This draws out the juices. It is then put over a slow fire and allowed to heat gradually, but should never be allowed to boil, since boiling will harden all the protein material present in the juices. This is what forms the scum on the top of a soup-pot that ordinarily is carefully removed and thrown away as being unsightly. Soup at best, when made under the most careful conditions, contains only a small proportion of the total nourishment of the meat, since only that protein present in the juices is in the soup. If this is skimmed off and thrown away, it leaves only the flavor, mineral salts, and whatever gelatine has been formed from the bones and connective tissue. A cleared soup, such as bouillon or consommé, contains practically no nourishment, but is merely a stimulant and should be used as an appetizer before a heavy meal. It should be noted that the meat left from soup-making contains by far the larger proportion of the protein material of the original piece. To be sure, it is tough and has no flavor, but it is far too valuable to be thrown away. It can be put through the meat-chopper and used, when highly seasoned, in "made-up" dishes of various kinds.

In order to retain all the juices as for a roast, it is necessary to seal up the outside of the meat. This is done by sprinkling a roast well with flour Roasting to form a paste with the water in the meat, and then by putting it into a hot oven which quickly sears the outside. After this is done, the heat is reduced

and the cooking completed at a steady low temperature. When a roast is red in the inside, it shows that it has not been subjected to such heat as would coagulate the protein material and would toughen the meat.

Broiling The same idea is carried out in broiling a piece of meat there it is turned frequently until seared on both sides and then allowed to finish cooking more slowly.

With our third group, which is by far the largest, the process involved is practically the same, even though

Stewing there is a great variety in the finished products. The idea is to use a cut of meat that is both juicy and tough, so to treat it as to make it tender, and to serve it with the juices extracted during the process. If a large piece of meat is used, as for a pot roast, it is usually browned all over on a frying-pan before it is subjected to a long, slow cooking in hot water. This latter may be done in the oven or on the top of the stove. Vegetables or various kinds of seasonings may be added during the process of cooking and a brown gravy made from the juices. The meat for a stew is cut up into one-inch cubes. These may be browned in a pan for a brown stew or may be left as they are for an Irish stew. Then they are covered with boiling water and allowed to cook for a long time below the boiling point. If stews are allowed to boil, the protein material becomes tough and the pieces of meat are hard and leathery. Vegetables are usually added during the process and the gravy is slightly thickened with flour. The great variety of recipes in this group is due to different combinations of flavors used by various cooks, each one having a distinct name. This process may well be carried out in a fireless cooker. In this case,

however, the stew must be boiled for fifteen minutes before being put into the cooker.

POULTRY

Although the ways of cooking chicken may fall into any one of these groups, it may be well to add a special word on the subject. When buying a chicken we can distinguish between chicken and fowl in this way: a fowl has hairs on the body and not so many pin-feathers; the skin is also coarser, there are scales on the feet, and the end of the breast-bone is stiff and not pliable as in a chicken. A hand-picked chicken is more tender than one that has been scalded before the feathers are removed, although the other has a smoother, more attractive appearance.

To dress a chicken or fowl, make a small incision between the end of the breast-bone and the tail, not deep enough to cut through the membrane To dress a chicken surrounding the entrails. The fat can be easily separated from the body of the bird and all the entrails can be removed at once if this membrane has not been pierced. Be careful to remove the lungs which lie close to the breast-bone and which do not come out with the entrails. The kidneys also must be removed separately. The crop can be slipped out through the neck opening without making an incision below the neck. The tendons of the legs may be pulled by making a cut through the skin above the joint before removing the feet. Remove all pin-feathers and singe off the hairs.

After the bird has been stuffed and sewed up, it is trussed for baking. One skewer is put crosswise through the bone by the tail; another skewer is put through

the body at the largest part of the legs; a third is so placed in the upper part of the body as to hold both wings in place and the end of the neck which has been brought down on the back. A string is wound around the ends of the legs and the ends of the tail skewer, holding them securely in place; then it is laced across the back of the chicken around the other two skewers making a harness to keep the wings and neck in place without having any string across the breast of the bird.

If a giblet gravy is desired, the liver, heart, and gizzard are removed from the entrails. Care must be taken to cut away from the liver the gall-bladder and any discolored parts. The clotted blood should be thoroughly washed out of the heart. The fat around the gizzard can be easily pulled off, and the thin membrane on the outside of the fleshy portion can be cut away with a sharp knife. The flesh can then be separated very easily from the heavy membrane enclosing the sac with its disagreeable contents. The prepared giblets should be dropped into boiling water at once and simmered until tender. They may then be set aside to be used for the gravy when the chicken is served.

One word further. Since pork and its products, with the exception of bacon, contain so much fat in close combination with the protein material, they are difficult to digest and should not be given to children nor adults who have weak digestion. Crisp bacon fat is, however, one of the most digestible of the fats and can be used freely in combination with potatoes and other vegetables.

MEAT RECIPES

SOUP STOCK

4 pounds meat	1/4 of a sweet pepper
4 pints cold water	1 1/2 teaspoons sweet herbs (marjoram, thyme, etc.)
2 teaspoons salt	
10-12 peppercorns or	1/4 cup each carrot, onion,
1 sprig parsley	celery, turnip, cut in
4 cloves	small pieces
1/2 of a bay leaf	

Wash and cut meat and bones. Put in kettle with cold water, and soak for 1/2 hour. Place over fire and heat slowly to the boiling point. Simmer 5 or 6 hours. Strain and cool.

TO CLARIFY SOUP STOCK

Remove fat from the stock (strain through cheesecloth). Allow the white and shell of 1 egg to each pint of stock. Beat the white slightly, crush the shell, and add to the cold stock. Stir over the fire until the boiling point is reached. Boil 3 to 5 minutes according to the amount of stock. Set on the back of the stove to settle for 10 minutes. Remove the scum. Strain through a sieve set on top of cheesecloth. If necessary reheat before serving.

Season soup to taste before clearing.

Lean raw meat may be used instead of white of egg. It is more bother to handle, but is cheaper than eggs when stock is to be cleared in large quantity.

SOUP STOCK

- 4 pounds of the "meat end" of a hind shin of beef
- 2 quarts very cold water
- 1 onion, sliced across
- Salt, pepper, some bay leaves
- 1 egg

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Cut meat and bone into inch cubes. Pour the cold water over it. Stand overnight in a cool place. In the morning put on stove and heat slowly. It should simmer and not boil, for 6 or 8 hours. Strain through a sieve into a wide bowl. The next day remove the fat. Add the onion, seasonings, and egg beaten up with the shell. Stir until it boils. Then add enough caramel to give it color and let all boil 45 minutes. Strain through scrim into a bowl.

PLAIN STEW

1 pound breast of veal or lamb (meat and bone)	1 tablespoon butter
1 teaspoon salt	1 onion
1/16 teaspoon pepper	1 carrot
1 quart water or stock	1 turnip
	2 potatoes
Gravy: 1 to 2 tablespoons flour	
1 to 2 tablespoons water	

Cut meat in small pieces, put with salt, pepper, and cold water or stock in saucepan. Raise slowly to simmering point and keep it there until tender, 2 or 3 hours. Cut vegetables into small pieces or fancy shapes, brown them in butter and add to the stew half an hour before serving, giving time enough to cook the vegetables. Take the solid material out, thicken and season the gravy, and serve all together.

BEEF STEW

The five chuck ribs may be used for stew, the rump piece, or the upper part of the round.

5 pounds of either of the above cuts	1 onion cut in slices
4 cups potatoes cut in thin slices	1/4 cup flour
1/2 cup carrots diced	Salt and pepper

Remove bone, wipe meat and cut into pieces 1 inch square, and dredge thickly with flour.

Render slowly 2 tablespoons suet fat. Add the meat to

the fat and brown. Add remaining fat and bone, also flour. Add cold water to partly cover, raise it to simmering point and allow it to simmer gently until meat is tender. Add carrot and onion with seasonings the last hour of cooking. Parboil potatoes and add to stew the last 15 minutes. Remove bone and any pieces of fat, and skim the stew carefully before serving.

BRAISED BEEF

3 pounds beef from lower part	Carrot	} 1/4 cup each, cut in dice
of round or face of rump	Turnip	
2 thin slices fat salt pork	Onion	
1/2 teaspoon peppercorns	Celery	
3 cloves	Salt and pepper	
	1 bay leaf	

Try out pork and remove scraps. Wipe meat, sprinkle with salt and pepper, dredge with flour, and brown entire surface in pork fat. Place on trivet in deep granite pan or in earthen pudding-dish, and surround with vegetables, peppercorns, and 3 cups boiling water; cover closely and bake 4 hours in very slow oven, basting every 1/2 hour, and turn after second hour. Throughout the cooking the liquid should be kept below the boiling point. Serve with horseradish sauce, or with brown sauce made from liquor in pan.

MOCK DUCK

Sear 2 pounds flank or skirt steak, stuff, and roll it, tie it, and put in double roasting-pan with water under it. Cook 3 hours in slow oven, never allowing water to cook out entirely. Serve hot, making a sauce with liquor in pan, seasoning with tomato.

STUFFING

1 cup bread crumbs	1 teaspoon minced parsley
1 teaspoon salt	1 teaspoon chopped pickle
1/4 teaspoon pepper	1 teaspoon onion juice
1 teaspoon lemon juice	1/4 cup melted butter

BEEF OLIVES

Cut chuck steak $\frac{1}{2}$ inch thick; take pieces 4 inches square, sear them both sides, put stuffing on them, roll, and tie. Put in double roasting pan with brown sauce underneath. Cook in slow oven 2 hours. Season sauce and serve.

HAMBURG STEAK

1 pound chuck steak	1 teaspoon salt
1 onion	$\frac{1}{3}$ teaspoon pepper

Chop meat and onion together, season, make into firm balls, sear in butter, reduce the temperature, turn balls often, and serve rare.

SALISBURY STEAK

1 pound chopped chuck	1 tablespoon lemon juice
1 teaspoon salt	2 tablespoons minced parsley

Make into firm balls, sear in hot butter, cook at a lower temperature, turning often, serve rare.

MEAT BALLS WITH HORSERADISH SAUCE

1 pound chopped chuck	$\frac{1}{6}$ teaspoon pepper
1 teaspoon salt	

Cook according to directions for Salisbury steak. Serve with sauce:

$\frac{1}{2}$ cup horseradish	$\frac{1}{2}$ cup cream
$\frac{1}{2}$ cup cracker dust	1 teaspoon mustard
1 teaspoon salt	$\frac{1}{4}$ cup vinegar
$\frac{1}{16}$ teaspoon pepper	2 teaspoons powdered sugar

Mix salt, pepper, cracker and horseradish. Make paste of mustard and cream in a spoon, add it with cream to mixture. Add full amount of vinegar if horseradish is fresh, and heat the materials over water. Serve hot.

GERMAN HORSERADISH SAUCE

1/2 cup horseradish	1 teaspoon salt
Vinegar to cover	1 sour apple grated
2 teaspoons sugar	Serve cold

ROAST BREAST OF LAMB

Prepare meat by skinning, trimming if necessary, and wiping with damp cloth. Plunge into boiling salted water and simmer until tender. Take from the water, remove bones, place on rack in dripping-pan, cover with buttered crumbs, and bake until brown. Serve with brown tomato sauce using the water it was cooked in as part of the liquid.

BOILED LEG OF MUTTON

Wipe meat, place in a kettle, and cover with boiling water. Bring quickly to boiling point, boil 5 minutes, and skim. Set on back of range and simmer until meat is tender. When half done, add 1 tablespoon salt. Thirty minutes before removing the meat add one cup of soup vegetables. Cut the carrot and turnip in half-inch thick slices and stamp with fluted cutter. Place the meat on a hot dish, and rub lightly over it enough of the white sauce (to be used for the caper sauce) to make surface white and smooth. Sprinkle with chopped parsley or capers. Cut a hole in the center of the sliced vegetables and string them alternately on the bone. Serve with caper sauce, or add to two cups white sauce (made of half milk and half mutton stock) two hard-boiled eggs cut in slices.

MUTTON STEW

1 pound flank of mutton	3 slices turnip
1 small onion	1 tablespoon butter
3 slices carrot	2 tablespoons flour
Pepper and salt	

Cut mutton into small pieces. Season and place in earthen dish. Add vegetables; mix butter and flour, add hot water and pour over meat. Cover with boiling water, add salt to taste. Boil 15 minutes, and cook 5 hours in fireless cooker.

STUFFED SPARERIB

1 whole spare rib cracked in middle
4 apples
1/4 pound raisins

Wipe meat with damp cloth. Slice apples, seed raisins, place on half of sparerib, fold balance over it, tie or sew together. Put it on rack in roasting-pan and into hot oven. After 10 minutes, or when outside is seared, reduce temperature of oven and put a little water in pan with which to baste roast occasionally. Cook 2 hours. Serve with gravy made from liquor in pan.

FRIED SALT PORK

Cut salt side pork very thin, lay each piece in flour and put into a hot frying-pan, cook until light brown. Place on hot platter.

Pour from the pan all but 2 tablespoons fat. Add 2 tablespoons flour and 1 cup milk as in white sauce. Season and serve with baked potatoes.

CORNED BEEF HASH

Drop the corned beef into boiling water and simmer, allowing 30 minutes to the pound. When cold chop rather coarse. Chop cold cooked potatoes coarse also. Dry bread may be used instead of part of the potato, and improves hash.

4 cups meat	2 teaspoons salt
4 cups potato	1/4 teaspoon pepper
4 tablespoons butter	1 cup milk

Butter the bottom of a skillet, put in it the mixture of meat and potato. Over the top put seasoning and butter. Add the milk and put the skillet in the oven. Let it remain there half an hour, stirring every 10 minutes. If browned hash is desired reserve half of the butter and after the second stirring melt the butter in a frying-pan, put the mixture into it, and cook on the top of the stove, without stirring, until brown underneath. Fold and serve.

BEEF, OATMEAL, AND TOMATO

1 pound shin of beef	1/3 cup oatmeal
2 sausages	1 teaspoon Worcestershire Sauce
1 cup canned tomatoes	Salt and pepper

Cut beef into small pieces, and season with salt and pepper. Cut sausages into inch pieces, roll in flour, and put into earthen dish with beef. Add other ingredients and cook 5 hours in fireless cooker.

BEEF ROLL

10 ounces lean beef from shoulder or shin	Salt and pepper 1 slice onion
2 ounces sausage meat	1/2 teaspoon Worcestershire Sauce
Bread crumbs	2 teaspoons tomato catsup

Mix sausage meat with equal quantity of stale bread crumbs. Cut meat into slices 1/2 inch thick and spread with sausage. Roll up and tie firmly. Salt, pepper, and dredge thickly with flour. Put into earthen dish with other ingredients. Cover with boiling water and cook 5 hours in fireless cooker.

SCALLOPED MEAT

Spread in a baking-dish alternate layers of bread crumbs or cooked macaroni or spaghetti, meat chopped very fine or cut in cubes, a sprinkling of chopped parsley, onion, pepper,

and salt. When the dish is nearly full, pour over enough white sauce to moisten it well; cover with buttered crumbs, and brown in the oven. Soup stock or tomatoes may also be used for moistening a scallop. A scallop made of raw meat, tomatoes, and crumbs makes a good luncheon dish. If uncooked meat is used, it will require one hour in a slow oven, and more liquid will be needed.

SHEPHERD'S PIE

1 onion	1 pound raw meat or left-over
2 cups tomato	meat cut up small
1/8 teaspoon pepper	1/2 teaspoon salt
1 tablespoon fat	
	Mashed potato for the crust

Melt the fat, add the sliced onion, and, if raw meat is used, add it and stir until the red color disappears. Add the tomato and seasoning. If cooked meat is used, add it with the tomato and seasoning, after the onion is brown, and heat through. Grease a baking-dish, put in a layer of the potato, add the meat and gravy, and cover with the potato dotted with fat. Bake until the potato is browned.

RICE MEAT PIE

Put in baking-dish any left-over meat and gravy. Season well with chopped onion, pepper, and salt.

Boil 1 cup rice in salted water. When done, strain, mix with 1 tablespoon butter and two eggs, salt and pepper to taste. Put all on top of meat and bake 1/2 hour.

CALVES' TONGUES WITH TOMATO SAUCE

12 small fresh tongues
6 fresh tomatoes or 1 can
1 teaspoon chopped parsley
1 teaspoon celery extract, or tablespoon celery cut fine
1/4 teaspoon onion juice, salt, pepper, and paprika to taste

Put tongues in a pan of cold water for 30 minutes; boil until the skins crack. This will take from three to four hours. Remove the skin without tearing the meat.

About an hour before serving time, make a sauce by cooking the tomatoes, onions, parsley, and celery until very tender. Strain through a fine sieve or coarse cloth, allowing no seeds to pass through. To the liquor add the seasoning, and allow all to simmer until it becomes the thickness of catsup. Fold in 3 tablespoons of cream whipped, which should thicken the sauce.

Arrange crisp lettuce leaves on a platter, one for each tongue, garnish with sliced lemon and water cress. Serve sauce in sauce boat.

FRESH BEEF'S TONGUE

Boil the tongue slowly until tender, putting into the water part of an onion, 1 bay leaf, 3 or 4 allspice, and a piece of mace. Let it stand in the water to cool. Take out, skin it, and stick it full of cloves. Boil it again for a little while until it is thoroughly heated through. Put the water in which the tongue was boiled into a skillet, thicken with a little flour; add salt, pepper, and sugar, and a glass of currant jelly. Let it all boil slowly until it is reduced to about a pint. Meanwhile let the tongue stand on a tin plate on top of the fire to keep hot. When the gravy is ready put the tongue in it and baste it until it is smoking hot and ready to serve. Put the tongue on the serving-dish, pour the gravy over it and decorate with slices of lemon.

BRAISED LAMBS' HEARTS

Wipe each heart, cut off extra fat and take out partition walls. Stuff, using $\frac{1}{4}$ of recipe for Mock Duck, tie up, and sear. Make $\frac{1}{3}$ cup of brown sauce in dish in which heart was seared. Put hearts in double roasting-pan and cook in slow oven, 3 to 5 hours. Season sauce with Worcestershire or Tomato Sauce and serve.

PIGS IN CLOVER

Cut bacon very thin.

Cut calves' liver 1/4 inch thick. Drop it into water below boiling temperature, and let it remain for a few minutes to cook. To each slice of bacon pin a piece of liver of similar shape with a toothpick. Cook them in a hot frying-pan until light brown. Serve on toast.

CREAMED CHICKEN WITH MUSHROOMS

1 cup chicken broth	3 cups chopped chicken (cooked)
1 cup cream	1 cup canned mushrooms
2 tablespoons flour	1 lemon
1/4 cup butter	2 tablespoons grated cheese

Melt the butter in a pan. Stir in the flour until smooth. Add the broth and the cream. As it thickens add the chicken and mushrooms. Season well and allow to cook for 5 minutes. Serve in warm biscuit shells and sprinkle tops with cheese and lemon juice.

TERRAPIN CHICKEN

1 quart cold chicken cut small	4 teaspoons butter
1 or 2 chicken livers	4 teaspoons cream
3 hard-boiled eggs	1 tablespoon salt
2 yolks of eggs	1/3 teaspoon pepper
1 cup chicken stock	1 teaspoon lemon juice

Chop the livers and the hard-boiled eggs together and add them to the chicken. Sprinkle with the pepper and the salt. Put the butter in a frying-pan on the stove. Add flour and stir until it becomes brown and frothy. Move the pan to less hot a fire and add the chicken stock gradually. Put the pan back onto the fire and stir three minutes, then add the cream except 4 teaspoonfuls. Stir one minute. Add the chicken mixture and cook ten minutes. While it is cooking, beat the

yolks of two eggs and add to them the 4 teaspoonfuls of cream. Pour this into the chicken mixture, stir one minute, add the lemon juice and serve at once.

CHICKEN FRICASSEE CREOLE

Fry chicken lightly, dredging flour into the fat, and brown. Add 2 cups of boiling water, 1 quart of tomatoes, peeled and sliced, 1 small onion sliced, a few sprigs of parsley, and stew slowly 1 1/2 hours. Serve with rice border.

A "FRIKASIE"

(Colonial Recipe) Mrs. John Burroughs, 1734

"Take ye fowls; cut them in pieces, and clean them. Season with pepper and salt, a little mace, nutmeg, cloves, some parsley, a little bit of onion. Let them lay 2 hours, then flour them well, fry in sweet butter, and make ye butter hott before you put them in. Fry a fine brown. Wash ye pan, and put them in again with a pint of gravy. Lett them swimyer in ye gravy. Take the yolks of 3 eggs with a little grated nutmeg, a little juce of lemon and 2 spoonsful of wine. Shake it over the fire til it is as thick as cream, pour over ye frikasie, and so serve it to ye table hot."

SMOTHERED CHICKEN

Put 1/2 cup beef-dripping or bacon fat and 1 small cup of stock in the bottom of a pan. Split the chickens, dredge with flour all over, season with pepper and salt, putting the chickens breast down, and putting the giblets under them. Allow 15 minutes to the pound. When done, take out the chickens, mash the giblets, adding a cup of rich milk to the juice to make the gravy.

FRICASSEED RABBIT

Skin and cut in pieces and lay in cold water a few minutes. Drain, and put in a saucepan, with pepper and a little pork

cut in strips. Cover with water and simmer 1/2 hour. Then add a small chopped onion, 1 tablespoon chopped parsley, 1 blade of mace, and a little clove. Mix to a smooth paste 1 tablespoon of flour, stir it in and let the rabbit simmer until it is tender. Then stir in 1/2 cup rich cream. Boil up and serve

SOUFFLÉ

Chicken

Veal

Make white sauce of

2 cups	milk or stock	2 cups
2 tablespoons	butter	3 tablespoons
2 tablespoons	flour	6 tablespoons
1 teaspoon	salt	1 teaspoon
1/8 teaspoon	pepper	1/8 teaspoon

Add just as you take from the fire:

3	egg-yolks	3 or 4
2 cups	chopped meat	2 cups
1/2 cup	soft crumbs	
1 tablespoon	parsley	2 tablespoons
	lemon juice	2 teaspoons
	onion juice	8 drops

Spread on bottom of dish to cool. Cut and fold into the mixture

egg-whites, stiff 3 or 4

Turn into a buttered baker and put into a slow, increasing oven about 30 minutes or until well browned over.

Serve at once, with white mushroom sauce for the chicken and brown tomato sauce for the veal.

CHEESE SOUFFLÉ may be made, using grated cheese instead of meat and few, if any, of the extra flavors. It may be served with white sauce or alone.

CROQUETTES

2 cups cold fowl or veal cut fine	4 drops onion
1/2 teaspoon salt	1 teaspoon parsley
Cayenne	1/2 teaspoon celery salt
1 teaspoon lemon juice	for veal

Mix meat and seasoning, add as much white sauce as you can to be able to handle the mixture and yet have a soft creamy croquette when served. For this amount make 1 cup white sauce, using but 4 tablespoons butter and 6 tablespoons flour to the pint.

Chill the mixture, shape quickly, crumb, egg, and crumb. Fry but six at once, as more cool the fat too much.

CHICKEN CHARTREUSE

A: 1 cup cooked chicken, minced fine

B: 1 teaspoon chopped parsley, 1/2 teaspoon onion juice, 1/4 teaspoon salt.

2 tablespoons tomato juice, 1 beaten egg, dash of pepper

Mix A with B. Line a buttered dish 1 inch thick with boiled rice. Fill center with chicken mixture, cover top with rice. Cover and steam 45 minutes. Serve with tomato sauce poured around it.

CREOLE SAUCE

To be served with steaks or chicken

2 onions	2 tablespoons of butter
1/2 pound ham	12 tomatoes
2 garlic cloves	Salt, pepper, and paprika
	to taste

Melt the butter. Chop the onions and garlic cloves and brown in the butter. Add the tomatoes that have been

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peeled, also the ham that has been cut in dice. Season highly. Cook for an hour, strain and heat.

The sauce may be thickened with a teaspoon of arrow-root.

CURRY SAUCE

(East Indian Dish)

1 tablespoon butter	1 tablespoon Chutney sauce
1 onion, cut fine	1 cup stock
1 tablespoon curry powder	

Brown butter; add onion and Chutney sauce; cook thoroughly before adding stock and curry, as well as afterward. In the curry sauce heat up cooked eggs or meat cut in small pieces. Serve with cooked rice.

CAPER SAUCE

1/3 cup butter	1/2 teaspoon salt
3 tablespoons flour	1/8 teaspoon pepper
1 1/2 cup hot water	

Melt one half the butter, add flour with seasonings, and pour hot water on gradually. Boil 5 minutes, and add remaining butter in small pieces. Add one half cup capers drained from their liquor.

DRESSING FOR TURKEY

2 parts of bread crumbs	1 part of citron
1 part of raisins	Butter
1 part of currants	Salt

DRESSING FOR WILD GAME

Fill with sour apples cut in quarters.

Remove these apples when game is cooked, and fill with fresh fruit, oranges, and apples.

SWEETBREADS, BRAINS, OR ROE

Sweetbreads and brains

Wash and soak in cold water 1 hour. Simmer in salted, acidulated water 20 minutes (1 quart water, 1 teaspoon salt, 1 tablespoon vinegar).

To water for brains may be added:

1 slice onion	1 bay leaf
2 peppercorns	1 sprig of thyme (1 teaspoon)

Put into cold water; let stand until cool. Free it from membrane, etc.

Shad or other roe

Wash in cold water. Be careful not to break membrane that encloses eggs. If broken wrap in cheesecloth before cooking.

Simmer in salted, acidulated water 20 minutes.

To water may be added:

1 slice onion	1 bay leaf
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Each may be diced and served in a chafing-dish.

(2 cups diced material to 1 to 1 1/2 cups sauce)

Creamed

First marinate material 1 hour or longer in lemon juice, onion juice, salt and pepper

À la Poulette.

With Bechamel sauce made of equal parts cream and seasoned stock.

À la Newburg

Sauce made of 3 yolks of eggs, 1/3 teaspoon salt, cayenne, 3/4 cup sherry, and 1 cup cream.

Deviled (especially brains)

Marinate 3 brains with 3 teaspoons lemon juice.

Make sauce of 2 tablespoons butter, 2 tablespoons flour, 1/2 teaspoon salt, 3/4 cup milk and water from cooking brains, add 1 teaspoon lemon juice, 1 beaten egg,

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and brains cut up; stir lightly to heat brains, serve on saltines.

Scrambled (especially brains)

Beat 4 eggs, add $\frac{2}{3}$ teaspoon salt, pepper, $\frac{1}{2}$ cup milk, and brains (one or two). Put into blazer 2 tablespoons butter and add mixture, stir constantly until jelly-like. Serve at once on toast or crackers.

Omelet

2 brains or 1 pair roe or sweetbreads
6 eggs, $\frac{1}{3}$ teaspoon salt and pepper

Add material and seasoning to beaten yolks, cut and fold into beaten whites, put into buttered pan. When brown underneath put in oven to set on top, spread with currant jelly; fold and serve at once.

Broiled (especially shad roe)

Marinate in equal parts oil and lemon juice and salt 1 hour before cooking. Broil 10 minutes, baste with butter, serve with maître d'hotel butter; garnish with lemon points.

Salad

Marinate 1 hour in French dressing and onion juice; drain from marinade; add an equal amount of cucumbers cut in cubes and mayonnaise to moisten; serve on lettuce leaves.

En casserole Maryland style (especially roe)

Place 2 or 3 shad roe in buttered casserole; sprinkle with salt and pepper, half cover with broth, add 2 tablespoons butter in bits. Cover dish and cook in oven 15 minutes. Keep roe hot while broth is removed to another dish and reduced to 1 cup or less.

Beat 3 yolks of egg
Add 1 cup thin cream

Stir slowly into hot sauce; cook over hot water until slightly thick. Add 2 tablespoons butter; salt and pepper if required, and pour over roe. Garnish with thin slices of bacon and serve.

CHAPTER VI

FISH

OF all the foods that can be served in place of meat, fish is the one most commonly used. It is more economical for the nation at large to use fish as a food than to use meat, because the food used by the fish is not available for man, whereas the grain fed to animals might be directly used for human food. The United States is far behind European countries in the consumption of fish. Here the average amount used is only eighteen pounds per person per year, whereas the British use fifty-eight pounds and the peoples on the Continent use a hundred pounds. There is plenty available in the United States if only housekeepers would make use of the information concerning new varieties spread by the Bureau of Fisheries and by the different State colleges.

Fish contains practically the same amount of protein material that is found in meat with about the same amount of phosphorus, twice as much calcium, and a third as much iron. It is as easily digested as meat, and has the advantage over meat of being free from the extractives which make red meats stimulating to the nerves.

The actual value of fish as a source of energy depends upon the quantity of fat which it contains. This is a means of classifying fish. We have two **Groups of fish** large groups, the first of which is the shell-fish comprising molluscs, — such as oysters and clams,

— and crustaceans — lobsters, crabs, and shrimps. The members of this entire group are not considered when we speak of fish as a meat substitute because they fall into the class of food luxuries, since their value as food is not proportionate to their cost. The waste is great. For instance, in buying lobster at forty cents a pound, as it is usual to get only half a pound of meat from a pound of lobster, we are actually paying at the rate of eighty cents a pound for what we eat.

The second group of fish is the vertebrate; that is, those fish having a bony structure. Here again we have two subdivisions: the first is composed of all of the white fish — cod, haddock, halibut, trout, flounder, smelt, and so forth. These have no fat in their flesh, as it is entirely contained in the liver. The other subdivision is made up of those fish that have fat in the flesh, such as mackerel, salmon, shad, swordfish, and eels. As a source of energy, in consequence, the fish of this second group are equal to an equal weight of meat, whereas those of the first group are slightly inferior.

It is never wise to order fish over the telephone, for fish must be fresh in order to be good, and it is hardly

Buying fish possible to know what fish is the freshest on the market that morning unless we see for ourselves. If we ask for a special kind of fish, the fish dealer would undoubtedly have it, but would take it from his cold-storage room when a fresh shipment of another kind might have just come in. It is possible to tell whether a fish is fresh by its appearance. The flesh should be firm and not easily dented by the finger, the eyes should be full and bright, the fins should be stiff and not flabby. Halibut is opalescent when fresh, and dull and opaque when old.

PRESERVING OF FISH

Because fish deteriorates rapidly on account of the soft character of its flesh, there are several ways of preserving it. The first of these is by cold storage. Fish may be frozen solidly either **Freezing** by the separate piece as is done for large fish, or in a mass when the fish are small. They are then kept in cold storage for a long time. It has been proven that a fish frozen for two years has not undergone any chemical changes. Pains must be taken, however, when buying frozen fish, to have it delivered still frozen, as all frozen flesh deteriorates more rapidly after thawing than when fresh.

Another method of preserving fish is by salting and drying. This is one of New England's great industries, and the salt codfish from Gloucester is well known all over the country. The cod **Salting** are brought in by the fishing boats in hogsheads of brine. They are carefully cleaned and spread on racks in the sun to dry. The length of time for drying and the manner of cutting the fish depend upon the product desired. The fish that is sold in bulk is allowed to become thoroughly dry, whereas the fish packed in boxes is sometimes quite moist. Finnan haddie is a haddock salted and smoked to preserve it.

Another means of preserving fish is by canning. This is done in two ways. An example of the first method is the great salmon industry of our North-western States, where the salmon are **Canning** caught in great quantities, cleaned and cut in suitable sizes, packed according to grade, and sterilized in the cans. The label on the can tells specifically what is in-

side. The other manner of canning is used in the sardine industry, where the small fish are pickled, steamed, and packed in oil in the cans, the oil acting as a preservative. The oil used for this purpose in France has been olive oil, but other kinds of vegetable oils are now used almost exclusively because of the expense.

CARE OF FISH

When fish comes from the market, it should be removed from the paper in which it is wrapped and placed on a plate before it is put into the refrigerator. If it is left in the paper, the juices are absorbed by the paper. Before it is used, care should be taken to see that all the scales are removed. These can be scraped off with the back of a knife beginning at the tail. The fish should also be carefully washed by wiping it with a clean piece of cheesecloth wrung out from slightly salted water. The fish should not be allowed to stand in water.

Like all protein food, fish becomes tough and leathery if it is subjected to high temperature in cooking. If it is boiled, the water must be boiling vigorously before the piece of fish is dropped in. This sears the outside of the fish and helps to prevent the loss of juices. A tablespoon of vinegar or lemon juice added to the water will also help in the searing process. Boiling at best is a wasteful way of cooking fish, as much of the juices of the fish are lost in the water. It should be used only when the piece of fish to be cooked is a compact one like a solid chunk of salmon or halibut. If the fish is baked, the oven should not be hot enough to dry out the fish. White fish that are lacking in fat, such as cod and haddock, are improved on baking by the addition of salt pork.

If the fish is split, or is a small one, broiling is an economical way of cooking it.

FISH RECIPES

BAKED FISH

(For 4-pound fish)

- | | |
|---|----------------------------|
| 1 cup cracker crumbs or
bread crumbs | 1 teaspoon chopped parsley |
| 1 saltspoon salt | 1 teaspoon capers |
| 1 saltspoon pepper | 1 teaspoon pickles |
| 1 teaspoon chopped onions | 1/4 cup butter (melted) |

Clean the fish and wipe thoroughly, outside and in, with cloth wrung out of cold water. Make a stuffing of above ingredients. Put the stuffing in the cavity and sew up the opening. Rub the fish thoroughly with salt and pepper and butter on both sides. Cut gashes across the sides of the fish about 2 inches apart; in these put tiny strips of fat salt pork. Skewer the fish in the shape of the letter S, and dredge thoroughly with flour. Put on cheesecloth in baking-pan with pieces of pork placed over back and sides and bake about 15 minutes to the pound of fish, basting frequently with the melted pork. (Butter cheesecloth, or bottom of pan where double-roaster is used. Put bread crusts between fish and sides of pan to prevent sticking.) When nicely browned, serve on platter with garnitures of parsley and slices of lemon and hard-boiled egg.

BAKED HALIBUT WITH TOMATO SAUCE

- | | |
|------------------|----------------------|
| 2 pounds halibut | 1/2 tablespoon sugar |
| 2 cups tomatoes | 3 tablespoons butter |
| 1 cup water | 3 tablespoons flour |
| 1 slice onion | 3/4 teaspoon salt |
| 3 cloves | 1/8 teaspoon pepper |

Cook tomatoes, water, onion, cloves, and sugar 20 minutes. Melt butter, add flour, and stir into hot mixture. Add

salt and pepper, cook 10 minutes, and strain. Clean fish, wipe, put into baking-pan, pour around half the sauce, and bake 35 minutes, basting often. Remove to hot platter, pour around remaining sauce, and garnish with parsley.

HADDOCK BAKED IN CHEESE SAUCE

1 tablespoon butter or other fat	1/2 teaspoon mustard
1 tablespoon flour	1/8 teaspoon pepper
1 cup milk	1 cup grated cheese
1 teaspoon salt	

Melt the butter; add the flour and seasonings; stir to a smooth paste. Add gradually the milk, then the cheese. Cook until smooth. Pour sauce over 3 pounds of haddock, boned and cut in fillets and placed in a baking-dish. Bake 3/4 hour. Boned haddock is called scrod.

TO COOK SCROD

Soak 1/2 hour in a pickle of 2 tablespoons each of salt and sugar. Place in pan 1 cup of milk and cover with dots of butter and 1 small onion chopped fine. Bake about 25 minutes. Baste frequently.

FILLETS OF FISH, STUFFED WITH OYSTERS

- 3 or 4 pounds fresh cod
- 1 pint oysters
- 1 cup bread crumbs mixed with
- 1/3 cup melted butter
- 1 egg, beaten
- Lemon juice, salt, and pepper

Remove head and skin from the fish; free the flesh from the bones. Season fillets thus produced with salt and pepper, and brush with lemon juice. Lay one of the seasoned fillets on a well-greased fish-sheet. Cover with oysters dipped in the buttered crumbs one by one. Lay the other fillet over

these, brush with the beaten egg diluted with a little milk, cover thickly with buttered crumbs, and bake about 1 hour in a moderate oven. Serve with Hollandaise sauce.

HADDOCK À LA NEWTON

- 1 haddock
- 1 tablespoon flour
- 1 tablespoon potato flour
- 1 egg
- 1/2 cup butter or other fat
- Milk or cream enough to form a mold

Take the haddock from the bone and grind fine (not cooked). Mix the fish with the cream or milk, a pinch of salt, and a little mace. Add egg well beaten. Mix well together with a potato masher. Place in a tin baking-pan or mold, and bake 1 hour with the pan containing the mixture standing in a pan of water. Serve with white sauce.

MOLDED HALIBUT

- 1 pound halibut, uncooked
- 1 pint stale bread crumbs (pulled from center of loaf)
- 1 cup cream
- 1 teaspoon salt
- 1/4 teaspoon celery salt
- Whites of 4 eggs

Chop the fish very fine. Cook the bread crumbs with the cream to a smooth paste. Add this to the fish with the seasonings. Beat the whites of the eggs until stiff and fold into the fish mixture. Bake in a tin mold well greased. Place this in a pan of water and bake until firm — about 1/2 or 3/4 hour.

Sauce

Blanch 1/4 pound almonds, cut fine, and brown in 2 tablespoons of butter. Add 2 tablespoons of flour, pepper

and salt, and pour 1 pint of cream in gradually. Stir until thick and smooth.

KEDGEREE

(East Indian dish)

1 cup cooked and flaked fish	2 teaspoons lemon juice
1 cup cooked rice	1 egg, or none
1 teaspoon salt	1 tablespoon melted butter
1/16 teaspoon pepper	1 tablespoon minced parsley

Mix ingredients, pack into a buttered bowl, and surround with hot water. Poach until heated through. Unmold, garnish with parsley, and serve.

SALMON TIMBALE OR LOAF

Individual recipe

Large recipe

1 tablespoon salmon, flaked	1 cup
1 tablespoon crumbs	1 cup
1/4 teaspoon parsley, minced	1 rounding tablespoon
Salt	1/2 teaspoon
Pepper	1/16 teaspoon
1 teaspoon beaten egg, or none	2 eggs
1/4 teaspoon lemon juice	1 tablespoon
2 teaspoons milk	1/4 to 1/2 cup

Mix thoroughly, adding milk enough to moisten. Put into buttered timbale molds or one bowl; set dishes in hot water in a moderate oven, or on back of stove, until food is heated through. Turn out and serve with white sauce to which minced parsley is added at last. Other fish may be used instead of salmon.

SCALLOPED FISH

1 cup flaked fish	1/4 teaspoon salt
1 cup stale bread crumbs	1/16 teaspoon pepper
1 cup milk	1 to 2 tablespoons butter

Mix, put in buttered dish, cover with buttered crumbs, and bake in a moderate oven 30 to 40 minutes.

SHRIMP WIGGLE

1 cup boiled rice	1 teaspoon onion juice
1 cup cream	Paprika to taste
2 tablespoons tomato catsup	1 can shrimps
1/2 teaspoon salt	

Heat the rice in the cream until it becomes smooth, adding more cream if necessary. Add flavorings. Stir in the shrimps.

Cut-up lobster, cold salmon, chicken, or ham may be used in place of the shrimps.

FISH CHOWDER

<i>Home recipe</i>	<i>Individual</i>
2 pounds haddock or cod	1/4 pound
Slice pork	1 inch
1/2 onion	Slice
4 potatoes	1/2 potato
3 pints cold water	1/2 cup
1 pint hot milk	1/2 cup
6 crackers	1 cracker
1 1/2 teaspoons salt	1/4 teaspoon
Pepper to taste	To taste

Have head, skin, and bones removed from fish at market, and take home with fish. Cut fish in 1-inch pieces. Put head, skin, and bones in kettle with cold water, allow them to come slowly to boiling point and then simmer for one half hour. Strain this water and return it to kettle, throwing away head, bones, and skin. Cut pork in small pieces, put in frying-pan and fry until brown with onion cut small. Strain fat into kettle, add potatoes which have been pared, washed, and cut in 1/4-inch slices. Cook until potatoes are nearly soft. Add fish. Do not break fish by stirring. Add hot milk, salt, and pepper. Put crackers in a soup-dish and soften with a little cold milk before pouring on hot chowder. Serve at once.

SALT CODFISH HASH

<i>Home recipe</i>	<i>Individual</i>
1 cup codfish	1/4 cup
2 cups potato cubes	1/2 cup
1 egg	1 teaspoon
1 to 2 tablespoons butter	3/4 to 1 teaspoon
Salt and pepper to taste	To taste

Cook fish and potatoes together until potatoes are tender. Drain thoroughly. Mash. Add butter, salt, and egg well beaten. Beat mixture 3 minutes with a fork. Try out 1 tablespoon salt pork cubes. Heat iron frying-pan, add 1 teaspoon salt pork fat. Pour in the hash, spread evenly, and cook slowly until a golden brown underneath, replenishing with more fat as needed. Fold like an omelet and pour tomato sauce around it. If moister hash is desired, more butter or 1/4 cup milk or cream may be added.

If codfish is too salty it should be washed and soaked before using.

Tomato Sauce

2 tablespoons butter or other fat	Pepper
2 tablespoons flour	1 cup stewed and strained tomato
1/2 teaspoon salt	

Melt the fat in a saucepan. Stir the flour into it until it is smooth. Add the tomato, stirring constantly until it boils vigorously.

POTATO SHREDDED FISH SOUFFLÉ

1 box "shredded fish"	3 cups mashed potato
2 eggs	Pepper
Salt	

Put hot boiled potatoes through potato "ricer"; add butter and boiling milk and salt; beat until very light and creamy and soft; add eggs, beaten, and fish which has been soaked in cold water and squeezed dry, salt and pepper to taste.

Put in baking-dish with butter on top and bake about 20 minutes, until light brown. Serve at once.

CODFISH BALLS

1 cup salt codfish 1/2 tablespoon butter
 2 heaping cups potatoes 1/8 teaspoon pepper
 1 egg

Wash fish in cold water, and pick in very small pieces. Wash, pare, and soak potatoes, cutting in pieces of uniform size before measuring. Cook fish and potatoes in boiling water to cover until potatoes are soft. Drain through strainer, return to kettle in which they were cooked, mash thoroughly; add butter, egg well beaten, and salt, if necessary. Beat with fork two minutes. Take up by spoonfuls, put in frying basket, and fry one minute in deep fat, allowing six fish balls for each frying; drain on brown paper. Reheat the fat after last frying. If preferred the fish may be formed into croquettes.

FISH À LA CRÈME

1 3/4 cups cold flaked fish 1/2 slice onion
 1 cup white sauce Salt and pepper
 Bit of bay leaf 1/2 cup buttered cracker crumbs

Scald milk for making of white sauce, with bay leaf, parsley, and onion. Cover the bottom of small buttered platter with one half of the fish, sprinkle with salt and pepper, and pour over one half the sauce; repeat. Cover with crumbs, and bake in hot oven until crumbs are brown. If preferred, bake in scallop shells.

SCOTTISH FINNAN HADDIE

2 pounds finnan haddie 1 tablespoon flour
 1 tablespoon butter 1/2 cup cold water
 1 pint hot milk 2 hard-boiled eggs, chopped
 Paprika, salt, and 1/4 pound cheese, chopped or
 pepper to taste grated
 1 egg

Select a good finnan haddie. Cut it into small pieces and put it in a small saucepan, covering with cold water. Place it on the stove and let it come slowly to the boiling point. Just as it begins to boil remove from the fire and let stand in the water until it is almost cold.

Drain off the water, separate the fish into small bits, and place in a frying-pan containing the butter melted. Fry or sauté for four or five minutes; then add the hot milk, season, and let cook for five minutes longer.

Blend thoroughly the raw egg, flour, and cold water in a small bowl. Stir this mixture into the frying-pan with the finnan haddie and cook slowly until thickened. Just before removing from the stove add the hard-boiled eggs and cheese. Cover slices of toasted bread with the mixture and serve with a salad.

SAVORY FINNAN HADDIE

1 cup finnan haddie, flaked	1 cup rich milk
1 1/2 cups small potato balls	2 egg yolks
2-inch cube fat salt pork	Salt and pepper to taste
2 tablespoons flour	

Soak a finnan haddie in milk 1 hour, then cook until tender, and separate into flakes. Cut the salt pork into tiny dice and try out. To 2 tablespoons of the fat add the flour and milk. When thick and smooth, season to taste, add the pork scraps, egg yolks, finnan haddie flakes, and potato balls which have been cooked until soft.

FINNAN HADDIE

2 cups finnan haddie, flaked	1 teaspoon salt
1/4 cup butter	1/3 teaspoon paprika
1 tablespoon onion	1/3 cup canned pimentos
1/4 cup flour	Cooked macaroni
1 1/2 cups milk	Grated cheese

Soak a finnan haddie in equal parts of milk and water for 1 hour (enough to cover). Drain, rinse thoroughly, and separate into flakes to make 2 cups. Cook butter and onion for 5 minutes, stirring constantly; add flour, milk, and seasonings. When mixture thickens add flaked fish and pimentos cut in strips. Cover a shallow baking-dish or platter with cooked macaroni. Pour the fish over it, sprinkle with grated cheese, and brown in oven 15 minutes. Place it under the gas flame if it is not brown enough.

CLAM BROTH

Use 12 large hard-shelled clams for 1 pint of broth. Boil the clams and juice for 20 minutes; strain and let stand to settle; strain again carefully into a saucepan, and let broth boil up once. Season with butter and pepper — no salt — and serve in cups with whipped cream on top.

To open the clams and obtain the juice, place the clams, after they have been carefully washed with a brush and clear water, in a saucepan and let them steam until the shells open; then strain off the liquor.

CLAM CHOWDER

1 quart clams	1 tablespoon salt
4 cups potatoes cut in 3/4 inch diameter	1/8 teaspoon pepper
	4 tablespoons butter
1 1/2-inch cube fat salt pork	4 cups scalded milk
1 sliced onion	8 common crackers

Clean and pick over clams, using 1 cup cold water; drain, reserve liquor, heat to boiling point and strain. Chop fine hard part of clams, cut pork in small pieces and try out; add onion, fry 6 minutes and strain into a stewpan. Parboil potatoes 5 minutes in boiling water to cover; drain and put a layer in bottom of stewpan, add chopped clams, sprinkle with salt and pepper, and dredge generously with flour. Add remaining potatoes, again sprinkle with salt and pepper,

dredge with flour, and add 2 1/2 cups boiling water. Cook 10 minutes, add milk, soft part of clams and butter; boil 3 minutes; and add crackers split and soaked in enough milk to moisten. Reheat clam water to boiling point, and thicken with 1 tablespoon butter and flour cooked together. Add to chowder just before serving.

The clam water has a tendency to cause the milk to separate, hence is added at the last.

OYSTERS — FANCY ROAST

Clean 1 pint oysters and drain from their liquor. Put in a blazer and plump. Shake pan or stir with fork. Add salt, pepper, and 2 tablespoons butter; pour over 4 or 6 small slices of toast; garnish with parsley.

PANNED OYSTERS

With fork pressed into a butter ball rub over the bottom of hot blazer. Cover surface of pan with rounds of toast, and put one or two uncooked oysters on each round. Cover and cook till plump; on each oyster put salt, pepper, and a bit of butter. When butter has melted serve with slices of lemon.

OYSTER CANAPÉS

Scald a cup of cream, add 2 tablespoons of fine bread crumbs, 1 tablespoon butter, a dash of paprika, and grating of nutmeg. Then add 2 dozen oysters washed, drained, and chopped. Stir until oysters are thoroughly heated, but do not let mixture boil. Spread rounds of toast with butter, then with the oyster mixture. Serve at once with olives, pimolas, or gherkins.

FRIED OYSTERS

Clean, and dry between towels, selected oysters. Season with salt and pepper; roll in stale bread crumbs or cracker crumbs, then in egg beaten slightly and diluted with a little

cold water; then again in crumbs, and fry in deep fat. Drain on brown paper and serve on a folded napkin. Garnish with parsley and serve with or without sauce tyrolienne.

SAUTÉD OYSTERS

Clean 1 pint oysters; dry between towels, and sprinkle on both sides with salt and pepper. Take up by the tough muscle with plated fork and dip in bread or cracker crumbs, or prepare as in fried oysters. Put 2 tablespoons butter in hot frying-pan; add oysters; brown on one side; then turn and brown on the other. Serve on a folded napkin.

JELLIED OYSTERS

Drain all the liquor from medium-sized oysters, and to it add lemon, tarragon, paprika, whole cloves, and sticks of mace. Heat and pour it over just enough gelatine to make it firm. Put a layer of this liquor in a large square mold, and as it hardens add a layer of oysters arranged symmetrically, and pour over more of the liquor. As this hardens, put the next layer of oysters directly over the first. Chill, cut in squares like boxes, and serve on paper doilies, garnished with parsley.

SCALLOPS (No. 1)

Dry the scallops. Roll them in crumbs and then beaten egg, then in crumbs again. Put a few in the frying-basket. Fry in deep fat. Mix salt and pepper with the crumbs.

SCALLOPS (No. 2)

Cover the scallops with boiling water. Let stand 3 minutes. Drain, and dry with a towel. Season with salt and pepper. Dip them in beaten egg, then in crumbs. Fry in deep fat.

STEWED SCALLOPS

Wash the scallops in cold water; then drain them. Put one pint of milk on to boil. Put 2 tablespoons butter in a pan

over the fire. When melted add 2 tablespoons flour and stir till smooth. Add this to the hot milk, stirring constantly. When boiling add the scallops. Cook 3 minutes. Add salt and pepper.

FRIED SMELTS

Smelts, after being washed, dried, and sprinkled with salt and pepper, are dipped into milk, then rolled in flour. The head and tail are pinned together with a small skewer, or wooden toothpick (to be removed after they are fried), making them into rings. This is a pretty way for serving the smelts, either by themselves or for garnishing other fish dishes. Cook only as many as will cover the bottom of the frying-basket at one time. Dress the smelts on a folded napkin, and serve with mayonnaise or with tartare sauce.

BAKED SMELTS

Clean and wash the smelts. Wipe them dry, sprinkle with salt and pepper. Dip in melted butter and bread crumbs. Arrange them on a buttered baking-pan, and bake 15 minutes in a quick oven. Serve with Béarnaise sauce.

WHITEBAIT

Wash the whitebait and dry thoroughly with a towel. Roll them in flour. Having quite a thick coating, toss them in a sieve to shake off the loose flour. Cover the bottom of the wire frying-basket with the fish. Put immediately into the hot fat. Remove when a golden brown. Turn them on a paper, and sprinkle with salt.

CHAPTER VII

OTHER MEAT SUBSTITUTES: CHEESE AND LEGUMES

THE foods already spoken of which can be used in place of meat, milk and fish, both belong to the same group of foods as meat itself. The others — those to be discussed in this chapter — are connecting links between the protein group of foods and the other groups. Cheese with its large fat content might readily be called a fat food as well as a protein one, and the legumes or pulses (which are the dried peas, beans, and lentils) have a high percentage of starch, and could belong either to the foods characterized by their starch content or be considered with other vegetables.

CHEESE

Cheese may well be used as a chief source of nitrogenous food, since it contains the valuable protein part of milk together with its mineral salts. It contains three fourths of the total solids **Food value** in milk, which gives it nearly twice as much protein as an equal weight of beef of the average composition as purchased. With its 33 per cent of fat, the fuel value is more than twice as great. The composition of cheese is easily remembered because it is divided in a general way between protein, fat, and water, about 33 per cent of each. There are other reasons for its importance in the diet; it can be kept and handled with great ease in the home, it has an appetizing flavor, and it can be served in a great variety of ways.

Three fourths of the amount of cheese produced in the United States is standard factory or American cheese, usually made from whole cow's milk. The protein or casein of the milk is thrown out by the action of rennet forming a curd. It carries most of the fat of the milk with it. This curd is broken by knives and then heated to differing degrees. The whey is drained off; the curd salted and pressed. The curd is then kept for several weeks in a cool place to ripen, or to develop the flavors by means of the action of bacteria or molds. This ripening process is the chief cause of the flavors of different cheeses, although of course the variety of flavor also depends somewhat on the type of milk used. The soft cream cheeses contain more water than an ordinary factory cheese, since they are not drained under pressure, nor are they allowed to ripen so long. They are usually made from rich cream by souring or by the action of rennet, and after the whey is drained off the curd is salted, turned occasionally, and is ready for market in five or six days.

Some cheeses, such as Roquefort and Gorgonzola, are ripened by molds growing throughout the cheese.

Ripening The tale is told of the origin of the Roquefort cheese that a goatherd one day was interrupted while eating his lunch of bread and cheese, and being a thrifty lad, put what was left on a ledge in a near-by cave. He forgot about it, but when in that neighborhood again some time later, he looked to see if it was still there. To his surprise he found that in place of the ordinary farm cheese which he had left, he had a most delicious cheese streaked with green mold. He took it back to the village and showed it with pride to his mother and the other village women. For years

after, the villagers put their cheese to ripen on the ledges in that cave and in the neighboring ones. They found, however, that they must also place bread with the cheese in order to get the characteristic mold. Nowadays, however, since the scientists have isolated the various molds and bacteria for us, Roquefort cheese, as well as Swiss and Dutch and other varieties, can all be turned out from the same American factory.

The Dutch women are very careful that no molds shall be allowed to grow on their cheese, since they depend entirely upon the bacteria present in the milk to produce the proper flavor in the ripening process. They carefully dust their cheeses every day while ripening and when they are ready for market, they paint them red or give them a coat of varnish to prevent any molds from spoiling the flavor.

A cheese like Camembert is ripened by bacterial action on the outside which gradually works in, softening the cheese.

Other hard cheeses, such as Swiss, Parmesan, and English dairy cheeses, are ripened by bacteria and enzymes, or unorganized ferments, working on the inside. All these changes increase the solubility of the proteins and produce the peculiar flavor of each cheese.

When we speak of cheese as a meat substitute, we refer only to that mild-flavored cheese known as the American factory cheese which can be used in large quantities. The other cheeses, which are used in small quantity primarily for their flavor, belong to the class of luxuries that fall "in the region of choice." They are the ones that are referred to in the cynical remark that "cheese digests everything but itself," since their strong flavor is an aid to digestion.

Ordinary cheese compares favorably with other foods in the thoroughness with which it is digested in the body; for over ninety per cent of its nutrients are available. It is slow of digestion, however, because of the intimate combination of fat and protein material. The burning sensation sometimes felt after eating cheese is due to the presence of free fatty acids in the cheese, that are caused by over-cooking which decomposes the fat. Another reason why cheese may cause uncomfortable sensations is due to the way in which it is used. A Welsh rarebit eaten late in the evening after three good meals have already been consumed may cause a restless night, but the cheese should not be blamed for the nightmare, since the body has already had all the food required for the twenty-four hours and objects to the added burden placed upon it at that hour.

American cheeses are usually shipped in cakes of twenty-six or thirty-two pounds apiece, and are wrapped in heavy canvas. When cut and delivered at the house, care should be taken that cheese does not dry and that it does not become moldy. It should be wrapped in a slightly damp cloth and kept in a cool place. Air should never be wholly excluded from it, since molds grow more readily in the absence of air.

When planning a meal in which cheese is to take the place of meat, great care should be taken with the foods used in combination with it. It is not well to substitute cheese for the meat and leave the rest of the meal the same. The reason for this is that cheese is a more concentrated food than meat, containing a larger proportion of fat and protein

and much less water. It must be used along with watery foods like fruits and vegetables. As it is also entirely lacking in any form of carbohydrate, it is well combined with starchy dishes, bread, rice, or macaroni. All cheese dishes are apt to be soft in consistency, so that in order to get variety and increase the palatability of the meal, it is well to include in the menu hard foods, such as toast, crisp buns, or hard cookies. A cheese soufflé might be accompanied by a baked potato, crisp cinnamon buns, two green vegetables, with a fruit salad or stewed or baked fruit and crisp cookies for dessert.

LEGUMES OR PULSES

The pulses, which include all kinds of dried beans, peas, and lentils, have been used as a very valuable food for many hundreds of years. They were known and cultivated by the ancient peoples of Egypt, India, and other countries. The customary way of using them was to roast or parch them, then grind them into a flour which was cooked in soup or made into cakes. The soup tablets used by mountain-climbers and explorers are made on a basis of finely ground peas, beans, and lentils. Different varieties of these valuable foods grow in all climates, and our Government has stimulated the cultivation of certain types especially valuable for food, such as the soy bean and the pinto bean.

They vary little in their general composition, with the exception of the soy bean and the peanut, which may be classed with the beans. When they are dried they have very little water, about 10 per cent. They contain about 65 per cent of carbohydrate, 22

to 25 per cent of protein material, about 4 per cent of mineral salts, and 1 per cent of fat. Their fuel value is greater than that of meat. Soy beans and peanuts differ from the others in that they contain a much larger percentage of fat (16 per cent for soy beans, 38 per cent for peanuts), whereas their starch content is correspondingly low.

They are a hearty food, and like cheese suitable only for vigorous people. The woody fiber which surrounds each bean, and makes up the framework of all vegetation, interferes with the absorption of the nutrients present. It may also act as a local irritant hastening the food through the digestive tract. If the starch has not been thoroughly cooked, it is apt to ferment and cause flatulence. When the beans, however, are combined carefully with other food materials, the work of digestion is distributed and causes no difficulty. They are extremely valuable as a source of nitrogen for men and women who are exercising vigorously, lumbermen and day-laborers, for instance.

All legumes should be soaked at least eight hours before cooking. It is better if a half teaspoonful of soda is added to two quarts of water for the soaking to help soften the fiber. They should then be boiled until thoroughly tender. Soft water or rainwater should be used for boiling if possible; since the protein of the pulses tends to form insoluble compounds with the lime and the magnesium salts found in hard water. After the beans are boiled, they can be used in a great variety of ways. The one most familiar to the New Englander is the historic baked bean. Why should we be bound by the habits of our ancestors and continue to have that particular food

every Saturday night? When our Puritan grandmothers did all their baking in a brick oven, it was quite logical that they should build the fire in the oven on Saturday in order to have plenty of food for over the Sabbath, since they did no cooking whatever on the Lord's Day. Being thrifty souls, they utilized every particle of heat present in the bricks of the oven. The pies and biscuits, which required the greatest heat, went in first, then the cake and bread; and then, in order to utilize all the heat left in the bricks, in went the bean-pot. Would it not be more logical for those of us who use coal ranges and do our ironing on Tuesday to have our beans for supper Tuesday night, since we could thus utilize the heat of the oven and have a very simple supper to serve after a fatiguing day?

There are many other ways of serving the boiled legumes than as baked beans. They may be mashed through a strainer and the pulp thus obtained used as a basis for soups, such as the black bean, split pea, and lentil soups; or this pulp or purée may be well seasoned, mixed with fat, and served as a dish by itself of about the consistency of mashed potato. The purée could also be used as a stuffing for green peppers or tomatoes; or it may be mixed with celery, pimentos, a little cheese, and baked in a pan and served as a roast with a well-seasoned gravy. This same purée makes a good filling for hearty sandwiches or it may be served cold with greens as a salad.

It must be noted that in using this material in place of meat, it, like cheese, must be carefully combined with the proper foods. Unlike cheese, it contains a large amount of starch and has no fat, so that in serving, it is not necessary to increase the amount of starch

served with it but it is always well to see that there is some fat in the meal in some form or other. This is the reason for serving salt pork with baked beans. It is poor management to serve a rice or bread pudding as a dessert for a supper made up exclusively of baked beans and brown bread. Instead, fruit, either cooked or raw, should be used for dessert, and vegetables, such as greens or tomatoes, or salads which contain water and make up in bulk for the concentration of the beans, should be served with them. Of course it is not necessary to serve meat at a meal in which are used baked beans or other forms of the pulses, such as split-pea soup or green peppers stuffed with lentils.

Attention should be called to the high food value of the humble peanut. It is rich in both protein material and fat and has a far greater fuel value than an equal weight of beefsteak. When ground up into the form of peanut butter, it makes an economical and palatable substitute for both butter and meat. A good many people object to the drying quality of peanut butter; but if it is used in combination with a sour jam or marmalade in fillings for sandwiches or on toast or bread, this objection is overcome. Peanut butter when used for breakfast could be substituted for the usual egg and for butter on the toast.

Peanuts

NUTS

Nuts vary considerably in their composition, but are used by vegetarians as meat substitutes. The chestnut contains more starch than any of the other nuts, and has a lower protein and fat content. Brazil nuts and pecans are particularly high in fat, while they have from 12 to 20 per cent protein material. They all

have, however, so much woody fiber or cellulose that it is difficult for the body to obtain what nutrients are present in the nuts, and unless they are ground very fine, they are difficult of digestion. This objection together with their high cost makes them a rather impracticable substitute for meat.

CHEESE RECIPES

WELSH RAREBIT

- 1 pound full cream American cheese
- 2 tablespoons butter
- 1/4 cup milk or 1/2 cup beer or ale
- 1 tablespoon Worcestershire
- 1/4 teaspoon dry mustard
- Dash of cayenne
- 1/2 teaspoon salt

If cheese is strong add yolks of 2 eggs well beaten. 1/16 teaspoonful soda may be added. Always cook cheese over water. Melt butter. Melt cheese, keeping it always in motion, add liquid gradually, then seasoning; when smooth and creamy serve on hot crackers or toast.

FONDUE

- 1 cup bread crumbs; soak 1/2 hour in
- 1 cup milk
- 1 tablespoon butter
- 1 cup cheese cut fine (1/2 pound)
- 1/4 teaspoon salt
- Speck of cayenne
- 1/2 egg-yolk

Cook over water. Melt butter, add cheese, melt it, gradually add soaked bread crumbs, then seasoning; with last portion of bread crumbs add the egg. When smooth and hot serve on toast.

CHEESE SOUFFLÉ

2 tablespoons butter	1/2 teaspoon salt
3 tablespoons flour	Few grains cayenne
1/2 cup scalded milk	1/4 cup grated cheese
3 eggs	

Melt butter, add flour; when well mixed add gradually scalded milk. Then add salt, cayenne, and cheese. Remove from fire; add yolks of eggs beaten until lemon-colored. Cool mixture, cut and fold in white of eggs beaten until stiff and dry. Pour into a buttered baking-dish and bake 20 minutes in slow oven. Serve at once.

CHEESE SOUFFLÉ

1 cup milk	1/6 teaspoon mustard
2 tablespoons butter	1/4 teaspoon salt
4 tablespoons flour	Cayenne
4 eggs	1 pound American cheese
2 tablespoons Parmesan cheese	

Make a white sauce with the flour, butter, and milk. Stir the cheese into the warm sauce. Add seasonings. Beat the yolks and whites of eggs separately, till stiff. Cut and fold into cooled cheese mixture, yolks first. Put in greased baking-dish, and bake in moderate oven, standing in pan of hot water.

BAKED BREAD AND CHEESE

6 slices stale bread	1 pint milk, skimmed
1/4 pound mild cheese	Salt, paprika

Put slices of bread in buttered baking-dish. Cover with slices of cheese. Sprinkle well with salt and paprika. Repeat until dish is full, leaving the bread on the top. Pour in the milk.

Let stand an hour. Bake 40 minutes in a moderate oven. Serve at once.

LIMA BEAN AND CHEESE ROAST*(Meat substitute)*

- 2 cups cooked Lima beans
- 1/4 pound cream cheese, commercial or home-made
- 3 canned pimentos, chopped
- 1/2 cup approximately, bread crumbs

Mash the beans through a potato ricer. Mix thoroughly with the chopped cheese and pimentos. Add bread crumbs until it is stiff enough to form into a roll. Brown in the oven, basting occasionally with fat and water.

CORN, TOMATO, AND CHEESE

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|-------------------------------------|----------------------------------|
| 1 tablespoon butter or
other fat | 2 egg-yolks or 1 egg, whole |
| 2 cups grated cheese | 1 teaspoon salt |
| 3/4 cup canned corn | 1/2 teaspoon paprika |
| 1 ripe pimento | 1 clove of garlic or onion juice |
| 1/2 cup tomato purée | 4 slices of bread |

Stir the cheese into the melted fat until cheese is melted. Add all other ingredients except the egg. Toast the bread on one side and rub the untoasted side lightly with garlic or onion. Stir the beaten egg into the mixture, cook for a few minutes and pour over the untoasted side of the bread. Serve at once.

TOASTED SANDWICH

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|-------------------------------------|---|
| 2 slices of bread 3/8 inch
thick | Hot fat or butter in which to
toast sandwich |
| 1 egg, beaten | 1 layer cottage cheese 3/8 inch
thick |
| 2 slices of raw tomato | |

Put layer of cottage cheese between slices of bread. When sandwich is completed, dip in beaten egg and toast quickly in hot fat or butter. Cut diagonally and serve with a slice of

raw tomato on each section. The addition of pimento, mixed with the cheese, improves this dish.

COTTAGE CHEESE NUT LOAF

<i>Group 1</i>	<i>Group 2</i>
1 cup cottage cheese	1 cup dry bread crumbs
1/4 cup peanut butter	1/2 cup walnut or native nut
2 tablespoons melted butter	meats cut not too fine
1 tablespoon minced raw onion	1 teaspoon salt
	1/2 rounded teaspoon sage
	1/2 teaspoon thyme
	1/4 teaspoon black pepper

In one bowl mix group 1. In another bowl mix group 2. Work contents of 2 bowls together, pack in cake tin and bake in moderately hot oven until top is brown. Serve with mushroom, tomato, or brown sauce, or use as sandwich filling, or sliced cold.

CHEESE FILLING

1 pint milk	Butter size of small egg
2 tablespoons cornstarch or rice flour	2 "Snappy" cheeses

Put milk and butter in double boiler, leaving out 1/2 cup milk. Mix the latter with the rice flour. When the milk is hot, pour slowly into flour mixture and put back in boiler. Stir until smooth and well cooked, then add 2 "Snappy" cheeses broken up in pieces, 1 teaspoon paprika, 1 teaspoon salt, dash of cayenne.

Cool and keep in glass jar in ice chest. This can be used for sandwiches, or brush "Barley Biscuits" with melted butter, then spread cheese filling on thickly, sprinkle paprika on top, and put in oven until hot. Can be heated over and used as a Welsh rarebit or cheese sauce, thinned out with a little cream or milk.

CHEESE TOAST

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| 3 ounces mild cheese | 2 teaspoons mustard |
| Yolks of 2 eggs | Salt and red pepper |
| 3 ounces butter | |

Grate the cheese; mix it with the yolks of eggs and butter. Beat it well, adding the seasonings. Toast some bread in 2-inch long narrow strips, spread thickly with the mixture, put in covered pan in hot oven until heated through, then remove cover and let brown.

CHEESE RAMEKIN

- 2 slices bread
- 1/2 cup milk
- 2 tablespoons butter or other fat
- 4 tablespoons grated cheese
- 2 eggs
- 1/2 teaspoon mustard
- Salt and pepper to taste

Cook the bread in the milk until it is smooth. Add the fat and cheese. Cook one minute; take off and pour over yolks of eggs, well beaten, mustard, salt, and pepper. Fold in the whites beaten very stiff; pour into buttered baking-dish and bake 15 minutes.

RISOTTO

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| 1 cup rice | 1 1/2 teaspoons salt |
| 2 tablespoons butter | Paprika |
| 1/2 onion | 2 to 3 cups stock or water |
| 1 cup tomato pulp | 1/2 cup grated cheese |

Put the rice over fire with plenty of cold water and let boil 5 minutes, then drain, and rinse. Melt the butter in a saucepan, add rice and onion, let cook until butter is absorbed, then add the tomato pulp, salt, paprika, and liquid.

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Let cook until rice is tender and the liquid is absorbed. Then stir the cheese in carefully. Take out the onion, use a fork and stir or lift the rice carefully to avoid breaking the grains. Serve very hot.

CHEESE AND EGGS

Soak 1 cup of dried bread crumbs in fresh milk. Beat into this 3 eggs, add 1 tablespoon of butter and 1/2 pound of grated cheese. Strew upon the top sifted bread crumbs and bake in oven until a delicate brown.

CHEESE CROQUETTES

3 tablespoons butter	1 1/2 cups mild cheese, grated
1/4 cup flour	Salt and pepper
2/3 cup milk	Few grains cayenne
Yolks 2 eggs	

Make a thick white sauce, using butter, flour, and milk; add yolks of eggs and stir until well mixed, then add cheese. As soon as grated cheese melts, remove from fire and season with salt, pepper, and cayenne. Spread in shallow pan and cool. Turn on a board, cut in small squares or strips, dip in crumbs, egg, and crumbs again, fry in deep fat, and drain on brown paper.

CHEESE SCALLOP

1 cup crumbs	1/4 pound cheese, grated
2 tablespoons butter	1 1/2 cups milk, hot
1/4 teaspoon salt	2 eggs
1/8 teaspoon paprika	

Melt butter, stir in crumbs, and mix thoroughly with grated cheese. Beat eggs together, add slowly the hot milk, and pour the mixture on the crumbs and cheese; season and pour into buttered molds. Set in hot water in moderate oven till set like a custard.

CHEESE PATTIES

*Individual recipe**Large recipe*

1 rounding tablespoon grated cheese	1/2 pound
1/2 teaspoon melted butter	1 tablespoon
1 scant teaspoon milk	1 tablespoon
1 teaspoon egg	1 egg
Salt	1/2 teaspoon
Paprika	

Mix all to a smooth paste. Make patty cases as follows: Have slices of bread one inch thick; shape with large round cutter, then with smaller round cutter cut part way through the slice and dig out center. Spread lightly with butter and brown in oven. Fill case with cheese and place in oven just long enough to soften cheese.

CHEESE CANAPÉS (I)

Toast circular pieces of bread, sprinkle with a thick layer of grated cheese, season with salt and cayenne. Place on a tin sheet and bake until cheese is melted. Serve at once.

CHEESE CANAPÉS (II)

Spread circular pieces of toast with a thin layer of French mustard and proceed as in Canapés I.

RECIPES FOR LEGUMES

LENTIL OR SPLIT-PEA SOUP

1 cup dried lentils or peas	3 tablespoons butter
2 cups of cold water	4 tablespoons flour
1/2 onion	1 1/2 teaspoons salt
2-inch cube of fat salt pork	1/3 teaspoon pepper

Pick over lentils or peas, and soak overnight. Drain; add

cold water (enough to make 4 cups with the amount absorbed), pork, and onion, simmer until soft — 3 or 4 hours — and rub through a sieve. Cook the butter, flour, and seasoning as for white sauce. Add the pulp and cook well. If it is too thick, thin out with water or milk.

Additional flavoring for black and white bean soups

2 slices of carrot	} browned in 1 tablespoon fat and added before straining
2 slices of turnip,	
1/4 of a green pepper	
1/8 of a bay leaf	
3 peppercorns	
1 clove	

DRIED BEAN SOUP

1 pint beans
 1 large onion, minced fine
 4 tablespoons drippings or butter
 3 tablespoons flour
 A few dried celery leaves
 2 teaspoons salt
 1/2 teaspoon pepper
 3 pints cold water
 2 quarts boiling water

Wash the beans. Put plenty of cold water over them, and soak overnight. Pour off the water and put the beans in a kettle with the 3 pints of cold water. Bring the water to the boiling point and pour it off. Add the boiling water to the beans and let them simmer for 4 hours. Add the celery the last hour of cooking. Strain the soup. Brown the onion in the drippings. Add the flour and cook, stirring often. Add the thickening and seasoning to the soup and cook 20 minutes.

BAKED BEAN SOUP

- 1 cup baked beans
- 1 cup tomato
- 3 cups water

Cook and strain. Make a sauce with

- 2 teaspoons butter
- 2 teaspoons flour
- 1 1/2 teaspoons salt
- 1/2 teaspoon mustard
- 1/8 teaspoon pepper

and strained liquid. Let it cook well. If desired, a slice of onion may be added to the tomato.

GREEN PEPPERS STUFFED WITH COW PEAS

- 1 tablespoon butter or other fat
- 1 tablespoon onion finely chopped
- 1 tablespoon sweet green pepper finely chopped
- 2 cups cooked cow peas
- 1/2 cup grated cheese

Cook the onion and pepper in the fat, being careful not to brown, and add them to the peas and cheese.

Cut sweet green peppers into two pieces lengthwise, remove all the seeds, and fill each piece with the mixture.

Bake in a moderate oven until the peppers are soft. Baste occasionally.

LENTIL LOAF

(Substitute for meat)

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| 1/2 cup dried lentils | 1 onion, grated |
| 1/3 to 1/2 cup soft bread crumbs | 1 pimento, chopped |
| 3 tablespoons melted
butter or other fat | 1 teaspoon salt |
| 1 egg | Mace |
| | Dash of cayenne |

Soak the lentils overnight. Drain, cover with cold water, and boil until tender. Press through a sieve to remove skins.

Cook onion in melted butter. Add to lentil purée together with pimento, bread crumbs, and seasonings. Mix in well-beaten egg. Bake in bread-pan, in a loaf, about 30 minutes in a moderate oven, basting occasionally with oil or butter. Serve with tomato sauce.

Tomato Sauce

2 tablespoons flour	1 cup stewed and strained
1/2 teaspoon salt	tomato

Melt fat, add flour and salt. Stir until smooth. Add tomato juice, stir constantly until it boils.

BOSTON ROAST

3/4 cup red kidney beans	1 teaspoon salt
1 cup grated cheese	3 tablespoons butterine melted
1/4 cup bread crumbs	in 1/2 cup water

Soak kidney beans overnight in water to cover, drain, cover with fresh water, and cook until tender and water is almost evaporated. Mash beans or put them through a meat-grinder. Add grated cheese and bread crumbs to make the mixture stiff enough to be formed into a roll. Add salt and bake in a moderate oven, basting occasionally with melted butterine.

Serve with tomato sauce. This dish may be flavored with onion.

PECAN NUT LOAF, WHITE SAUCE

5 riced potatoes	1 1/3 cups hot milk
3 tablespoons butter	1/3 cup finely chopped pecan
1 teaspoon salt	nut meats
Few grains pepper	1 cup white sauce

To riced potatoes add butter, salt, pepper and hot milk. Beat with fork until creamy and pack into a slightly buttered shallow pan. Set in pan of hot water and let stand in a moderate oven until thoroughly reheated. Turn on hot

platter, sprinkle with finely chopped pecan nut meats, pour around one cup white sauce and garnish with parsley.

VEGETABLE ROAST

- | | |
|--------------------------|--------------------------------|
| 1 cup vermicelli or rice | 1 cup bread crumbs |
| 1 1/2 cups boiling water | 1 cup chopped walnuts |
| 3 small onions | 1 teaspoon chopped parsley |
| 3 tablespoons drippings | 1/2 teaspoon poultry seasoning |
| 1 egg | 1 teaspoon salt |

Cook vermicelli or rice in boiling water until tender. Finely chop the onions, and cook in drippings until tender and yellow. Add egg well beaten and the cooked vermicelli, bread crumbs, chopped walnuts, chopped parsley, poultry seasoning, and salt.

Mix well, shape in a loaf, and place in a baking-dish. Bake 1 hour in a moderate oven, basting frequently with melted drippings. Serve with brown sauce.

Brown Sauce (or Tomato Sauce may be used)

- | | |
|-----------------------------|---------------------|
| 2 tablespoons oleomargarine | 1/8 teaspoon pepper |
| 1 slice onion | 1 cup boiling water |
| 3 tablespoons flour | 1 teaspoon vegex |
| 1/4 teaspoon salt | |

Melt the oleomargarine, add onion, and cook until oleomargarine is well browned. Add flour mixed with salt and pepper, and stir until flour is browned. Add boiling water in which has been dissolved the vegex. Stir until sauce boils and strain.

RICE AND NUT LOAF

- | | |
|------------------------------------|--|
| 1 well-filled cup warm boiled rice | 1 cup peanuts, chopped fine |
| 1 cup milk | 1 cup crumbs (made of stale barley biscuits) |
| 1 egg | 1/4 teaspoon pepper |
| Salt to taste | |

1 Mix and put in buttered bread-pan. Set into another pan of water and bake 1/2 hour. Put two tablespoons of melted butter on top. When the loaf is done turn out on platter and serve with cheese or tomato sauce. (Use rule given for cheese sauce; common cheese may be used instead of "Snappy.")

Quick Tomato Sauce

1 can tomato soup	1/2 can hot water
1/4 teaspoon ground clove	A dried celery leaf or two
1 tablespoon sugar	1 slice onion
A dash of paprika	1/2 teaspoon salt

CREAMED PEANUTS AND RICE

1 cup rice (uncooked)	3 tablespoons flour
2 cups chopped peanuts	3 tablespoons fat
1/2 teaspoon paprika	3 cups milk (whole or skim)
2 teaspoons salt	

Boil rice. Make white sauce by mixing flour in melted fat and mixing with milk. Stir over fire until it thickens. Mix rice, peanuts, and seasoning with sauce, place in greased baking-dish and bake for 20 minutes.

CHAPTER VIII

CEREALS

WITH this chapter we begin the study of another group of food substances, the carbohydrates, which is divided into two subdivisions, starches and sugars. These may look alike when in powdered form, but they taste very differently and are quite different in their chemical composition. The sugars will be left to a later chapter.

When looked at under the microscope, raw starch is seen to be made up of a mass of cells, each with a woody coat, embedded in a network of woody fiber. The markings on the woody coat of the small granules differ with the source of the starch; that from the potato is marked in one way and that from oats, barley, and rice in still different ways, so that each can be readily detected by close examination. When mixed with cold water, starch does not dissolve, but settles on standing. When, however, this mixture of starch and water is heated, it undergoes a chemical change. The woody coats of the starch granules are broken open by heat, as is also the woody fiber framework of the starch itself, permitting the starch to swell, and forming a thick paste with the water. This is said to be the hydrolysis of the starch, and unless starch has gone through this change, it cannot be properly acted upon by the digestive juices.

If this paste is heated further, it will become thinner until finally it is a watery liquid again. This is due to the fact that the starch has undergone a further chemical change, gradually becoming first a gum called "dex-

trine," and then a sugar known as "maltose." This change in the chemical form of the starch can be produced more rapidly by dry heat. When flour is browned on the pan for brown gravy, we are making dextrine from some of the starch granules. Since dextrine is soluble in water, the browned flour will not thicken as well as ordinary flour, and more must be used to the same proportion of water. We also dextrinize the starch in our bread when we make a slice of toast, which is the reason why a piece of dry toast is more easily digested than a slice of fresh bread.

Starch is found exclusively in the vegetable kingdom. It is the form which nature takes for the storage of food for the use of the plant at some future time. Usually this storehouse of food is laid by for the nourishment of the seedling which will make the new plant; hence starch is found in seeds or tubers where the embryo lies dormant. Starch, as human food, is taken primarily from the seeds of plants belonging to the grass family, such as wheat, rye, oats, barley, and rice. We also find it in the kernel of the corn, in the tuber of the potato, and in the root of some tropical plants which gives us arrowroot and tapioca. Sago is prepared from the pith of several species of palms, natives of the East Indies. But all of these are the same chemical substance though appearing on the market in different forms.

The term "cereal" has two distinct meanings as generally used. The correct use of the term is when it is applied to the grain itself, while its secondary meaning is the product made from the grain in the form of a breakfast food.

The structure of the kernels of all grain is much the

same. The outside is well protected by several bran coats — five in the case of wheat. The inside is divided into two parts, one, much larger than the other, is called the “endosperm,” and the smaller one is known as the “germ.” In the germ we find protein material, since here we have the material which will eventually form the new plant. We also find in the germ whatever fat there is in the grain. It contains minute quantities of substances known as “enzymes,” or unorganized ferments, which enable it to utilize for food the starch material in the endosperm. The endosperm itself, along with its mass of starch granules embedded in woody fiber, contains a network of protein material. This particular protein material is known as “gluten,” and is found in greater quantity in wheat and rye than in any other cereal. It is because of this substance that wheat and rye make a porous loaf of bread. The Biblical phrase, “Except a seed fall into the ground and die, it cannot live,” is literally true, since the life of the seedlet depends entirely upon the fermentation of the starch in the grain, as it cannot be used for food until it is turned through fermentation into the soluble form of sugar.

The cereal grains have been used for human food for many hundreds of years. It is one of the wonders of nature that a grain suitable as a food for the people of different climates grows abundantly in those climates. Rice, for instance, which has the lowest fat content of any of the grains, grows in warm climates where the people do not need fatty food; while oats and corn, the two that are richest in fat, are indigenous to cold climates where fat is essential. The grains were first used whole, being parched on

hot stones or in ashes. Later it was found to be more convenient to use them after they had been cracked by pounding between stones and the coarser bran removed. In this form they were boiled with water and used as mushes. Still later this process was carried further and meals were made from the grain by a prolonged pounding in a mortar with a pestle or between stones. The woman of the primitive race was the one to prepare the meals, until later, animals were harnessed in such a manner as to turn one stone upon another.

As the ingenuity of the races increased, the forces of nature were used for this grinding. Stones were still used as grinding surfaces, but the upper millstone was now turned by wind or water. Survivals of these old-fashioned mills are still to be found on Long Island and in the South. Meal from such a mill contained the whole of the kernel of corn or wheat, with the exception of the outermost bran coats which were sifted out. This produced a meal containing fat which grew rancid on standing and could not be kept for any length of time. As the development of machinery progressed, the old-fashioned millstones were replaced by modern steel machinery.

A modern flour-mill is a very complicated institution and cannot be gone into in detail here. The grinding surfaces are steam rollers arranged in series through which the grain is passed and many products are obtained. Sometimes as many as fifty are turned out from a single mill. Since these rollers are slightly heated, the effect is very different from that obtained by the old-fashioned stones. The endosperm or starchy part of the kernel is made brittle and can easily be pulverized, whereas the germ, which con-

Milling

tains the fat, is flattened out when passed through the rollers and is separated from the meal at the first sifting. This gives a meal which is almost entirely lacking in fat, while the caked germ is used for the oil which can be extracted from it, then is finally made into fodder for cattle. With wheat this process is carried to its greatest extent until we have a large variety of flours in use on the market. We will discuss these more fully in the next chapter.

With the shortage of wheat due to war conditions we have learned to use and to appreciate more of the cereal products than we have known before.

Flour has been made from barley, corn, oats, and rice as well as from the more familiar rye and wheat, and all of these can be used to take the place of some of the wheat in bread-making. Because of their lack of gluten, to make a successful loaf of bread they cannot be used in a greater proportion than a third of the substitute to two thirds of wheat. As a usual thing wheat, rye, and corn are the three grains that are used for breads; the others are used whole or ground as meal for other purposes. The use of barley, rye, and wheat for bread is thought to mark the stages in the growth of the wealth of a nation. As people become more prosperous they discard barley bread for rye, while wheat bread has always been the sign of luxury.

Grains used
for bread-
making

Barley

There is no real reason for this difference in use except for the flavor, as barley contains just as much nourishment as wheat. It contains less fat than corn or oats, and slightly more starch than oats or wheat. It is of very ancient origin, growing in a wider range of climate than any other

cereal and was the chief bread plant of the ancients and of Europe down to the sixteenth century. Because of its great enzymic power it is used for malting and makes a basis for all beers and ales. When the hull is removed it is sold as pearl barley. Its importance as a national resource is shown by the extent of its production in the United States. As a crop, it ranks fourth, corn, wheat, and oats being its superiors. It is used to make gruel for infants and invalids.

Corn, rightly known as maize, is native to America, though its cultivation has spread rapidly to Europe, northern Africa, and Asia. It is grown to

Corn so great an extent in this country that the supply that is turned into cornmeal could be increased tenfold without changing the amount of land now devoted to corn-raising. An increase in the demand for cornmeal would make it more profitable for the farmer to sell his corn to the miller than to use it for feed. Many commercial products are made from corn, among which are corn syrups and commercial glucose.

It is not surely known that oats were cultivated by the Egyptians or Hebrews, Greeks, or Romans. They

Oats are thought to have been used first by the peoples of eastern Europe or Tartary.

They were cultivated by prehistoric western Europe, but not until after wheat and barley were in use. The production of oats increased rapidly, until in Scotland to-day it occupies one third of the land cultivated in crops and in Ireland one half of all grain and green crops. This grain contains a larger percentage of crude fiber than maize at the expense of starch, while the kernel is richer in protein and fat than any other of our cereals. It is used chiefly in the form of oatmeal.

Rice is known to have been cultivated in China before 2800 B.C. It was introduced into Europe by the Saracens, and was brought to the United States in 1694 as a present to the Governor of South Carolina. It has been grown in this country since that time. There has been much talk of late of the harm caused by the use of "polished" rice. The reason for this is that in order to have a pure white rice, the kernels are subjected to a process by which all of the bran is very carefully removed. This takes away from the rice a large proportion of its mineral matter and its vitamins. This loss is an important one where rice is practically the sole article of diet, as is the case among the very poor of China and the Philippines, and is no doubt the cause of such diseases as beriberi. Where rice is used, however, two or three times a week and is only one article of a very mixed diet, the loss is too small to be considered. Cured or brown rice, however, is to be had on the market for those who want it, but requires longer cooking than the "polished" rice.

The cultivation of rye is not so ancient as the cultivation of wheat or barley. It contains less protein and fat than wheat, but it does contain gluten which makes it possible to make a porous bread from it. It is found in the market both as fine and coarse flour. Like barley it is used for the manufacture of alcohol and alcoholic beverages and as a feed for cattle.

All of these, together with wheat, are used in one form or another for breakfast cereals. When used whole, the husks only are removed and the grains require a very long, slow cooking. In this form they are served as porridge. Oats are the

most common, though corn in the form of hominy has long been in use. These have been considerably replaced by prepared cereals known as "rolled oats" and wheat. The kernel is partly cooked by steam at the factory and pressed while wet between rollers. It is to be noted that this type of cereal has not been thoroughly cooked, and is much better if given a longer cooking than is specified on the box.

There are many other specially prepared cereals on the market. These are usually sold in packages with trade names. The processes of their manufacture are secret; but in a general way the grains are cleaned, the husks removed, and the grains cooked or dried and crushed. Some have salt, molasses, or sugar added, while some are colored with caramel. Some are rolled very thin. Those that are like dried crumbs have probably been made into dough, baked, crushed, and then browned. Some are shredded and many are parched or toasted. Malted breakfast foods are treated by malt in the process of manufacture. Malt is barley which has been allowed to germinate and then kiln-dried. Those cereals which are called "puffed" have been heated under pressure at a high temperature and the pressure suddenly diminished. The general composition of all these is very much the same with a fairly high protein content, from 9 to 15 per cent, and carbohydrates 65 to 75 per cent. The fat is the most variable constituent, being greatest in these foods from corn and oats and lowest in rice, varying from 5 to 0.2 per cent. The ash proportion is small, from 0.5 to 2 per cent.

Uncooked cereals should all be given a long, slow cooking to break up the starch granules. They are best

stirred into rapidly boiling salted water and allowed to cook directly over the fire from five to ten minutes. They can then be placed in ^{Cooking of} _{cereals} the top of a double boiler on the back of the stove, or, better still, in the fireless cooker for overnight. It is to be remembered that no cereal can be overcooked, even though it is partly cooked to begin with. The longer it is cooked the more digestible it is. The general proportion for the amount of water to be used with cereals is one part of cereal to four parts of water for the granular varieties and one part of cereal to two parts of water for the flaked. These proportions, however, do not hold true where the cereal is allowed to boil vigorously for some time, as the water boils away rapidly.

Although cereals purchased in packages are apt to be cleaner and are more easily handled in the home, it is to be noted that they cost more than those bought in bulk. The ready-to-eat kind are higher in price than the partially cooked, though their nutrient value is practically the same, pound for pound. Many are so light, however, that the value received for the money paid is very low. The cost of malted cereals is more to the producer; hence a higher price to the purchaser.

It is perfectly possible to use cereal breakfast food in other ways than for breakfast dishes. Rice, hominy, and fried cornmeal mush are already in constant use to supply the starch at lunch or dinner. Others can be used for spiced steam pudding, small cakes, and other desserts. When cooked with dates or figs they can be molded and served cold with cream. In the form of mushes, gruels, and cereal jellies they have a valuable place in the diet of children, old people, and invalids.

RELATIVE VALUES OF CEREALS AS PURCHASED

	<i>Unit of purchase</i>	<i>Cost</i>	<i>Total calories</i>	<i>Calories for 10 c.</i>
Oatmeal.....	1 lb. 4 oz. package	.12	1912	1583+
Oatmeal.....	1 lb. by bulk	.07	1800	2571
Cornmeal.....	1 lb. 8 oz. package	.12	2419	2015
Cornmeal.....	1 lb. by bulk	.07	1613	2304
Hominy.....	1 lb. 8 oz. package	.08	2412	3015
Samp.....	1 lb. by bulk	.08	1608	2010
Cracked wheat..	1 lb. 10 oz. package	.25	2652	1060+
Cream of wheat.	1 lb. 12 oz. package	.23	2870	1247
Wheatena.....	1 lb. 8 oz. package	.18	1947	1081
Rice.....	1 lb. by bulk	.18	1591	883
Shredded wheat	12 oz. package	.14	1243	887+
Puffed rice.....	5 oz. package	.15	500	333+
Corn flakes.....	8 oz. package	.15	800	533+
Graham flour....	1 lb.	.07	1627	2324+
White flour.....	1 lb.	.08½	1600	1888+
Bread.....	1 lb. 5 oz. loaf	.15	1541	1002

Proportions for Cooking Cereals

<i>Kind</i>	<i>Amount</i>	<i>Water</i>	<i>Salt</i>	<i>Time</i>
Cornmeal	1 cup	4 to 5 cups	1 teaspoon	1 to 3 hours
Granular cereals	1 cup	4 to 6 cups	1 teaspoon	1/2 to 1 hour
Hominy	1 cup	4 cups	1 teaspoon	3 to 5 hours
Oatmeal	1 cup	4 cups	1 teaspoon	3 to 4 hours
Rice, boiled	1 cup	8 to 12 cups	1 teaspoon	30 minutes
Rice, steamed	1 cup	4 cups	1 teaspoon	1 to 3 hours
Rolled oats	1 cup	2 to 3 cups	1 teaspoon	1 to 3 hours

CEREAL RECIPES**OATMEAL SOUP**

Boil 1 cup rolled oats with 2 cups boiling water. When thoroughly done, add:

- 1 pint milk
 - 1/4 teaspoon pepper
 - 1 cup celery water (or flavor with dried celery leaves)
 - 1 teaspoon butter or butterine
 - 1 slice of onion
- Add 1 more cup of milk. Strain and serve.

GREEN PEA AND OATMEAL SOUP

Drain 1 can of peas. Add a slice of onion, a sprig of parsley, a sprig of mint.

1 teaspoon sugar	1/2 teaspoon salt
1/4 teaspoon pepper	2 cups water

Cook slowly 15 minutes. Rub through a coarse sieve. Boil 1 scant cup oatmeal in 1 pint water until well done. Then add 1 pint milk. Pour slowly over the peas. You may add 1 teaspoon butterine. Rub through a coarse sieve. Heat in double boiler.

OATMEAL AND SPINACH SOUP

1 cup oatmeal	2 teaspoons sugar
6 1/2 cups water	1 cup tomato
1 onion; seasoning	3/4 cup cooked spinach

Boil water; add the oatmeal and the other ingredients and cook together 3/4 hour in a covered saucepan, stirring frequently. Add milk if possible.

RICE AND ONION SOUP

3 tablespoons rice
1 onion, sliced fine
1 1/2 teaspoon salt
1 tablespoon drippings, lard, or other fat
2 tablespoons parsley
1 clove; 1 bay leaf; scraps of celery
7 cups boiling water

Put the drippings in a pan, and when smoking hot, fry the rice and onion in it. Pour this into a kettle with the water, salt, celery, clove, and bay leaf. Boil till the rice is cooked (about 30 minutes). Add the parsley and serve.

SCALLOPED RICE

<i>Home recipe</i>	<i>Individual</i>
3/4 cup rice	2 tablespoons
2 tablespoons fat	1 teaspoon
2 tablespoons flour	1 teaspoon
1 cup milk	1/4 cup
1/4 cup cheese, grated	1/2 tablespoon
1/4 cup bread crumbs	1 tablespoon

Boil rice in large kettle of water. Drain and mix with white sauce, made as follows: Melt the fat and add the flour, when smooth pour in the cold milk and cook until it boils, stirring constantly. Butter a baking-dish. Put in the creamed rice with the layer of cheese in the middle and on the top. Cover with buttered bread crumbs.

BAKED HOMINY

3/4 cup fine hominy	1/4 cup butter
1 teaspoon salt	1 tablespoon sugar
1 cup boiling water	1 egg
2 cups milk	

Add hominy and salt to boiling water. Let boil 2 minutes, then cook in double boiler until water is absorbed. Add *one* cup of milk and cook 1 hour. Remove from range, and add butter, sugar, egg slightly beaten, and the other cup of milk. Pour into a buttered dish and bake in a slow oven 1 hour.

Use instead of rice or potatoes at a "meatless" meal.

RICE WITH PARSLEY OR CHIVES

1/2 cup rice	2 tablespoons butter
1 tablespoon finely chopped parsley or chives	

Cook rice until tender in boiling salted water; add butter and parsley or chives, mixing gently with fork to avoid breaking the grain. Serve as a vegetable.

TURKISH PILAF

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|-------------------------|-----------------------------|
| 1/2 cup washed rice | 1 cup stock highly seasoned |
| 3/4 cup stewed tomatoes | 3 tablespoons butter |

Add tomato to stock; heat to boiling point; add rice, cook 5 minutes over flame, and steam until rice is soft; stir in butter with a fork and keep uncovered that steam may escape. Serve as a vegetable or as a border for curried or fricasseed meat.

SPANISH PILAF

- | | |
|------------------------|---------------------------------|
| 2 cups cooked rice | 1 cup soft bread crumbs |
| 1 quart can tomatoes | 1/2 sweet green pepper, chopped |
| 1 cup cheese, cut fine | 4 slices of bacon (on top) |
| | Salt |

Cook in a casserole for 1 1/2 hours.

MACARONI WITH PEPPERS

- | | |
|---|----------------------|
| 1 cup cooked macaroni | 1/2 cup grated Young |
| 2 tablespoons chopped onion | America cheese |
| 2 tablespoons chopped green | 2 eggs |
| pepper | 1 1/2 cups milk |
| 2 tablespoons chopped red | |
| pepper | |
| 3 slices of toasted bread in 1/2 inch cubes | |

Place a layer of macaroni in the bottom of a baking-dish, then a layer of vegetable, of cheese, of bread cubes. Repeat twice. Beat eggs and add milk. Pour into the dish and let stand ten minutes. Bake until a silver knife comes out clean.

BOILED MACARONI WITH TOMATO SAUCE

Boil macaroni until tender in salted water, drain, and pour cold water over it. Serve with tomato sauce.

Tomato Sauce

1 pint tomato juice	1 slice carrot
2 tablespoons flour	1 slice onion
2 tablespoons butter	Sprig of parsley
Bit of bay leaf	2 whole cloves
8 peppercorns	1/2 teaspoon salt

Brown vegetables in butter, add tomatoes and seasonings, let cook slowly 15 minutes, and strain. Wet flour with some of the liquid, rub smooth, and add to remaining liquid; boil 2 or 3 minutes.

1/4 pound of macaroni needs 1 pint sauce.

The Italians serve grated cheese with this dish, preferably Parmesan cheese.

MACARONI LOAF

1/2 pound macaroni	1 egg, or none
2 cups white sauce	1/2 pound dried beef

Boil macaroni until tender, drain; tear beef into small pieces; add egg, if used, to sauce. Put in layers in a buttered mold, cover, and steam two hours. Turn out and serve with tomato sauce.

GNOCCHI ALLA ROMANA

1 pint milk (or 1/2 milk and 1/2 water)
1/2 cup farina or cornmeal
1 egg
Butter and grated cheese
Salt

Let the milk come to a boil; salt it, add the cornmeal slowly, stirring all the time vigorously. When it is a smooth mixture, take from the fire, add butterine (1 tablespoon), several tablespoons grated cheese, and the egg slightly beaten. Mix well and spread out on molding board in a sheet 3/4 inch thick. When cold, cut in squares or diamonds,

putting a layer of these in a buttered baking-dish (shallow), sprinkle with cheese, and dot with butter. Make other layers until dish is full, and bake in oven until brown on top.

PITTSBURGH SAMP

1 cup samp	2 pimentos
1 quart boiling water	1 cup white sauce
2 teaspoons salt	1/4 pound mild cheese
1 onion, finely chopped	

Soak the samp in cold water overnight. Drain, add the boiling water and salt and boil 10 minutes. Cook in double boiler 5 or 6 hours or in the fireless cooker overnight. Then add the onion and cook 5 minutes. Add the pimentos cut in small pieces, cook 7 minutes, and turn into buttered baking-dish. Mix the cheese with the white sauce and pour over the samp. Cover with buttered crumbs and bake until brown.

OATMEAL PUDDING

1 1/2 cup cold boiled oatmeal	1 cup sliced apples, or
1/2 teaspoon salt	1/2 cup seedless raisins

Cook 5 hours in fireless cooker and eat with sugar and milk, or butter, for sauce.

Other cereal puddings:

Bread puddings
 Rice puddings
 Baked Indian puddings
 Tapioca puddings

CHAPTER IX

FLOUR MIXTURES

THE grain most used for breadstuffs of all kinds is wheat, though corn and rye are in frequent use and

Wheat others have been brought to the fore by war conditions. Wheat is one of the oldest of the grains and was cultivated very early in China, India, and Egypt. There are several varieties grown and various methods used in its cultivation. The two grades that are primarily used for flour in this country are the one known as winter wheat which is sowed in the fall and harvested in the early summer, and the other known as spring wheat which is planted in the spring and is harvested in the late summer. The first of these has a kernel which is softer and more starchy. It produces a whiter flour with a less proportion of gluten and is used largely for pastry. The kernel of the other is harder, being richer in gluten, and is more difficult to separate from the bran. This gives a darker flour that is more granular to the touch. It will not compact when squeezed in the hand as does the pastry flour, and is gritty between the fingers. This is known as bread flour, though nowadays some of the mills are using combinations of different varieties of wheat for their fine-grade flours.

Every flour mill produces several grades of flour. The first of these is known as the patent or high-grade flour

Flours into which goes 72 to 76 per cent of the total weight of the wheat. The second grade is known as baker's flour and is made up of 18 to

22 per cent of the wheat. The rest is sold as low-grade flour. Graham flour was originally a flour made from the entire kernel with the exception of the outer bran coats, while "entire" wheat flour is made from the endosperm part of the kernel but does not include the germ as does graham flour. It does, however, contain some of the bran and therefore more of the mineral salts than are found in ordinary white flour.

These various flours are used for the infinite variety of breads, muffins, cakes, and pastry which we are including under the general term of flour mixtures. The simplest form of any such mixture is the old-fashioned hoe-cake where the meal, usually corn, was mixed with water and salt and baked on a board before an open fire; or is found in the form of the corn dodger where the meal is scalded and when cooled is formed into small cakes, and cooked in a hot oven. Gradually, however, other ingredients have been added to give a greater variety and to make them more pleasing to the taste. We have built up, then, a definite series of these mixtures as follows:

Proportions for mixtures

- | | | |
|--|---------------|----------------------|
| 1. Batter — that which is beaten in a bowl | | |
| | <i>Liquid</i> | <i>Flour</i> |
| a. Pour batters: | 1 part | 1 to 1 1/2 parts |
| Used for popovers, griddle-cakes, and waffles | | |
| b. Drop batters: | 1 part | 2 parts |
| Used for muffins and cakes | | |
| 2. Dough — that which is moistened and handled on a board. | | |
| | <i>Liquid</i> | <i>Flour</i> |
| a. Soft doughs: | 1 part | 2 1/2 to 2 3/4 parts |
| Used for baking-powder biscuit, shortcake, etc. | | |
| b. Stiff doughs: | 1 part | 3 parts or more |
| Used for bread and pastry | | |

When different ingredients are added to the original simple mixture, it must be noted whether they would fall under the heading of liquid or dry ingredients. Butter, for instance, or other shortening, melts when heated and so behaves like a liquid in the mixture; therefore the shortening should be counted in with the liquid and as more is used, the other liquid should be decreased to keep the proportion correct. Eggs become stiff in the oven, so that a mixture containing several eggs may be thinner before going into the oven than one without so many. As sugar is added, the mixture becomes heavier and more baking-powder must be used. Flavors may be either liquid or dry and should be counted in where they belong; coffee, for instance, must form a part of the total liquid, while spices are counted as dry ingredients. The ingredients for a plain cake are just the same as those for a rich muffin since they both belong in the same group of flour mixtures, the only difference between them being the manner in which they are put together.

There are four distinct methods of mixing bread-stuffs. If a cook is familiar with these and with the general proportions given above, she no longer needs to be bound to a cook-book but can make up her own recipes. She must, however, become familiar with the feel of different kinds of mixtures. She should also know that if the oven is hot the mixture can be thinner than if it is cool. Also where cornmeal is used the mixture must be very thin because cornmeal absorbs so much water in cooking.

1. Muffin Method

Mix and sift dry ingredients. Add eggs slightly beaten. Add milk. Add shortening melted.

2. Cake Method

Cream the fat. Work in half the sugar. Beat the yolks of the eggs and rest of the sugar. Add this to the creamed fat. Sift salt and baking-powder with the flour, add this to the fat mixture, alternating with milk. Cut and fold in stiffly beaten whites of eggs.

3. Pastry or Baking-Powder Method

Mix and sift dry ingredients several times. Cut in the fat with two knives. Add moisture lightly. Toss on a board. Pat to about one half inch thickness and cut out.

4. Bread Method

Scald milk, or boil water. Pour onto fat, sugar, and salt. When lukewarm, add yeast dissolved in small amount of lukewarm water. Add flour, knead, let rise till double in bulk. Knead again. Put into bread-pans. Let rise till double in bulk. Bake 45 to 50 minutes in moderately hot oven.

In order to make the breadstuffs light and porous in texture, some leavening agent must be used. The simplest of these and the cheapest is *air*. **Leavening agents** This is incorporated in the mixture by the sifting of the flour, by the beating of the egg, and by the lightness with which the mixture is handled. It acts as a leavening agent because hot air occupies more room than cold air. The second is *moisture*, and this can be counted on more than is frequently realized. Since moisture is changed to steam in the oven it has a great expansive power which lifts the batter and helps to make it light. We count upon this agent for the popping of popovers and for the flakiness of pastry.

Our next agents are artificial ones. A gas is introduced into the mixture which will expand in the oven.

In all these cases the gas used is the same, *carbon dioxide*, but it is formed in various ways. The simplest is by the use of a carbonate or baking-soda with a natural acid such as is found in sour milk or molasses. The quantity of soda used must be carefully measured because if more is used than can be split up by the acid present, it will be left in the gingerbread or griddle-cakes as soda, giving a very disagreeable taste to the food. One level teaspoonful of soda is all that is necessary to be used with two cups of sour milk. Since this would not make enough gas to make the mixture very light it is well to add some baking-powder along with it — one fourth as much as we would use if we were using sweet milk. Since the action takes place just as soon as the soda comes in contact with the sour milk, it is well to mix the soda thoroughly with the other dry ingredients and not add the sour milk until just as the mixture is ready to be put into the oven.

When we are not using sour milk or molasses, we must look elsewhere for an acid to combine with our soda in order to give us the required gas. There are several such acids which when combined with soda form the baking-powders to be had on the market. The best of these is made of soda and cream of tartar mixed with a little starch to keep it from absorbing moisture. Cream of tartar is the salt of an organic acid found in grapes and when combined with soda leaves a salt in the muffin. This salt is the active ingredient of a seidlitz powder and the amount ordinarily used for a dozen muffins is about half of an ordinary seidlitz powder. Another group of baking-powders is made of a combination of a phosphate salt

with soda, and the third group is known as the alum powders. In each case the residue left in the muffin must be considered and as these are somewhat irritating to the intestinal tract, it is well always to use the best baking-powder obtainable and as little of that as possible. Three level teaspoons of baking-powder are sufficient for two cups of flour where one egg is used. Since a light mixture can be obtained by the action of air and moisture, both of which are far less expensive than any baking-powder, a premium is put on the cook who can handle her mixture lightly and quickly.

If a small amount of baking-powder is put in a tumbler and cold water added to it, it will be seen that the action causing an effervescence of gas takes place immediately. This is true in the flour mixture, the gas is given off just as soon as the liquid is combined with the dry ingredients. Since then the gas is desired in the mixture in the oven, it is well not to add the liquid to the dry ingredients until the pans are greased and the oven is ready to receive them.

Another way of forming carbon dioxide in our flour mixtures is by the action of yeast. The gas formed is exactly the same as that formed from **Yeast** baking-powders but it is formed in an entirely different way. Yeast is a tiny single-celled plant introduced into the dough where it finds plenty of food and conditions just right for growth. Like any other plant it must have warmth, moisture, mineral matter, protein food, and carbohydrate in order to thrive. These are all found in a mixture of wheat flour and water. The yeast cannot utilize the starch of the flour until that has been changed into the soluble form of

sugar. This is done by the process of fermentation which the yeast itself is able to perform by the secretion of ferments during its growth process. It also is able to change the sugar thus formed to alcohol and carbon dioxide. It is a greedy little plant and changes far more starch to carbon dioxide than it needs for food, so that we can see the bubbles of gas forming in the dough while it is rising.

There are many more chemical changes involved in the process of making bread but this is not the place to go into them thoroughly. Each step in the process of bread-making is done with some definite aim in mind: The reason the milk is scalded or the water boiled before starting our dough is in order to sterilize it to prevent other micro-organisms from growing under the same conditions as are being prepared for the yeast. If this were not done, sour bread might be the result. When bread is baked, the yeast plant is killed, leaving nothing in the bread but dead yeast cells which are organic material and therefore harmless. The carbon dioxide gas is expanded and driven out; so also is the alcohol that has been formed. The gluten present in the wheat flour being elastic stretches with the expansion of the gas until it is hardened by the action of the heat of the oven. The starch on the inside of the loaf unites with the water present to form hydrolized starch while that on the outside becomes dextrinized in the greater heat thus giving to the loaf its shiny brown appearance. At the same time flavors are developed due to the formation of a small amount of ethereal salts.

CRISP CORN BREAD

- 3 cups milk (or milk and water)
- 1 1/2 cups cornmeal
- 1 teaspoon salt

Mix well and spread in shallow pan to about 1/4 inch in depth. Bake in a moderate oven until crisp; it will take about 3/4 hour.

RICE OR HOMINY CAKE

- 2 cups cold rice or hominy softened with hot water
- 3 eggs beaten light
- 1 cup sweet milk
- 1 cup flour
- 1 teaspoon butter

Beat the eggs into the softened rice or hominy. Add the milk, flour, and butter. Bake in a greased pan, and turn out while hot. Serve with butter.

LIBERTY MUFFINS

- 1 cup wheat flour, white, entire, or graham
- 1 cup cornmeal, rye meal or flour
- 1 cup milk or water
- 4 teaspoons baking-powder
- 2 tablespoons sugar or Karo corn syrup
- 2 tablespoons Mazola or melted suet
- 1 teaspoon salt

Mix and sift dry ingredients (flour, meal, baking-powder, sugar, and salt). Add the milk, beating quickly and lightly. Mix in the fat. Bake 30 minutes in a moderate oven.

BRAN MUFFINS

- | | |
|------------------------|-------------------------------|
| 1 egg | 2 tablespoons shortening |
| 1 1/2 cups bran | 3 1/2 teaspoons baking-powder |
| 1 1/2 cups white flour | 1/2 teaspoon salt |
| 1 1/2 cups sweet milk | |

Mix the salt, baking-powder, flour, and bran together. Beat egg slightly and add to mixture. Add the milk and melted shortening, mixing thoroughly and lightly.

Bake in a moderate oven 25 to 30 minutes.

CORN MUFFINS

- | | |
|---------------------------|---------------------------------|
| 1 cup cornmeal | 2 tablespoons sugar |
| 1 cup flour | 1 beaten egg |
| 4 teaspoons baking-powder | 1 cup milk and water mixed |
| 1/2 teaspoon salt | 4 tablespoons melted shortening |

Mix in order given, beat well, and bake in greased gem pans in hot oven 20 minutes.

BARLEY AND RICE FLOUR MUFFINS

- | | |
|---------------------------|-------------------------|
| 7/8 cup rice flour | 1 tablespoon sugar |
| 1 3/8 cups barley flour | 1 cup milk |
| 1 teaspoon salt | 1 egg |
| 4 teaspoons baking-powder | 1 tablespoon melted fat |

Mix by regular muffin method. Bake in well-greased muffin molds for 35 minutes in moderate oven.

For rice flour and oatmeal muffins, in place of 1 3/8 cups of barley flour use 1 1/8 cups of ground rolled oats.

RYE MUFFINS

- | | |
|---------------------------|---|
| 1 1/4 cups rye meal | 1/4 cup molasses |
| 1 1/2 cups flour | 1 3/4 cups milk, part of which can be water |
| 5 teaspoons baking-powder | 1 tablespoon melted butter |
| 1 teaspoon salt | |

Mix and sift dry ingredients, add milk and molasses gradually, and melted butter. Bake in hot oven in buttered gem pans 25 minutes.

SPOON CORN BREAD

- | | |
|--|---------------------|
| 3/4 cup cornmeal | 1 cup sweet milk |
| 1/4 cup flour | 1/2 cup sour milk |
| 1 tablespoon butter | 1 egg |
| 2 tablespoons sugar | 1/2 tablespoon salt |
| 1/4 teaspoon soda (2 teaspoons baking-powder only if no sour milk is used) | |

Melt butter in baking-dish. Mix other ingredients as for muffins, keeping out 1/2 cup of the sweet milk. Pour mixture into baking-dish, add 1/2 cup of sweet milk. Bake 40 minutes in moderate oven.

CORNMEAL BISCUITS

- | | |
|--------------------------------|---------------------------|
| 1 cup yellow or white cornmeal | 4 teaspoons baking-powder |
| 1 cup wheat flour | 2 tablespoons shortening |
| 1 teaspoon salt | Liquid to make soft dough |

Mix the dry ingredients thoroughly. Cut in the shortening, add the liquid. Place the dough on a floured board and roll or pat it until it is 1/2 inch thick. Cut the biscuits and bake them in a hot oven from 12 to 15 minutes. A floury surface can be avoided by brushing the biscuits with milk or water just before baking.

QUICK RAISIN BREAD

- | | |
|-------------------------------|--|
| 2 1/3 cups entire wheat flour | 1/4 cup brown sugar |
| 1/2 cup fine cornmeal | 1 egg, well beaten |
| 2 tablespoons baking-powder | 1 1/4 cups milk |
| 1 1/2 teaspoons salt | 1 cup seeded raisins,
cut in halves |

Mix and sift dry ingredients, add egg and milk. Mix well and then add raisins. Put into greased bread-pan, cover and let stand 20 minutes. Bake in a moderate oven 50 to 60 minutes.

NUT BREAD

- | | |
|---|--------------------------------|
| 2 cups white flour | 4 teaspoons baking-pow-
der |
| 2 cups graham flour | |
| 1 cup sugar | 1 egg |
| 1 cup nuts, English walnuts,
chopped | 1 teaspoon salt |
| | 1 1/2 cups milk |

Mix the flours, baking-powder, salt, and sugar together. Stir in the nuts, the egg well beaten, and the milk, beating lightly and quickly. Pour into well-greased bread-pans. Let stand 20 minutes. Bake one hour in moderate oven.

PRUNE LOAF

- | | |
|----------------------------------|--|
| 2 1/2 cups entire wheat
flour | 1/4 cup brown sugar dissolved in
1 cup liquid (prune water and
milk) |
| 1 1/2 teaspoons salt | |
| 4 teaspoons baking-
powder | 1 tablespoon melted shortening
9 to 12 prunes |

Wash and soak prunes several hours; drain, stone, and cut. Mix and sift flour, salt, and baking-powder. Add liquid and shortening, and mix thoroughly before adding prunes. Let stand in a greased pan 20 to 25 minutes in a warm place. Bake in a moderate oven one hour.

BUCKWHEAT GRIDDLE CAKES

- | | |
|-----------------------|-----------------------------|
| 2 cups scalded milk | 1/6 yeast cake |
| 1/2 teaspoon salt | 1 1/3 cups buckwheat flour |
| 1 tablespoon molasses | 2/3 cup wheat flour (bread) |

Mix and beat well, let it stand overnight; beat slightly and allow it to rise a short time before baking. 1/3 cup of cornmeal may be added instead of part of the buckwheat for variety. For quick work use 2 yeast cakes.

RAISED WAFFLES

- 2 cups milk
- 1/6 yeast cake
- 2 cups flour, bread or pastry
- 1/2 teaspoon salt
- 2 eggs, yolks and whites beaten separately
- 1 tablespoon butter, melted

Mix the milk, yeast, and flour at night. In the morning add the other ingredients. Use only one egg, make the batter a trifle thinner, and fry on the griddle and you have Flannel Cakes.

This recipe may be varied by using 1/2 or 1/3 fine, white cornmeal or graham flour with the white flour. If intended for tea, mix in the afternoon, using 1 to 2 yeast cakes.

RAISED MUFFINS

- | | |
|----------------------|----------------------|
| 1 cup scalded milk | 1 teaspoon salt |
| 1 cup boiling water | 1/4 yeast cake |
| 2 tablespoons butter | 1 egg |
| 1/4 cup sugar | 4 cups flour, pastry |

Add butter, sugar, and salt to milk and water; when lukewarm add dissolved yeast cake, egg well beaten, and flour; beat thoroughly, cover, and let rise overnight. In the morning, fill buttered muffin rings two thirds full; let rise until rings are full, and bake 30 minutes in hot oven. For quick work use 2 yeast cakes.

GRILLED MUFFINS

Put buttered muffin rings on a hot greased griddle. Fill one half full with raised muffin mixture, and cook slowly until well risen and browned underneath; turn muffins and rings, and brown the other side.

CORNMEAL AND WHEAT BREAD

- | | |
|---|------------------------------------|
| I 1/2 cups milk, water, or a mixture of the two | I 1/2 teaspoons salt |
| I/2 cake compressed | I tablespoon sugar |
| Or | Butter (if used) I table-
spoon |
| I 1/4 cups milk, water, or a mixture of the two | I cup cornmeal |
| I/4 cup liquid yeast | 2 cups wheat flour |

Pour I 1/4 cupfuls of the water over the cornmeal, salt, sugar, and fat (if used), and heat the mixture gradually to the boiling point or nearly to it and cook 20 minutes, preferably in a double boiler. The water is sufficient only to soften the meal a little. Allow the meal to cool to about room temperature and add the flour and yeast, mixed with the rest of the water, or the 1/4 cupful of liquid yeast. Mold thoroughly and let stand until it doubles its bulk, make a loaf, place in a pan of standard size, allow to rise until it nearly fills the pan, and bake 45 or 50 minutes.

ROLLED OATS BREAD

- | | |
|----------------------|------------------------------|
| 2 cups rolled oats | I tablespoon shortening |
| 3 cups boiling water | I/4 yeast cake dissolved in |
| I/2 tablespoon salt | 2 tablespoons lukewarm water |
| I/2 cup molasses | 6 to 7 cups white flour |

Add the boiling water to the rolled oats, salt, molasses, and shortening, and let stand until lukewarm. Add the dissolved yeast and flour. Mix thoroughly, and let rise until the dough doubles its bulk. Again stir; put into greased pan, and let rise until loaf doubles its bulk. Bake about 50 minutes, in a moderate oven.

POTATO BREAD

- | | |
|-------------------------|------------------------------|
| I tablespoon shortening | I cup mashed potato |
| I 1/2 tablespoons sugar | I/4 yeast cake dissolved in |
| I/2 tablespoon salt | 2 tablespoons lukewarm water |
| I/2 cup scalded milk | 2 cups white flour |

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To the shortening, sugar, salt, and potato add the milk. When lukewarm add the dissolved yeast. Gradually knead in all the flour, though the dough will be very stiff. Let rise until it doubles its bulk. Again knead and put into greased pan. Let rise until loaf doubles its bulk. Bake about 50 minutes in a moderate oven.

RICE BREAD

- | | |
|-----------------------------|------------------------------|
| 1 1/2 cups cold cooked rice | 1/2 yeast cake |
| (either brown or white) | 2 tablespoons scalded milk |
| 2 1/4 cups wheat flour | (or water drained from rice) |
| 1 teaspoon salt | |
| 1 tablespoon sugar | 1 tablespoon shortening |

Put rice through strainer, add dissolved yeast cake, melted shortening, scalded milk, and part of flour in which salt and sugar have been sifted. Add enough flour to knead on a board, knead thoroughly five minutes. Let rise until doubled in bulk. Cut down. Shape in loaves, put in bread-pan to rise again. Bake in a moderate oven about one hour.

RYE BREAD

- | | |
|-------------------------|-----------------------------------|
| 1 tablespoon shortening | 1/4 yeast cake dissolved in |
| 1/2 tablespoon salt | 1/2 cup lukewarm water |
| 2 tablespoons molasses | 1 cup rye flour |
| 1/2 cup scalded milk | 2 cups (about) entire wheat flour |

To the shortening, salt, and molasses add the milk. When lukewarm, add the dissolved yeast and flour. Mix thoroughly and let rise until dough doubles its bulk. Knead, or stir thoroughly, put into greased pan, and let rise until loaf doubles its bulk. Bake about 50 minutes in a moderate oven.

SOFT GINGERBREAD

4 tablespoons shortening	2 cups pastry flour
1/2 cup sugar	1 teaspoon ginger
1 beaten egg	1 teaspoon allspice
1/2 cup N.O. molasses	1/2 teaspoon soda
1/2 cup milk, sour	

Make like cake — mixture should be almost a pour batter; bake in a sheet in a moderate oven 20 to 30 minutes.

OLD-FASHIONED SOFT GINGERBREAD

Break 1 egg in teacup; add 1 tablespoon melted butter, 3 tablespoons sour milk; fill up cup with molasses and pour into mixing-bowl. Add 1 cup flour, 1 scant teaspoon soda, 1 scant teaspoon ginger, and a little salt.

DROP GINGER CAKES

1 cup brown sugar	4 cups flour (pastry)
1 cup molasses	1/2 teaspoon soda
1 cup sour milk	4 teaspoons ginger
3/4 cup butter	2 teaspoons cinnamon
1 egg	1/2 teaspoon cloves

Put butter, water, molasses, and sugar in a saucepan over the flame, let it come to a boil, and cool slightly; then mix in thoroughly other ingredients. The mixture should not run when dropped an inch or more apart on a greased sheet. Sour milk would be preferred to water if the molasses were bought in cans and lacked acid. Bake in a hot oven.

FAIRY GINGERBREAD

<i>Individual recipe</i>	<i>Large recipe</i>
1 tablespoon butter	4 tablespoons
2 tablespoons sugar	1/2 cup
1 tablespoon milk	1/4 cup
5 tablespoons flour	1 1/4 cups
1/4 teaspoon ginger	1 teaspoon
1/16 teaspoon soda	3/16 teaspoon

Make like cake. The batter should be stiff enough to spread. Invert a pie pan, butter it, and spread the mixture $\frac{1}{8}$ inch thick. Bake in a moderate oven, watching constantly. When light brown take from the oven and check off with a knife or roll up. The small recipe will cover two pans.

[NOTE: All cakes are improved by the addition of a little salt, even though the recipe does not call for it.]

BUTTER CAKE

$\frac{1}{2}$ cup butter	2 cups flour
1 cup sugar	2 $\frac{1}{2}$ teaspoons baking-powder
2 small eggs	$\frac{1}{2}$ teaspoon vanilla
$\frac{1}{2}$ cup milk	

Cream the butter, add the sugar gradually, then the eggs well beaten — beating the mixture all the while to keep the consistency the same. Add the vanilla, then at the same time one third of the milk and one third of the flour, then another third of the milk and third of the flour, beating well meanwhile. Sift in the last third of the flour containing the baking-powder and mix well before adding the last portion of milk — this to be added, or more, if needed. The consistency is a matter of experience. Bake in shallow cake pans, and put together with different frostings or filling, from which the cake takes its name.

MAPLE SUGAR FROSTING

1 pound soft maple sugar
$\frac{1}{2}$ cup boiling water
Whites of 2 eggs

Break sugar in small pieces, put in saucepan with the boiling water, and stir occasionally until sugar is dissolved. Boil without stirring until syrup will thread when dropped from tip of spoon. Pour gradually on beaten whites, beating mixture constantly, and continue beating until of right consistency to spread.

SOUR-CREAM FILLING

1/2 cup chopped English walnuts	1/2 cup sour cream
1/2 cup chopped raisins	1/4 cup sugar

Mix ingredients and spread between layers.

FIG FILLING

1/2 pound figs finely chopped	1/3 cup boiling water
1/3 cup sugar	1 tablespoon lemon juice

Mix ingredients in order given, and cook in double boiler until thick enough to spread.

WALNUT CAKE

Add to the cake batter 3/4 cup walnut meats sliced thin, bake mixture in a sheet. When cool cover with boiled frosting, crease in squares, and place one half walnut in each square.

MARSHMALLOW CAKE

1/2 cup butter	3 teaspoons baking-powder
1 cup sugar	1/4 teaspoon cream of tartar
1/2 cup milk	Whites 5 eggs
2 cups flour	1 teaspoon vanilla

Follow recipe for mixing Butter Cake. Bake in shallow pans, and put Marshmallow Cream between the layers and on top.

MARSHMALLOW CREAM OR PASTE

3/4 cup sugar	1/4 pound marshmallows
1/4 cup milk	2 tablespoons hot water
	1/2 teaspoon vanilla

Put sugar and milk in a saucepan, heat slowly to boiling point without stirring, and boil six minutes. Break marshmallows in pieces and melt in double boiler, add hot water and cook until mixture is smooth, then add hot syrup gradu-

ally, stirring constantly. Beat until cool enough to spread, then add vanilla. This may be used for both filling and frosting.

PISTACHIO PASTE

To Marshmallow Paste add a few drops extract of almond, $\frac{1}{3}$ cup pistachio nuts blanched and chopped, and leaf green to color.

CHOCOLATE NOUGAT CAKE

$\frac{1}{4}$ cup butter	3 teaspoons baking-powder
1 cup sugar	$\frac{1}{2}$ teaspoon vanilla
1 egg and 1 egg-yolk	2 squares chocolate, melted
1 cup milk	$\frac{1}{3}$ cup powdered sugar
2 cups pastry flour	$\frac{2}{3}$ cup almonds blanched and shelled

Cream the butter, add gradually 1 cup sugar and egg unbeaten; when well mixed add vanilla, then $\frac{2}{3}$ cup milk, and flour in portions, the last portion of flour sifted with baking-powder. To melted chocolate add $\frac{1}{3}$ cup powdered sugar, place on range, add gradually remaining milk, and cook until smooth. Cool slightly, and add to cake mixture. Bake 15 to 20 minutes in round layer-cake pans. Put between layers and on top of cake boiled frosting sprinkled with almonds.

DEVIL'S FOOD

7 tablespoons butter	3 cups flour
1 $\frac{1}{2}$ cups sugar	1 teaspoon soda
$\frac{3}{4}$ cup sour milk	1 teaspoon cream of tartar
2 eggs	2 ounces bitter chocolate

Melt chocolate, pour over it $\frac{1}{2}$ cup boiling water; mix well and let it cool thoroughly before using. Put the batter together in the ordinary way adding chocolate as part of moisture. Bake in shallow pans. Put layers together with boiled frosting or the following

Cream the butter. Cream the sugar into the butter thoroughly. Sift the baking-powder with the flour, and add to the butter and sugar alternately with the milk. Beat the whites stiff and cut and fold them into the mixture. Bake in three layers.

Icing to be put between:

3 cups sugar	1 1/2 gills boiling water
Whites of 4 eggs	1 teaspoon tartaric acid

Boil sugar and water for 10 minutes. Beat the whites till stiff, add the acid, then pour the boiling syrup over them slowly. Add 2 cups of raisins and 2 cups of chopped walnuts.

NUT LOAF CAKE

2 cups bread crumbs	1/2 teaspoon salt
1 cup chopped hickory nuts	Juice of 1/2 lemon
1 cup seeded raisins	2 teaspoons baking-powder

Mix well, adding enough hot water to moisten. Cover and allow to stand for 10 minutes. Add another cup of hot water, turn into buttered molds, and bake an hour in a moderate oven. Serve cold sliced.

CHOCOLATE HOOVERS

Whites of 2 eggs	1/2 cup cocoa
3/4 cup Karo syrup	1/2 teaspoon cinnamon
2 cups bread crumbs	1 teaspoon vanilla

Beat the whites until stiff. Drip in the syrup. Mix the dry ingredients and cut and fold them into the whites. Drop onto a cooky sheet, and bake 12 to 15 minutes in a medium oven.

SPONGE DROPS

Whites of 3 eggs	1/3 cup flour
1/3 cup powdered sugar	1/8 teaspoon salt
Yolks of 2 eggs	1/4 teaspoon vanilla

Beat whites of eggs until stiff and dry. Add sugar gradually and continue beating. Then add yolks of eggs beaten until thick and lemon-colored, and flavoring. Cut and fold in flour mixed and sifted with salt. Drop from tip of spoon on unbuttered paper. Sprinkle with powdered sugar and bake about 8 minutes in moderate oven.

This mixture may be shaped and baked as Lady Fingers.

NUT MACAROONS

1 cup chopped nut meats 1/2 cup very fine cracker crumbs
 1 cup sugar Vanilla or almond flavoring
 Whites 3 eggs

Beat eggs very light. Add sugar gradually and beat more. Fold in nuts and vanilla, and lastly the crumbs. If eggs are large add more crumbs. Drop on unbuttered paper and bake in moderate oven. Remove from paper with sharp knife as soon as done.

SWEDISH MACAROONS

12 ounces shredded almonds 1 pound sugar
 4 ounces ground almonds 2 whole eggs
 4 ounces cornstarch Grated rind of two oranges

Pass sugar and cornstarch through sieve twice; add the almonds, orange rind, and lastly the eggs beaten light without separating. With buttered hands shape mixture into balls the size of a walnut; bake in slow oven on tins covered with waxed or oiled paper.

MARGUERITES

Boil 1 cup sugar and 1/2 cup water until it threads. Remove to back of range and drop in 5 marshmallows cut in pieces. Let stand to dissolve, then gradually pour onto the whites of 2 eggs beaten until foamy. Add 2 tablespoons of shredded cocoanut and 1/4 teaspoon vanilla. When partially cool add 1 cup chopped English walnut meats. Spread on saltines and brown slightly in hot oven.

This quantity will spread between 3 and 4 dozen crackers. Delicious for afternoon teas.

ANGEL CAKE

1 cup whites of eggs	1 teaspoon cream of tartar
1 cup granulated sugar	1/2 teaspoon vanilla
1 cup flour	1/2 teaspoon salt

Sift flour once, measure, sift again four times. Add salt to whites, beat until foamy, add sifted cream of tartar and beat until stiff and dry. Mix sugar and flour, add gradually to beaten eggs, continuing the beating until thoroughly mixed. Add flavoring, and turn into an unbuttered Angel Cake pan. The bottom of the pan may have a paper on it. Place in a slow oven, and after it has risen increase the heat slightly to brown. Bake from 3/4 to 1 1/4 hours. When done place pan bottom up until cool.

SPONGE CAKE

6 eggs, yolks	6 eggs, whites
1 cup sugar	1 cup flour
1 tablespoon lemon juice	1/4 teaspoon salt
1/2 lemon rind, grated	

Beat yolks until thick and lemon-colored, add sugar gradually, and continue beating, using Dover egg-beater. Add lemon juice, rind, and whites of eggs beaten until stiff and dry. When whites are partially mixed with yolks, remove beater and carefully cut and fold in flour mixed and sifted with salt. Bake one hour in a slow oven in an Angel Cake pan or deep narrow pan.

GOLDEN CAKE

1/4 cup butter	1 cup flour
1/2 cup sugar	1 1/2 teaspoons baking-powder
1/2 cup yolks of eggs	1 teaspoon orange extract
1/3 cup milk	

Cream the butter, add sugar gradually, then yolks of eggs beaten until thick. Add extract. Add flour and milk, a third of each at a time, the baking-powder being sifted with the last portion of flour. Reserve the last portion of milk until you are sure you need it; after baking-powder goes in little beating should be done. If desired, omit orange extract, add 1/2 cup nut meats cut in small pieces and bake in individual tins.

BOILED FROSTING

- | | |
|-----------------------|------------------------------|
| 1 cup sugar | 1 teaspoon vanilla, or |
| 1/4 cup boiling water | 1/2 tablespoon lemon juice |
| 1 white of egg | 1/4 teaspoon cream of tartar |

Put sugar, part of cream of tartar, and water in saucepan, stir until sugar is dissolved, heat gradually to boiling point, and boil without stirring until syrup will thread when dropped from tip of spoon or tines of silver fork, which will be Thread 238°. Pour syrup gradually on beaten white of egg, beating mixture constantly, and continue beating until of right consistency to spread; then add flavoring and pour over cake, spreading evenly with back of spoon. If not beaten long enough frosting will run; if beaten too long it will not be smooth. Frosting beaten too long may be improved by adding a few drops of lemon juice or boiling water. This frosting is soft inside and has a glossy surface. If frosting is to be ornamented with nuts or candied cherries, place them on frosting as soon as spread.

CARAMEL FROSTING

- | | |
|--------------------------|----------------------|
| 2 cups light brown sugar | 2 teaspoons butter |
| 1/3 cup milk | 1/2 teaspoon vanilla |

Melt butter, add sugar and milk. Stir until sugar is dissolved, then boil until when dropped into cold water it approximates a soft ball. Remove from fire, cool, and beat

until right consistency to spread; if too thick add a few drops of milk or water; flavor, pour over cake, and spread evenly with back of spoon.

UNCOOKED FROSTING

Put 1/2 white of egg unbeaten into a bowl with an equal volume of water, stir into it gradually 4x powdered sugar until the mixture will spread but not run when put upon a cool cake. Flavor and use at once. If it must stand cover with a damp cloth. Fruit juice may be used instead of water.

CHAPTER X

FRUITS AND VEGETABLES

IN taking up this new group of food substances, that of vegetables and fruit, there is need for emphasis on increasing their consumption in the United States. We use a comparatively large amount of fresh fruit, but the total amount of fruit and vegetables consumed is low when measured by their value in the diet. We fall short particularly in the use of the staples, especially the potato, cabbage, beets, and turnips, as compared with the amount used on the continent of Europe. To be sure, we use a relatively large amount of string beans and peas, but small amounts of the matured and dried beans and peas. The potato in this country is regarded not as a staple of the diet, as it is in Germany, but as an addition to it like a green vegetable. Though regularly on our tables, it appears only in small quantities usually once a day, though sometimes twice. Since it contains 20 per cent of starch it could easily be used to replace grain products in a mixed diet, counting five parts of potato the equivalent of one part of grain. Singularly enough, universal as is its use, it is shipped from one farming community to another farming community which adds the cost of transportation and storage to its price to the consumer. The price, of course, when taken in relation to the food value ought to approximate that of grain, pound for pound one fifth that of grain.

There are whole sections of our population in which

the leaf vegetables are practically unknown. Their consumption is low all over the United States except among the foreign-born. Neither are the root vegetables used to so great an extent as they should be.

The value of vegetables in the diet does not lie entirely in their actual chemical composition for they all

Composition contain a large amount of water, sometimes as much as 95 per cent, especially such foods as tomatoes, cabbage, celery, and berries of different kinds. The amount of protein is small, but they are a cheap source of this important food nutrient when vegetables are abundant. It is to be noted that in respect to the protein content, potatoes are not so valuable in the diet as bread, since potatoes contain only about 2 per cent of nitrogenous matter whereas bread contains 12 per cent. The amount of starch in the vegetables varies with the type of vegetable or fruit. As we have already said, the potato contains 20 per cent, the sweet potato has about the same amount, and an unripe banana about 22 per cent. Some starch is found in all of the underground vegetables but in no other of them is there so much as in the potato. We also find traces in the vegetables of the other carbohydrate, sugar, which may increase in quantity to the 15 per cent found in sugar beets and to the far larger quantity found in fruits, especially the dried ones.

The chief value of the vegetables in the diet, however, is as a source of mineral salts. They are an im-

A source of minerals portant source of iron, and stand next to milk as a supply of calcium. They also contain potassium and the sodium salts of organic acids. These form alkaline or basic substances in the

blood and tissues which help to maintain the normal neutrality of the blood and are capable of neutralizing acids produced in protein metabolism. For this reason alone the greater the quantity of meat, fish, and eggs used in the diet, the more vegetables and fruit should be used. To put the same statement in terms of money, the same amount should be spent for milk, fruit, and vegetables as is spent for meat, fish, and eggs.

Besides these definite chemical constituents we have been told recently by Dr. McCullom and others that the leaves of plants contain minute quantities of some substances that are absolutely essential for normal growth and health. It was found by experimentation that it was impossible to nourish young animals adequately on seeds alone or the products of seeds. These were lacking in three important points; their proteins were of poor quality, they were poor in three of the nine mineral elements required, and they were lacking in that "vitamine" known as the "fat-soluble A." These deficiencies were made up by a combination of leaves and milk with the seeds, or of meat, leaves, and seeds. A mixture of leaves and seeds alone gave fairly good results. Hence the leaves of plants are the second protective food, milk and its constituents being the first. Experiments are being made to get meals and flour in which dried and pulverized leaves are added to the product of the seed. For instance, 20 to 30 per cent of dried spinach or celery makes up the deficiencies of a seed product.

This "fat-soluble A" which is found in the leaves of plants is present in the germ of the grain to a slight extent but is usually lost in the milling process, nor is it found in the vegetable oils extracted from the grain.

Both "vitamines" "A" and "B" are present in all vegetables so that it is perfectly possible to have a successful diet entirely of foods of plant origin. It is not altogether wise, however, as variety of diet tends towards safety and towards a more perfect nourishment of the body. There is no harm in using milled products or canned goods if their deficiencies are made up by combinations with plenty of fresh foods. The "fat-soluble A" is thought to be unchanged by heat, but the "water soluble B" is in time hurt by heat and more rapidly if in alkaline solutions.

There are several ways of grouping vegetables and fruit. They may be grouped according to their general composition, such as (1) watery, (2) Grouping of vegetables · starchy, and (3) sweet. In the first group would come all the green vegetables, the berries, and other watery fruits such as pears, apples, and cherries. In the second group would come the potatoes, both white and sweet, bananas, and some tropical fruits such as the breadfruit. Under the third heading we would place the dried fruits, such as dates, figs, and raisins. Another way of grouping the vegetables alone would be above ground and below ground. And still a third way would be according to the part of the plant that is used, as roots (beets, carrots, and turnips), stems (asparagus and celery), leaves (spinach, beet greens, lettuce, cabbage, etc.), flowers (cauliflower, Brussels sprouts), and fruit (tomato, cucumber, corn, peas and beans, etc.).

For cooking purposes it is somewhat easier to divide them into the two groups of strong-juiced and sweet-juiced. Certain vegetables like onions and Cooking of vegetables · cabbage are always strong-juiced, while others, such as beets and carrots, may be strong-juiced

in the winter, and sweet-juiced when they are young and fresh from the home garden. Strong-juiced vegetables should be cooked in a large quantity of water in order to modify the flavor, and the water may be changed once or even twice during the course of the cooking. For sweet-juiced vegetables, however, the purpose should be to save all the flavor possible so that cooking in water is wasteful. If water at all is used, as small a quantity as possible to keep the vegetables from burning is all that is necessary and this should be made into a sauce and served with the vegetable. If a larger quantity of water is required as for corn and asparagus, it should be boiling when the vegetable is put in, and drained off just as soon as the vegetable is tender. It takes far less time than is usually supposed to cook these vegetables sufficiently. Water in which vegetables are cooked can be used in making soup or in gravies. Boiling vegetables is necessarily a wasteful way of cooking them since the mineral salts for which they are particularly valuable in the diet are partially lost in the water. It is better to steam them or bake them. In fact, a properly baked potato is the only form in which a potato should be given to a very young child or an invalid. If a fork is run into the potato when it is taken from the oven, it allows the steam to escape and prevents the potato from becoming soggy as it cools.

The æsthetic qualities of fruit are the ones that are emphasized since the purpose of the fruit by nature is to insure the scattering of the seed, hence it is highly colored and flavored in order to attract birds and insects. We have then certain definite uses for fruit in the diet besides the ones we have already mentioned. They are a valuable source of

Uses of fruit

SUMMARY

<i>Kind</i>	<i>Class</i>	<i>Food Value</i>	<i>Cooking</i>	<i>Serving</i>
Asparagus	Green	Minerals, vitamins	Boiling 15-20 min.	On buttered toast with white sauce
Beans, dried	Legume	Starch, protein, minerals	See recipes, chapter VII	
Beans, string	Green	Minerals, vitamins	Boiling 45-60 min.	With fat and salt. Cold, as salad
Beets, old	Root	Minerals, sugar, vitamins	Boiling 1-6 hrs.	Peel, slice, add butter, salt, pepper
Beets, young	Root	Minerals, sugar, vitamins	Boiling, or steaming	Peel, slice, add butter, salt, pepper
Beet-tops	Green	Minerals, vitamins	Boiling 1 hour	Chop, add salt, fat
Cabbage	Green	Minerals, vitamins	Boiling 10-20 min.	Plain with fat, or with white sauce
		Too woody to give to children raw		
Carrots, old	Root	Minerals, vitamins	Boiling 30-45 min.	Cut in dice, with white sauce
Carrots, young	Root	Minerals, vitamins	Boiling 20-30 min.	With fat, or white sauce
Cauliflower	Green	Minerals, vitamins	Boiling 30-40 min.	White sauce, cheese, and crumbs
Celery	Green	Minerals, vitamins	None, or boiling 20-30 min.	
Corn	Green	Minerals, vitamins. Not good for young children	Boiling 15-20 min.	On cob, or cut off and heated with milk
Eggplant	Green	Minerals, vitamins. Not good for young children	See recipes	
Onions	Bulb	Minerals, vitamins	Boiling 40-60 min.	Butter, salt, pepper, and cream
Oyster-plant (salsify)	Root	Minerals, vitamins	Boiling 1 hour	White sauce, or sauté
Parsnips	Root	Minerals, vitamins	Boiling 1-2 hrs.	White sauce, or mash, or sauté

<i>Kind</i>	<i>Class</i>	<i>Food Value</i>	<i>Cooking</i>	<i>Serving</i>
Peas	Green	Minerals, vitamins	Boiling 20 min.	Butter or cream, salt, and pepper
Potatoes	Tuber	Starch, minerals, vitamins	Baking 30-45 min. Boiling 20-30 min. Are best baked for children	See recipes
Potatoes sweet	Tuber	Starch, sugar, minerals, vitamins	Baking 30-45 min. Boiling 20-30 min. Are best baked for children	
Radishes	Root	Minerals, vitamins	None, or boiling 30 min.	In white sauce
Spinach	Green	Not good for children Minerals, esp. iron, vitamins	Boiling with 1 cup water to 1/2 pk. spinach 10-15 min. Boiling in small amount of water 20 min.	Chop, add fat, salt Mash, add fat, salt, pepper
Squash summer	Green	Minerals, vitamins	Steam until tender	Mash, season, add fat
Squash winter	Green	Minerals, vitamins	Bake on the shell 30 min. Stew without water	
Tomatoes	Green	Minerals, vitamins Largely water	Boiling 45 min.	Mash, or cut in pieces, and serve in white sauce
Turnips	Root	Minerals, vitamins		

water as all know well who have enjoyed a juicy Bartlett pear on a hot summer day. They also are a means of introducing salts and organic acids into the diet which improve the quality of the blood and react favorably upon the secretions. Certain fruits are used to prevent scurvy, such as apples, lemons, oranges, and limes, while others have a definite medicinal effect, as diuretics and laxatives. They are particularly valuable as stimulants to the appetite, to improve the digestion, and to give variety to the diet. Unripe or overripe fruit has a poisoning effect upon the digestive tract since it irritates the intestines. Cooking tends to soften the woody fiber, cooks whatever starch may be present, and changes the pectin or jelly-forming substance into its gelatinous form. Much the same effect is produced in the ripening process; the fruit becomes less acid, the starch present turns to sugar and the pectin becomes pectose, a form of carbohydrate. For this reason fruit for jelly-making should be taken before it is fully ripe.

Fruit juices which do not contain much jellying property in themselves may be used for making jelly by the addition of pure pectin prepared from orange skin in the following way.

Pectin Take the white part of orange skin and grind it in a meat-chopper. To one cup of this pulp add the juice of one lemon. Let it stand for one hour. Add two cups of water, boil five minutes. Let it stand overnight. In the morning add four cups of water, boil ten minutes, strain, and bottle. If it is to be kept for some time, it should be sterilized before bottling. It is possible to make two and even three extractions from the original pulp although each succeeding one will be less strong. When using this pectin, an equal amount of fruit juice

and the pectin extract should be taken and half as much sugar again as the total quantity of juice and pectin.

In order to find out if the fruit juice contains pectin, one teaspoonful of the juice may be mixed with one teaspoonful of alcohol. If a heavy mass is formed there is sufficient pectin present in the juice to form a jelly when used with an equal quantity of sugar. If it forms only a thin mass, only two thirds or three quarters as much sugar as juice can be used. And if it forms no mass at all, the pectin extract will have to be used.

VEGETABLE RECIPES

TOMATO SOUP

(To be made in quantity and canned)

7 quarts ripe tomatoes	3 onions
7 stalks celery, tops and all	1/2 pound butter
7 cloves	7 tablespoons flour
1 large pepper with seeds	7 tablespoons sugar
2 bay leaves	7 teaspoons salt
3 sprigs parsley	

Cook the vegetables and seasonings together one half hour. Strain, and add the butter and flour well mixed together, sugar, and salt.

VEGETABLE SOUP

1 pound meat	3 potatoes
1/2 cup carrots	1 cup tomatoes
1 onion	3 tablespoons rice
Salt and pepper	

Wash the meat, cut in small pieces, and let it soak in 5 cups cold water for 1 hour. Cook in the same water, adding more as necessary. When the meat is partly cooked add the vege-

tables cut in small pieces and the rice, and cook until tender. Add the seasoning. Any vegetable may be substituted. If the vegetables have been cooked do not add until the meat is tender.

POTATO SOUP

3 tablespoons fat	2 cups water
2 cups milk	Pepper
1 teaspoon salt	3 mashed potatoes
2 tablespoons cornstarch	

Combine in given order. Rub through sieve before serving.

VEGETABLE CHOWDER

To above soup add 2 cups cooked potato cubes instead of mashed potatoes, also 1/2 cup cooked carrot cubes, 1/2 cup cooked celery cut in small pieces, and 1/2 small chopped onion. Season to taste.

MASHED POTATOES — COMPANY STYLE

Cook in salted water and mash thoroughly. Season with 2 tablespoons butter, 1/3 cup milk, 1 teaspoon salt, pepper, and chopped parsley to each quart of potato. Put through potato-ricer into baking-dish. Reheat and brown slightly in hot oven. Half may be riced into dish and half put on with pastry bag and tube. Left-over potatoes may be used.

CHAMBÉRY POTATOES

Pare and slice thinly raw potatoes. Put in shallow baking-dish with seasonings, salt, pepper, onion juice, and butter. Bake in hot oven till all are soft and top layer is slightly browned and crisped; about 45 minutes.

KENTUCKY POTATOES

Prepare as in above recipe, adding milk to practically cover the potatoes. Bake in covered dish one hour and

without cover for 15 to 20 minutes. One chopped pepper may be added.

STUFFED BAKED POTATOES

Bake large potatoes till soft. Cut in halves lengthwise and remove centers, using spoon. Mash centers with fork, season well, and combine with one tablespoon chopped meat or flaked fish to each potato or 2 teaspoons grated cheese or chopped nuts. Refill, packing in roughly. Reheat and brown in hot oven.

DELMONICO POTATOES

3 tablespoons melted fat	2 tablespoons cornstarch
2 cups milk	1 1/2 teaspoons salt
Pepper	2 cups cooked potato cubes
1/2 cup grated cheese	Crumbs if desired

Make milk sauce of first ingredients. Arrange in baking-dish, with crumbs on top if used.

MOTHER'S SCALLOPED POTATOES

5 large potatoes	2 tablespoons flour
1/2 cup hot water	Salt and pepper to taste
4 tablespoons butter	

Pare the potatoes and slice thin crosswise. In a baking-dish put a layer of potatoes, then one of small bits of butter, the seasonings, and a sprinkle of flour. So continue until potatoes are used. Let the last layer be of butter and sprinkle of flour. Moisten well with hot water. Bake in a hot oven 30 to 40 minutes.

VEGETABLE HASH

2 cups potatoes (cooked)	2 onions (chopped fine)
1 cup dried beans (cooked)	4 tablespoons fat
1 cup carrots (cooked)	

Any other cooked vegetables may be added.

Cut the vegetables in small pieces, then mix them. Season them with salt and pepper and moisten with a little water. Melt the fat in the frying-pan, add the hash, and spread evenly. Cover the pan and place where the hash will not burn. When cooked about twenty minutes fold and turn on a hot plate. The hash should have a brown crust.

CREAMED EGGS AND POTATO

In small baking-dishes place layer of cooked spinach, next, layer of hard-cooked eggs, in cream or milk sauce and third, layer of well-seasoned mashed potato to cover. Brown in hot oven.

POTATOES GOLDENROD

2 tablespoons cooking oil	1 tablespoon cornstarch
1 cup milk	1 teaspoon salt
Pepper	1 cup potato cubes (cooked)
2 egg-whites (hard-cooked)	2 egg-yolks (hard-cooked)

Prepare milk sauce, add potato and whites, cut in small pieces. Put into serving-dish and add hard-cooked yolks, putting through bowl sieve.

BAKED CHEESE AND PIMENTO POTATO

Slice 1 1/2 quarts potatoes and boil in salted water until just done. Put in baking-dish and season with onion, chopped pimentos, pepper, and salt. Cover with cheese sauce, and bake about 20 minutes.

CORN AND POTATO LOAF

2 cups corn	2 teaspoons salt
4 mashed potatoes	1 egg
2 tablespoons drippings	Onion juice

Bake 30 minutes and serve with milk sauce.

ASPARAGUS LOAF

- 2 tablespoons butter or other fat
- 2 tablespoons flour
- 1/2 teaspoon salt
- Dash pepper
- 1 cup cream
- 2 tablespoons chicken chopped fine
- 1 cup cooked asparagus tips
- 4 eggs

Melt the butter, stir in the flour and seasonings, add the cream, and let come to the boiling point. When boiling add the cold chicken, the asparagus tips, and the eggs well beaten, whites and yolks together. Turn into an earthen bowl or mold, thickly buttered and lined with asparagus. Cook standing in a pan of hot water until center is firm. Do not allow the water around the mold to boil. Let it stand a few minutes after removing from the oven, and invert over the serving-dish. Serve with cream sauce. Asparagus tips and a few well-chopped mushrooms are an improvement to the flavor of the sauce.

CABBAGE AND RICE

- | | |
|-------------------------|---------------------|
| 1 small head of cabbage | 2 tablespoons flour |
| 1 1/2 cups cooked rice | 1/2 cup nut butter |
| 1/2 teaspoon salt | 1 1/2 pints milk |

Cut cabbage in 1-inch pieces, removing all hard stalks. Put on to boil, adding salt, and cook until soft. Have the rice ready which has been boiled in salted water. Make a cream sauce of the butter, flour, and milk. Drain the cabbage and the rice, put in buttered baking-dish in alternate layers with cream sauce until the dish is filled, having the last layer sauce. Bake 15 or 20 minutes, and serve.

CAULIFLOWER À LA HOLLANDAISE

Remove leaves, cut off stalk, and soak 30 minutes (head down) in cold water to cover. Cook (head up) 20 minutes or until soft in boiling salted water. Drain and serve with Hollandaise sauce.

HOLLANDAISE SAUCE

2 teaspoons butter	Cayenne
2 teaspoons flour	3/4 cup milk
1 teaspoon salt	

Cook as white sauce

Pour hot mixture over the beaten yolks of 2 eggs. Return to double boiler and cook like custard. Remove from fire and add 2 tablespoons butter and 2 teaspoons lemon juice.

CELERY RAMEKINS

1 cup milk	6 tablespoons grated celery root
1 cup bread crumbs	1/4 teaspoon salt
2 tablespoons fat	2 eggs

Heat milk, add bread crumbs and grated celery root. Let it come to a boil. Add butter, and most of the salt. Beat whites and yolks of eggs separately, adding rest of salt to whites. Add the mixture to the yolks. Cut and fold in the whites. Put in ramekins and bake 20 to 30 minutes in slow oven, browning before taking out.

CORN OYSTERS

Grate raw corn from cobs or chop canned corn, adding a little milk. To one cup pulp add one well-beaten egg, 1/4 cup flour, and season highly with salt and pepper. Drop by spoonfuls and fry in deep fat, or cook on a hot, well-greased griddle. They should be made about the size of large oysters.

CORN PUDDING FROM FRESH CORN

- 1 dozen ears corn, grated
 1 cup milk
 1 teaspoon sugar
 1/4 teaspoon salt or more to taste

Bake in buttered pudding-dish 1 hour.

CREOLE CORN FRITTERS

- 1 dozen ears corn, grated 4 to 6 tablespoons flour
 1 egg, beaten Salt and pepper to taste

Mix all together. Fry in beef drippings, oil, or bacon fat, dropping the mixture from the end of a spoon, browning it and turning it like cakes.

BAKED RIPE CUCUMBER

Cut cucumbers in two lengthwise, discard seeds, etc., par-boil in hot water until tender. Fill center and heap up with moist crumbs seasoned with butter, salt, pepper, and onion juice. Bake 20 to 30 minutes in moderate oven.

SCALLOPED EGGPLANT

- 1 eggplant 2 tablespoons butter
 1 tablespoon lemon juice Salt and pepper
 1 tablespoon chopped or Buttered crumbs for top
 grated onion

Peel and cut into inch cubes. Cover with boiling water and cook slowly for 10 or 15 minutes. Drain in colander. Fry the onion in the butter, add all the other ingredients and eggplant. In a buttered baking-dish place layers of eggplant and white sauce, cover with buttered crumbs and bake from 20 to 30 minutes.

FRIED EGGPLANT

Pare and cut in slices about 1/3 of an inch thick. Dip in beaten egg and then in seasoned bread crumbs. Brown on

both sides in a little hot fat in frying-pan (olive oil preferred) or fry in deep fat. Drain on paper and serve.

STUFFED EGGPLANT

Put eggplant, whole, into boiling water, boil 20 to 30 minutes, or until tender. Cut it in two and scoop out the center leaving a wall $\frac{1}{2}$ inch thick. Mash or chop the center, mix with it

$\frac{1}{2}$ cup bread crumbs	$\frac{1}{2}$ tablespoon chopped parsley
$\frac{1}{4}$ to $\frac{1}{2}$ cup nuts chopped	$\frac{1}{2}$ teaspoon summer savory
$\frac{1}{2}$ teaspoon salt	1 teaspoon onion juice
Pepper	

Stuff the eggplant, heaping it up on top. Bake this in moderate oven about 1 hour, basting once or twice with melted butter.

PEA SOUFFLÉ

4 tablespoons flour	3 eggs
4 tablespoons fat	1 teaspoon salt
1 cup skimmed milk	$\frac{1}{4}$ teaspoon pepper
1 cup mashed cooked peas	Few drops onion juice

Make a sauce of the flour, fat, and milk. Mash the cooked peas to a pulp. Beat the whites and yolks of eggs separately. Mix the pulp, seasonings, sauce, and well-beaten yolks. Fold in stiffly beaten whites, and bake in a slow oven until firm.

MOLD OF PEAS OR BEANS

1 pound green or wax beans or peas	1 cup milk
$\frac{1}{4}$ onion	3 eggs
Sprig parsley	Grated cheese
1 tablespoon flour	2 tablespoons butterine, or oil

String the beans and blanch them by throwing them into

boiling water. As soon as the water has boiled again, drain the beans and throw them into cold water. Fry the finely chopped onion, parsley, and celery in 1 tablespoon of oil, add the beans when the onion is golden-colored, letting the beans absorb the oil. Add just enough water to keep beans from burning, and let simmer until tender. Make a white sauce of the milk, flour, and fat. Beat the eggs; let the beans and sauce cool. Then add the eggs, beans, and a few tablespoons of grated cheese to the white sauce. Pour into a buttered mold, bake like a custard in a pan of water until firm, and serve hot.

STUFFED AND BAKED GREEN PEPPERS

Cut the stem ends from 6 green peppers. Remove seeds and pith and parboil in hot water. Stew 1 cup tomatoes, 1 slice onion, 1 bay leaf, 3 peppercorns, 1/2 tablespoon sugar, 1/2 teaspoon salt for 15 minutes. Strain and mix with 2 cups boiled rice. Stuff peppers with this mixture, place upright in pan, and place tops on peppers. Pour around them 1 1/2 cups of tomato sauce and baste with it several times while baking. Bake 20 to 30 minutes in moderate oven.

MOLD OF SPINACH

1 cup milk	2 cups boiled spinach
1 tablespoon butterine	3 eggs
1 tablespoon flour	Brown stock
Grated cheese	Salt and pepper

Make a smooth white sauce of the milk, butter, and flour, letting it cook until it is thick, then add the cooked spinach, a few tablespoons of grated cheese, the eggs beaten, a few tablespoons of brown stock (or a bouillon cube dissolved in hot water), and salt. Mix thoroughly and pour into a buttered mold. Steam as a custard until firm, and serve either as it is or with tomato sauce.

SQUASH SOUFFLÉ

2 cups mashed and seasoned squash
1 cup milk
2 eggs

Add the milk to the well-seasoned squash, gradually. When thoroughly blended, add the yolks of the eggs beaten until thick. Fold in the whites beaten until stiff and dry. Turn into a buttered dish and bake in a slow oven until firm.

BAKED TOMATOES

Wipe and remove a thin slice from stem end of 6 smooth medium-sized tomatoes. Take out seeds and pulp and drain off most of the liquid. Add equal quantities of cracker or bread crumbs, season with salt, pepper, and sugar, or a few drops of onion juice, and refill tomatoes with mixture. Place in a buttered pan, sprinkle with buttered crumbs and bake 20 minutes in a hot oven.

FRIED TOMATOES WITH CREAM DRESSING

Cut tomatoes, either green or ripe, in thick slices. Melt fat in frying-pan with 1 teaspoon salt. When slightly brown, fry the slices of tomato until tender. Put onto platter and pour following sauce over them.

Sauce

Heat 1/2 pint cream in double boiler. Pour onto slightly beaten egg. Pour cream and egg into fat left in frying-pan. Cook until it thickens, stirring constantly.

SCALLOPED GREEN TOMATOES

Put in a baking-dish a layer of stale but not dried bread crumbs. Add a little salt, a little white pepper, and a number of small pieces of butter. Score an onion and sprinkle part of it over the crumbs. On this put a layer of sliced green

tomatoes. Add more salt, more pepper, a little more onion, and 3 or 4 generous tablespoons of granulated sugar. Then add another layer of bread crumbs, with salt, pepper, butter, and a little onion. Repeat the alternate layers of tomatoes and bread crumbs until the dish is heaped high, as it cooks down a good deal. Put some bread crumbs on top. Put a pie plate on top to press the fruit down and bake slowly for at least an hour. When the juice begins to ooze out, take off the cover and let it brown. A little tarragon is a good addition.

CHAPTER XI

FATS

FATS are similar to carbohydrates in their general composition since they are made up of carbon, hydrogen, and oxygen, but these latter are not in the proportion to form water. There is a relatively small amount of oxygen in fat which causes a large amount of heat to be evolved in combustion. For this reason, fats are the chief source of heat and energy in the body. They also serve as a covering and protection for the body. They act as lubricants and spare the tissues from disintegration. They may also serve as a means of storing surplus energy. A person whose body is well protected by a good coating of fat is far less liable to be irritated by external nerve stimuli, such as the slamming of doors or the shouts of children, than one whose nerve ends are not so well padded.

All fats have a tendency to slow down the whole process of digestion while those having a lower melting point are more completely digested than those remaining solid at higher temperatures. Any discomfort due to the use of fat is caused by improper use or wrong cooking. When too large a quantity is taken at a time, it prevents the action of the digestive secretions on other foods, particularly those containing protein material. For this reason rich pastry and foods fried in fat should never be given to children nor invalids. If fats are overheated, they are partially split up, and produce substances which are irritating to

Digestion

the mucous membrane lining the intestinal tract. It is the same effect that is produced by the blue smoke which sometimes comes from the frying-pan when the fat is allowed to get too hot, and which causes the eyes and nose to water.

The quantity of fat used in this country is far higher than the European consumption and much higher than the individual requires. It has been com- Need to
 puted that the waste of fat in America is save fats
 excessive. We should use only enough to make the food palatable and not allow any to go into the garbage pail nor down into the kitchen drain. Mr. Hoover, in his speech on November 11, 1918, in Washington, before the workers of the Food Administration, said that there was a great shortage in the supplies needed by the whole world, particularly in dairy products, pork products, and vegetable oils. He said that the world would be deficient in fats for two or three years at least and that intense economy in the use of fats in this country was absolutely necessary. Nine months after the signing of the armistice, the people of England were still on their extremely low ration of fats with small prospect of immediate relief. This was a half-pound of butter and a pound of oleomargarine per person per month, whereas we use in this country an average of a quarter of a pound per person per day not including waste.

All fats are very similar chemically since they are combinations of glycerine and fatty acids. Each fat is made up of two or more of such combina- Nature of
 tions formed from fatty acids. These are fats
 steps in a long chemical series. Those which contain certain steps of the series are solid at ordinary temper-

ature, while those that contain others in the series are oils. Difference in flavor or color is due to impurities, since a pure fat is pale yellow or colorless when liquid, and white when solid. Because they vary so little in their composition, the ones to be used in the household are those which keep the best under ordinary conditions and are best suited to the purposes for which they are intended.

Fat occurs in the diet in two distinct ways. It may either be a component part of the food itself as in milk, meat, and certain types of fish. Or it may be added to other foods in cooking and serving as butter, salad oils, and lard. Both of these groups should be considered by the housekeeper. The first group is regulated by a choice of the foods themselves. Care should be taken to combine a food that is in itself rich in fat, as cheese or shad, with foods that do not contain much fat; or else other fats should not be served at the same meal. One would not think of serving tartare sauce with mackerel or shad though this is almost a necessity with smelts or filet of flounder. Nor would one desire a rich dessert like a suet pudding or heavy ice-cream after roast pork, or even a salad with mayonnaise dressing. Too often are we served meals in which there is a dash of whipped cream on the soup, a tartare sauce with the fish, a rich gravy with the meat, mayonnaise with the salad, and ice-cream or whipped cream for dessert.

When we come to the second group of fats, those which are added to the foods in cooking or serving, we find there is a large region of choice and plenty of room for economy. These fats can be considered in two groups; those that are served at the table, such as

butter and salad oils, and those that are used in the kitchen either as a medium for cooking as in frying or sautéing, or are added to foods as shortening. In order to save fats at the table, as small a quantity as possible should be served at a time. *Butter* Table fats is too costly to be used for cooking in the ordinary household, and yet any pieces that are left on the bread and butter plates at the table cannot be used in any other way. The question of salad oil depends upon the tastes of the family. There are those who feel that they would prefer to have *olive oil* for their salads even though it means going without some other food. *Cottonseed oil* and *corn oil* such as are found on the market to-day both make very satisfactory salad dressings and are much less expensive than the olive oil.

There are innumerable fats which can be used in cooking, although every housekeeper has her own favorite. Some of these are of animal origin Cooking fats and some of vegetable. Aside from the dairy fats, butter and cream, which are nowadays used almost exclusively at the table and not for cooking, lard is perhaps the most popular of the animal fats. *Leaf lard* is rendered from the fat around the kidneys of hogs. It has a moderately low melting point and therefore is easily handled as a Animal shortening. It should be white in color and free from taste or smell. *Beef fat* or *suet* is harder than butter or lard and is somewhat highly flavored. The flavor can be improved by rendering and the fat itself made softer by mixing it with oil or lard. *Mutton fat* is another hard fat and because of its strong flavor is used more for soap-making than as a household fat. The *fat* of *poultry*, either *fowl* or *goose*, resembles butter and lard in its

consistency and can be well used as shortening in such breadstuffs as gingerbread and pie crust where the color will not be noticeable.

There has been much discussion as to the advisability of the use of *oleomargarine* for a cooking fat. It is a perfectly wholesome, pure fat when made under the best conditions in the large packing-houses. It is a mixture of other fats in an attempt to obtain a fat with the consistency of butter at a lower price. The basis for *oleomargarine* is a soft beef fat which is mixed with neutral lard, cottonseed, and other oils. The mixture is finally churned with milk or cream, salted, and worked like butter. Under the law, any fat that contains other substances than pure butter fat, no matter in how small a quantity, is classed as *oleomargarine* and is taxed accordingly. The colored *oleomargarine* carries a higher tax than that which is left colorless, so that it is cheaper to buy the colorless and if desired, color it at home.

Fats are now being extracted from many oil-bearing seeds and fruits. They must be purified to get rid of disagreeable flavors, dirt, and any harmful matter which they may contain. The seeds are cleaned and subjected to hydraulic pressure. If hot-pressed, the oil extracted must be refined. *Olive oil* has always been the favorite but will undoubtedly remain high-priced as the olive orchards in Italy were cut down to a large extent during the war for fuel for the munition factories, and it takes many, many years to grow olive trees. *Cottonseed oil* has been on the market for many years and is the basis for a wide variety of fats and salad oils. There is little choice between this and *corn oils* although some prefer one and some the

other. *Peanut oil* has been used extensively in Europe both for a table oil and for cooking. It is usually produced by the cold-press method so that the characteristic flavor is not noticeable. *Cocoanut oil* and other palm oils are used in cooking, especially by bakeries. With the great shortage of fats, oils have been extracted from other seeds, the soy bean, sunflower, and sesame, and from nuts, also from the pits of apricots, peaches, and cherries.

In recent months there have been a number of colorless fats on the market under different trade names known as nut butters or nut margarines. All of these are probably vegetable oils hardened into a solid by the addition of hydrogen. By this means an oil may be made into a product of any desired hardness. These are not to be confused with the real nut butter which is prepared by the grinding of the entire nut, as peanut butter or almond paste.

As we have already noticed, the "vitamine" substance known as "fat-soluble A" is not present in oils extracted from vegetables and nuts Place in the diet whereas it is present in butter and to a less degree in animal fats. If then the diet is very much limited in the use of green vegetables, fruit, and milk, there might be a dangerous lack of this element essential for growth if these so-called nut butters were used exclusively by the family. This is not of so great importance with adults as it is with growing children. If the children are getting at least a pint and a half of whole milk a day and a green vegetable at least once a day, the difference in the fats might safely be ignored.

There are a few general rules which can be followed

in every household in order to avoid waste of fats, al-
 Rules to avoid though of course actual practice must vary
 waste of fats according to the conditions in different
 homes. In cooking, an attempt should be made to ob-
 tain the best quality and flavor with a minimum quan-
 tity of fat. No more fat should ever be used than the
 recipe calls for. An over-use of fatty foods should be
 avoided, especially an over-use of those foods that are
 cooked in fat. If fats are used for sautéing, those which
 burn less easily are the ones to be chosen. No fat should
 be bought for cooking so long as there is fat in the house
 that can be utilized for that purpose. This fat can be
 obtained from the meat which comes into the house,
 either as trimmings or from the drippings in the roast-
 ing-pan. By the way, it is well to demand from the
 Rendering butcher the trimmings of the piece of meat
 of fat for which we have paid and which he care-
 fully removes as being unsightly after he has weighed
 the piece. The fat from these can be tried out or ren-
 dered at home in the following manner. They can be
 cut fine with the meat-chopper or a knife and heated
 for several hours in the top of the double boiler very
 slowly until completely melted. The water underneath
 should only be lukewarm as otherwise it hardens the
 connective tissue and prevents the fat from melting
 out. It should then be strained through thick cloth and
 put away for further use. If it has a slight odor or
 flavor which it is desirable to remove, it may be heated
 with milk, two pounds of fat to half a pint of milk,
 strained and cooled. If it is a very hard fat, such as
 beef or mutton suet, it can be softened and made a
 better consistency for shortening by adding lard, two
 parts of beef suet and one part of lard, or mixed

with cottonseed oil, three parts of suet and one part of oil.

In order to prevent the fats thus prepared from becoming rancid, they should be protected from light, heat, and air. The fats should be kept tightly covered in a cool dark place. Care of fats

Home-rendered fats may be flavored in different ways and kept separately to be used in serving warmed-over potatoes and different kinds of vegetables. These savory fats may also be used in the thickening for gravies.

SAVORY FATS

- | | |
|------------------------------|---------------------|
| I. 1 pound unrendered fat | 1 teaspoon salt |
| 1 slice onion | 1/8 teaspoon pepper |
| 1 teaspoon broken bay-leaves | |

Spices are added during the rendering of the fat.

- | | |
|----------------------------|---------------------|
| II. 1 pound unrendered fat | 1 teaspoon salt |
| 2 tablespoons thyme | 1/8 teaspoon pepper |
| 1 slice onion | |

Spices are added during the rendering of the fat.

- | | |
|-----------------------------|---------------------|
| III. 1 pound unrendered fat | 1/2 teaspoon sage |
| 1 teaspoon thyme | 1 teaspoon salt |
| 1 teaspoon marjoram | 1/8 teaspoon pepper |

Spices are added during the rendering of the fat.

- | | |
|--------------------------|---|
| IV. 1 pound rendered fat | 1 onion |
| 1 sour apple | 1 teaspoon ground thyme, or other
sweet herbs, tied in a cloth |

Add flavors to fat and cook until apple is well browned. Strain through cheesecloth.

SALAD DRESSINGS**BOILED DRESSING**

1/2 tablespoon salt	Yolks 2 eggs
1 teaspoon mustard	1 1/2 tablespoons melted fat
1 1/2 tablespoons sugar	3/4 cup milk
Few grains cayenne	1/4 cup vinegar
1/2 tablespoon flour	

Melt the butter. Add the dry ingredients mixed together. Add the milk and stir till it boils. Pour this over the yolks of the eggs slightly beaten, and return to the fire until it thickens. Add the vinegar hot very slowly. Strain and cool.

FRENCH DRESSING

1 tablespoon vinegar	1/8 teaspoon pepper
3 tablespoons olive oil	1/4 teaspoon salt
1/4 teaspoon onion juice	

Put the vinegar in a cold or iced cup and add the salt, pepper, and onion juice. Then add gradually — stirring meantime — the olive oil.

CALIFORNIA MAYONNAISE

With Corn Oil, Mazola, or any other Oil

4 tablespoons flour	1 cup water
2 tablespoons oil	2 1/2 teaspoons salt
4 1/2 tablespoons vinegar or other acid	1/8 teaspoon cayenne

Bring to boiling point and boil 5 minutes. Cool, add 1 egg slightly beaten, then 1 cup corn oil gradually, beating well while oil is being taken up.

Makes one and one half pints.

MAYONNAISE DRESSING

2 egg-yolks	1 teaspoon mustard
1 1/2 to 2 cups olive oil	1 teaspoon salt
2 tablespoons vinegar	1/16 teaspoon paprika
2 tablespoons lemon juice	

Beat the yolk of the egg, add the cold oil drop by drop, beating continually, until thick, then add vinegar and lemon juice until thin. Again add oil until thick, and thin as before. Repeat this operation until the oil has been added and dressing is thick. Mix together the mustard, salt, and pepper, and stir into the oil and egg. Whipped cream may be added just before serving.

If the dressing is to be made on a warm day or in a very warm room, have the ingredients and utensils ice cold. While making the dressing have the bowl surrounded by ice water.

CREAM SALAD DRESSING

<i>Individual recipe</i>	<i>Large recipe</i>
1/8 teaspoon dry mustard	1 teaspoon
1/4 teaspoon salt	2 teaspoons
Speck cayenne	1/16 teaspoon
1 teaspoon sugar	2 to 4 tablespoons
1 rounding tablespoon egg	3 whole or 7 yolks (1/2 cup)
1 tablespoon hot vinegar	1/2 cup
2 tablespoons cream, sweet or sour	1 cup
3/4 teaspoon butter	2 tablespoons

Mix the dry ingredients, add the egg, hot vinegar, and cream in order given. Put mixture in a double boiler and stir constantly until thick; any slight curdling may be made smooth by the use of the Dover egg-beater. To stop further cooking put the saucepan in cold water. Stir the butter into the dressing just as it comes from the fire.

BOILED DRESSING FOR FRUIT SALAD

Juice 1 lemon	1/4 cup sugar
Juice 1 orange	1 egg, well beaten
1/2 teaspoon salt	

Boil over water just a few minutes. When cold add an equal amount of whipped cream.

RUSSIAN SALAD DRESSING

3 tablespoons mayonnaise
 2 teaspoons tarragon vinegar
 2 teaspoons horse-radish
 1 teaspoon powdered sugar
 Salt, paprika, and pepper to taste

Add 3 or 4 tablespoons of whipped cream. Mix thoroughly, then add 3 or 4 tablespoons of chili sauce and mix all well together once more.

VEGETABLE SALADS**HOT CABBAGE SALAD**

1 small head cabbage, shredded
 3 or 4 tabascos, cut fine
 3 hard-boiled eggs
 3 tablespoons capers or washed currants
 2 tablespoons sugar
 1 level teaspoon salt
 1 head lettuce

Shred the cabbage fine and even. Place in a large bowl and stir in the tabascos, sugar, and salt, and allow it to stand in a cool place for 30 minutes. At serving time make a dressing of the following:

2 rounding tablespoons butter	1 pint rich, sweet milk
3 level tablespoons flour	1/2 cup vinegar

Melt the butter, fold or braid in the flour and cook until quite thick, stirring constantly. Add the vinegar slowly.

At serving time pour the hot dressing over the cabbage, place in a salad bowl on a bed of lettuce. Have the hard-boiled eggs cut as for egg vases, with scalloped edges. Bed them in the salad and fill them with the capers or currants. Garnish the edges with radishes cut into roses.

PEA SALAD

1 can small peas	1/2 cup English walnuts, cut
1 scant pint mayonnaise	fine
1/2 cup almonds, cut fine	1/4 cup currants

Drain the liquor from the peas, and allow them to stand in a colander some six hours. Blanch the nuts and cut them fine. Toss peas and nuts together, fold in the dressing, place in a chilled salad bowl, in pyramid form. Garnish with thick dressing and currants.

POTATO SALAD

3 cups cooked potato cubes	1 cooked carrot, grated
1 cooked beet, grated	1/2 uncooked onion, chopped

Serve on lettuce leaves with French dressing.

CARROT AND GREEN PEPPER SALAD

Cut cold cooked carrot into thin strips about 3 inches long. Place the strips through rings of green pepper made by cutting the peppers crosswise. Season with salt, pepper, and a little onion juice. Arrange on beds of fresh, crisp lettuce leaves. Serve with mayonnaise or a boiled dressing.

GREEN BEAN AND PICKLED BEET SALAD

Marinate cold cooked string beans in French dressing. Arrange them on a platter on lettuce in a hollow square, interlacing them at the corners like logs for a log cabin. Fill the center of the square with a mixture of pickled beets

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and string beans with a very little chopped onion. Serve with a salad dressing.

Other vegetables may be used for filling the center of the square, such as green peas, diced tomato, or cucumber.

TOMATO SALAD JELLY

2 tablespoons gelatine soaked in	1 clove
1/2 cup cold water	1 teaspoon celery-salt or
3 cups tomato juice	1 tablespoon minced celery
1/2 teaspoon onion-salt or	1 teaspoon minced parsley
1 slice onion	2 tablespoons lime or lemon juice

Combine the tomato juice with the seasoning and cook 5 minutes. Add the gelatine, strain, and pour into individual molds. When very cold, turn out and serve with mayonnaise on cress or lettuce.

HINDU SALAD

Shred some crisp white lettuce leaves and arrange them upon the salad plates. Arrange 4 thick slices of tomato upon the bed of lettuce, and upon 2 slices pile shaved celery. On the other 2 slices pile finely cut water cress. Garnish with pieces of pimento shaped with fancy cutters. Pour over all a plain French dressing before serving.

FRUIT SALADS

CHERRY SALAD

1/2 pound firm large cherries
1 pound hazelnuts or filberts
2 or 3 heads of lettuce
1 cup plain lemon mayonnaise

Stone and remove the stems from the cherries. Shell the nuts and place a kernel in the center of each cherry, thus preserving their form. Arrange the white heart of the lettuce

in shell form, fill with the cherries, and at serving time pour over the dressing.

CUCUMBER AND PINEAPPLE SALAD

- 1/2 cup diced cucumber
- 1/2 cup canned pineapple, drained and chopped
- 2/3 cup pineapple syrup
- 1/4 cup vinegar
- 1/4 cup sugar
 - 1 tablespoon tarragon vinegar
 - 1 tablespoon lemon juice
 - Salt
- 1 1/4 tablespoons gelatine dissolved in
- 1 1/2 cups cold water
- 1 1/4 cups boiling water

Dissolve the soaked gelatine in the boiling water. Mix the other ingredients, add the gelatine, pour into molds, and chill. Serve on lettuce with mayonnaise dressing.

GINGER ALE SALAD

- 3/4 cup diced canned pineapple
- 3/4 cup chopped grapefruit pulp
- 1/3 cup blanched, shredded almonds
- 1/4 cup malaga grapes (if convenient)
- 1 cup ginger ale
- 2 tablespoons gelatine
- Few grains salt
- Few grains red pepper
- Lettuce and mayonnaise

Soak the gelatine for 5 minutes in a half-cupful of tepid water, then dissolve it over steam; combine the fruit, nuts, salt, and pepper. Stir in the ginger ale, reserving 1/4 cupful to mix with the gelatine; then add the latter. Pour into individual molds and when stiff serve with lettuce and mayonnaise.

JAPANESE SALAD

Take equal quantities of finely cut lettuce, quarters of oranges, tomatoes sliced, and slices of pineapple. The whole must be thoroughly cold. Season just before serving with a dressing of cream, lemon juice, salt, and pepper.

ORANGE AND GRAPE SALAD

Wash a head of lettuce, dry thoroughly between cheesecloth. Put on ice. Arrange lettuce in a bowl to form a nest. Prepare the oranges by peeling them, and then skinning the sections so as to leave each section whole. Remove the seeds and skin from white grapes. Arrange the oranges and grapes on the lettuce, add nuts, either chopped fine or cut in small pieces, and pour a French dressing over all.

PEACH AND RIPE OLIVE SALAD

Arrange slices of fresh or canned peaches on beds of lettuce in a circle, points toward the center. Put 4 ripe olives in the center of each circle. Serve with mayonnaise or cream dressing.

PEAR SALAD

Peel and core pears. Stuff with cream cheese and chopped nuts. Decorate with strips of pimento, and serve on lettuce with Russian or mayonnaise dressing.

Seedless raisins, chopped dates, or figs, may be substituted for the cream cheese and nuts as a stuffing for the pears.

TRANS-MISSISSIPPI EXPOSITION SALAD

1 cup sifted powdered sugar	18 cherries
Yolks 4 fresh eggs	6 bananas
1/2 teaspoon salt	4 oranges
2 lemons	6 slices pineapple
18 strawberries	1 bunch grapes
Other fruits may be substituted	

Peel and slice the fruit very thin. Rub the bottom and sides of a chilled salad bowl with geranium leaves. Have all in readiness before beginning the dressing, as it must not stand.

In a bowl put the yolks of the eggs, and if possible, place the bowl on ice. Beat the yolks until very light color and quite thick, stirring constantly. Add the sugar and juice of lemons. When sugar, yolks, and lemon stand together like whipped cream, fill the salad bowl with alternating layers of fruit and dressing, the last layer being dressing.

This may be served with cheese wafers as the first course of dinner in summer in place of blue-points.

HEARTIER SALADS

CHEESE JELLY SALAD

1/2 cup grated cheese	1 cup whipped cream
1 tablespoon gelatine	Salt and pepper to taste

Mix the cheese with whipped cream. Season and add to the gelatine dissolved in a scant cup of water. Put in molds. When jelly begins to harden, cover with grated cheese. Serve on lettuce with a salad dressing.

COTTAGE CHEESE SALAD

2 cups cottage cheese	1 tablespoon chopped onion
1 cup pickled beets, cut up	1 teaspoon chopped parsley

Serve on lettuce leaves with French or mayonnaise dressing.

COTTAGE CHEESE SUPPER SALAD

1 cup chopped liver (cooked)	About 1 cup mayonnaise dressing
1 cup cottage cheese	1 teaspoon salt
1 small can pimento	Dash of onion and celery salt, cayenne
Lettuce	Paprika

Put liver through the food-chopper, add cottage cheese and mix well with fork, add seasonings and 2 tablespoons of dressing to bind. Arrange lettuce on plates, place half of a pimento on the lettuce, add the salad mixture shaped in ovals, using 2 teaspoonfuls. Garnish with mayonnaise and paprika.

OYSTER SALAD

Stew oysters and drain dry. Put on ice until cold, strain, cut in pieces. Add an equal quantity of celery. Serve with mayonnaise.

CHAPTER XII

SUGAR

SUGAR is another type of carbohydrate which, like starch, serves only for the production of heat and energy in the body and does not build body tissue. For this reason it saves protein material for growth and when used intelligently and in combination with other foods, is a valuable food for growing children. Three to five ounces is sufficient for the total amount in all forms consumed in any one day. Overeating of candy and other sweet foods should be avoided because sugar is completely absorbed in the system and if eaten in excess of the needs of the body is stored in the liver. It is a single food containing no mineral salts nor "vitamines," and when eaten between meals appeases the appetite without supplying the body with any of the other materials necessary for health.

It has been proved that sugar can be utilized in the form of energy in the muscles of the body from twenty minutes to a half-hour after it is eaten. For this reason it is extremely valuable to prevent exhaustion under physical stress and can be used to restore over-fatigued muscles if other food is not at hand. Its value has long been proven by mountain climbers and trampers who carry it with them in the compact form of sweet chocolate. The story is told how the Germans utilized this physiological fact in the rations given their army. It is said that the men were kept on half rations between

drives but during the twenty-four hours just previous to an attack, a large quantity of sugar was allotted them along with their regular food, in order to provide the immediate physical energy required for their strenuous exertions.

No wonder that a child who is allowed to eat ice-cream sodas, college ices, or candy freely between meals, has no appetite for a good substantial meal when the proper time comes,¹ for the body has had a sufficient amount of energy-supplying foods but is sadly lacking in the variety of foods which it should have.

Sugar has not long been the common article of diet that it is to-day. In the time of our grandparents it was a luxury only to be had in the form of a very hard pyramidal cake which stood on the dining-room side-board and was chipped off to be used as we use candy to-day. It also could be had in the form of rock crystals which were frequently bought on a string. To-day it is one of our great food staples and when its production and shipment were disturbed during the war, great commotion on two continents resulted.

Most of the sugar in commercial use comes from cane or from beets. Before the war France, Belgium, and Germany together produced 93 per cent of the beet sugar of the world, and Germany and Austria alone raised one fourth of the total sugar supply of the world. During and since the war, beet-sugar production has been greatly stimulated in the United States, especially in Utah and Idaho; but the difficulty with its production in this country is the

¹ Each college ice with a chocolate sauce contains 400-450 calories and an ordinary 15 cent cake of sweet chocolate about 400 calories.

high cost of labor which handicaps it in competition with that of the Continent. The largest production of cane sugar is in Cuba and Java. The Javan crop was inaccessible during the war because of the lack of shipping facilities, so that it was necessary for us to share the Cuban crop with the Allies. This was the reason for the shortage particularly along the Atlantic seaboard. As it is a crop which could not be immediately increased under the stimulus of high prices, at the request of the Food Administration the wholesale price was stabilized by agreement among the dealers and the crop was apportioned to the different markets, thus doing away with competitive bidding. The next step was to reduce the amount of sugar consumed by manufacturers and the general public. Even with the reduction asked of us we were yet allowed more sugar per person than was the normal consumption by European peoples before the war, so excessive is our use of sugar.

Chemically there are two groups of sugars; those that are known as *single sugars*, and those that are *double* or *complex*. There are three double **Kinds of** sugars in common use. Those that are ex- **sugars** tracted from cane, from beet, and from the maple-tree are all the same chemical sugar. Their name is sucrose. The only difference in these sugars is due to the difference in refining. The impurities that are left in each give to it its peculiar flavor. Cane sugar is on the market in the forms of coarse brown sugar, light brown sugar, confectioner's sugar, powdered, granulated, and loaf sugar. *Maple sugar*, on the other hand, is not refined, as the maple flavor gives to it its popularity.

Cane sugar was first known in China and its use

spread slowly westward as a great luxury. Early explorers brought it from India along with spices and precious stones. The process of obtaining the juice from the cane has not greatly changed in principle during the centuries, although in late years more complicated machinery has been introduced. The cane is cut and run through a shredding machine. The mass of pulp is put under pressure to extract the juice. It is washed with water during this process, although all the water thus added must eventually be evaporated out. The juice is treated with chemicals and boiled in order to throw out all albuminous matter that it may contain. After this it is filtered and evaporated. The heavy syrup is then placed in a centrifugal machine to separate the crystals of cane sugar from the molasses, which is glucose and which does not crystallize. Sugar is shipped in this raw state and is refined at different points along the seacoast of the United States. In the refining process the sugar is remelted, filtered, clarified by charcoal, and again evaporated and allowed to crystallize.

Sugar was first extracted from *beets* by a German in 1797. It was not a commercial success, however, until 1850, when it was found possible to increase the percentage of sugar in beets from 3 to 15 or 16 per cent, thus making the complicated process of extraction worth while. The beets are cut in very thin slices and washed with water to extract the juices; these are then evaporated and decolorized by animal charcoal. Raw beet sugar is very different from raw cane sugar but the products after refining cannot be distinguished one from the other.

The other two complex sugars are the *sugar* that is

found in *milk* used for modifying cow's milk for infants, and *malt sugar* that is formed by the fermentation of starch.

The simple sugars occur widely in nature, being found in all fruits either separately or in combination with each other. The most common of **Simple sugars** these and the one which sometimes gives **Glucose** its name to the group as a whole is *glucose*. This is the sugar that is found in grapes as well as in other fruit and is frequently seen in small yellow lumps on the outside of old raisins. It is made commercially on a large scale by the action of acids on starch. It is not so sweet as cane sugar and does not crystallize, so that it is used in the manufacture of syrups and some candy as a much cheaper but harmless substitute for cane sugar. Corn syrups which were put on the market as substitutes for sugar are largely glucose; hence in order to get the same quality of sweetness in the finished product, it is necessary to use half as much again of the syrup as of the sugar required.

Another simple sugar is known as *fruit sugar*. It is found in most fruits, but is not of commercial value. It is two and a half times sweeter than cane or beet sugar and is what gives to fruit its **Fruit sugar** fuel value, even though the fruit may be very acid to the taste. A combination of glucose and fruit sugar occurring in an intimate mixture is known as invert sugar because it is made from cane sugar by inversion; that is, by boiling with acids or by fermentation. Honey is practically pure natural invert sugar. These three sugars, glucose, fruit sugar, and invert sugar, are found in fruits either separately or together.

Sugar is used in cookery to give desirable flavor to

various substances. The changes which it undergoes **Action of sugar on boiling** when being cooked by itself are physical rather than chemical. When water boils, it can be no hotter when boiling vigorously than when boiling gently, for water is changed into steam at 212° F. and so pure water can never be any hotter than this temperature. As soon, however, as we put another substance in solution in the water we raise the boiling point. Salted water has a higher boiling point than plain water and so also has a solution of sugar and water. As the water is gradually boiled out from syrup, the solution becomes more and more dense and the boiling point is continually being raised. This is the reason why all recipes for making jams say to boil vigorously. The syrup will do different things at different densities, so that in candy making or in boiling syrup for frosting, a syrup thermometer may be used and the syrup boiled up to the desired temperature. There are a few fixed points as follows:

1. 238° F.: Soft ball test; makes a soft ball in cold water; used for frosting, fudge, and fondant.
2. 248° F.: Hard ball test; forms a firm ball under cold water.
3. 290° F.: Small crack test; is hard and brittle in cold water; for pulled candies.
4. 310° F.: Hard crack test; begins to discolor; for glacéd nuts and fruit; too hard for pulled candies.
5. 345°-350° F.: Caramel; turns brown; for peanut brittle.

If the boiling were continued further, the water of the sugar itself would be driven out completely, leaving nothing but the black mass of charcoal or carbon.

Another way for making caramel to be used for flavor, **Caramel** or for sauces, is to put the sugar in a frying-pan dry, and heat it on top of the stove. After it is melted and browned carefully without burning,

an equal amount of boiling water is added. This dissolves the caramel, which can then be kept in liquid form.

Barley sugar, which is used for the very hard Christmas candies, is the stage reached before the sugar begins to caramelize when it has boiled too long to be used for glacéd fruits.

The logical place to use sugar in the diet is at the close of a meal in which a variety of food substances has been used. This may be in the form of **How to use** made desserts of all kinds, cake, pastry, or **sugar** fruit, either raw or cooked. The dessert should be as carefully planned as the rest of the meal. If the earlier courses have been heavy, fruit is preferable to a rich pudding. If, however, left-overs have been used and the meal has been somewhat light, it is suitable to count on a hearty pudding for part of the total value of the meal. It should be remembered that all desserts which contain fat in any form either as cream, whipped or frozen, or as pastries, suet puddings, or rich cake, should only be served when very little fat has been used during the meal. To serve a rich cake with a luscious chocolate frosting with a rich ice-cream is sure to bring the total amount of fuel of the meal far above the actual requirements of the needs of the family. Peculiar as it may seem, a plain, slightly salted, crisp cracker goes better with ice-cream than anything else.

CANDY AND DESSERT RECIPES

PANOCHA

1 cup (packed) medium brown sugar	1/3 cup nut meats
1/4 cup cream	1/4 pound pecans, in shell
	1/3 pound hickory, in shell

Cook sugar and cream to soft ball test. Cool until you can bear your hand on bottom of pan. Stir until it begins to thicken, add nuts, and when it is too thick to pour easily spread quickly on a buttered pan, cut in squares and cool.

FUDGE

2 cups sugar	1/4 cup Golden Drip syrup or
1 cup water	1/8 teaspoon cream of tartar
2 ounces chocolate	2 teaspoons butter

Cook to soft ball test. Cool, add 1 teaspoon vanilla, stir until too thick to pour, spread on buttered pan and cut in squares.

OLYMPIAN CREAM

3 cups sugar	1/4 to 1/3 cup Golden Drip syrup or
1 cup cream	1/4 teaspoon cream of tartar and caramel to color and flavor

Cook to soft ball test (firm and waxy), cool, stir, when it thickens add 3/4 cup nuts (1/2 pound English walnuts). Stir until it will not pour, spread upon buttered pan and cut in squares.

CREAM CANDY

1 cup sugar
1/12 teaspoon cream of tartar
1/3 cup water

Cook without stirring to the crack test. Pour on a buttered pan, when cool enough to handle, pull lightly and quickly till white, cut with scissors or break into convenient pieces and wrap in paraffin paper. Color and flavor while pulling.

MOLASSES CANDY

1/3 cup sugar
2/3 cup New Orleans molasses

Cook to crack test, stirring occasionally to keep it from

burning. Add $\frac{1}{12}$ teaspoon baking soda, pour upon a buttered pan and when cool enough to handle, pull lightly and quickly until light colored and firm. Cut into pieces of convenient size. Flavor while pulling.

DATE KISSES

Whites 2 eggs	1 cup pecans chopped
1 cup powdered sugar	Vanilla
1 cup dates chopped fine	

Beat the eggs till stiff. Mix in the other ingredients. Drop onto a greased sheet and bake in a quick oven,

FIG TOAST

Wash carefully and cook in boiling water $\frac{1}{2}$ pound figs until tender, add $\frac{1}{4}$ cup sugar and the rind and juice of half a lemon. Cook until the syrup is reduced — when reheating in chafing-dish. Butter toast while hot, heap the figs upon it, and cover with whipped cream made from $\frac{2}{3}$ cup cream and 3 tablespoons powdered sugar. Serve at once.

FRIED BANANAS

Remove the skin from 6 bananas and cut them in halves. Melt 1 tablespoon butter in blazer and cook bananas covered until tender. Mix 1 tablespoon butter, $\frac{1}{3}$ cup sugar, and 2 tablespoons lemon juice; when bananas are nearly done turn mixture in and baste with it until ready to serve.

BAKED BANANAS (1)

Remove skins from 6 bananas and cut in halves lengthwise. Put in a shallow granite pan or on an old platter. Mix 2 tablespoons melted butter, $\frac{1}{3}$ cup sugar, and 2 tablespoons lemon juice. Baste bananas with one half the mixture. Bake 20 minutes in slow oven, basting during baking with remaining mixture.

BAKED BANANAS (2)

Pull one narrow strip of skin down the entire length of each one of six bananas, and lay it back in place again. Place the bananas in a shallow baking-dish and bake in a moderate oven 20 minutes, or until the bananas are entirely soft. Serve in the skins to preserve all the juice. This is the best way to give bananas to children.

BREAD AND BUTTER PUDDING WITH WHIPPED CREAM

Butter a round pudding-dish. Have slices of stale bread, butter them generously. Cut them in squares 2 inches across and arrange a layer in the bottom of the dish. Sprinkle with raisins and currants that have been well washed in several waters. Add another layer of the bread and butter, and repeat until the dish is full. Then pour over it a custard made from 2 well beaten eggs, 1 pint of milk, and sugar to taste, seasoned with ground nutmeg. Dot the top of the pudding over with small pieces of butter, stand in a basin of water in a hot oven and bake until the top is brown. Serve hot with whipped cream which may be slightly flavored with vanilla, or if preferred with plain cream, unsweetened and unflavored, or simply with hard sauce or soft butter.

BREAD PUDDINGS

	<i>Plain</i>	<i>Lemon</i>	<i>Chocolate</i>	<i>Brown</i>
Stale crumbs	1 c.	1 c.	1 c.	
Stale crust crumbs				1 c.
Milk	2 c.	2 c.	2 c.	2 c.
Egg	1 or 2 yolks	1 or 2 yolks	1 or 2 yolks	
Sugar	3 tb.	3 or 4 tb.	8 tb.	
Molasses				1/2 c.
Salt	1/2 t.	1/2 t.	1/2 t.	1/2 t.
Fruit				1/2 c.
Lemon		1 rind		
Spices				1/4 t.
Chocolate			1 oz.	

Soak crumbs and milk from 1 to 2 hours or until crumbs are soft — if milk is hot it will take shorter time. Beat egg with sugar and salt, and to it add the soaked crumbs. Put in a buttered dish, into a moderate oven, and bake 30 to 40 minutes, or until a knife comes clean from the middle of the pudding.

Serve plain bread pudding with chocolate sauce or frosting fruit sauce.

Serve lemon bread pudding with frosting lemon sauce.

Serve chocolate bread pudding with vanilla sauce.

Serve brown bread pudding with caramel sauce.

BROWN BETTY

1 cup bread crumbs	3/4 teaspoon cinnamon
2 cups chopped tart apples	1/16 teaspoon cloves
1/2 cup brown sugar	1 to 2 tablespoons butter

Butter a deep dish, put in layers of crumbs, apple, sugar, butter, and spice; repeat; put crumbs on top. Cover dish and cook in moderate oven 3/4 hour; uncover to brown. Serve with sugar and cream, or milk sweetened and flavored.

BROWN SUSAN

Line buttered mold with pieces of bread slightly buttered. Fill cavity with sliced apple, butter, sugar, and lemon rind; cover with buttered bread. Bake slowly, and heat at last to brown. Serve with lemon sauce.

INDIAN PUDDING

5 cups scalded milk	1 teaspoon salt
1/3 cup Indian meal	1 teaspoon ginger
1/2 cup molasses	

Pour milk slowly on the meal, cook in double boiler 20 minutes. Add molasses, salt, and ginger, pour into buttered pudding-dish, and bake in slow oven from 3 to 6 hours.

INDIAN TAPIOCA PUDDING

1/3 cup pearl tapioca	1/2 cup molasses
2 cups boiling water	1 tablespoon butter
1 1/2 teaspoons salt	1/4 teaspoon cinnamon
1/4 cup cornmeal	3 cups hot milk

Soak tapioca in cold water for one hour and drain. Add salt to boiling water, sift in cornmeal and boil 10 minutes, stirring often. Add tapioca and other ingredients, pour into a greased earthen dish and bake slowly for 2 hours.

RICE AND APRICOT PUDDING

1 cup rice
2 tablespoons butter
1/2 pound evaporated apricots

Cook rice in boiling salted water until tender, drain, and add butter. Soak apricots overnight, cook until tender in plenty of water, add 1/2 cup sugar. Reserve one cup juice for the sauce. In a buttered dish put a layer of rice, then one of apricots, and repeat until dish is full; pour remaining juice over it and bake half an hour.

APRICOT SAUCE

1 cup juice
1/2 cup sugar
1 tablespoon flour

Mix sugar and flour, add hot juice, cook until clear and slightly thick.

RICE FLUMMERY

1 cup broken rice	1/4 teaspoon salt
4 cups milk	1/4 pound figs, prunes, or raisins

Wash rice, cook, stirring constantly until tender. If whole rice is used cook until tender in boiling salted water, or in

double boiler; add from $1/2$ to $3/4$ as much milk and cook, stirring until the rice is broken up and mixture thick enough to mold. Mix with fruit and pack in cups. Cool and serve with fruit juice, brown sugar sauce, or cream. Figs should be steamed and cut up; prunes cooked, stoned and cut up; and raisins plumped and seeded.

BOILED RICE PUDDING

$1/4$ pound rice
 $1/2$ pound raisins
 $1/2$ teaspoon salt

Wash rice, seed raisins, mix, and tie in floured cheesecloth, allowing room to swell. Boil or steam 2 hours and serve with milk or cream, sweetened and flavored, or raisin sauce.

POOR MAN'S PUDDING

4 cups milk	$1/4$ cup sugar
$1/4$ cup rice	Nutmeg or raisins
$1/2$ teaspoon salt	

Wash rice, mix ingredients, and pour into buttered pudding-dish. Bake from 2 to 3 hours in very slow oven, stirring three times during first hour of baking to prevent rice from settling, and occasionally afterward. Serve hot or cold.

CHOCOLATE CORNSTARCH PUDDING

Home recipe

2 cups milk
 3 tablespoons cornstarch
 $1/4$ cup sugar
 1 square chocolate grated
 $1/4$ teaspoon salt
 $1/2$ teaspoon vanilla

Individual recipe

$1/2$ cup
 1 teaspoon
 $3/4$ tablespoon
 $3/4$ tablespoon or $1/8$ square
 Pinch
 $1/8$ teaspoon

Melt chocolate in double boiler over hot water, add sugar

and thin by adding milk, a few drops at a time. When smooth add scalded milk. Add cornstarch blended to a paste with a little cold milk, reserved for the purpose. Cook 20 minutes. Add salt and vanilla, and mold. Pour on a little cold water to prevent skin forming on top of mold.

COTTAGE PUDDING

<i>Individual recipe</i>	<i>Large recipe</i>
1 tablespoon butter	3 or 4 tablespoons
3 tablespoons sugar	3/4 cup
1 tablespoon beaten egg	1 egg
3 tablespoons milk	3/4 cup
1/2 cup flour	2 cups
3/4 teaspoon baking-powder	3 teaspoons

Make like cake, using more milk if necessary for a batter between a drop and a pour. Bake in a sheet, serve hot with lemon sauce.

LEMON SAUCE

<i>Individual recipe</i>	<i>Large recipe</i>
1/3 cup boiling water	2 cups
1/4 inch square yellow lemon rind	2 inch square
2 tablespoons sugar	1 cup
1 teaspoon flour	2 tablespoons
1 teaspoon butter	2 tablespoons
1 teaspoon lemon juice	2 tablespoons

Cook first four ingredients until clear and somewhat thick, add butter and lemon juice just before taking from the stove, remove rind, and serve.

APPLE SAUCE CAKE

Cream together 1 cup of sugar, and 1/2 cup of shortening, add 1 saltspoon of salt, 1/2 teaspoon of cloves, 1 teaspoon of cinnamon, little nutmeg, and 1 cup of raisins.

Dissolve 1 teaspoon soda in a bit of warm water and then stir it into 1 cup of sour apple sauce letting it foam over the ingredients in the bowl. Beat all thoroughly and add 1 3/4 cups flour. Bake in a loaf tin 45 minutes.

APPLE COMPOTE

Individual recipe

1 apple
1/4 cup water
1/8 cup sugar
1/2 inch stick cinnamon

Large recipe

8 or 10
1 cup
1 cup
2-inch stick

Make syrup with sugar, water, and cinnamon; boil slowly 10 minutes, skimming well. Core and pare apples, cook till nearly done in syrup. Turn apples while cooking. Drain and bake apples a few minutes in the oven. Boil the syrup until almost like a jelly. Arrange apples on dish for serving. Fill core cavities with jelly or marmalade. Pour the syrup over them. Put whipped cream around the base.

APPLE DUMPLING

Individual recipe

1/3 cup flour
1/2 teaspoon baking-powder
Speck salt
1/2 tablespoon butter
Milk
1 apple

Large recipe

2 cups
3 1/2 teaspoons
1/2 teaspoon
3 tablespoons
2/3 cup
6

Mix dough as for biscuits, pat or roll large enough to cover apple. Pare and core apple, fill center with raisins, jelly, or sugar with lemon juice or spices, place in middle of dough and press edges together. Put on floured tin and bake in moderate oven until apple is tender. Serve hot with molasses sauce.

MOLASSES SAUCE

<i>Individual recipe</i>	<i>Large recipe</i>
2 tablespoons Golden Drip syrup	1 cup
1 teaspoon vinegar or	2 tablespoons
1 teaspoon lemon juice	1/2 lemon
Salt	1/8 teaspoon
1/4 teaspoon butter	1 tablespoon
1/16 teaspoon mixed spices	1/4 teaspoon

Mix and cook until somewhat thick. Instead of mixed spices you may use cinnamon or vanilla and 1 ounce of chocolate.

Mixed Spices

1/2 teaspoon cloves	1 teaspoon grated nutmeg
1/2 teaspoon allspice	3 teaspoons cinnamon
1 teaspoon mace	

DUTCH APPLE CAKE

2 cups flour	1 egg, or none
1/2 teaspoon salt	1 cup milk
3 teaspoons baking-powder	2 tablespoons melted butter
2 tablespoons sugar	

Make a drop batter, spread about 3/4 inch on a buttered tin. Stick full of thin wedges of apple, sprinkle with sugar and cinnamon, and bake until brown. Serve with molasses sauce.

APPLE PUDDING

2 large apples grated	3/4 cup milk
2 eggs well beaten	2 cups corn flakes
1/2 cup maple syrup	

Mix together and bake until set like a custard.

APPLE TAPIOCA OR SAGO

3/4 cup pearl or minute tapioca

Cold water to cover, soak one hour

Drain, add 4 cups water

1/2 teaspoon salt

Cook in double boiler until transparent. Core and pare 7 sour apples, arrange in buttered pudding-dish, fill cavities with sugar and few drops lemon juice. Pour tapioca over apples and bake in moderate oven until apples are soft. Serve with sugar and cream. Other fruits may be used — peaches, pears, stewed prunes, bananas or cooked figs, or quinces.

APPLE SAUCE

6 apples

1/4 cup sugar, or

1/3 cup water

1/4 cup Golden Drip syrup

Cook apples and water together over a slow fire until tender. Add sugar and cook until it is dissolved. If molasses or brown sugar is used put with apples and water and cook slowly, covered, in the oven till red in color.

APPLE PORCUPINE

1 cup water }
1 cup sugar } Boil 5 minutes

6 apples

4 eggs, whites

1/2 cup powdered sugar

2 tablespoons blanched almonds

3 tablespoons currant jelly

Pare and core the apples and cook them until tender in the syrup. Take them out on a platter, and fill the centers with currant jelly. Make a meringue of the eggs and sugar, and cover the apples with it, then stick in the almonds. Place in the oven with the door open for 5 minutes.

CHERRY PUFFS

2 cups flour	1/4 teaspoon salt
4 teaspoons baking-powder	1 cup milk
1 egg, or none	

Make a drop batter, put a spoonful in each of 10 or 12 buttered cups, then a few cherries; cover these with another spoonful of batter and steam for 20 or 30 minutes. Serve with sauce made from the fruit juice.

1 cup juice	1 tablespoon sugar, if needed
1/2 tablespoon butter	1 tablespoon flour

Either fresh or canned fruit may be used, but reserve the juice for the sauce. Other small fruits may take the place of cherries.

DATE PUDDING

2 cups milk	3 tablespoons cornstarch
1/2 cup corn or maple syrup	1/2 teaspoon salt
12 seeded dates cut up small	1 teaspoon vanilla

Mix the cornstarch with 1/4 cup of milk. Heat the remaining milk in a double boiler. Add the cornstarch, syrup, dates, and salt, and stir until thick. Cover and cook 20 minutes. Add the vanilla and put in a dish to cool.

ORANGE TAPIOCA

1 cup ball tapioca	1 cup sugar
6 oranges	Whipped cream

Soak the tapioca 2 hours in enough cold water to cover. Wash and dry the oranges and slice them into 2 or 4 parts. Put them over to boil in clear water and boil until you can pierce the skin with a toothpick. Remove the oranges and arrange on a pretty platter. Put the tapioca over to cook in the water the oranges were cooked in, add the sugar, and

boil until clear, then pour over the cooked oranges. Serve chilled with whipped cream.

PRUNE PUDDING

1 pound prunes 1 lemon, juice and rind
2 cloves 1/3 box gelatine

Soak prunes overnight, cook until tender with cloves and lemon. Soak gelatine in prune juice, and dissolve with hot juice, using the proportion of 2 quarts juice to one box of gelatine. Stone fruit and put with juice into mold, chill, and serve with sweetened whipped cream.

PRUNE WHIP (1)

Whites of 4 eggs
24 large prunes, cooked and mashed through a strainer
4 tablespoons granulated sugar
Lemon juice

Beat the whites of the eggs until stiff with a little salt, adding the sugar gradually while beating. Cut and fold in the prune pulp. Pile in a baking-dish. Stand the dish in a pan of hot water in a moderate oven until set.

PRUNE WHIP (2)

2 cups silver prunes
1 cup best evaporated apricots
1 quart fresh water
1/2 cup sugar
1 pint rich milk
2 tablespoons sugar
2 tablespoons sherry
(Fruit mixture to be used instead of wine:
1/2 orange, 1/4 lemon, 1/4 pineapple)
1 pint box small fruit
Yolks 2 eggs

Wash the prunes and apricots well, drain, and place in a stew-pan, cover with water, boil until the stones fall from the prunes, remove from the fire, take out the stones, cut the fruit in small cubes, return to the liquor which should be quite thick. Add the sugar and cook to a thick paste, take from the fire and chill. Make a custard in the double boiler, allowing the milk to scald, add the well-beaten eggs, sugar, and wine; when quite thick take from the stove and chill. About serving time whip the whites of the eggs until they stand alone. Fill a pretty glass berry-dish first with a layer of dark prune sauce, then of deep yellow custard. Drop the whites over the top, and garnish with the bright berries. Whipped cream may be substituted for the eggs.

STEAMED SUET AND FRUIT PUDDING

2 1/2 cups flour	2/3 cup butter
1 teaspoon soda	1 cup chopped raisins or
1/2 teaspoon salt	currants
1/2 saltspoon cinnamon	1 cup water or milk
1/2 saltspoon nutmeg	1 cup molasses
1 cup chopped suet	

Mix and sift dry ingredients. Add molasses and milk to suet; combine mixtures. Stone, cut, and flour raisins, then add to mixture. Turn into buttered mold, cover, and steam **3** hours. Serve with foamy sauce. If water and butter be used, 3 cups flour will be required, as these thicken less than milk and suet. This pudding may be steamed in small stone cups.

FOAMY SAUCE

1/2 cup butter	2 tablespoons wine, or
1 cup powdered sugar	1 teaspoon vanilla
1 egg	

FIG PUDDING

<i>Individual recipe</i>	<i>Large recipe</i>
2 tablespoons sugar	1/2 cup
1 ounce suet	1/4 pound
2 ounces figs	1/2 pound
2/3 cup crumbs	2 1/3 cups
2 tablespoons milk	1/2 cup
1/2 egg	2
1/6 teaspoon salt	3/4 teaspoon
1 1/2 teaspoons lemon juice	1/2
1/8 lemon rind	1/2
1/2 teaspoon nutmeg	2 teaspoons

Chop figs. Chop suet with a little flour to keep it from sticking together. Mix the two. Soak bread crumbs in milk, add eggs well beaten, sugar, and salt. Combine mixtures, turn into buttered mold, steam 3 hours, or in individual molds 40 minutes. Serve with hard sauce.

RAISIN PUDDING

1 cup wet bread crumbs	1/4 cup chopped suet, or none
1/4 cup molasses	1/8 teaspoon mixed spices
1/4 cup raisins	

Soak bread in cold water 30 minutes, squeeze water out, measure, and mix lightly with other ingredients. Put into a buttered can and steam or cook surrounded by boiling water for 2 hours. Serve with hard or golden sauce.

PLUM PUDDING WITHOUT EGGS

1 cup bread crumbs	1/2 cup molasses
1/2 cup flour	1/2 cup sweet milk
1/2 cup suet (chopped fine)	1/8 teaspoon soda
1/2 cup raisins	1/4 teaspoon salt
1/4 teaspoon cloves	1/2 teaspoon cinnamon

Butter earthen dish. Mix ingredients and cook 5 hours in fireless cooker.

CHOCOLATE AND ALMOND PUDDING

1 tablespoon butter	1/2 cup milk
1/2 cup flour	5 eggs
1/2 cup grated chocolate (3 ounces)	3/4 cup sugar
	1 cup chopped almonds

Cook butter, flour, chocolate, and milk over the fire, stirring constantly. Set it to cool. Beat yolks with sugar until creamy; add it to cold mixture, a spoonful at a time. Mix thoroughly. Fold in beaten whites; turn into a buttered mold, and steam 2 to 3 hours. Serve with hard sauce.

PUDDING SAUCES**Golden Sauce**

1/2 cup butter	1/2 cup fruit juice
1 cup light brown sugar	1/8 teaspoon mace
2 yolks eggs	

Cream butter and sugar, put over hot water, stir until liquid, then add beaten yolks, mace, and fruit juice, and stir until it thickens. Serve at once.

Hard Sauce

1/3 cup butter	1 teaspoon lemon juice
2/3 to 1 cup powdered sugar	2/3 teaspoon vanilla

Cream butter, add sugar gradually and flavoring. The beaten yolk or white of an egg may be added. Beat the mixture well, form on serving-dish, and put in cool place until used.

Frosting Sauce

1 white of egg	2/3 cup fruit
2/3 cup powdered sugar	Lemon juice

Put unbeaten white in bowl, add fruit and sugar gradually, using the Dover egg-beater, and beat until smooth and thick. Lemon juice is added to bring out the flavor of fruit,

and less sugar is needed if fruit is sweetened. The juice of half a lemon may be used without fruit.

Vanilla Sauce

1 cup water	1 tablespoon butter
1/2 cup sugar	1 teaspoon vanilla
1 tablespoon flour	

Mix sugar and flour, pour over it boiling water, cook until clear and slightly thick; add butter several minutes before taking up, and vanilla just before serving.

Chocolate Sauce

To vanilla sauce add 1 ounce bitter chocolate instead of the butter, and half as much vanilla.

Brown Sugar Sauce

1 cup water	1 tablespoon butter
3/4 cup brown sugar	2 teaspoons lemon juice
1 1/2 tablespoons flour	Nutmeg

Follow direction given for making vanilla sauce, using other flavoring.

Caramel Sauce

1/2 cup caramel	3 tablespoons sugar (if desired)
1/2 cup water	1/2 teaspoon vanilla
1 tablespoon flour	

To make caramel melt 1/2 cup sugar, stirring constantly, but not allowing it to burn or get dark; take it from the fire for a minute and add 1/2 cup boiling water. Return to fire and boil until smooth. This caramel will keep indefinitely. Mix flour with sugar or water, add to caramel, and cook until slightly thick and clear. Add vanilla just before serving.

Raisin Sauce

1 1/2 tablespoons butter	1 cup water
1/2 cup sugar	2 teaspoons flour
1/4 cup raisins	Lemon juice,

Seed and chop raisins, cook in water slowly 15 minutes. Add 2 teaspoons flour in 2 tablespoons water and cook 5 minutes more. Strain raisins out if desired, pour mixture upon butter and sugar creamed, and add lemon juice if needed.

LEMON JELLY

<i>Individual recipe</i>	<i>Large recipe</i>
3/4 teaspoon Knox gelatine	2 tablespoons or 1/2 box
1 tablespoon cold water	3/4 cup
3 tablespoons cold water	2 cups
2 tablespoons sugar	1 cup
1/8 inch stick cinnamon	1 inch
1 inch square lemon rind	1/8 lemon
3/4 lemon (2 tablespoons) juice	1/2 cup

For orange juice use 1/2 cup orange juice and 1/4 cup lemon juice, reducing the water 1/4 cup. Soak gelatine and cold water 10 minutes. Make a syrup of cold water, sugar, stick cinnamon, and lemon rind; cook until slightly yellow. Pour syrup over gelatine to dissolve it. If this heat is not sufficient set mixture in hot water. Add to mixture lemon juice and strain all into wet molds. Chill. Serve with whipped cream.

JELLIED WALNUTS

1/2 box gelatine, or	3/4 cup sugar
1 tablespoon granulated gelatine	1/2 cup orange juice
1/4 cup cold water	3 tablespoons lemon
1/3 cup boiling water	juice

Make same as lemon jelly. Cover bottom of shallow pan with half of mixture; when firm place on it, 1 inch apart, halves of English walnuts. Make walnuts adhere with a few drops of the mixture. Cover with remaining mixture. Chill, and cut in squares for serving.

FRUIT PUDDING

1/2 box gelatine, or	1 orange
2 tablespoons granulated gelatine	4 figs
1/2 cup cold water	6 dates
1 1/2 cups boiling water	2 bananas
2 cups sugar	18 blanched ^m almonds
Juice 2 lemons	1/4 pound malaga grapes

Proceed as in lemon jelly with first five ingredients. Strain mixture, and when quite stiff stir in the fruit. Slice the bananas and cut orange, figs, and dates in small pieces before adding to mixture. Turn all into a wet mold, let harden, and serve with whipped cream.

SPANISH CREAM

1/4 box gelatine, or	3 yolks of eggs
1 tablespoon granulated gelatine	1/3 cup sugar
3 cups milk	1/4 teaspoon salt
3 whites of eggs	1 teaspoon vanilla, or
	3 tablespoons wine

Soak gelatine in part of milk, scald the balance, add sugar and gelatine, pour mixture slowly on yolks of eggs slightly beaten. Return to double boiler and cook until thickened, stirring constantly. Remove from fire, add salt, flavoring, and whites of eggs beaten stiff. Turn into wet individual molds and chill. Serve with cream. More gelatine will be required if large molds are used.

BAVARIAN CREAM

1/4 cup cold milk or water	3/4 cup sugar
1/4 package gelatine	1/16 teaspoon salt
1 cup double cream and	2 yolks eggs
2 cups milk, or	1 teaspoon vanilla, or
2 cups single cream	2 tablespoons rum or sherry

(Fruit mixture instead of wine, 1/2 orange, 1/4 lemon, 1/4 pineapple.)

Whip cream and stand aside to drain. Scald $\frac{3}{4}$ cup milk and stir slowly into eggs, sugar, and salt beaten, and then return to double boiler and stir until it begins to thicken. Take from fire, stir in the soaked gelatine and flavoring, stir until gelatine is dissolved, then strain it. When cold and beginning to set whip it a few minutes with the Dover egg-beater and then mix in lightly the whipped cream and turn it into a mold to harden. It should have a spongy texture. Do not use any of the cream which has drained through.

Coffee Bavarian Cream

May be made by omitting the vanilla and soaking the gelatine in $\frac{1}{4}$ cup clear black coffee or steep $\frac{1}{4}$ cup ground coffee in milk that is used for custard.

Chocolate Bavarian Cream

Cook until smooth 2 ounces chocolate (melted), $\frac{1}{4}$ cup sugar, $\frac{1}{4}$ cup boiling water; add to the milk used for custard and proceed as directed above, using vanilla.

Caramel Bavarian Cream

Caramelize $\frac{3}{4}$ cup sugar and dissolve in hot milk for custard, use in addition $\frac{1}{4}$ cup sugar with the yolks of eggs for the custard and proceed as directed above, using vanilla.

ORANGE BAVAROISE

- $\frac{1}{2}$ lemon grated rind and juice
- $\frac{1}{2}$ cup white wine or orange juice
- $\frac{1}{3}$ cup sugar
- 2 eggs
- 1 teaspoon granulated gelatine
- 1 tablespoon cold water

Mix lemon, wine, sugar, soaked gelatine, and yolks of eggs; stir vigorously over water until gelatine is dissolved and mixture thickened. Set in pan of ice water and when mixture begins to harden beat with Dover egg-beater until

it will drop from the spoon; mix into it beaten whites of eggs and turn into a mold lined with lady fingers and chill. It may be served in orange baskets.

COFFEE MOUSSE

1 ounce gelatine dissolved in	1/2 cup sugar
1/4 cup cold water	1 cup strong coffee
1/2 cup boiling water	1 cup whipped cream

Pour the boiling water onto the gelatine. Add the sugar and coffee, and cool. When it begins to set, whip, add the cream, and whip all together. Put in mold. When serving garnish with whipped cream.

JERUSALEM PUDDING

1/4 cup rice	3 figs, and same amount of ginger
1/2 box gelatine	
1/2 cup powdered sugar	1/2 cup sherry wine
1 teaspoon vanilla	1 pint cream

Wash rice and boil in plenty of water until soft, drain, and dry on towel. Cut figs and ginger into small pieces, cover with sherry, and let stand until rice is ready. Soak gelatine in 1/2 cup of cold water 15 minutes, then dissolve over hot water. Whip cream and add powdered sugar, vanilla, gelatine, rice, and fruit; stir in a cold place until it begins to thicken. Place in mold and when firm, serve with whipped cream.

CHARLOTTE RUSSE

<i>Individual recipe</i>	<i>Large recipe</i>
1/2 teaspoon granulated gelatine	1/4 box
1 tablespoon cold water	1/4 cup
1 1/2 tablespoons scalded cream	1/3 cup
4 teaspoons powdered sugar	1/3 cup
1/2 cup thin cream (whip from)	3 1/2 cups
1/2 teaspoon vanilla	1 1/2 teaspoons
Lady fingers	6

Soak gelatine in cold water, dissolve in scalded cream, strain into a bowl, and add sugar and vanilla. Set bowl in the water, stir constantly until it begins to thicken, then fold in whip from cream, adding one third at a time. Should gelatine mixture become too thick, melt over water and again cool before adding whip. Line mold with lady fingers, turn mixture in, spread evenly, and chill.

FRUIT SOUFFLÉ

3/4 cup fruit pulp — peach, apricot, quince, or prune	Whites 3 eggs Sugar
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Cook fruit, rub through sieve, sweeten, and perhaps add lemon juice. If canned fruit is used, first drain from syrup. Beat whites of eggs until stiff, add gradually fruit pulp, and continue beating; turn into buttered molds, having them 3/4 full. Set molds in pan of hot water and bake in slow oven until firm, which may be determined by pressing with finger. Serve with soft custard.

ANGEL CREAM

Take a loaf of angel cake or sunshine cake, and with a sharp knife cut a circle from the center. Fill the hollow with whipped cream. Place a thin slice of the cake on as a cover, coat the entire cake with a heavy chocolate filling. Set in a cool place until needed. Slice as you would a frozen pudding.

SPLASH

1/2 pound marshmallows	1/2 cup nut meats
1 dozen macaroons	1 jar cream

Cut the marshmallows into small pieces and break up the macaroons. Whip the cream, beat in the other ingredients, adding a little salt. Serve in glasses, chilled.

MAPLE MOUSSE

1 cup maple syrup
1 pint cream

Mix and beat with a Dover egg-beater till thick. Put in a mold and pack in ice and salt.

VANILLA MOUSSE

1 pint cream
4 tablespoons flour
1 tablespoon vanilla

Whip the cream and place on a sieve to drain. Return to bowl and stir in lightly the powdered sugar and the flavoring. Place in a mold and pack in ice and salt for 2 hours.

COFFEE PARFAIT

Pour a syrup of 1/2 cup of sugar and 1 cup of strong coffee over 2 beaten eggs. Cook in a double boiler until it thickens. Remove from the stove and when it is cool combine it with 1 pint of thick cream beaten until stiff. Fill mold and pack in ice and salt for 3 or 4 hours.

FROZEN ORANGE WHIP

1 cup sugar	Few grains salt
2/3 cup water	1 pint heavy cream
1/4 cup orange juice	2 oranges
Grated rind 2 oranges	

Boil the sugar and water together until it spins a thread. Add the orange rind, juice, and salt. Cover and keep in a warm place 1 hour, then cool. Beat the cream until stiff and add the orange syrup gradually, beating all the time. Cut the oranges crosswise, remove the pulp with a spoon. Pour the juice from the oranges into a brick mold, then put in alternate layers of cream mixture and orange pulp until

the mold is filled to overflowing. Pack in salt and finely chopped ice, in equal parts. Let it stand 2 hours. Garnish with candied orange peel.

WALNUT ICE

1 cup granulated sugar	1 pint cream whipped
1 cup water	1 teaspoon vanilla
Whites 3 eggs	1 cup chopped walnut meats

Boil the sugar and water until it threads, and pour it over the whites of eggs beaten stiff and dry. To this add the whipped cream, vanilla, and nut meats, folding the latter in gently. Pack in salt and ice and freeze.

1-2-3 ICE-CREAM

Juice and part of grated rind of 1 lemon
 Juice and pulp of 2 oranges
 3 bananas, squashed through a sieve
 2 cups of sugar
 Whites of 2 eggs beaten stiff
 2 cups of cold water

Mix all together, add a little salt and freeze.

CHAPTER XIII

FOOD ACCESSORIES

BEVERAGES AND CONDIMENTS

BESIDES the food substances actually needed for the maintenance of the health of the body, we have other foods which are added to give variety to our meals. These all fall in the class of luxuries and cannot be afforded by the poor. Tea and coffee are the exceptions to this statement, for though they properly belong in the class of luxuries, they give so much comfort that they are considered essential in the diet by the very poorest. They are not, however, foods, although they take away the sense of fatigue. They lessen the feeling of hunger but tend to increase the waste of tissue, for they contain substances which are stimulants to the central nervous system. They also tend to retard the digestion of food in the stomach, and tea in particular has a harmful action on the mucous lining of the stomach which prevents the desire for the proper amount of food needed by the body.

These two beverages, together with cocoa, contain as an active constituent a substance belonging to the chemical group of alkaloids. This is similar to quinine, cocaine, nicotine, morphine, and strychnine. Although this substance is small in quantity in tea when properly made, enough is present to be harmful when the tea is drunk after the teapot is allowed to stand indefinitely on the back of the stove. When cocoa is made with milk, the food value is, of course, greatly increased,

but it must not be forgotten that it still contains one of the alkaloids and should be given to children in very weak form.

Tea was first introduced into England in 1610 by the Dutch East India Company. It is an evergreen shrub grown chiefly in Japan, China, and some parts of India. The delicate leaves and buds at the ends of the sprays are picked during the spring and summer. Different grades of teas are made from the different leaves. The buds make the finest pekoe teas, and the other leaves are graded in descending scale according to their size. Oolongs come from Formosa while the scented Orange Pekoe is from the Canton district. Chinese teas as a whole have the most delicate flavor but lack body. Indian teas, on the other hand, have the greatest degree of body and astringency and are therefore suitable for blending. Ceylon tea has a rich and peculiar flavor. The difference between a green and a black tea lies in the curing. For a green tea the leaves are steamed, rolled, and dried immediately, while for a black tea the leaves are dried from twelve to twenty-four hours, rolled, and then allowed to ferment before drying. Most black teas are blends while green teas come largely from northern China and Japan.

To make tea properly, water should be freshly drawn and used as soon as it boils. It should then be poured on the tea leaves in an earthenware pot and allowed to stand three to five minutes. It should then be poured off the leaves, as a longer steeping extracts more of the harmful constituents. If tea is made for a large number of people, as for a reception, it can be done very simply before the reception by pouring a small amount of boiling water (about ten

**How to
make tea**

teaspoonfuls of tea to a pint of water) on the tea-leaves, letting it stand for four minutes, then pouring it off. This strong decoction may then be served from the teapot by adding only about a tablespoonful in the cup and filling it up with boiling water. In this way every cup of tea served during the afternoon is equally fresh and good.

A retired Smyrna merchant introduced the use of coffee into England in 1652, and his Greek servant started the first coffee-house in London.

The plant is a native of Arabia but is ^{Coffee} now grown in many tropical countries. The coffee bean which is used for making the concoction corresponds to the stone in a fruit similar to a cherry. The pulp of the fruit is softened by fermentation and the beans dried in the air. The husk is removed by rolling and the beans are then separated and sorted according to size. They are shipped raw but are roasted before being ground, in order to develop the flavor. There are several varieties on the market, those from Mocha and Java having the best flavor. The ones from Mexico and Brazil are not so expensive and are constantly growing in popularity.

Since both tea and coffee are stimulants to the nervous system and not foods, they should never be given to children. They take away the sense of fatigue which is the reason for their popularity, especially at lunch, but they should not be used to take the place of food. A cup of coffee alone does not make a suitable lunch for anybody. A cup of tea at four o'clock in the afternoon when the vitality is at a low point is a good stimulant, especially when taken with bread and butter or toast to provide the food the body needs and to

prevent any irritating effect the tea may have on the stomach.

Cocoa is a native of Mexico and was introduced into Europe by Columbus. It is obtained from the bean-like seeds of the fruit of the cacao tree. Both
Cocoa cocoa and chocolate are prepared from these seeds. In order to get the best chocolate, the seeds are dried, fermented in heaps, and roasted. This develops the flavor and frees the seeds from their husks. The inner portion thus obtained is broken up and ground. When the fat is expressed from this and the remainder pulverized, we have cocoa. Pure cocoa is generally mixed with starch or sugar to keep it from lumping. For this reason, cocoa to be well made should be boiled; but since it is not wise to boil milk, the best way to make cocoa is to mix the powdered cocoa and sugar together with some water and boil this for four or five minutes. The milk may then be added and the whole heated, preferably in a double boiler. The addition of a little salt greatly improves the flavor of the cocoa.

With the coming of prohibition the popularity of fruit drinks has notably increased. These are of wide
Fruit drinks variety and may be made with a basis of tea or ginger ale. Since fruit is such a wholesome article of diet, the use of lemonade, orangeade, grape juice and other fruit juices should be cultivated, especially for young people. Their attractiveness may be increased by using different combinations of fruits.

Other food accessories used to give flavor to the diet contain chemical substances known as essential oils and ethereal salts. These are found in herbs, fruits, and spices. The expert cook should be familiar with these

and should understand that the best results are obtained by a judicious mixture of flavors. For instance, the much-despised chocolate cornstarch pudding as it is usually served in a restaurant may be greatly improved by the addition of a little coffee, salt, vanilla, and cinnamon, or even orange and sometimes rose.

Herbs:

Anise: seeds, used in cookies.

Bay-leaf: leaves of a small shrub, used with tomatoes in sauces and soups.

Basil: leaves, used in salads and walnut ketchup.

Fennel: seeds, used for liqueurs; leaves, with fish.

Garlic: salads.

Mint: leaves, used in sauce for lamb, and drinks.

Marjoram:

Saffron:

Sage:

Summer savory:

} used for poultry stuffing.

Tarragon: leaves; used in vinegar for salad dressing; 1/4 teaspoon to 1 cup of sauce to bring out the flavor.

Thyme: leaves, for poultry stuffing.

Spices:

Allspice: an evergreen from the island of Jamaica. The allspice of commerce is the berries of cassia. Used with other spices in soupstock and stews.

Capers: flower buds pickled in vinegar, used in sauce for mutton, and in tartare sauce.

Caraway: seeds, used in cookies and rye bread.

Cassia: bark of a plant from China and Bengal, a variety of cinnamon; buds, immature fruit. Used for flavor in cakes, puddings, and pickles.

Celery: seeds, used in soupstock and creamed soups.

Cinnamon: bark of a laurel from Ceylon, used with other spices, cakes, puddings, and pickles.

Cloves: dried buds from a plant in the East Indies, same uses as cinnamon, particularly with pickled peaches.

Ginger: root of a plant growing in India and China, though cultivated in Africa, Australia, and tropical America, used in gingerbread, cookies, and puddings.

Mace: seedcoat of the nutmeg, a good flavor in creamed oysters and creamed fish.

Mustard: seeds, both black and white; used in sour pickles.

Mustard: prepared; ground with salt, spices, and vinegar, used with ham and corned beef.

Nutmeg: seeds of a tree from the East Indies, dried after washing in lime-water and powdered, used on custards, junket, and cottage cheese.

Peppers:

Black: dried, immature berries with the hulls.

White: dried, mature berries without the hulls.

Red: (1) Paprika: mild, dried, ripe fruit of capsicum without seeds.

(2) Cayenne: active, seeds.

(3) Tabasco: sauce prepared from capsicum.

Curry powder: mixture of turmeric and other spices, used with rice and mixtures of rice and chicken and left-over meat or fish.

Extracts:

Extracts are solutions in alcohol of the odorous principle derived from aromatic fruits and plants. They contain essential oils like thymol, or the oil of thyme, menthol, or the oil of peppermint, and the oil of lemon or orange. These are all used mainly to flavor cakes and desserts.

Almond: oil of bitter almond, or oil from the seed of apricots or peaches.

Anise: oil of anise.

Cinnamon: oil of cinnamon.

Clove: oil of clove.

Lemon: oil from the skin of lemons.

Orange: oil from the skin of oranges.

Peppermint: oil of mint.

Vanilla: soluble matter of the vanilla bean.

Wintergreen: oil of wintergreen.

Pickles, Sauces, etc.:

A pickle is a food substance, usually fruit or vegetable, preserved in any kind of vinegar, with or without spices, without taking up any metallic compound other than salt.

Catchup (*ketchup*, *catsup*): made from properly prepared pulp of clean, sound, fresh, ripe tomatoes, with spices and with or without sugar and vinegar. Chopped capers, chili, horse-radish, mustard, or ginger may be included.

Walnut catchup: fresh green walnuts ground and soaked in vinegar and salt; used with cold meat, particularly beef.

Cassareep: from the root of the cassava, with spices; used as a basis for sauces.

Chutney: from mango apple, with chilies, spices, lemon juice, raisins, figs, salt, and sugar; used with beef.

Soy sauce: from the soy bean, fermented and mixed with brine; used largely by Chinese with rice and in chop suey.

Tabasco: pulp of the red pepper mixed with tomato, in vinegar as a preservative, used with cheese dishes and where a very hot flavor is desired.

Worcestershire: from cassareep, with spices, garlic, peppers, lime juice, curry, brown sugar, and vinegar; used in gravies and soup, also served with meats.

Devonshire sauce and Harvey sauce are similar to Worcestershire.

BEVERAGES**COLD WATER COFFEE**

1 cup ground coffee
 7 cups cold water
 1/4 egg

Scald granite-ware coffeepot. Wash egg, break, and dilute with one half cup of cold water, stir into the coffee, and mix well. Add the rest of the cold water and bring slowly to a boil. Remove to back of stove, add one tablespoon cold water, and allow it to stand a few minutes. Egg may be omitted and 1/4 cup cold water added instead of 1 tablespoon at last to settle coffee.

HOT WATER COFFEE

1 cup ground coffee	1/2 cup cold water
7 cups boiling water	1/4 egg

Mix cold water, egg, and coffee. Add boiling water, let it come to a boil, and then set it back where it will not boil but keep hot for 10 minutes, or boil 3 minutes and set aside for 10 minutes.

FILTERED COFFEE

1 cup finely ground coffee 6 cups boiling water

Place coffee in strainer, strainer in coffeepot, and pot in hot water. Add boiling water gradually, cover between additions of water and allow it to filter. If desired stronger allow it to refilter. Add first half-cup of water by tablespoons, and rest by half-cups.

TEA

1 teaspoon tea 1 cup boiling water

Scald an earthenware or china teapot. Put in tea and pour over it boiling water. Let it stand on back of range or in

warm place 3 minutes. Strain and serve immediately, either with or without sugar and cream. Avoid second steeping of tea leaves. If this is done so large an amount of tannin is extracted that ill results may follow.

RUSSIAN TEA

Follow recipe for making tea. Russian tea may be served either hot or cold, but always without milk. A thin slice of lemon is allowed for each cup. Sugar is added according to taste. As in Russia, a preserved strawberry may be allowed each cup, or candied cherries may be used, or a clove added.

ICED TEA

4 teaspoons tea 2 cups boiling water

Follow recipe for making tea, strain into glasses $\frac{1}{3}$ full of cracked ice. Sweeten to taste. The flavor is much finer by chilling the infusion quickly.

CHOCOLATE

1 $\frac{1}{2}$ squares Baker's chocolate 1 cup boiling water
3 tablespoons sugar 3 cups milk
Few grains salt

Scald milk, melt chocolate in saucepan placed over hot water, add sugar, salt, and gradually boiling water; when smooth place on range and boil one minute; add to scalded milk in double boiler and cook for several minutes. Beat with Dover egg-beater just before serving and serve with whipped cream in chocolate cups. 1 $\frac{1}{2}$ ounces vanilla chocolate may be substituted for Baker's chocolate, and, being sweetened, requires less sugar. 3 tablespoons cocoa may be used instead of chocolate. When cocoa is used, it should be boiled with a little water for three minutes before adding it to the milk. One yolk of egg may be added to the cooked chocolate and sugar after cooling it, and before the milk is added.

ICED COFFEE AND CHOCOLATE

Mix equal parts of coffee and cold chocolate. Sweeten with maple syrup and serve with whipped cream. A spoonful of vanilla ice-cream may be added to each glass instead of the whipped cream if preferred.

FRUIT PUNCH

- 1 pineapple, or 1 can grated pineapple
- 1 cup boiling water
- 2 cups freshly made tea (1 heaping tablespoon Ceylon tea; steep 5 minutes)
- 1 dozen lemons, the juice
- 3 oranges, sliced and quartered
- 1 quart bottle Apollinaris water
- 3 cups sugar boiled with 1 1/2 cups water, 6 to 8 minutes
- 1 pint water
- Ice

Grate pineapple, add water, and boil 15 minutes. Strain through jelly bag, pressing out all the juice; let cool, and add the rest of the fruit juice, the tea, and syrup. Add Apollinaris water just before serving. Pieces of pineapple, strawberries, mint leaves, or slices of banana are sometimes added as a garnish.

LEMON GINGER ALE

- 2 bottles ginger ale
- Juice 3 lemons
- 3/4 cup sugar

Mix thoroughly and serve chilled with mint leaves.

GRAPE JUICE (1)

Wash grapes and pick from stems. Put fruit in preserving kettle and crush slightly. Heat slowly and boil gently for half an hour. Crush fruit with wooden spoon; strain through cheesecloth over sieve or colander. Drain well, then draw

the edges of cheesecloth together and twist hard to press out all the juice possible. Measure strained juice and put in a clean preserving kettle and on fire. When it boils up, draw back and skim. Let it boil up again and skim. Add one gill of sugar for each quart of juice. Stir until dissolved. Boil 5 minutes, skimming carefully. Fill hot sterilized jars or bottles. Put jars in a moderate oven for 10 minutes in pans of boiling water. Fill jars with more boiling juice and seal.

GRAPE JUICE (2)

Prepare grapes as above. Put in double boiler (180°-200°), crush, and heat. Strain, put in sterilized jars or bottles, and set in water which is kept at or below boiling 10 minutes. Fill to overflowing with boiling juice and seal.

SPICES, PRESERVES, AND PICKLES

GRAPE PRESERVES

1 pint fruit 3/4 pint sugar

Wash and drain grapes. Remove pulp from skins. Heat pulp, cook 10 to 15 minutes. Strain out seeds. Add skins and cook 10 minutes. Measure. Add sugar and cook until liquid thickens.

GRAPE MARMALADE

1 pint fruit 3/4 pound sugar

Wash and drain grapes. Remove from stems. Heat to boiling point; mash and cook until seeds come out. Strain out seeds and skins. Cook 10 minutes. Measure. Add sugar and boil until liquid thickens. Put in sterilized jelly glasses.

SPICED GRAPES

8 pounds grapes	2 tablespoons cinnamon
3 pounds sugar	2 tablespoons cloves
1 pint vinegar, scant	

Whole spices may be substituted in place of the ground. Cook vinegar, spices, and fruit after it has been prepared 10 to 20 minutes. Add sugar and boil down until it is of right consistency. Prepare grapes the same as for preserved grapes. Plums may be used in place of grapes.

ORANGE MARMALADE

(English recipe)

To each 5 oranges and 1 grapefruit allow 2 lemons, 5 pints water, and 5 pounds sugar. Cut the fruit into quarters and remove the pips, putting them to soak in a little of the water. Slice the fruit (rind and pulp) very thinly, and soak 24 hours in the rest of water. Strain the pips and add water from them to the rind. Boil the whole briskly about 1 1/2 hours or till rind is tender, then add sugar and boil for another 1/2 hour. Much time is saved by putting the fruit through the meat-chopper.

CARROT AND ORANGE MARMALADE

Scrape and put through food-chopper sufficient carrot to make 2 cups; add 1 orange cut in thin slices, barely cover with water, and cook until tender. Add the juice from 2 lemons, a small piece of grated ginger root, and 1 cup of sugar. Cook slowly until thick, put in jars, and cover with melted paraffin.

PEACH JAM AND MARMALADE

Take ripe free-stone peaches, pare, and cut in small pieces. To every pound of peaches allow 1/2 pound of white sugar. Put the sugar over the peaches and let them stand 2 hours; then put into a porcelain kettle on the fire, and boil slowly, stirring all the time until the fruit is mashed smooth and it almost jellies.

For marmalade, add almost as much sugar as fruit. When done add to 1/2 bushel of peaches 1 pint of hot brandy.

GREEN TOMATO MARMALADE

8 pounds green tomatoes 1 lemon cut fine
 7 pounds granulated sugar 4 dessertspoons ground ginger

Make a syrup of the sugar by adding a little water. When boiling, drop into it the tomatoes, carefully washed and dried and all the spots removed, and cut in slices. Add the lemon and ginger. If the ginger is very fresh and strong a less quantity must be used. Boil all well together till thick and clear like marmalade. It will take some hours, boiling slowly. Stir occasionally to keep from burning. Put hot in jelly glasses.

TOMATO MINCE MEAT

8 quarts green tomatoes 2 tablespoons salt
 5 pounds brown sugar 1 cup vinegar
 2 pounds seeded raisins 2 tablespoons ground cloves
 Candied orange peel 2 tablespoons cinnamon
 A little citron 1 tablespoon nutmeg
 1 teacup suet

Chop the tomatoes fine or put them through a food-chopper. Draw off all the juice and add as much fresh water as juice and scald in this water. Drain off all this liquor, add the sugar, raisins, suet, vinegar, and salt, and cook until dark and thick (slow cooking is best). When cool, add the spices and candied fruit. When to be used add apple and cider or brandy. Put up in air-tight jars.

TOMATO PRESERVE

1 pound ripe tomatoes after removing skins
 1 pound granulated sugar
 Little ginger root

Increase quantities in same proportion, as desired. Remove skin from ginger root with boiling water. Boil 2 hours

and add to every pound of sugar the grated rind of one lemon. Boil one half hour, or longer if too thin. Bottle hot.

APPLE GINGER

4 pounds apples	1 ounce ginger root, green preferred,
4 pounds sugar	but white will do
1 pint water	Grated rind 4 lemons

Pare apples and chop fine with ginger root. Make a syrup of sugar and water, add apple and grated lemon rind, boil all slowly 2 hours or until it looks clear.

CURRANT CONSERVE

2 1/2 pounds currants
1 1/2 pounds raisins, chopped
2 1/2 pounds sugar
2 oranges, grated rind and pulp

Boil to jelly.

CHIPPED PEARS

8 pounds pears	1/4 pound Canton ginger
4 pounds sugar	4 lemons

Wipe the pears, peel, and cut in small pieces. Add the sugar and ginger and let stand overnight. In the morning add the lemons cut in small pieces and cook slowly 3 hours.

PLUM CONSERVE (1)

5 pounds plums, weighed after peeling and pitting
5 pounds granulated sugar
2 pounds seeded raisins (not the seedless ones) cut in small pieces
4 oranges, grated rind, and pulp, chipped.

Cook the plums 20 minutes before adding the sugar. Put in the sugar and bring to a boil. Add the raisins and the

oranges and cook to a thick conserve. Put hot into jelly glasses.

PLUM CONSERVE (2)

5 pounds plums	2 oranges (juice and grated
2 pounds seeded raisins	rind)
1 pound walnuts	3 1/2 pounds sugar

Boil 40 minutes.

RASPBERRY BAR-LE-DUC

1 quart perfect red raspberries	3 cups sugar
1 cup currant juice	1 cup red raspberry juice

Combine the fruit juices, add the sugar, let boil till they are very thick and almost like jelly. Drop in the raspberries one at a time, cook for 2 or 3 minutes, and remove with a skimmer to small glasses. When all the berries are cooked, the syrup will be considerably thinned, so boil it down till very thick again, pour into glasses containing the raspberries, and seal as usual.

FRUIT BUTTER

1/4 pound sugar to each pound fruit

Do not add any water

Peaches, pears, plums, or other fruit may be used separately or in combination. Skin and core the fruit. Cook until tender. Add the sugar, and cook until of the right thickness. Stir carefully while cooking, as it burns easily.

QUINCE AND CRANBERRY JELLY

2 quarts cranberries
6 quinces
3 quarts cold water

Cook as for any jelly, and for each cup of strained juice, add a cup of sugar.

PICKLING**Sweet Pickles**

Watermelon, ripe cucumber, or green tomato

8 pounds fruit

4 pounds brown sugar

1 quart vinegar

1 cup mixed whole spices	{	Stick cinnamon (1/3)
		Cassia buds (1/6)
		Allspice berries (1/3)
		Cloves (1/6)

Cut watermelon in 1/4 inch slices

Cut cucumber in 1/2 inch slices

Cut tomatoes in eighths, if small

Cook watermelon or cucumber until tender in boiling water to which has been added salt in proportions of

1 teaspoon salt

1 quart water

Turn boiling salted water over tomatoes and set them on the back of the stove until tender. Always weigh fruit after cooking. Make syrup, cook fruit in it until clear. Spices may be put in a muslin bag and removed or allowed to remain through the fruit. Place fruit in sterile cans, evaporate syrup, cover, and seal.

Oil Pickles

5 dozen cucumbers — 4 inches long

5 small onions

1 cup celery salt

1 cup mustard seed

3 cups olive oil

Vinegar

Slice cucumbers with onion, sprinkle with salt and let it stand 24 hours. Draw off the liquor and mix with the cucumber and onion, celery salt, mustard seed, and olive oil. Cover with vinegar and bottle after a few days.

Chow Chow

- 1 gallon (8 pounds) green tomatoes, chopped
- 1 gallon (8 pounds) cucumbers, sliced
- 1 gallon (4 pounds) cabbage, chopped
- 1/2 gallon (4 pounds) onions
- 2 pounds brown sugar
- 1/2 cup salt
- 1/4 pound white mustard seed
- 2 ounces celery seed
- 2 ounces turmeric (or not)
- 2 teaspoons black pepper

Mix, cover with vinegar, heat, and seal in sterile jars.

Mustard Pickle

- 2 quarts green tomatoes
- 2 quarts vinegar
- 2 quarts small onions
- 4 tablespoons mustard
- 4 green peppers
- 1 tablespoon turmeric powder
- 1 quart small cucumbers
- 2/3 cup flour
- 2 cauliflower
- 3 1/2 cups sugar

Cut the vegetables in pieces and sprinkle with salt and let stand overnight. In the morning boil in brine a few minutes and drain. Scald the vinegar, mix the mustard, flour, and turmeric to a paste with water. Add to the vinegar, and when thick, add the vegetables. Heat through and put in jars.

Pepper Hash

- 12 red peppers or 2 cups when chopped
 - 12 green peppers or 2 cups when chopped
 - 25 onions or 14 cups when chopped
 - Chop fine and cover with boiling water
 - for 5 minutes, drain
 - Scald 1 quart vinegar
 - 3 cups sugar
 - 2 tablespoons salt
- } Cook for 20 minutes

Chili Sauce

- 15 large ripe tomatoes
- 6 onions
- 4 red peppers
- 1/2 head cabbage or 1 small one
- Sugar to taste
- 3 tablespoons salt
- 5 cups vinegar

Chop all fine and cook 1 hour, and then stir in

- 1 tablespoon cinnamon
 - 1 tablespoon mustard
 - 1 tablespoon celery salt
 - 1 teaspoon cloves
- Seal for use

Chutney

- | | |
|------------------------|-------------------------------|
| 1 pound apples, peeled | 12 ripe tomatoes, medium size |
| 3/4 pound raisins | 1 ounce white mustard seed |
| 6 small onions | 4 ounces salt |
| 2 red or green peppers | |

Skin the tomatoes and put through the meat-chopper. Pour off as much juice as possible from them. Put the other vegetables through the chopper, then into a crock. Boil 1 quart of vinegar and 2 cups of sugar. When cool pour it over the other ingredients in the crock and stir occasionally for a few days.

CHAPTER XIV

THE USE OF FOOD IN THE BODY

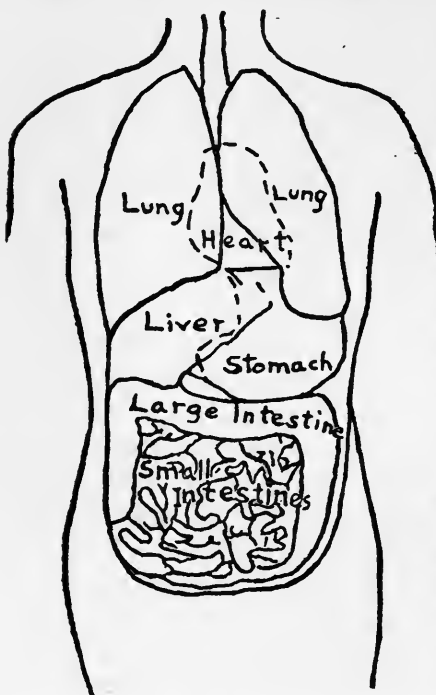
FOODS must primarily furnish an adequate supply of food material, but they must also furnish this material in such form as can be utilized by the system. This process of food utilization is really one of combustion, similar to that in a stove or furnace where the fuel material combines with oxygen and gives off heat. It takes place in the cells of all tissue and is very slow. Food material, like any other fuel, if burned in the air, can be entirely consumed, leaving nothing but ashes, but when utilized in the body the process of combustion is slower and less complete.

Before combustion can take place in the body all food must be put into the form in which it can be carried by the blood and utilized by the cells. The first step in this process is to change solid foods into fluids. For this, plenty of water must be supplied either between meals or with the meals. The insoluble foods that cannot be put directly into solution must be changed into chemical compounds that can be dissolved. These processes are partly mechanical and partly chemical.

THE ORGANS OF DIGESTION

The organs that accomplish this work in the body include the following: the mouth, the stomach, the small intestine, and the large intestine. These are arranged as we see them on the accompanying figure. This shows

also the lungs, the heart, and the liver, all of which play an important part in the whole process of the utilization of food. The lungs are the source of supply for



the oxygen which enters into combination with the food in the process of combustion, and the liver acts as a storehouse for the food as it is taken up by the blood from the intestines before it is scattered to the various tissues throughout the body.

In considering these organs and the part each plays in digestion, we shall begin with the mouth. Here the action is largely physical or mechanical. The

teeth grind the food, and the saliva flowing constantly from the glands into the mouth supplies the liquid to dissolve the ground-up food, or at least soften it so that the other juices can dissolve it. Here in the saliva we have the first one of a group of interesting chemical compounds that are provided by nature to cause chemical changes. Their action is somewhat similar to the action of the molds and yeasts. Those micro-organisms, however, are called "organized fer-

ments," because they themselves grow, and in the process of growing secrete substances which cause chemical changes in the surrounding food material. The substances in the body which serve such a very important function in the process of digestion are called "unorganized ferments," because they simply cause chemical changes without changing themselves. Their scientific name is "enzyme," and in order to explain them, the simile is often used of the lock and key, each key fitting one peculiar lock and one only, so that each enzyme can cause one chemical change for one particular food, and if it does not have a chance to work, the food goes unchanged or undigested. This fact shows the great importance of proper mastication of food. The saliva must become thoroughly mixed with the food substance in order that the enzyme which it contains may act upon starch, converting it into sugar. This action continues while the food passes down the throat into the stomach and there continues for a time while the food is more or less stratified.

In the stomach among the substances present in the gastric juice is free hydrochloric acid which ultimately stops the action of the saliva on starch. **Action in the stomach**
If then the starch is not acted upon by the saliva, it passes unchanged through the stomach into the small intestine which gives it an opportunity to become fermented. The gastric juice contains enzymes as well as hydrochloric acid. The most important of these is pepsin which acts on protein material, breaking it down into two simpler forms. Rennin, another enzyme, is also present in the gastric juice; this has the effect of curdling milk; a singular action because the aim of all digestion is to put food into soluble form, whereas the

curdling of milk is solidifying the protein material that is already in liquid form. These solid proteins are re-dissolved by the aid of the pepsin in the gastric juices. The juices of the stomach have little effect on fats except to put some into emulsified form. The acid present in the stomach also dissolves the cell walls that surround fat globules, making it possible for the juices of the intestines to act upon the fat.

Up to this point the processes of digestion are largely preparatory. Certain of the simpler protein compounds **Action in small intestine** and some mineral matter are directly used by the body from the stomach, being taken up by the blood through the walls of the stomach. The largest proportion of the food, however, passes on to the small intestine. Here the great work of digestion goes on. The food itself is pushed along by muscular action, entirely involuntary. In fact all of the process of digestion is involuntary after the food leaves the mouth. In the small intestine we have three distinct secretions, each containing important enzymes. The first of these is the secretion from the pancreatic gland. This contains enzymes which complete the change of starch to sugar; break up fats and reduce protein substances to their simplest forms.

From the walls of the intestines we have the second of the secretions. This contains enzymes which act upon each of the distinct, complex sugars, reducing them to simpler forms.

The third of these intestinal secretions is the bile, which makes the conditions for all of these changes more favorable, helping especially in the digestion of fats. All of these secretions are alkaline and neutralize the acid carried in from the stomach.

There are no digestive enzymes present in the large intestine. The mechanical motion of this intestine, however, works the food back and forth, ^{Large} forcing it back into the small intestine to ^{intestine} insure as complete digestion as possible. The waste that is left is then eliminated from the body. The movements of this tract should be normal. If they are too rapid the patient suffers with diarrhea. If they are too sluggish a condition of constipation results. Hence bulky foods such as fruits and green vegetables, and acid foods, as oranges, lemons, and tomatoes, are desirable in the diet because they have an exciting effect on the action of the intestines.

INFLUENCES FOR GOOD DIGESTION

The flow of all of the digestive secretions is dependent upon several things. Perhaps the most important is a *regular time* for meals. The system becomes adjusted to a regular demand for the flow of these digestive juices, and the supply corresponds to the demand. Also, proper *mastication* is always a signal to the secretions of the stomach and intestines to be ready for their share in the work. The *sight, smell, and taste* of foods have a direct effect upon the flow of the juices. Frequently one does not feel hungry until one has a whiff of food being prepared for dinner. Then the familiar gnawing feeling of hunger becomes apparent. This is a physiological fact caused by the flow of the secretions, due to the odor of food. The *nervous state* of the person has a direct effect on the flow of the secretions. Fatigue, worry, and anger all tend to retard digestion, so that it is far better for a very tired person to take a glass of warm milk or a cup of soup, even if it is near

the regular meal hour, and rest for an hour before eating a hearty meal. *Attractive service* and *pleasing companionship* both tend to good digestion. Good humor at meal time is a valuable aid to digestion.

Concentrated foods such as sugar have a very irritating effect on the lining of the intestinal tract, which is one reason why candy is unwholesome between meals. The proportion in which fats, protein, and carbohydrate are eaten, affects digestion. Since fat is so largely digested in the intestines, food that is coated with fat, as are foods fried in fat, pass through the stomach without giving the juices in the stomach a chance to work upon the food material, hence, fatty foods cannot be easily digested by delicate persons or those of sedentary habits, but may be by vigorous persons doing heavy exercise who are able to utilize the energy provided by foods retained a long time in the intestines.

The part so far described of the process of the utilization of foods in the body is called digestion. The next stage of the process is called absorption.

ABSORPTION

When the food has been put into soluble form it enters the circulation and is distributed as needed to the various tissues throughout the body. The greatest amount of absorption takes place in the small intestine, though some of the mineral salts and the simpler proteins are absorbed from the stomach, and some food can be used by the body from the larger intestine, as is proved by the ability to keep a patient alive when rectal feeding alone has to be relied upon. Only such foods can be used for rectal feeding, however, as are

predigested, since there are no enzymes present in the large intestines.

USES OF FOOD IN THE BODY

The food material as absorbed is carried by the blood, together with oxygen taken up from the lungs, to each cell in every part of the body. Utilization of this food material by the cells constitutes life and is not thoroughly known. The protoplasm of the cell itself plays an important part in this process. Some of the material is utilized by the cell for repair and new growth. The rest of the material goes through the process of combustion or oxidation which is caused by the activity of the cells. Starch, now in the form of sugar, sugars, and fats are burned to form carbonic acid and water. If these foods are eaten in excess of the body requirements they are stored in the body as fat. Hence a constant gain in weight of an adult is a sign of over-eating or under-exercise, and can be avoided with care of the diet. It is a sign of self-indulgence. In the burning of protein, on the other hand, the process is not so complete. Some of the hydrogen and of the carbon as well as the nitrogen is left in the waste products which are carried off in the urine in the form of urea and uric acid. Hence the heat produced from protein food is less in the body than if the same foods were burned in the furnace.

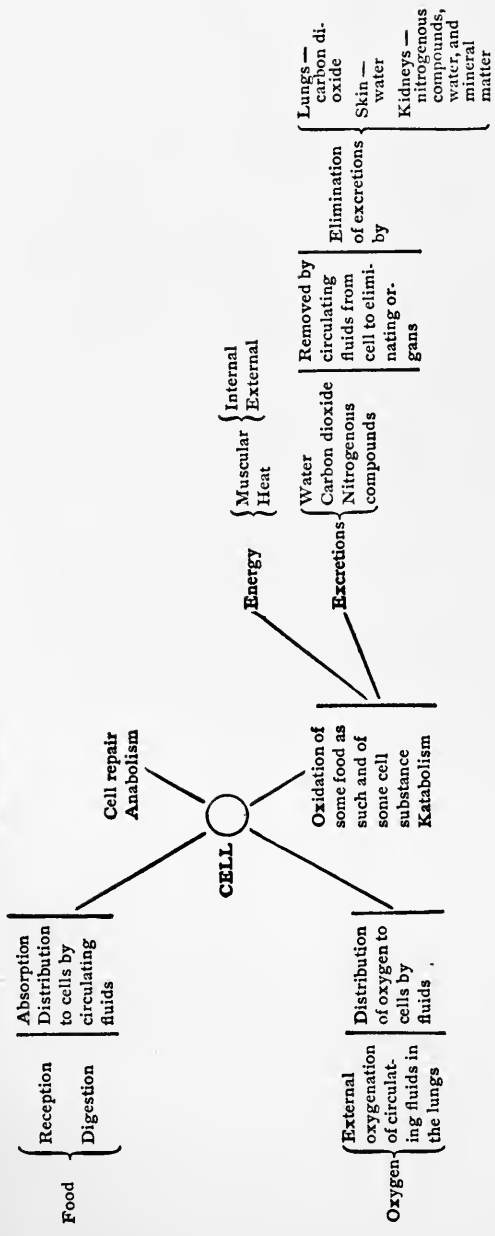
THE ELIMINATION OF WASTES

In this process of utilization of the food substances by the cells to obtain muscular energy with its resulting heat, there are certain waste products. These are carried by the blood to the various points in the body

where they are thrown off. Some of these waste products are the nitrogenous compounds spoken of in the paragraph above. These compounds are the natural result of cell activity and if protein is not provided in the food it will be taken from the cell itself, which causes the wasting away of the tissue. These products are carried by the blood to the kidneys where they are excreted. A second waste product is carbon dioxide, which is carried by the venous blood back to the lungs and is exhaled. A third waste product is water. This can be given off from the lungs in the form of water vapor, or excreted from the kidneys in urine, or from the skin as perspiration. "Insensible perspiration" by a person at rest may amount to 60 per cent of the water eliminated through the kidneys. It may be many times as much in the case of a person at hard labor. The last waste product is the mineral matter from the food in excess of body requirements. Some of this is returned to the digestive tract and eliminated through the large intestine. The elements eliminated in this way are phosphorus, calcium, and iron, while others, such as potassium and sodium, are found in the urine.

CHANGES WHICH FOOD UNDERGOES IN PASSING THROUGH THE BODY

Metabolism



CHAPTER XV

THE MEASUREMENT OF FOOD VALUES

ACCORDING to the definition of food that we gave when we were discussing the chemical composition of foods, **Body need for fuel** we said that there were two functions for food in the body. The first of these was the providing of heat and energy, and the other the building of tissue. The body is similar to any machine in that it must have fuel of some sort to keep it going. An automobile is absolutely helpless with an empty gasoline tank, and a locomotive is powerless to pull a heavy train unless steam is supplied by the boiler. The body also, in order to perform work of any kind, must have fuel. The work performed is of two kinds. Whenever we move a muscle, we are performing work; in taking a step the body must lift its own weight. Of course the more violent the work done by the body, the more the fuel that must be provided. The body, however, is doing another type of work all the time, like a clock. The heart is ever in motion, performing enough work in the course of twenty-four hours to be sufficient to raise a man twenty-five hundred feet. At the same time, with every breath we take there is muscular energy expended in the expansion and contraction of the lungs and diaphragm. Also every meal eaten must be digested, and this requires from three to five hours of steady muscular activity.

There is no other way to obtain all of the fuel thus required by the body except from the food we eat. The

sun is the source of all energy on the earth. Plants are able to transform this energy received from the sun in the form of light and heat into chemical substances, combining it with elements from the air, soil, and water to form energy-bearing substances which are stored in its tissues. As we have seen, these are carbohydrates, fats, and proteins. They are found in all kinds of vegetable foods in different proportions and can be used directly as human food. Or they may be used as food for animals and the energy contained in them utilized for the life processes of the animal and transformed into animal flesh. Only a small percentage of the energy in the plants is left to be stored in the flesh of the animal, since most of it must be utilized for muscular energy and heat. The animal's flesh, however, which contains fat and protein, is also used for human food, and becomes another source of fuel for the body.

When comparing one piece of string with another piece, we use a unit of measure as a basis for comparison; we say one is three feet long and the other five feet, the foot rule being a standard measure for length. In the same way we say one stone weighs two pounds and another one four pounds, the pound being the unit of measure for weight. In the same way it is necessary to have a standard unit of measure in order to compare the amount of heat given by one food as compared with that given by another. For this purpose the *calorie* is used. Scientifically the calorie is very carefully defined with allowances made for air pressure and other technical qualifications. For our purpose, however, it is necessary to know only that it is the term for the quantity of heat required

to raise one pint of water 4° F. For instance, if two cupfuls of water are drawn from the faucet and placed in a saucepan, the temperature of the water will probably be about 50° F. If this quantity of water is placed over a gas flame and the temperature watched with a thermometer, by the time the water has been raised from 50° F. to 54° F. we have burned up one calorie of heat in the form of gas. It is to be remembered that a calorie is always the measure for a quantity of heat.

With the calorie used as a standard, the various food substances have been actually burned in order to find how much heat a given weight would produce. This is very carefully done in an instrument known as the bomb calorimeter. A known weight of the food to be examined is burned in pure oxygen in a gas-tight chamber surrounded by a known quantity of water. The change in the temperature of the water will show the amount of heat liberated. In this way all of our American food materials have been examined, and the number of calories produced by a pound of each has been published in a long list by the Bureau of Chemistry of the Department of Agriculture. It has also been found that the food will yield to the body practically the same amount of heat that it does when it is burned in the calorimeter. The pure food substances will give the following quantities of heat:

<i>Food substance</i>	<i>Quantity</i>	<i>Calories</i>	<i>Quantity</i>	<i>Calories</i>
Pure carbohydrate...	1 oz.	113	1 gram	4.1
Pure protein.....	1 oz.	113	1 gram	4.1
Pure fat.....	1 oz.	256	1 gram	9.3

We notice that fat yields two and a quarter times as much heat for a given weight as do carbohydrates and proteins. The two latter yield the same amount.

Foods then which contain a large amount of fat are the best fuel food.

Foods which contain a large amount of water and woody fiber have a proportionately low fuel value.

The figures as published by the Department of Agriculture are extremely complex and are not in a form that can be readily used by the average 100-calorie housekeeper. In order to overcome this portions difficulty, Dr. Langworthy of the Department devised the scheme known as One Hundred Calorie Portions; that is, he found that many of our common food materials were approximately one hundred calories in the quantity ordinarily used in the household. These portions are only approximate and therefore discrepancies are found in different lists.¹ Some of the most common of these portions are as follows:

- Butter or other fats, 1 tablespoon
- Bread, 1 slice (3 in. x 3 1/2 in. x 1 in.)
- Uneda, 4 crackers
- Orange, 1 large
- Eggs, 1 1/3 medium
- Potato, 1 medium
- Meat, 2 ounces, cooked, lean
- Sugar, 2 tablespoons, granulated
- Sweet chocolate, about 3/4 ounces

After it is known how much fuel our foods can give to the body, it is necessary to know how much the body actually needs. The test of a normal diet A sufficient diet for an adult is the maintenance of an average weight together with full health and efficiency. For a child it is shown by a steady gain in weight, by

¹ The most usable list of these portions is to be found in the appendix of *Feeding the Family*, by Mary Swartz Rose. (Macmillan, 1917.)

good color, quiet sleep, and general good nature. If an adult is steadily losing in weight and there are no pathological conditions to account for it, it is pretty sure that something is wrong with either the kind or the quantity of the food eaten. If on the other hand, a person is steadily gaining in weight, he is not exercising sufficiently for the amount of food eaten; or, to put the same idea in another way, he is eating more than his daily needs require. It is quite possible to find a point at which the body weight can be maintained where the individual is at his best and does not feel dragged out at four o'clock in the afternoon. When this point is once found, it can and should be maintained with care and thought.

In order to find actual figures to state the body's requirements, studies were made in two ways. The first, known as the statistical method, was a study of the actual food consumed by groups of people living a normal life and performing the same type of work. Many of these studies have been made all over the world. The other one, known as the experimental method, was a study of the actual food requirements of different individuals living under different conditions. This required an elaborate apparatus known as the respiration calorimeter by which it was possible to measure under fixed conditions the amount of energy given off from the body in the form of work and heat. The results obtained from both of these methods showed that the food required varies directly with the amount of energy expended; that is, the man digging a ditch in the street and the lumberman at work in the Maine woods require far more food than a man who sits at his desk all day, or even than the man who stands be-

hind the counter day after day. Food requirements were also found to vary with the age of the individual, the sex, the body weight, and the mode of life. Growing boys and girls, particularly between the ages of fourteen and twenty, were found to require actually more food than their fathers and mothers, though their body weight was less. As the individual grows older, the life processes slow down and not so much food is required.

With these points in mind, certain definite standards on a twenty-four hour basis have **Dietary** been adopted for different occupations as **standards** follows:

<i>Mode of Life</i>	<i>Women (Calories)</i>	<i>Men (Calories)</i>
Those who sit at their work.	2000	2500
Those who stand at their work.	2400	3000
Those who use back muscles at their work. . .	2800	3500-6000

It might be of interest to note that the United States Army active service ration is 4500 calories, and that at one of our big boys' schools, the boys were eating 5000 calories a day. The average amount needed by a woman doing her own housework is 2400 to 2500 calories a day. The days she does the washing or hard scrubbing, she should eat more than on other days, and she should not allow herself to become so tired that she cannot eat at all. This can be prevented by taking a glass of milk with bread and butter in the middle of the morning before she gets too tired to eat her dinner.

When speaking of food requirements, we must take into consideration other things besides the fuel value of the food itself. According to our definition of food, the providing of energy and heat is only half of the work done by foods. **Need for building material**
The other half is the providing of the actual material out

of which the body is built; that is, our bodies are far more wonderful than any man-made machine. If an automobile bursts a tire or loses an important nut, no amount of gasoline burned in the engine will mend the tire or will replace the nut. If, however, a child breaks an arm or has a cut finger, all that the doctor does is to set the bone straight, or make sure that there is no dirt in the cut. The healing process in both cases is carried on entirely by the body itself. The blood brings to the injured tissue those elements which are necessary to make new tissue.

The building material needed by the body and to be supplied by the food has already been spoken of, but **Protein** we will review it rapidly here. The most **needed** important is nitrogen, which is provided in all protein foods and is required for different tissues. It is thought that different proteins provide building material for different tissues. Some of the proteins in our foods are better than others for muscle-building material, and so we have what are known as complete and incomplete proteins. Gelatine belongs to this latter class of proteins. Since the value of protein foods varies in this way, it is well to use a variety of protein foods and not to rely upon a single food for the sole source of nitrogenous material in the body.

The quantity of protein absolutely required by each man in twenty-four hours has been under discussion for some years. Dr. Atwater felt that 125 grams was not too much. In recent years, however, it has been found possible to maintain bodily health on a smaller quantity, from 80 to 90 grams. With war conditions, the protein content of the diet was very greatly reduced in some countries, especially in Belgium and

Germany. What effect this will have on the future health of the nation time alone will show, although figures are already coming in which indicate a great loss of power to resist disease, an increase in tuberculosis, and a greatly increased death-rate. A recent newspaper report from Russia indicated that it is thought the great increase in the number of babies which are born blind is due to the under-nourished condition of the mothers.

If the diet of an adult contains from 2 1/2 to 3 ounces of protein foods in a day, it is thought that sufficient nitrogen will be provided the body for all ordinary requirements. Convalescents, who need more building material, should have slightly more, and care should be taken that growing children should have, not more protein foods necessarily, but that the protein should be of the best type, such as is found in milk and eggs. In order to help the housekeeper figure out how much protein the family are getting, a table of half-ounce protein portions has been devised.¹ This must not be confused with the one hundred calorie portion, since that gives total fuel value, while this gives the amount of food which would contain approximately one half ounce of protein. These are as follows:

One half Ounce Protein Portions

- Milk, whole or skimmed, 1 pint
- Eggs, 2
- Cottage cheese, 1/4 cup, or 2 ounces
- American cheese, 1 1/4 inch cube, or 2 ounces
- Peanuts, shelled, 2 ounces

¹ This table and the following ones are taken from *Food and the War*, published by the United States Food Administration, 1918.

Lean meat, without bone, 2 1/4 ounces,
or a piece 2 x 2 x 3/4 in.

Fish, a similar piece

Beans, dried, cooked, 1 1/2 cups

Cereal, cooked, 2 1/3 to 3 cups

Bread, 6 slices, 3 1/2 x 3 x 1/2 in.

In order to get two and a half to three ounces of protein a day, five or six of these portions should be included in the course of the day's meals.

Sulphur and *phosphorus* are both essential ingredients of all body protein, and occur in foods wherever nitrogen is found. Phosphorus is also found in other foods, so that if the protein content of our food is sufficient, these will be also.

The body must also have certain mineral salts in order to keep it in good condition. The *iron* needed by the blood and entering into the structure of all active cells is found in egg-yolks, green vegetables, especially spinach, and meats. It is thought that 15 milligrams of iron are required daily. Social workers find that among the poor the diet is apt to lack iron more than any other constituent. The following list shows portions of food each of which contains approximately two milligrams of iron, so that seven and a half of these portions should be used daily:

Portions containing Two Milligrams Iron

White flour, 200 grams, enough for 3/4 pound bread

Graham flour, 40 grams, or 2 medium slices of bread

Egg-yolk, 22 grams, or from 1 1/2 to 2 eggs

Lean meat, 50 grams, about 2 ounces

Spinach, raw, 2 ounces, cooked, about 1/3 cup

String beans, a little over 1/3 pound, about 1 1/4 cups

Potato, 1 good-sized
 Sweet potato, almost 1 pound
 Oranges, 4 large
 Milk, 810 grams, almost 1 quart

Another mineral which is very important for the growth of bones and teeth is *calcium*. The chief source of calcium in the diet is milk but it is also found to some extent in other foods. The body's daily requirement for calcium is 0.67 gram. This is found in the following foods:

Portions containing Total Calcium Requirement for One Day

Milk, less than 1 1/4 pints
 Cheese, 2 1/2 ounces
 White flour, over 7 pounds
 Beef, 21 pounds
 Turnips, 2 1/3 pounds
 Carrots, 2 1/2 pounds

The other chemical elements necessary for the proper health and growth of the body are found in fruits and green vegetables; so also are the "vitamine" substances essential for growth. If this class of foods is well represented in the diet, together with a variety of other foods, all these substances will be provided in sufficient amounts.

CHAPTER XVI

THE MAKING OF MENUS

IN these times of high prices the all-absorbing question is how to reduce the H.C.L., or the high cost of living.

Cost of food It necessitates a careful study of the wise distribution of money and the amount that should be spent for food. Since an adequate quantity of nourishing food is absolutely necessary for the maintenance of health and efficiency of the family, the proportion of the income to be devoted to food is far higher to-day than it was some years ago when budgets were first made out on a percentage basis. In an article in the *Journal of the American Medical Association* for February 2, 1918, it was stated that "A reasonably satisfactory diet, . . . could not, at prices prevailing a few months ago, be purchased by a family of average size for less than ten cents a thousand calories and in most instances for not less than twelve cents." In order then for a man to obtain the 3000 calories he needs, he would have to spend at the very least thirty cents a day and he would be doing well if he could get it under thirty-five.

The following recommendations for low-cost diets are made by one organization:

1. Spend from one fourth to one third of food money for breads, cereals, macaroni, and rice.
2. Buy at least from one third to one half quart of milk a day for each member of the family.
3. Spend as much for vegetables and fruits together as

you do for milk. If you use one half quart of milk for each member of the family, this may not always be possible, then spend as much for vegetables and fruits as one third quart of milk a day per person would cost.

4. Spend not more for meat and eggs than for vegetables and fruit. The amount spent for meat may decrease as the amount spent for milk increases.

In counting the cost of food as served, the amount of work required for its preparation must be considered as well as the actual cost of materials. It may sometimes be well for a busy mother to put more money into food purchased which would require less time in preparation, so that she may be able to enjoy the meal with her family, instead of being so over-fatigued by the cooking that she is neither a good companion for her children nor in fit condition to eat the meal herself.

The ideal division of three dollars spent for food might be as follows:

Meat and fish.	0.60
Fats and sweets. ....	.50
Fruit and vegetables. ....	.60
Cereals. ....	.50-.30
Milk. ....	.60
Eggs. ....	.15-.25
Other things. ....	.05-.25

(These figures are based on actual figures of the money spent by 2000 families.)

As the cost of the dietary is decreased meat should never be used more than once a day. Eggs can only be used in cooking and then not often. Milk must be used in quantity as in cream soups, sauces, puddings, etc.

Pastry and other rich foods must be left out and plenty of green vegetables and fruit put in. Oleomargarine must be used instead of butter and skimmed milk instead of whole.

In order that it may be readily seen whether all the necessary food constituents are present in the daily diet, food substances are grouped conveniently into five classes based upon their chemical composition:

- | | |
|-------------------------|---|
| Five food groups | diet, food substances are grouped conveniently into five classes based upon their chemical composition: |
| 1. Mineral salt group: | Fruits and vegetables |
| 2. Protein group: | Meat, milk, eggs, fish, etc. |
| 3. Starch group: | Cereals and breadstuffs |
| 4. Fat group: | Butter, oils, and other fats |
| 5. Sugar group: | Sugar, jellies, jams, dried fruits, etc. |

The first two of these groups provide the materials out of which the body is built; the other three are primarily heat- and energy-producing foods. In planning the meals for every day we must see that each group is well represented in each day's diet, although not necessarily in each meal. We must also make sure that the quantity of food, especially from the energy-yielding groups (Nos. 3, 4, and 5), should vary with the type of work of the different members of the family. The one who is doing the heaviest muscular work should have the largest serving of the macaroni and cheese while the one who is sitting indoors all day should eat lightly of this dish and be content with the vegetable. Groups 1 and 3, the vegetables and the starchy foods, should be used freely as a basis for the diet, while the other groups should be used to give variety to the meal. It is not necessary to have many dishes, but we must make sure that the ones we do have

represent different groups of foods. Do not serve boiled rice and spaghetti at the same meal. In substituting one food for another be sure to see that the substitute food belongs to the same group as the one to be substituted. For instance, when butter is very high, it should properly be replaced by oleomargarine or drippings rather than by jam or molasses. In the same way green vegetables can be replaced in the winter time by root vegetables and not by rice nor macaroni.

The man who requires 3000 calories a day because of his moderate work, might divide it up as follows:

	<i>Richer and more Expensive Diet</i>	<i>Plainer and Cheaper Diet</i>
Vegetables and fruits	from 2 1/2 lbs.	down to 1 1/2 lbs.
Milk	8 oz.	8 oz.
Meat and eggs, cheese, etc.	from 14 oz.	down to 6 oz.
(Use 2 oz. less for every additional 1/2 pt. of milk)		
Cereals	from 8 oz.	up to 16 oz.
Sweets	from 3 oz.	down to 1 1/2 oz.
Fats	from 3 oz.	down to 1 1/2 oz.

A moderately active woman should use four fifths of this quantity.

The distribution of the total number of calories into meals for each day should be done so as to promote digestibility and satisfaction. Digestion is better on a mixed diet, but the activity of the individual should be taken into consideration. A laboring man who has an hour for his dinner in the middle of the day can handle easily a substantial meal with its cheese or pork or beans because he has time to rest before continuing his physical exertions. On the other hand a professional or business man usually takes as short a time as possible for his lunch and hurries back immediately to his desk.

*Division of
food into
meals*

For this reason his lunch should be light and should be made up of such foods as can be digested without effort. Cereal and fruit with a glass of milk make a very good lunch for a busy man, while pastry, doughnuts, and other forms of rich food should always be avoided.

When the life of the individual is known, regularity of meal hours should be carefully maintained and the quantity of food taken at each meal should be approximately the same, day after day. It is customary to divide the total amount of food needed in the twenty-four hours into three meals, two of which are comparatively light and the third heavy. Whether the heavy meal is taken in the middle of the day or at night, it should contain about half of the total number of calories needed for the day. The other two meals, breakfast and lunch or supper, would then each contain about a quarter of the number. For instance, if 2400 calories is the amount required, breakfast would have 600, luncheon 600, and dinner 1200. For many people, however, it is more satisfactory to have their food more evenly divided in the meals. In this case each meal would contain about 800 calories or a third of the total. Others find two meals a day very satisfactory, and still others find it necessary to take their food in smaller quantities at more frequent intervals. Experience must determine which is best.

Each meal should be a unit in itself, but at the same time the meals should be planned for several days at a time, so as to avoid repetition and unevenness of quantity. It might be possible to obtain from oatmeal and macaroni alone a good part of the food elements necessary, but a meal consisting

Variety
essential

of these two foods and nothing else would be unsatisfactory. Variety stimulates the appetite. It is also well to consider the harmonious blending of flavor, color, texture, and temperature of foods. It is more satisfactory on a cold day to begin a meal with a hot dish such as soup instead of chilled grapefruit. So also we would not like to repeat similar flavors in the same meal. If we serve a tomato bisque soup, a tomato sauce with the meat course or a tomato salad is to be avoided. There are some dishes which seem to go together naturally, such as peas with lamb chops, currant jelly with venison, cheese with cold apple pie, and bacon with liver. Some other dishes, which we find in constant use, however, are not such wise combinations as these. In chicken or lobster salad we have so much fat in connection with protein material that the salad is difficult to digest. The same is true with bacon and eggs. Griddle cakes also as usually eaten with a large amount of butter and syrup are not a food for a person with a delicate digestion, since the starch is so rapidly cooked that it is not cooked thoroughly.

Breakfast varies in heartiness with the habits of the family, but customarily is practically the same, morning after morning, in the same family. Where there are school-children, it is important to see that they start off in the morning with a **Breakfast** suitable breakfast eaten without haste or worry. The simplest breakfast is known as the Continental one, which consists merely of toast or hot bread and a hot drink, tea coffee, or cocoa. To this fruit is frequently added, making a very satisfactory breakfast for an adult who does not expect to have a busy morning. For busier people, however, a dish of cereal should be

added to this breakfast. The cereal by rights should make up the main part of the meal for adults as well as for children. If the third group, the starch one, is well represented and is eaten, as is usually the case, with milk or cream, no other form of protein food is necessary at breakfast. We should have our five groups represented, fruit from the first, milk from the second, cereal and toast or breadstuffs from the third, butter on the toast and cream on the cereal from the fourth, and the fifth, which might be easily omitted, is usually present in the sweetening of the coffee or cocoa and is also represented in the fruit. If eggs can be afforded, they are a pleasing way of introducing more building material for growing children, but are not absolutely necessary if a glass of milk is drunk and a big dish of cereal is eaten.

Americans are very apt to err on the size of their breakfast. There are many men like the one who insisted that he ate a light breakfast, and when asked what it usually was, said, "Fruit to begin with, then a dish of cereal with cream, then a chop or two or a piece of steak with toast or hot muffins and coffee, and, oh, yes, usually some griddle cakes or waffles to end off with." Such a man would certainly need to walk to his office before starting in with a hard day's work, but the man who can afford such a breakfast is apt to ride to town in his limousine and then wonders why he has dyspepsia or bilious attacks.

The other light meal of the day, whether it is luncheon or supper, is usually the meal in which left-overs are used. Here again group three, or the starchy foods, may be the basis if there is plenty of variety in the other meals. There are many

forms of cereals which can be used to give a variety and not resemble breakfast. Boiled rice, served either with cream and sugar, with maple syrup, or with maple sugar, makes a good basis for such a meal. So also would a large dish of creamed macaroni and spaghetti with or without cheese, and varied sometimes by being made with tomato instead of milk. Fried cornmeal mush, French toast, and even griddle cakes or waffles might be used occasionally for this meal for the older young people and adults. They would, of course, not be given to children. Other dishes which may well find a place at this meal are creamed soups, hearty salads, cheese dishes, nut loaves, or stuffed eggs when used with fresh greens or fruit and plenty of breadstuffs. If milk is introduced in some form or other at this meal either as soup or in the scalloped dish or in the pudding, we should be quite satisfied that the boys and girls coming from school were getting a suitable lunch.

The hearty meal of the day, whether at noon or at night, is usually made up of all five groups. The problem is more difficult to handle in those families where the school-children should **Dinner** have their hearty meal in the middle of the day and the busy father of the family should have his at night. It really amounts to serving two dinners a day, although by a judicious use of cold meat, together with plenty of hot dishes for the children at noon, and by putting salads instead of a heavy dessert with the roast at night, it can be worked out satisfactorily for both. It is not necessary to have many dishes, as all the groups may be represented in four dishes or even less. This is the meal at which it is customary to serve

meat, but other protein foods, fish, cheese, or the pulses, might easily be used to take its place occasionally. The starch group is present in the form of potato, macaroni, rice, and breadstuffs. One green vegetable is usually served but it would be well to add another or a simple salad. If fruit is used for dessert as well, the mineral salt group would be well represented. The other two groups are found in the oil on the salad, in the gravy with the meat, and in the pudding or other sweet dish that is used for dessert. There is usually enough fat served in one form or another at dinner so that it is not necessary to have butter on the table at this meal.

There are many combinations which can be used as the hearty dish for dinner in which two or more groups may be represented. Such a dish would be a fish or clam chowder, where starches, protein foods, and some fat are all combined. This should then be served with food from the mineral salt group, such as salads or fruit, and some sweet. Another such dish would be an Irish stew where potatoes and vegetables are combined with the meat. So also there are many variations that can be made in a casserole or baking-dish where a starch (rice, macaroni or cornmeal) is combined with vegetables, usually tomato, but almost any vegetable might answer the purpose, together with a little fish or meat or cheese. If the flavor is enjoyed, a slice or two of bacon can be laid on the top, which will crisp up in the oven and add fat to the dish. Such a dish may easily be prepared in the morning and slipped into the oven a half or three quarters of an hour before dinner-time, thus greatly relieving the task of preparing dinner and permitting the home-maker to be out

of the house all the afternoon. It also does away with the necessity of having many disagreeable cooking dishes to wash and makes the dinner a very simple one to serve. In these days of the high cost of labor, it is well to become accustomed to using all such means of saving time and energy.

Since breakfast is so much a matter of routine and since luncheon can be so readily made up from left-overs or along lines already discussed, we will simply add a few combinations which would be suitable for the hearty meal of the day. Some of these are typical of meals that are in constant use.

1

Spaghetti, macaroni, or rice cooked with tomato, onion,
green pepper, and cheese
Bread and butter
Fruit and gingerbread

2

Cow peas boiled with pork Boiled rice
Green vegetable or vegetable salad
Honey, maple sugar, or date sandwiches

3

Baked beans and brown bread
Tomato jelly salad
Tart apple sauce and cookies

4

Fish chowder
Sliced tomatoes
Apple pie
Cheese

5

Fowl en casserole
 Baked potato Spinach
 Chocolate cornstarch pudding
 Cookies

6

Pot roast
 Potatoes Boiled onions
 Prunes and hermits

7

Corn, tomato, and cheese on toast
 Potato salad with boiled dressing
 Jam or stewed fruit

8

Baked fish
 Boiled rice Scalloped corn
 Apple tapioca

9

Salt codfish hash
 Vegetable Nut bread
 Banana salad

10

Meat balls
 Scalloped rice Fried onions
 Lemon jelly

11

Cream of celery soup
 Chicken en casserole
 Tomato salad Graham muffins
 Ice cream
 Coffee Cake

CHAPTER XVII

FOOD FOR INFANTS AND YOUNG CHILDREN

MOTHER'S milk is always to be preferred for infants whenever it is possible. Children who have this start in **Mother's milk best** life have a far better chance for health and normal growth than those that are artificially fed. Statistics gathered by social workers and hospitals show that the death-rate among children under a year old is lower for breast-fed babies than for bottle-fed. Seven die in every one hundred the first year of breast-fed babies while there is an average of thirty in every one hundred of the bottle-fed. If our young girls of all classes could be taught how important for the health of their children is the ability to feed them properly, they would take more pains in the right training and condition of their own bodies so that they might be able in later years to perform this function.

There are certain conditions which tend towards successful nursing and others which must be carefully **Conditions affecting breast feeding** avoided. A nursing mother should always avoid over-fatigue, worry, and undue excitement. She should also be careful to eat only such food as is readily digestible; she should have plenty of fresh air, regular exercise, meals of wholesome, nourishing food at regular hours, and plenty of water to drink between meals. Tea and coffee are not wise foods at any time and if a nursing mother wants to have a quiet, unexcitable baby, she ought

never to take them during the period she is nursing the baby. She would of course not drink any alcoholic beverages and would be a little careful about the acidity of the food that she eats. (On the whole, however, food that does not disagree with her she can be quite sure will not be likely to upset the baby.) She should be very careful not to do too hard work but it is well if she can have a pleasurable occupation and some diversion of a simple kind, avoiding excitement. She also needs plenty of sleep. If her nights are disturbed by the baby, she should plan to take a nap during the day-time when the baby is asleep. It is also important that she should have a regular schedule of hours for feeding the baby and should keep strictly to these hours whether the baby cries between times or not. This is necessary not only for the health of the baby but also for her own supply of milk, since the milk glands, like all other glands in the body, perform their function better on a regular demand.

If a mother is so unfortunate that she cannot have the privilege of nursing her own baby, she must use some substitute for her milk. Since there **Modifying** is no food that is exactly like mother's **cow's milk** milk, the only thing that can be done is to take the food the nearest like it that we have, cow's milk, and modify it by various ways in order to make it as much like mother's milk as possible. This modification is based on the chemical analysis of the two milks. Because mother's milk contains more fat and more sugar than cow's milk, it is customary usually to take the top of the bottle of milk after it has stood some hours, dilute this with boiled water to the required strength, and then add milk sugar and limewater. Milk to be

modified in this way should of course be the best possible obtainable. The whole process must be done under clean conditions with utensils that are not used for any other purpose. These utensils should be carefully washed, scalded, and dried with a clean towel every day after the baby's bottles are fixed. The exact formula to be used for the baby varies with the age of the child, and with the wishes of the doctor. Mother's milk is adjusted by nature to suit the varying demands of the growing infant, while modified milk must be continually increased in strength as the child grows. Different children's specialists use different formulæ for modifying milk and these can be found in such books as Dr. Holt's *Care of the Baby*, Dr. Kerley's *Short Talks with Young Mothers*, and Dr. Richard Smith's *The Baby's First Two Years*. If artificial feeding must be resorted to, it is well to avoid all proprietary foods, since they usually contain starch which is not easily digested by the young infant.

After the child is six months old, orange juice may usually be given to the infant from a spoon a half hour before the morning feeding. Barley water
Other foods for infants may be substituted for the boiled water in the bottles at the same period. The infant, at a very early stage, should be taught to take plain boiled water between feedings from a bottle even if he is breast-fed. If he is accustomed to doing this, there will be very little difficulty when it becomes necessary to wean him. For this reason also it may sometimes be well to introduce at least one bottle of milk a day along about the fourth or fifth month in order to supplement the mother's milk and to get the child accustomed to taking milk from a bottle. The mother who can nurse

her baby unaided for eight months is doing very well indeed. Even if she can only do it four or five months, she has given the child a good start in life.

It is customary with doctors to-day to put the babies very early on a schedule of feeding of three-hour intervals. These may be arranged conveniently **Regular** at the following hours: six, nine, twelve, **feeding hours** three, and six. During the early months the child is also given another feeding about ten and then should go until six in the morning without any more. A child that is established on a definite schedule closely adhered to by the mother, soon becomes accustomed to it and is very easy to take care of. As the child becomes older these intervals will be found to be too close; the child will not be hungry enough to take all the food it should at each feeding. When this point is reached, which will vary with different children, somewhere about the ninth month, the schedule should be changed to a four-hour one. The feeding hours will then be six, ten, two, six, and ten. If a child is gaining steadily and sleeping well, the ten o'clock feeding at night may safely be omitted. These changes, however, should only be carried out under the advice of the physician in charge.

It must be kept in mind that the digestive powers of the infant develop very gradually, so we must increase the kind and the quantity of the **Cereal** food slowly to meet this development. **gruels** **added**

New foods should be introduced into the diet, one at a time, and in small quantities to begin with. Up to the time a child is five years old milk remains the staple of the diet. He should have from three cups to a quart daily, care being always taken to have it clean and

fresh. Cereal is the next food to be added to the child's diet. This is used in the form of gruel for some months mixed with the milk, then it can be used in the form of a cereal jelly where the very thoroughly cooked mush is strained to remove the husks. This is served with milk. Later, as the child grows older, he can be given the mush unstrained. For this purpose oatmeal can be varied with cream of wheat, wheatena, pettjohn's, rice, or shredded wheat. The last is best used by pouring boiling water on it first to soften it before adding the milk.

Milk and cereal should be the basis of a child's diet until he is two years old, although other foods can be **Other additions to the diet** added to give variety. An egg may be used occasionally, though never more than one a day, either in cooking, as in the form of custard, or boiled. To the orange juice already in use, other fruit juices may be added and even the strained pulp of prunes or apples. The fruit should be mostly cooked, although the raw fruit of the fleshy kinds, such as peaches and pears, occasionally will not harm if they are thoroughly ripe. No bananas should be given raw to a child, although they may be used steamed or baked. A green vegetable should be given in the middle of every day. It should be strained at first but can later be given cut up fine. The vegetables that are the best to begin with are the mild ones, such as spinach, peas, green beans, asparagus tips, etc. A child should be encouraged to eat hard breadstuffs, such as the crust of the bread and zwieback, for the good of his teeth. He should never be allowed to have fresh bread or hot biscuits. Between the ages of three and five a child may be given a little meat, but never more than

once a day, and never any pork products except bacon. It is well to vary the meat by using in its place the white fish such as cod and haddock. If children are allowed to eat a good deal of meat they will not eat the amount of cereal and milk which they ought to, because the meat has so much more flavor and is better liked. Never give fried food of any kind to the child, especially fried potatoes.

There is no harm in keeping the child on a fairly uniform diet. For this reason it is better that he should have his meals away from the family Good habits formed early where there will be no temptation to give him tastes of the food which the family is having. If he does not know what more elaborate food tastes like, he will have no desire for it. It is very essential that he should have his meals at regular intervals and that he should be taught from the very beginning to eat everything that is placed before him. A child develops whims and fancies very quickly and if these are allowed to grow he will become a nuisance to himself and to others. It should always be taken as a matter of course that what he is given to eat must be eaten without any question on his part. If the mother knows that a certain food is distasteful to the child, she should only give him a very small amount of that food at a time, say only a teaspoonful, but all that she gives him should be eaten before he is allowed to have his dessert. It is only by establishing such habits early that there will be any comfort to be had in later years.

Good table manners should also be established in early years. A child learns more through imitation than through precept, although the mother has to keep constant watch over the size of the mouthfuls taken

and the way the food is chewed. If a child does not chew his food thoroughly it will not be properly digested and he cannot get full value from it.

A child at this period of from two to five should be having his food in three regular meals a day with a light lunch in the middle of the morning.

Food for child
2 to 5 years
old The time for these may vary with the habits of the household but if it is possible,

it is well that breakfast should be from half-past seven to eight, dinner at half-past twelve or one, and supper from five to half-past. His breakfast should consist of the juice of an orange or some other fruit, a good-sized dish of cooked cereal with top milk on it, a soft-boiled egg, a slice of buttered toast and a glass of milk. He should have another glass of milk and a piece of bread and butter between half-past ten and eleven. For dinner he could have a broth made from mutton or beef in which rice or barley has been cooked, or he could have a small piece of rare beefsteak, the heart of a chop, or a little white fish. With this he could have a baked potato or boiled rice or macaroni and a vegetable, and for dessert he could have the inside of a baked apple, apple sauce, or a pudding, such as baked custard, a simple rice pudding, bread pudding, or a thoroughly cooked, plain cornstarch pudding. He could also have fruit jelly served with cream or a simple ice cream. For supper he should again have a dish of cereal and milk as a basis. With this he could have stewed prunes or apple sauce or baked apples if he has not had them at noon. He could also have a cup of weak cocoa, a slice of bread and butter, a plain cooky, or a piece of simple cake. He should never have fried foods nor rich foods of any sort.

If it is desirable for the child to have a piece of candy as a reward of merit, which frequently is a far better scheme than punishment, this may best be given immediately after breakfast or dinner. It should never be given between meals. No food of any kind, in fact, should be allowed except at the regular meal hours. If a child has plenty of the right kind of food at regular intervals he does not want anything else to eat. If, however, he is really hungry, he may safely be given a plain piece of bread. It is not often that he is hungry enough for this. What he wants is a cooky or the jam on his bread which would spoil his appetite for his regular meals.

DIET FOR CHILD

At 12 months

4 meals — at 6, 10, 2, 6, or similar convenient hours.

- (1) 1 or 2 ounces of juice of sweet orange, or pulp of 6 stewed prunes.

8 ounces of milk.

3 or 4 ounces of well-cooked and strained cereal (farina, cream of wheat, oatmeal, barley, rice, or arrow-root). Salt to taste. Sugar is not necessary.

- (2) 8 ounces of milk, with zwieback, plain crackers, stale bread, or toast.

- (3) 4 ounces of broth; beef, mutton, or chicken with 1 or 2 tablespoons of well-cooked rice or barley, or 2 ounces of beef juice.

8 ounces of milk.

Apple sauce, pulp of baked apple, or prune juice, if necessary for bowels.

- (4) 3 or 4 ounces of cereal, as at breakfast.

8 or 10 ounces of milk.

13 months — add macaroni and spaghetti, alternating with rice at the 2 P.M. meal.

15 to 16 months — add soft-boiled eggs (2 or 3 a week). Best given at 2 P.M. in place of the broth or beef juice.

Add thoroughly baked potato, alternating with rice, macaroni, or spaghetti at 2 P.M. Add small amount of butter on bread or potato.

Stop straining the cereals.

2 tablespoons = 1 ounce.

1 glass = 8 ounces.

At 18 months

Breakfast — Juice of 1 sweet orange, or

Pulp of 6 stewed prunes.

Cereal (cream of wheat, oatmeal, farina, barley, arrow-root, rice, etc.)

Milk, 1 glass.

Stale bread or toast, and butter.

Lunch — Milk, 1 glass.

Stale bread, or toast, or plain crackers.

Dinner — Broth, or minced or scraped meat, or soft-boiled egg.

Boiled rice, or spaghetti, or macaroni, or baked potato.

Stewed celery, or stewed lettuce. Well-cooked and strained spinach, or carrots, fresh peas, and string beans.

Stale bread, or toast, or plain crackers and butter.

Milk, 1 glass.

Cooked apple, or stewed prunes, without the skins, if needed for constipation, or

Simple pudding — i.e., rice, bread, tapioca, custard, junket, and blanc mange.

Supper — Cereal (as at breakfast), or bread and milk.

Glass of milk.

Stale bread, or toast, and butter.

Cooked fruit, unless given at dinner.

SAMPLE MENU FOR CHILD TWO TO FOUR YEARS OLD

7 A.M.	4 tablespoons orange juice, or juice and pulp 4 prunes 4 tablespoons oatmeal 2 slices bread 1 teaspoon butter 10 ounces milk
10 A.M.	8 ounces milk 1 cracker
1 P.M.	1 egg or small portion boiled cod or haddock 1 medium baked potato 1 1/2 tablespoons spinach 1 slice bread 1/2 teaspoonful butter 2 tablespoons junket
5.30 P.M.	4 tablespoons boiled rice 2 slices bread 1 teaspoon butter 2 tablespoons apple sauce

LIST OF FOODS ALLOWED A CHILD TWO TO FOUR YEARS OLD

Milk: This is the principal article of diet.

Fruits:

Baked apples	Oranges
Apple sauce	Stewed pears
Stewed prunes	Baked pears
Stewed peaches	

Cereals:

Oatmeal	Wheat germ
Pettijohn	Samp
Cream of wheat	Germea
Wheatena	Malt Breakfast Food
Quaker Oats	Farina

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Ralston	Hominy	
Cracked wheat		
White vegetables:		
Potato, baked	Macaroni	
Rice	Spaghetti	
Green vegetables:		
String beans	Spinach	
Asparagus	Beet greens	
Lettuce	Green peas	
Celery, stewed	Beets	
Carrots	Swiss chard	
Bread:		
Stale bread (white, whole wheat, graham, oatmeal, rye, or corn) with butter		
Crackers		
Desserts:		
Junket	Cooked fruit	Simple jelly
Custard	Sago	Cornstarch pudding
Tapioca cream	Rice pudding	Bread pudding
Apple tapioca		without raisins
Prune whip	Ice cream	
Protein Foods:		
Eggs, soft-boiled or coddled	Mutton	
Fresh fish (boiled)	Steak	
Roast chicken	Lamb (roast or chopped)	
Boiled chicken	Roast beef	
Soups:		
Beef	Vegetable	
Creamed vegetable	Chicken	
Mutton		
Fats:		
Butter	Olive oil	
Oleomargarine		

RECIPES FOR INFANT FOODS

Albumen Water

For each 4 ounces of water at 104° F., add the white of one egg. Stir with a knife until dissolved. Do not beat or shake. Strain through cheesecloth.

Barley Water

Take 2 level teaspoons of Robinson's or Brook's barley flour, or any other standard brand, and mix with enough water to make a paste. Add water up to one pint. Boil 20 minutes in a double boiler. Strain through two thicknesses of cheesecloth. Add boiled water up to one pint to make up what has boiled away.

Beef Juice

Partially broil on both sides 1/2 pound of the top of the round. Cut in small pieces and squeeze out the juice, using a meat-press or a wooden lemon-squeezer. Add a pinch of salt. 1/2 pound of beef makes 2 ounces of beef juice.

Beef, Scraped

Scrape a piece of round steak with a knife and then broil very slightly. The meat is practically free from the connecting fiber and is better than when minced.

Broth

Put 1 pound of the meat in 1 pint of cold water. Add a pinch of salt. Let stand 1/2 hour. Cook slowly for 3 or 4 hours. DO NOT LET IT BOIL. Strain through 2 thicknesses of cheesecloth. Cool. Remove and discard all the fat.

Coddled Egg

Put the egg into boiling water and remove immediately from the fire, or set it back on the stove. Cover and let it stand for six or seven minutes. The white of the egg should be soft and not liquid.

Gruel

This may be either barley or oatmeal. Use either Robinson's or Brook's barley or Robinson's oatmeal (groats), or any other standard brand. Take 3 tablespoons of the flour, and mix with a little cold water to make a paste, then add water to make one pint. Cook for 20 minutes in a double boiler. Add a pinch of salt. Strain through two thicknesses of cheesecloth. If the gruel is too thin, cook a little longer; it should be thick enough to jelly when cold.

Junket

To 1 quart of milk, whole, heated to 105° F., add 4 teaspoons of liquid rennet. Add a pinch of salt and a teaspoon of granulated sugar. Let stand in a cool place until the curd forms. Strain off the liquid portion or whey. The curd is junket.

It is also made by adding one junket tablet, dissolved in a little cold milk, to the warm milk, and allowing it to stand.

Limewater

Put 1 teaspoon of unslaked lime in a bottle containing 1 quart of boiled water, shake thoroughly, and allow it to stand for 24 hours. The clear fluid at the top is limewater.

Prune Juice

Take 1/2 pound of prunes, wash, and soak in water overnight. Cover with water and add 1/2 teaspoon of sugar (no lemon). Cook in a double boiler until the prunes are perfectly tender. Strain through a cheesecloth to remove the pulp.

Whey

To 1 quart of skimmed milk heated to 105° F., add 4 teaspoons of liquid rennet. Let stand in a cool place until the curd forms. Break up the curd with a fork and strain through 4 layers of cheesecloth or muslin. Heat the whey (the liquid part) to 155° F. and allow it to cool gradually. Keep on ice. One quart of milk makes 24 ounces of whey.

CHAPTER XVIII

FOOD FOR SCHOOL-CHILDREN

THIS period in the life of an individual from the time he starts to school at five or six until he graduates from college at twenty-one or twenty-two is one in which there is great activity both of the body and of the mind. It is the period of growth in which the body goes through great changes not only in building up the bodily tissue itself but in the development which eventually produces the adult man or woman. During this period the youth is more dependent on a regular supply of food every day than is the adult. His activity is so great that the supply of fuel must be constant and steady. At the same time he must have a larger proportion of those foods which contain the best building material for body structure. This is particularly important in the type of protein material, since those proteins that are found in milk, eggs, and meat are of greater value than those that are found in the cereals and pulses.

Good supply
of food nec-
essary for
growth

There are certain signs betokening good health which means a suitable diet. The first of these is a steady gain in weight and height. A movement is now on foot by the Federal Bureau of Education for the weighing of all school-children at least twice during each year so as to keep track of the gain in weight. Where this has already been done, it has been found that a surprisingly large number of

Signs of good
health

our school-children are below weight according to the standards set by the experts. Another sign of good health is sound sleep and plenty of it. This must always be taken in close connection with proper diet in order to insure gain in weight. A child should also have a reasonable appetite, not too large nor too small. The lad who could and did eat eleven shredded wheat biscuits for breakfast could hardly be said to have a reasonable appetite. A child who is well and strong will have a firm flesh and rosy skin, and will be generally good-natured.

The food should increase gradually in quantity as the years go on and the body requirements become greater and greater. The bulk of the diet should still consist largely of cereals, vegetables, and fruit. These may be varied from day to day but it is very important that no school-child should be allowed to start off to school in the morning without having eaten a substantial dish of cereal, preferably of a cooked variety. Meat should be had in moderate amount, seldom more than once a day, and other foods such as fish and cheese may be substituted for it. Milk should still be used; at least a pint a day for the older children and three cups for the younger ones. No tea, coffee, nor strong cocoa should be allowed, especially during the high-school period when girls in particular seem to have a craving for these. It is to be remembered that these drinks are stimulants and will have a harmful effect upon the organism of a girl at just this time.

The young people should be encouraged to eat plenty of vegetables and fruit. It would be well if fruit were available for them between meals, as it would be of

far greater benefit for them than would be the candy, college ices, ice-cream sodas, or rich cake which are constantly resorted to by the ever-hungry student. Rich cake, pastry, and fried foods should be avoided and candy can only safely be used immediately after meals, not between meals.

During the adolescent period the young people are very apt to show vagaries in their likes and dislikes about their food. This is where early training will have its strong effect. If eating ^{Vagaries} _{harmful} has always been considered a part of the day's business to be carried out with a definite aim in mind, that of building up strong, healthy bodies, very little trouble will be met with at this time. If on the other hand, the girl and boy have been allowed to pick and choose pretty much as they pleased without respect to the value of the foods themselves, they are quite apt not to get the kind of food the body most requires during this period of great growth. It requires great care on the part of the homemaker to see that it is impossible for the young people to have a one-sided diet, even though they do not eat everything that is served. This means careful planning so that the groups of foods will be represented at the meal in more than in just one form. Breadstuffs may be served in a variety of ways so that the cereal content of the meal will still be high. Cinnamon buns, date or raisin bread, currant rolls, and other forms of bread may well be used. Desserts may also be varied in such a way as to avoid monotony and yet introduce valuable building material into the diet. Instead of serving an ordinary rice pudding, it can sometimes be made with chocolate, or with molasses, and apples baked in it,

and the much-despised cornstarch pudding can be dressed up by being served with stewed figs, ginger, and whipped cream, or peaches or other raw fruit. In this way milk can be introduced into the diet unobtrusively.

From the time when the children can have their heartiest meal at night with the rest of the family, the luncheon is always the biggest problem.

The problem of lunch This is just as true in the colleges as it is in the home where the children are still either in the grammar school or in the high school. If the child has to take his midday meal with him, just as much care should be given to the planning of the lunch-box as though the meal were to be eaten at home. All the food groups should be represented in such form as can be carried in a lunch-box and still be appetizing when taken out several hours later. In order to protect the food as much as possible, sandwiches and cake should be carefully wrapped in paraffin paper. Little dishes can be used to carry such foods as a baked custard or a baked apple or even stewed prunes. By using a thermos bottle soup or cocoa or even cold milk can be taken to supplement the lunch in the box.

There are many fillings which can be put into the sandwiches to provide protein or vegetable material. Thinly sliced cold meat of different kinds, hard-boiled eggs, cheese, the purée of pulses or peanut butter will be of the first class, while lettuce, celery, sliced tomatoes will be of the second. If a meat sandwich is taken, lettuce can be taken separately, carefully washed and wrapped in paraffin paper. There is more danger of neglecting this important group of foods in the lunch-box than any of the others. Fruit should be included

every day, either as an apple or orange, or as a few dates and figs. These latter will also provide the sweet which is so greatly craved by young people. In making sandwiches try to use a variety of breads as much as possible, oatmeal or graham instead of white, for in these the young people can obtain more iron and other salts than they can from white bread.

Many of our preparatory and high schools which have the long session are making it possible for the boys and girls to have a hot meal at school. ^{The school} This is, of course, the ideal way if these ^{lunch} meals are carefully supervised. A choice of dishes must be served; yet among this variety the dishes should be so planned that it would be difficult for the young people not to get the right kind of a dinner. A soup of some sort, either on a milk basis or a rich broth with vegetables, should be among the choice each day; so should a hot dish of some kind, like macaroni and cheese, stew, baked rice, and tomato. Some vegetable either as such or as a salad should be present in the menu, and a pudding and fruit as a choice for the desert. From such a list it would be hard for a boy or a girl not to get a suitable lunch.

The colleges have a little different problem. Most of their young people return directly to work and are allowed a comparatively short time to eat lunch. For this reason the lunch must consist of such foods as can be served quickly and will be easily digested. If a milk dish is present in one course or another, it serves as a good basis for this midday meal. This dish, whether it is soup or a creamed dish or in the form of a dessert, should be supplemented with attractive breadstuffs and vegetables, either hot or as salad.

MENU FOR THE SCHOOL LUNCH-BOX

- (1) Sandwiches: made of stale bread, preferably graham or oatmeal, and filled with:
 finely chopped boiled eggs, well but mildly seasoned;
 a nut paste, as peanut butter softened with milk or cream;
 a dried fruit paste, made of chopped dates or figs;
 meat, thinly sliced or finely chopped and seasoned;
 celery, chopped fine and mixed with salad dressing;
 cream cheese and nuts;
 American cheese grated and seasoned with tomato;
 lettuce with mayonnaise;
- (2) Fruit: an orange or apple; also cooked fruit if it can be carried, as apple sauce or baked apple, stewed prunes, raisins, pears, peaches, etc. Tomatoes may take the place of other fruit when liked.
- (3) A sweet: as baked custard, plain cookies, sponge cake.
- (4) Milk or fruit juice to drink if it can be carried.

RECIPES FOR THE LUNCH-BOX**COOKIES**

1/2 cup butter	1/4 cup milk
1 cup sugar	2 cups pastry flour
1 egg	2 to 3 teaspoons baking-powder

Mix like cake. Put the dough on the ice to chill, use a portion of it at a time and work quickly with little flour on the molding board. Bake in a hot oven, watching constantly. Cookies may be made plainer by increasing the amount of milk, also the flour and baking-powder, or richer by omitting the milk entirely and sprinkling with sugar before baking. The dough may be divided into four parts and flavored differently:

- To 1/4 add 1 teaspoon lemon or vanilla extract
 To 1/4 add 1/2 cup dessicated or fresh cocoanut
 To 1/4 add 1 ounce chocolate melted, or 1 1/2 tablespoons
 dry cocoa with a little flour, also vanilla
 To 1/4 add 1 teaspoon mixed spices and 1/2 cup chopped
 raisins, citron, or almonds.

Proportions for Mixed Spices

- | | |
|-----------------------|----------------------|
| 1/2 teaspoon cloves | 1 teaspoon nutmeg |
| 1/2 teaspoon allspice | 3 teaspoons cinnamon |
| 1 teaspoon mace | |

GINGER SNAPS

- | | |
|---------------------|-----------------------|
| 1 cup butter | 1/2 teaspoon soda |
| 1 cup sugar | 1 tablespoon ginger |
| 1 cup N.O. molasses | 3 cups flour (pastry) |
| 1 egg | |

Mix like cake, adding the flour sifted with the ginger and soda last. Chill the dough, and roll out a portion of it at a time. Bake in a hot oven, watching constantly.

MOLASSES COOKIES

- | | |
|-----------------------|---------------------------|
| 1 cup butter | 1 tablespoon ginger |
| 2 cups molasses | 1/2 teaspoon soda |
| 1 egg | 3 teaspoons baking-powder |
| 1 tablespoon cinnamon | 4 cups flour (pastry) |

Soften butter and add to molasses, then add beaten egg and 1 cup flour; with the 2d cup of flour sift the ginger and cinnamon, and with the 3d the soda. Add enough more flour to make a soft dough. Toss on a floured board, pat with a rolling-pin to 1/4 inch in thickness, cut out, and bake in moderate oven.

PEANUT BUTTER JUMBLES

1 cup granulated sugar	1/2 teaspoon soda
1/2 cup sweet cream	1 teaspoon cream of tartar
1/2 cup butter	1 egg
1 cup peanut butter	1 3/4 cups flour
Salt	

Mix peanut butter with the butter and sugar. Add egg well beaten. Add cream and mix in the flour sifted with salt, soda, and cream of tartar to make a stiff dough. Bake in a very hot oven.

ROLLED OATS AND PEANUT BUTTER COOKIES

1/2 cup brown sugar	1/2 teaspoon salt
2 tablespoons peanut butter mixed with milk to make soft and smooth	1 teaspoon baking-powder
	1 egg
	1/2 teaspoon vanilla
	1 1/2 cups rolled oats, raw

Mix dry ingredients. Add the egg beaten and then peanut butter. Drop from teaspoon on greased tin and bake quickly.

BARLEY COOKIES

3 tablespoons shortening	
1/2 cup brown sugar	
1 egg, well beaten	
2 tablespoons milk	
1 cup barley flour	} sifted together
2 teaspoons baking-powder	
1 teaspoon cinnamon	
1/2 cup chopped raisins	

Cream the shortening, add sugar and other ingredients in order, and beat well. Drop from a teaspoon 2 inches apart, on a greased sheet. Bake in a moderate oven about 12 minutes.

SCOTTISH FANCIES OR ROLLED OATS WAFERS

- | | |
|--|----------------------|
| 1 egg | 1 cup rolled oats |
| 1/2 cup sugar | 1/3 teaspoon salt |
| 2/3 tablespoon melted butter or
oleomargarine | 1/4 teaspoon vanilla |

Beat egg very light and then stir in remaining ingredients. Drop mixture by teaspoonfuls on a thoroughly greased tin sheet or inverted dripping-pan an inch apart. Spread into circular shape with a case knife dipped in cold water, and separate the bits of oats to make the wafer very *thin* when cooked. Bake in a moderate oven until delicately browned. Remove from pan quickly. For variety use 2/3 cup rolled oats and fill cup with shredded cocoanut.

CHOCOLATE NUT COOKIES

- | | |
|------------------------------|---------------------------|
| 1/2 cup corn syrup | 1 teaspoon baking-powder |
| 2 tablespoons strained honey | 1/2 teaspoon salt |
| 2 squares chocolate | 1 teaspoon vanilla |
| 10 tablespoons rice flour | 1/2 cup chopped nut meats |
| 4 tablespoons barley flour | |

Mix and drop by the spoonful on greased baking-sheets. Bake 15 minutes.

CHAPTER XIX

FOOD FOR INVALIDS

IN China a doctor is engaged to keep the family well. He would be greatly helped by some knowledge of foods on the part of the mother of the family who plans the meals, for just as much as a good diet is essential for the maintenance of health, so one that is badly planned causes the lowering of the power of resistance of the body. This gives a chance for the disease germs which are ever present around us to get a foothold in the body and to develop into some serious condition. Aside from this, improper food is often the direct cause for much illness, whether of a serious kind or of some trifling nature which is, however, sufficient to lower working ability.

When the individual is sick and under the doctor's care, the doctor's directions as to the food that must be eaten must be carried out implicitly. Typical invalid diets If, however, the nurse or the mother has a certain understanding of the terms in use when speaking of the kind of diet which can be given to the invalid, she can be of great help to the doctor. There are three such typical diets in common use in the hospitals today. The first of these is known as the *Fluid Diet*. As is shown by its name no solids are given, but all nourishment is given in liquid form. Milk, of course, is the basis of such a diet, alone or in various combinations with eggs, gruels, and broths. Fruit drinks are also included and the food value of these may also be

increased by the use of eggs. It is usual to give such a diet in small quantities at frequent intervals.

The second is known as the *Soft* or *Semi-Solid Diet*. This would include all foods in the fluid diet and the simplest of solid foods, such as toasts, custards, whips, soufflés, gelatine dishes, and ice cream. All meat, fish, and green vegetables are omitted.

The third diet is known as the *Light* or *Convalescent Diet*. This diet is very similar to one that would be given a healthy child, since the aim is the same in both cases — to provide such food as will build the body without disturbing the digestion. Plenty of milk would be used in this diet as well as in the others and would be supplemented by the simpler meat dishes, well-cooked cereals, baked potatoes, green vegetables, fruits, and plain desserts. No fried food nor rich dishes would be given to a convalescent any more than to a child.

Since digestion is aided by the attractiveness with which the meal is served, this point should be carefully noted in the service for an invalid. The meals should be served at regular inter-^{Serving}vals, the foods should be cooked as perfectly as possible, and the whole served daintily on a tray covered with fine linen and the best china used. It would stimulate the appetite of the patient to have a little surprise on the tray, either a single flower, a gift, or a looked-for letter. It is never well to leave the invalid to eat his meal by himself, since pleasant companionship also tends to the better digestion of the food.

When one is first taken ill, fasting for two or three days does no harm in the case of an adult, since there is usually a sufficient supply of material in the body

which can be utilized in such an emergency. During this period the digestive tract would have a chance for a complete rest. If, however, the illness is protracted, a sufficient amount of food must be provided to supply the fuel for the body activity. It was thought at one time that because a person was lying in bed and not performing any external work that he did not need any food. This theory is now just as obsolete as is the general bleeding of patients used some centuries ago. In studying a patient with a respiration calorimeter it was found that a healthy man of normal weight lying in bed for twenty-four hours would require about 1850 calories just to cover his internal muscular activity. In case of sickness the individual may even require more than this to overcome the wasting away of tissue due to bacterial action. The knowledge of this fact has revolutionized the feeding of patients suffering with long-time illnesses especially with such fevers as typhoid.

FOOD FOR SLIGHT ILLNESSES

Many times an individual is slightly ill when it is not necessary to call the doctor and yet when especial care with the food would help towards rapid recovery. In the case of colds, for instance, which are usually contracted because the individual is slightly below par, the first thing to do is to maintain a laxative diet of low fuel value for about twenty-four hours. This means an increased quantity of fruits and vegetables, no fats nor sugars, and a small amount of starches. When the system has become cleared, this diet should be followed by one that is high in such food as will build up the strength of the body. Extra fats

should be used in the form of butter, cream, salad oil, and bacon fat. Care of course should be taken to use foods that are easily digested and not those that would again clog up the system.

In those cases where the digestive tract itself is not working properly it is well to avoid all food whatever for a day or so, or to use only those foods that are very light and easy to digest, such as thoroughly dried toast and broths, particularly mutton broth in which rice has been cooked. The diet may then be gradually increased, beginning with the simple foods of the semi-solid diet, avoiding sugars and rich foods, and using fruits and vegetables very cautiously since they are apt to be irritating to the intestinal tract.

FOOD FOR SPECIAL DISEASES

Where we have a disease in which the patient must be confined to the bed for several weeks, care must be taken to prevent the wasting of the tissues due both to the disease itself and to the lack of food. The food given must be of an easily digested sort. In the case of typhoid fever the seat of the disease is the intestinal tract, so that the food given must be of such a kind as can be largely digested in the stomach and have very little waste to be dealt with by the intestines. The best results have been obtained by giving the patients milk the fuel value of which has been increased by the addition of cream and milk sugar. Broths are also given, cream soups, and fruit juices in large quantities. The patient is fed at two-hour intervals, and the total number of calories taken at each feeding carefully measured. In this way it is

possible for a person to leave the hospital after a long siege of typhoid weighing as much as he did when he was brought in. The fearful emaciation which was thought to be a part of typhoid fever is no longer considered inevitable.

With tuberculosis we have a disease in which there is a large wasting away of tissue. This must be counter-
Tuberculosis balanced by an excess of food eaten. At the same time it is important not to upset the digestive tract by this excess of food. It is customary to feed the patient as much as possible until he has regained his normal weight. In order to maintain the normal weight, it is then necessary that he should eat a third more fuel value than would be his normal diet. This is usually made up by the free use of milk, eggs, and fats.

Diabetes is a disease which requires the constant supervision of a physician but it is also one where the
Diabetes health of the patient depends absolutely upon the food which is eaten. This should of course be regulated by the physician, but much can be done by the patient himself if he understands the situation. The cause of the disease is a loss on the part of the body of the power of using carbohydrates, so that sugar, instead of being burned up by the tissues for energy, is carried in the blood and excreted in the urine. This condition can be controlled by the food eaten. The basis of a diet for such a patient should be protein material and fats. Carbohydrates can only be used in a restricted quantity, depending upon the extent to which the disease has developed in the individual. When the point of safety has been ascertained by a study of the urine, the diet can then be kept within

that amount by a table of equivalents which can be had from the doctor. The housekeeper must then make up a variety of meals, using only the quantity of starchy foods prescribed by the doctor.

There is a general disagreement among physicians as to the exact cause of gout and rheumatism but it is generally admitted that one of the effects of them is an excess of uric acid in the blood. This is the acid that is formed in the process of the utilization of protein foods. Hence usually gout has been described as an aristocratic disease, the high living and perhaps pretty steady drinking of the upper classes producing this trouble in middle and later life. To avoid these diseases those people who have a gouty tendency should be careful not to eat an excess of foods of all kinds, but particularly of protein foods. Foods which tend to disturb the digestive system should be avoided as should also those foods which have a tendency to putrefaction and which cause constipation. This reduces the diet to plain, wholesome food, well chosen, thoroughly cooked, and used in moderate amounts. Excess of food is, after all, the most important element of danger and one that is aggravated if the food is rich.

RECIPES FOR INVALID DIETS

TOAST WATER

2 slices stale bread 1 cup boiling water

Cut stale bread in $\frac{1}{3}$ inch slices and remove crusts. Put in pan and bake in slow oven until thoroughly dried and well browned. Break in small pieces, add boiling water, cover, let stand one hour. Squeeze through cheesecloth. Season

with salt and serve hot or cold. It often proves efficient in extreme cases of nausea.

LEMON WHEY

1/4 cup milk 2 teaspoons lemon juice

Add lemon juice to milk and let stand 5 minutes. Strain through double thickness of cheesecloth.

SYRUP FOR FRUIT BEVERAGES

3/4 cup sugar 3/4 cup boiling water

Add sugar to boiling water and place on front of range. Stir until sugar is dissolved, then let boil, without stirring, twelve minutes. Cool and bottle.

LEMONADE

1 1/2 tablespoons syrup
2 tablespoons lemon juice 3/4 cup cold water

Mix syrup and lemon juice, and add cold water. Use a glass lemon-squeezer or wooden drill for expressing juice, to avoid extracting oil from rind, strain juice before using. Soda water or Apollinaris may be used instead of part or all of cold water.

EGG LEMONADE

1 egg 2 tablespoons lemon juice
1 tablespoon powdered sugar 2 teaspoons sherry
1/4 cup cold water 2 tablespoons crushed ice

Beat egg slightly, add sugar, water, lemon juice, and wine, then strain over crushed ice. Wine may be omitted.

FLAXSEED LEMONADE

2 tablespoons flaxseed 2 tablespoons lemon juice
2 cups boiling water Syrup

Pick over and wash flaxseed. Cover with boiling water, and let simmer one hour. Strain, add lemon juice and syrup. Serve hot or cold.

IRISH MOSS LEMONADE

1/8 cup Irish moss	2 tablespoons lemon juice
1 cup cold water	Sugar

KUMYSS

2 tablespoons sugar
2 tablespoons water

Cook to syrup, rinse pan with 1/2 cup water, put into bowl with 1 quart milk, 1/8 cup compressed yeast made smooth with part of the milk. Mix well; fill bottles 3/4 full, tie corks in. Stand bottles in refrigerator 3 days; lay them down in refrigerator 5 days. Draw kumyss with a champagne top.

BOTTLED BEEF ESSENCE

1 pound steak from top of round

Wipe steak, remove all fat, and cut in small pieces. Place in canning jar, cover; place on trivet in kettle and surround with cold water. Allow water to heat slowly, care being taken not to have it reach a higher temperature than 130° F. Let stand 2 hours; strain, and press the meat to obtain all the juices. Salt to taste.

BOTTLED BEEF TEA

1 pound steak from top of round
1 pint cold water
Salt

Prepare the beef as for bottled beef essence. Soak 15 minutes in the water, and cook 3 hours same as bottled beef essence. Strain and season. In reheating, care should be taken not to coagulate the juices.

FROZEN BEEF TEA

Freeze beef tea to the consistency of a mush.

BROILED BEEF ESSENCE

1/2 pound steak from top of round (cut 3/4 inch thick). Wipe steak, remove all fat, and place in heated broiler. Broil 3 minutes over a clear fire, turning every 10 seconds to prevent escape of juices. Put on a hot plate and cut in 1 1/2 inch pieces; gash each piece two or three times on each side. Press out all the juice with a lemon-squeezer into a warm bowl, set in a dish of hot water, care being taken that the heat is not sufficient to coagulate juices. Salt the juice very slightly. Remove the globules of fat. Serve by teaspoonfuls, or, if solid food can be taken, the juice may be poured on some dry, fresh-made toast.

BROILED BEEF TEA

Dilute broiled beef essence with water.

EGGNOGS¹

	<i>Egg</i>	<i>Sugar</i>	<i>Fluid</i>	<i>Flavor</i>
Plain:	1	3/4 tb.	3/4 c. milk or cream	1 tb. brandy
Coffee:	1	1 1/2 tb.	6 tb. milk or cream	6 tb. strong coffee
Fruit:	1	2 tb.	1/4 c. water 1/4 c. chopped ice	2 tb. fruit juice

Method: Beat egg well. Add sugar, beat again. Add remaining ingredients. Serve very cold in glass.

GRUELS

<i>Flour</i>	<i>Salt</i>	<i>Boiling water</i>	<i>Milk (scalded)</i>
Barley flour, 1 tb.	1/4 t.	1/2 c.	1/2 c.
Rice flour, 1 tb.	1/4 t.	1/2 c.	1/2 c.
Farina, 1 tb.	1/4 t.	1/2 c.	1/2 c.
Oat flour, 1 tb.	1/4 t.	1/2 c.	1/2 c.
Cracker crumbs, 2 tb.	1/4 t.	1/2 c.	1/2 c.

¹ These tables of recipes were taken from *A Cook Book for Nurses*, by Sarah C. Hill. (Whitcomb and Barrows. Boston, 1907.)

Method: In top of double boiler mix the flour with cold water enough to form a paste. Add the boiling water. Boil 2 or 3 minutes, then set over lower part of double boiler to cook for 15 minutes, stirring frequently. Add the salt and scalded milk, and serve in a hot cup or bowl. The cracker gruel does not need to be mixed with cold water nor cooked over hot water, but is sufficiently cooked by the 2 or 3 minutes boiling.

FARINACEOUS PUDDINGS

	<i>Farinaceous material</i>	<i>Milk</i>	<i>Egg</i>	<i>Sugar</i>	<i>Flavor</i>
Plain:	1 tb. cornstarch or 1 1/2 tb. farina, or 2 t. arrowroot	1/2 c.	1/2 white of 1	2 tb.	Few drops vanilla, or 1 t. brandy, or few thin shavings of lemon rind
Chocolate:	Same	1/2 c.	Same	Same	3/8 sq. chocolate

Method: Mix the farinaceous material, sugar, and a few grains of salt together. Add cold water to make a smooth thick paste. Add the milk scalded. Cook until it thickens in double boiler, stirring occasionally, for 15 minutes. Beat white of egg to a stiff froth. Add to this the hot mixture gradually, beating all the time. Pour into a mold, chill. Serve with a soft custard made with the yolk of the egg.

TAPIOCA PUDDINGS

	<i>Tapioca</i>	<i>Fluid</i>	<i>Egg</i>	<i>Sugar</i>	<i>Flavor</i>
Cream:	2 tb. minute or 1 tb. pearl	1/2 c. milk	1/2	1 tb.	Lemon rind or 1/2 t. vanilla
Baked:	1 tb. minute or pearl	1/2 c. milk	1/2 yolk	1 tb.	Same
Coffee:	2 tb. minute or 1 tb. pearl	1/2 c. strong coffee	1/2 white of 1 egg	2 tb.	
Fruit:	2 tb. pearl or 3 tb. minute	1 c. boil- ing water		To taste	1 apple, or 1 peach or 1/4 c. berries

Method: Soak pearl tapioca if used. Put tapioca in liquid in double

boiler. Cook till transparent. Add egg-yolk, cook slightly. Add white beaten stiff. Put in mold. Serve cold with cream or a fruit sauce.

JELLIES

1 t. granulated gelatine soaked in 1 tb. cold water.

	<i>Hot liquid</i>	<i>Sugar</i>	<i>Flavor</i>
Lemon:	6 1/2 tb. boiling water	3 tb.	1 1/2 tb. lemon juice
Orange:	3 1/2 tb. boiling water	2 1/2 tb.	3 tb. orange juice, and 1/2 tb. lemon juice
Coffee:	4 tb. boiling water	1 tb.	4 tb. strong coffee
Wine:	5 tb. boiling water	2 1/2 tb.	3 tb. wine, 1/2 tb. lemon juice
Grapefruit:	4 tb. boiling water	2 1/2 tb.	4 tb. grapefruit juice

IRISH MOSS BLANC MANGE

1/4 cup Irish moss	1/3 teaspoon vanilla
1 1/2 cups cold water	Salt
1 3/4 cups milk	

Pour cold water over moss and let stand 20 minutes. Pick over moss; add to milk and cook in double boiler 15 to 20 minutes. Milk should be but very slightly thickened. Strain and add salt and vanilla. Strain again into molds. Serve with sugar and cream. Sea moss farina may be used instead of Irish moss — 2 teaspoons being sufficient to thicken a pint of milk. A little sugar may be added if desired.

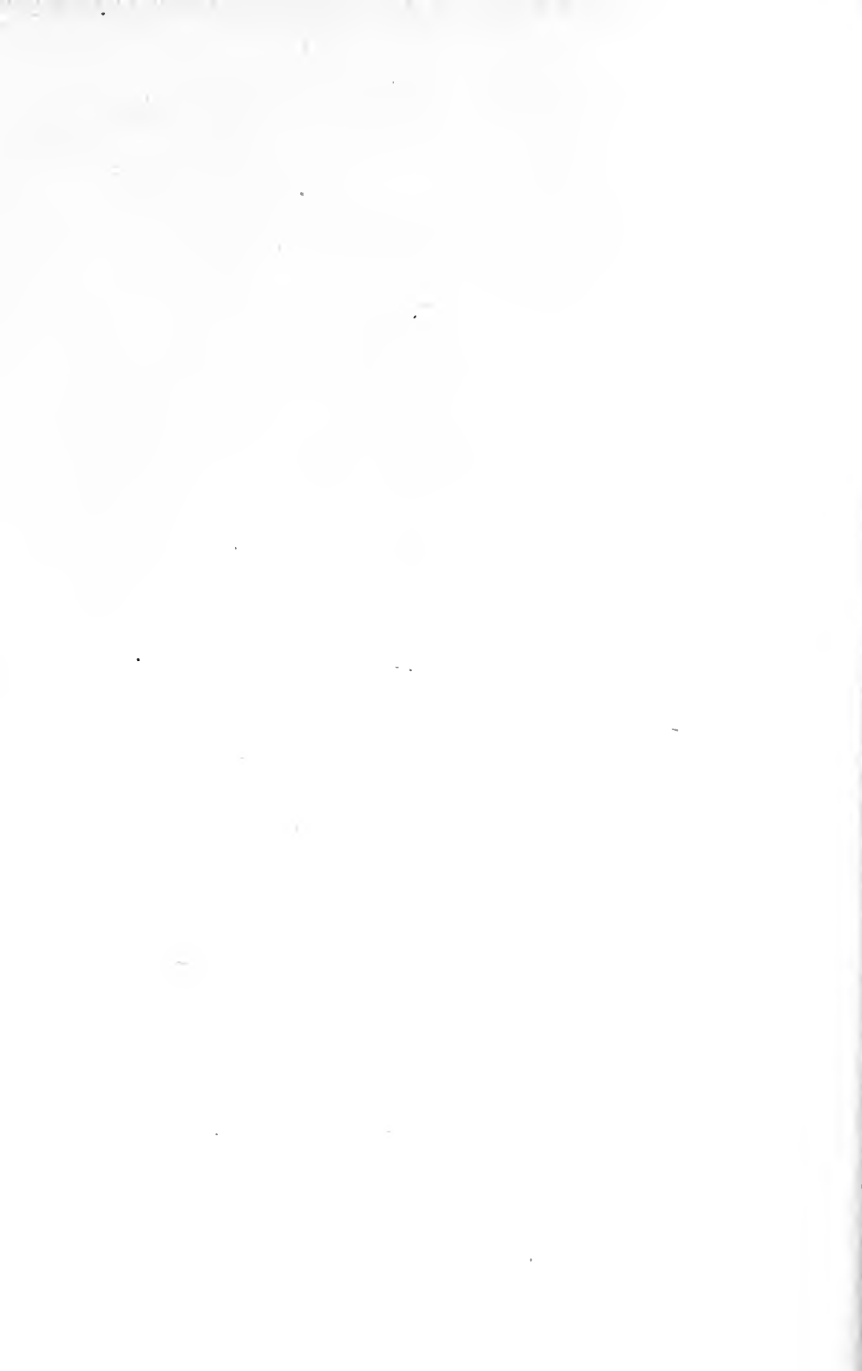
ABBREVIATIONS AND A TABLE OF MEASURES

t. = teaspoon
tb. = tablespoon
c. = cup
pt. = pint
qt. = quart

3 teaspoons = 1 tablespoon, or 1/2 ounce
4 tablespoons = 1/4 cup
8 tablespoons = 1/2 cup
16 tablespoons = 1 cup, or 8 ounces
2 cups = 1 pint, or 1 pound
2 pints = 1 quart

All measures are level (the flour leveled with the back of a knife to the edge of the spoon or cup).

Sift all dry ingredients *before* measuring.



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The Riverside Press
CAMBRIDGE . MASSACHUSETTS
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