FIRST LESSONS IN COOKING

A Text Book For Elementary Schools

BY

CORA B. MILLER, B. S.

Supervisor of Domestic Science and Domestic Art in the Fort Dodge Public Schools.

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INTRODUCTION

REASONS FOR COOKING FOOD

Food is cooked (1) to make it more attractive; (2) to develop flavor; (3) to make it more palatable; (4) to make it more easily digested; (5) to kill germs.

METHODS OF COOKING

Boiling—Cooking in boiling water.
Baking—Cooking in oven by heated air and radiation.
Broiling—Cooking before or over glowing coals or under gas.
Pan Broiling—Cooking on very hot griddle with only sufficient fat to prevent sticking.
Stewing—Cooking in water at temperature 160° to 180° F.
Dry Steaming—Cooking in a double boiler.
Steaming—Cooking in contact with steam.
Frying—Cooking by immersion in deep fat.
Sauteing—Cooking in small quantity of fat—often called frying.
Braising—Combination of stewing and baking.
Fricaseeing—Combination of sauteing and stewing.

APPLICATION OF HEAT IN COOKING

Success in cooking depends largely upon the regulation of the heat which is applied. No two stoves work exactly alike and it is necessary, therefore, to learn to regulate the one which is to be used. The parts of different stoves are practically the same and the principles of fire building the same.

COAL AND WOOD RANGES

The Parts of a Range

1. **Fire box,** in which the fire is built.
2. **Grate,** which is at the bottom of the fire box. This is often reversible so that either coal or wood may be used. The ashes pass through the grate into the ash pan.
3. **Ash pan,** which is below the fire box.
4. **Dampers.** These control the supply of air to the fire box, the passage of heated air up the chimney and the circulation of hot air around the oven.
5. **Ovens** for baking and for keeping food warm.
6. **Top** with removable covers.
7. **Stovepipe** to make a draft and to carry off the smoke.

Building the Fire

1. Remove the covers over the fire box.
2. Remove the ashes from the fire box.
3. Place crumpled pieces of paper and shavings in the fire box and place on top of them several pieces of pine or corncobs and then a few small sticks of wood, and, if it is to be a coal fire, a small shovelful of coal. The fuel must be laid so that the air can circulate

freely through it. Do not fill the fire box more than three-fourths full.

4. Place the covers on the stove.

5. Open the damper or "draft" which is below the fire box and turn the chimney damper so that the draft goes up the chimney. The oven damper may be opened, but this is not always necessary. When the fire is well started close the oven draft, and the front draft, and shut off a part of the chimney draft.

Care of the Stove

Keep the stove clean, brushing off immediately anything that is spilled on the top or in the oven.

A blackboard eraser on which a few drops of oil or kerosene has been placed is a convenient thing to have for cleaning the top. Empty the ash pan every day, never allowing it to become full. Clean the oven flue often, once a month, if the oven is in constant use.

DIRECTIONS FOR LIGHTING A GAS STOVE

To light a gas burner, strike a match, turn the cock on full, then apply the match. The flame should be blue; a yellow flame does not give as much heat, smokes and wastes gas.

FIND THE COST OF THE FOLLOWING FOODS AND FILL IN THE TABLE.

FOOD	1 Pound	1 Cupful	1 Tablespoonful	1 Teaspoonful
Flour				
Potatoes				
Butter				
Cream of Wheat				
Rolled Oats				
Salt				
Rice				
Baking Powder				
Soda				
Milk				
Crisco				
Vanilla				
Spice				

Approximate Measure of One Pound

Two cupsful of milk
Two cupsful of butter, lard or Crisco
Four cupfuls of flour
Two cupsful granulated sugar
Four and one-half cupsful of Graham flour
Two cupsful of rice
Six cupsful of oatmeal
Four cupsful of coffee
Eight large eggs

Learn the name and place of each utensil in the desk.

LESSON I

There are as many tablespoonsful in an ounce as there are cupsful in a pound.

FOOD

Uses of Food in the Body. The food which we eat repairs and builds tissue, furnishes heat and energy, and regulates the body processes, such as digestion, respiration, etc.

In order to keep the body in good condition it is necessary for it to have the right kind and the right amount of food and to have it cooked in such a way that it can be used to the best advantage.

Classification of Foods on the Basis of Composition.....All foods are made up of the following compounds: Water, mineral matter, protein, carbo-hydrate, fat. These compounds are called **food stuffs.** Each foodstuff has definite uses in the body which will be learned later.

Almost every food contains more than one of the foodstuffs, but if it contains a large amount of any one of them it is classified in that group; for example, meat contains a large amount of protein and is, therefore, called a protein food; bread contains a large amount of carbohydrate and is called a carbohydrate food.

Classification of Foods on the Basis of Origin.....Foods may also be divided into the two large groups, Animal Foods and Plant Foods. The most of the animal foods contain a large amount of protein and can, therefore, be classified in the protein group also. The most of the plant foods contain carbohydrate and can be classified in the carbohydrate group. There are some exceptions to this general classification, butter being a good example. It contains so much fat that it is a fatty food.

Classification of Animal Foods. The animal foods are divided into two groups, The Flesh of Animals and Animal Products.

We shall take up first the study of one of the protein foods, eggs. Eggs may also be classified as an animal food under the subdivision of animal products.

LESSON II

MEASURING

Exact measuring is necessary to get the best results in cooking. All the recipes in this book call for **level** measurements. Measure dry materials into a cup with a spoon, leveling the top with a knife. To measure a spoonful of dry material, heap it on the spoon and level with a knife. Half a spoonful is obtained by dividing a spoonful

lengthwise, a quarter of a spoonful is obtained by dividing a spoonful lengthwise and crosswise. A cupful of liquid is all the cup will hold. A spoonful of liquid is all the spoon will hold.

Abbreviations	Table of Measures
tb.—Tablespoonful	3 t. equals 1 tb.
t.—Teaspoonful	16 tb. dry material equals 1 c.
c.—Cupful	12 tb. liquid equals 1 c.
spk.—speck	2 c. equals 1 pt.
pt.—Pint	2 pt. equals 1 qt.
qt.—Quart	4 qts. equals 1 gal.

Use flour, sugar and water for measuring and measure a cupful, a tablespoonful and a teaspoonful of each and also fractions thereof.

DISH-WASHING

Scrape all food from the dishes. Soak dishes that have been used for eggs and starchy foods in cold water, those used for sugary substance in hot water; wipe greasy dishes with soft paper and soak in hot water. Pile all dishes neatly and compactly at the right-hand side of the table, putting all of one kind together. Pile knives, forks and spoons separately. Place a dishpan, about half full of clean, hot, soapy water, at the left of the dishes; place another pan, about half full of clean, hot, clear water at the left of the washing pan. At the left of the rinsing pan leave a space for piling the clean dishes after they are wiped. Do not drop water on the floor while washing and wiping the dishes. Keep the drawers of the table closed until the dishes are all wiped so that water will not be dropped into them. Wash the cleanest dishes first. Get clean dishwater as often as necessary. Scour the steel knives and forks with Dutch Cleanser, using a cork. When the dish-washing is finished, wash the table thoroughly; wash and wipe the dishpans; wash the dishcloth, rinse it well and hang it up where it will dry quickly; hang the dish wipers where they will dry quickly also, and wash the sink with hot soapy water.

Knives and forks with wood, bone or ivory handles should not be put into the water.

Stains should be removed from granite ware with Sapolio or Dutch Cleanser; a pastry board should be scraped with the grain of the board and wiped with a cloth wet in cold water.

METHOD OF WORKING

1. See that the fire is ready for use.
2. Collect all dishes that you will need, including a pan on which to lay the sticky ones. This pan is called a utensil pan.
3. Collect all materials that will be used.
4. Measure materials.
5. Use no more dishes than are absolutely necessary. Measure dry materials first, then liquids and then fats. Why?
6. Clear up as you work, putting dishes to soak as soon as they are emptied.

THE USE OF WATER IN COOKING

Water which has been standing in pipes for any length of time should not be used for cooking or for drinking. It may contain some lead compounds which are injurious.

Water at different temperatures is used for cooking.

Experiment

Place a stew pan with cold water in it over the fire. Place a thermometer in it keeping the bulb immersed but not touching the bottom of the pan. Observe the changes in the water as the following temperatures are reached: At 98° and at 150° test it with the fingers.

At 98° Fahrenheit it is called **lukewarm.**

At 150°, too hot to keep the fingers in, it is **scalding.**

At 185°, when small air bubbles appear at the bottom of the vessel, it is **simmering.**

At 212°, when large bubbles appear on the surface and break, allowing steam to escape, it is **boiling.**

Since by ordinary means water cannot be made hotter after it begins to boil, fuel is wasted in keeping up more fire than is required to keep it at the boiling point. Economize heat by keeping vessels in which food is being cooked covered.

At what temperature does water freeze?

LESSON III

Protein Foods—Eggs

COOKING EGGS IN THE SHELL

For two eggs allow one pint of water; for each additional egg, an extra cupful. Put the water in a sauce pan, let it come to the boiling point. Place the egg in the water with a spoon and cover the pan. Remove at once from the fire and allow to stand from six to ten minutes.

The size and temperature of the eggs varies the length of time required for cooking them. If they are preferred hard, they should stand in the water forty-five minutes, the water being kept warm, but not boiling.

The white of egg to be easily digested should be soft and jelly-like and not tough. If the egg is boiled, the white is toughened.

Hard cooked eggs may be added to medium white sauce and served as a lunch or supper dish.

NOTE: White sauce may be prepared by the teacher before class time and used with the hard cooked eggs. Directions for making it are given in lesson XI.

COOKING OF PROTEIN FOODS

Boiling or cooking in the oven at a high temperature toughens any protein. Protein foods, therefore, should be cooked at a low temperature.

Experiment

(b) (To be done by the teacher.) Put a drop of nictric acid on the white of the egg. Notice that it turns yellow. This shows that it contains a substance called protein. Protein builds up the tissues of the body.

USE OF EGGS IN THE DIET

Eggs which are properly cooked are easily digested. They contain a large amount of protein and are, therefore, a valuable food for

the building and repair of tissue. They are valuable also for the fat and mineral matter which they contain, the latter being in the yolk of the egg in the form of iron and phosphorus compounds which are essential for the growth of the body. These two mineral matter compounds are apt to be lacking in the diet and for this reason, as well as for the reason that they contain protein, eggs should be used freely in the diet and especially in that of children. They are most often served for breakfast but may be served also for lunch or supper.

COST OF EGGS

What is the cost of eggs per dozen? When are they the cheapest? Are all eggs the same size? Would it be better to buy them by the dozen or by the pound? Why?

RULES FOR PERSONAL CLEANLINESS IN THE KITCHEN

I. It is best to wear a short washable dress when cooking or doing other house work. Why? A light colored apron should be worn while cooking. Why? Clothes should always be suited to the occupation.

II. Pin or tie the hair back, so that no hairs may fall into the food.

III. Before preparing food, wash the hands thoroughly with soap and water and clean the nails. Wash the hands after touching the hair, pocket handkerchief or anything else not clean. Do not use the handkerchief as a holder. Keep it in the pocket of your apron.

IV. To taste of the food which you are cooking, take a little up with the mixing spoon. Put it in another spoon and taste from that.

LESSON IV

Protein Foods—Eggs

POACHED EGGS

Have ready a shallow pan containing enough boiling, salted water to cover the eggs, allowing one teaspoonful of salt for one pint of water. Break an egg into a saucer and slip it carefully into the water. Cook until the white is firm and a film forms over the yolk. The water should not boil while it is cooking. Why? Remove the eggs carefully with a skimmer and serve them on buttered toast. On each put a little salt, butter and pepper.

Egg "poachers" may be purchased at the hardware store. These steam the eggs, and, since the egg is not put into the water, none of it is lost and the cooking is more economical. If there is an "egg poacher" in the school equipment, have part of the class cook eggs in it.

TOAST

To make toast, bread should not be less than two days old. Cut it in slices about one-third of an inch thick. It should be toasted slowly enough to allow it to become crisp. Toast until golden brown. Do not let it burn. Crisp toast is easily digested. Soft toast is as hard to digest as fresh bread.

SELECTING AND TESTING EGGS

Fresh eggs have a thick, rough shell and feel heavy. Hold the egg between your eye and the light. If clear, it is fresh. Drop the egg into cold water. If it sinks it is fresh. Shake the egg, holding it near the ear. If the contents rattle it is somewhat stale.

WAYS OF PRESERVING EGGS

1. Keep in a cool, dry place.
2. Keep the air out. This may be done by packing them in bran, lime, sand or sawdust; by immersing them in lime water; by coating them with fat. The best method known is to immerse them in a solution of sodium silicate, called "water glass." This solution with directions for using it may be obtained at a drug store.

The introduction of cold storage may be the solution of the problem of keeping eggs. Eggs which are perfectly fresh when placed in cold storage will keep many months. Should they be sold as fresh or labeled as cold storage eggs? Some states have laws governing the sale of cold storage eggs. Has your state such laws?

LESSON V

Protein Foods—Eggs

PLAIN OMELET

4 eggs.	1.
½ cup milk.	2 tb.
½ teaspoon salt.	⅛ t.
1 tablespoon butter.	¾ t.
Dash of pepper.	Few grains.

Separate whites from yolks. Beat yolks until thick and lemon colored; add salt, pepper and milk. Beat the whites until stiff and dry, cut and fold them into first mixture until they have taken it all up. Heat omelet pan and butter the sides and bottom. Turn in the mixture, spread evenly, place on stove where it will cook slowly. When well "puffed" and delicately browned underneath, place pan on grate of oven to finish cooking the top. The omelet is cooked, if it is firm to the touch when pressed with the finger. Fold and turn on hot platter. If desired, one cupful of thin white sauce may be poured around the omelet.

BEATING EGGS

Beating entangles air in fine bubbles in the egg.

Beat the whites on a plate or platter with a fork or wire beater.

They are beaten "stiff" when they can be cut with a knife; "dry" when they are flaky.

Beat yolks in a bowl with a fork or a Dover beater until they are thick and lemon colored.

Eggs are beaten slightly when yolks and whites are well mixed.

Do not let eggs stand after beating them, as the air which has been beaten in will escape.

REVIEW

1. Into what divisions may food be classified on the basis of composition?

2. Into what divisions may foods be classified on the basis of origin?
3. How should eggs be classified?
4. Tell how to cook foods containing protein.
5. For what is protein used in the body?
6. Give the table of measures.
7. Tell how to measure a cupful of flour.
8. Give the directions for washing dishes.
9. Give the rules for personal cleanliness in the kitchen.

LESSON VI

Carbohydrate Foods—Potatoes

BOILED POTATOES

Select potatoes of uniform size. Wash them, pare them lengthwise as thinly as possible, remove the eyes and dark spots with the point of the knife and drop them into cold water.

Put them into a kettle with enough boiling water to cover them and boil gently for about thirty minutes, or until they can be pierced easily with a fork. After they have boiled about twenty minutes add salt, using one tablespoonful for six medium sized potatoes. When done, drain off all the water, shake the kettle gently over the fire to make the potatoes dry and mealy. Serve in a hot dish uncovered. See that the water boils gently while they are cooking, as rapidly boiling water wears off the outside of the potato before the center is cooked. If the outside of large potatoes becomes soft while the centers are still hard add a little cold water.

Boiled potatoes may be served just as they are, or they may be mashed and seasoned with salt, pepper and butter. After being mashed and seasoned, they may be put through a ricer.

For what meal would you serve boiled or mashed potatoes?

PLANT FOODS

Structure

A plant is made up of little cells containing grains of starch. The wall of the cell is made of a tough material called cellulose which is not digestible except when very young and tender.

Experiments

1. In a small stewpan mix one teaspoonful of cornstarch with one tablespoon of cold water and add ¼ cup of boiling water. Cook, stirring constantly, until clear. Cool.

To this starch paste add a few drops of a dilute solution of iodine. The starch will turn blue. This is the common test for starch. The power to thicken the liquid in which it is cooked is also an evidence of starch.

2. Grate a small potato into a bowl of water. Strain. Notice the coarse material which is left in the strainer. This is the cellulose of the potato. Let the part which passed through the strainer stand for ten or fifteen minutes and then carefully pour off the liquid leaving the sediment in the dish. To this sediment add boiling water and cook as in the preceding experiment. Cool a little of it and add to it a drop of iodine. Does the potato contain starch?

3. Put a drop of iodine solution on a small piece of the boiled potato.

Use of Starch in the Body

Carbohydrates produce heat and energy in the body. Starch is a carbohydrate and therefore produces heat and energy in the body. Starch must be cooked before it can be digested.

Methods of Cooking Foods Containing Starch

Experiment one shows us that starch is cooked by bringing it to the boiling point. Most starchy foods contain also cellulose which must be cooked as well as the starch. Boiling the cellulose will cook it or it may be cooked at a lower temperature, the latter method requiring a longer time. The cellulose is cooked when it is soft. The length of time required for cooking foods containing cellulose varies. It depends upon the amount and the toughness of the cellulose present. Either of the following methods may be used for cooking foods which contain starch and cellulose.

1. Boil or steam until soft.

2. Boil for a short time to cook the starch and then cook at a low temperature for a long time to soften the cellulose. A double boiler or a fireless cooker is used for this method.

Which method was used for the potatoes? How long did it take to soften the cellulose?

LESSON VII

Carbohydrate Foods—Potatoes

BAKED POTATOES

Select medium sized potatoes, scrub them until perfectly clean with a brush and wipe them dry. Bake in a moderately hot oven until soft—about forty-five minutes, turning them occasionally. When soft, break the skin with a fork or by pressing the potato in a cloth, to let the steam escape so that the potato will not be soggy. Serve immediately in an uncovered dish.

Potatoes can be baked, because there is enough water in them to combine with the starch. Baked potatoes are regarded as more healthful than potatoes cooked in any other way.

Use of Potatoes in the Diet

The potato is an excellent example of the starchy foods.

Potatoes are in the best condition for use in the late summer and autumn. Very new potatoes are indigestible, because the starch in them is not ripe. Old or poor potatoes should be soaked in cold water before using. Sprouting potatoes should not be eaten.

Since potatoes have not a decided flavor and can be cooked in so many ways, we can eat them every day and not tire of them.

Cost of Potatoes

What is the cost of a bushel of potatoes? How many pounds are there in a bushel of potatoes? What is the cost of one pound of potatoes? What is the cost of one medium sized potato?

Classification of Plant Foods

Plant foods are often classified in the following way:

1. Cereals.
   Example:—Wheat.
2. Roots and Tubers.
   a. Starchy roots and tubers.
      Example:—Potatoes.
   b. Succulent roots and tubers.
      Example:—Carrots.
3. Legumes.
   Examples:—Peas, beans.
4. Green Vegetables.
   Example:—Lettuce.
5. Fruits.

Those belonging to divisions 2, 3 and 4 are called "vegetables." The green vegetables are made up almost entirely of cellulose, mineral matter and water. The roots and tubers contain, in addition to these three things, starch. The legumes contain in addition to these four things, considerable protein, and may, therefore, sometimes take the place of animal protein foods in our meals.

LESSON VIII

Carbohydrate Foods—Cereals

General Directions for Cooking Breakfast Cereals

Stir the cereal gradually into boiling salted water, allowing one-half a teaspoonful of salt to each cupful of water. Boil directly over the flame for about five minutes and then cook over hot water for a long time.

Stir coarse, flaky cereals as little as possible. Fine granular ones may be beaten.

Cereals may be boiled, dry steamed or cooked in a fireless cooker.

Cereals should absorb all the water in which they are cooked, and should be stiff enough to be chewed. If too soft, they are swallowed without being mixed with saliva and are less readily digested.

For coarse, flaky cereals use two measures of water to one measure of cereal. For fine granular ones use four measures of water to one of cereal.

Directions for Using a Double Boiler

Fill the lower part of the boiler about one-third full of boiling water, and keep it boiling. More water should be added from time to time. The food to be cooked is placed in the upper part of the boiler which is then placed in the lower part.

Cream of Wheat

4 c. water	¾ c.
1 c. Cream of Wheat	2 tb.
2 t. salt	3-16 t.
¼ pound dates	3 dates

Put the water with the salt in the upper part of the double boiler and set it directly over the heat. When it boils, stir in gradually the cream of wheat. Boil for about five minutes and then put the two parts of the boiler together, and cook three-quarters of an hour or longer. Dates cut in small pieces may be added a short time before it is done. Serve in cereal dishes.

To prepare dates for use, wash them in cold water and remove stones. Have dates added to the cream of wheat by one-half of the class and served plain by the other half. The cream of wheat with the dates in it might be used as a simple dessert.

Cereals

Cereals, or grains, are grasses, the seeds of which are used for food. Among the most important are wheat, corn, oats, rice, rye and barley. From these, various breakfast foods, flours and meals are made. Cereals, like potatoes, contain starch. All except rice contain much woody fibre tougher than that in potatoes, and so need long and thorough cooking. Long cooking improves the flavor also. Cook prepared cereals about twice as long as directed on the package.

Use of Cereals in the Diet

Cereals contain such a high per cent of starch that they are classed with the carbohydrate foods. They do, however, contain quite a little protein also and for this reason the foods made from them, as breakfast foods and bread, are very valuable. The outer coats of the grain contain considerable mineral matter and it is wise, therefore, to use freely the foods made from the whole grain.

The cereals furnish about one-third of the food of the American people.

Experiment

Put a drop of iodine solution on a little of the cooked cereal. Does it contain starch?

LESSON IX

Carbohydrate Foods—Cereals

ROLLED OATS

1 c. rolled oats	¼ c.
2 c. water	½ c.
1 t. salt	¼ t.

Follow directions for cream of wheat.

The most of the oat preparations which are sold for breakfast food have been partially cooked by steam and, therefore, do not need as long cooking as the raw oatmeal which should be steamed about six hours.

BAKED APPLES

Wash and core sound tart apples. Place them in earthenware or enameled baking dish. Put one tablespoonful of white or brown sugar (a little spice may be mixed with it) in the core of each apple. Pour enough boiling water around the apples to cover the bottom of the dish, and bake until soft in a hot oven, frequently dipping the syrup in the pan over the apples. Serve either hot or cold with cream. They are often served for breakfast in the dish with the cereal.

USE OF THE FIRELESS COOKER

The fireless cooker is being used extensively for the cooking of

breakfast cereals and other foods which require long, slow cooking. It is a means of saving both time and fuel. When cooking cereals in the fireless cooker follow the directions which come with the cooker as the amount of water used is greater than when they are cooked as directed above.

Experiment

Test the cooked cereal with iodine for starch. .

COST OF BREAKFAST CEREALS

What is the cost of a pound of oatmeal; a pound of cream of wheat; a pound of shredded wheat biscuit; a pound of puffed rice? Which are the cheaper, those which are bought uncooked or those which are bought ready to eat? Find the cost of a pound of oatmeal and a pound of rice sold in bulk and in cartons. Which is the cheaper? What are the advantages of the carton?

Review

1. Give directions for boiling potatoes.

2. Classify plant foods. Give an example of each class.

3. What foodstuff do potatoes and cereals contain in large amount? What does it do for the body?

4. For what foodstuff are eggs valued? What does it do for the body?

5. Tell how to cook starchy foods.

6. Tell how to cook protein foods.

7. Which costs more, an egg or a potato? Do they do the same thing for the body? Would it be wise, therefore, to substitute at all times the cheaper for the more expensive?

LESSON X

Carbohydrate Foods—Cereals

BOILED RICE

1 c. rice	1 tb.
$1\frac{3}{4}$ c.	2 qts. water
$\frac{1}{4}$ t.	1 tb. salt

Put the water in a sauce pan to boil. Drop the rice slowly into the boiling water so as not to stop the boiling. Boil rapidly, uncovered, from twenty to thirty minutes, or until the grains can be crushed between the thumb and finger. Turn it into a strainer to drain, rinse with hot water and dry in the serving dish in the oven. Each grain should be soft and distinct. The motion of the water keeps the grains separate and the washing and rinsing removes the loose starch which would cause them to stick together.

Rice may be dry steamed in a double boiler like the other cereals.

TOMATO SAUCE

1 cup tomato juice
2 cloves
Sprig of parsley
Slice of onion or dash of onion salt
¼ inch square of bay leaf
½ teaspoonful salt
Dash of pepper
2 tablespoonsful flour
2 tablespoonsful butter

Boil the tomato and seasonings together about three minutes. Strain. Rub the flour and butter together to form a smooth paste and add the liquid tomato. Cook, stirring constantly, until it boils. Remove from the fire.

Rice has so little flavor that some food having a strong flavor, as tomato sauce, is often served with it.

Experiment

Show that rice contains starch.

Use of Rice in the Diet

Boiled rice may be served for dinner instead of potatoes to furnish variety. Since they both contain so much starch, they should not be served at the same meal.

Rice may be dry steamed like the cream of wheat and oatmeal. It is often combined with milk or milk and eggs to make puddings which are served for dessert. These are excellent desserts for children.

Rice has less tough cellulose than the other cereals and is very easily and thoroughly digested.

SAUCES AND GRAVIES

Sauces and gravies are made from liquids which are thickened with some starchy substance as flour or cornstarch. The starch is often combined with fat before adding it to the liquid to keep it from getting lumpy. The fat also adds flavor and nutriment.

Methods of Adding Starchy Thickenings to Liquids

1. Mix the starch and thickening to form a smooth paste. Add the liquid which may be either hot or cold, and stir constantly until the mixture boils. When there is a large amount of liquid time is saved by heating it before adding it to the thickening.
2. Mix the starch with just enough cold liquid to form a smooth paste and then add it to the hot liquid, stirring while it is being added and also while it is cooking until it reaches the boiling point.
3. Mix the starch with sugar. Add it to the hot liquid, stirring constantly until it boils.

LESSON XI

Mineral Matter Foods—Vegetables

Cook one or more vegetables which are in season and serve some buttered and others in thin white sauce.

Asparagus. Wash. Cut off the tough part. Leave the stalks whole or cut in half inch pieces. Cook in boiling salted water from fifteen to thirty minutes or until soft. Drain. Season with salt, pepper and butter, and serve on toast moistened with the cooking water or in thin white sauce.

Beets. Wash, taking care not to break the skins. Cut off the tops about two inches above the root. Cook in boiling water until tender. Salt half an hour before taking from the fire. Young beets should cook about one hour, old ones from four to five hours. Remove the skins and slice or chop. Season with butter, salt and pepper.

Cabbage. Remove outer leaves and stalk. Separate leaves and wash thoroughly. Cook, uncovered, in boiling salted water until tender, but not sodden. It will cook in about thirty minutes. Drain. Season with butter, salt and pepper or serve in thin white sauce.

Carrots. Wash, scrape and cut in half-inch cubes. Boil until tender. Young ones will cook in twenty to thirty minutes; old ones require from thirty minutes to an hour. Serve in thin white sauce.

Tomatoes. Let stand in boiling water for about one minute, so that the skin will come off easily. Peel and cut in slices. Boil gently for about twenty minutes. Season with butter, salt and pepper. A little sugar may be added, if desired, and bread or cracker crumbs to thicken them.

WHITE SAUCE

White sauce is made of milk thickened with flour and seasoned with butter, salt and pepper. It is made of different thicknesses as follows:

	Milk	Flour	Butter	Salt	Pepper
Thin	1 c.	1 tb.	1 tb.	½ t.	dash
Medium	1 c.	2 tb.	2 tb.	½ t.	dash
Thick	1 c.	3 tb.	3 tb.	½ t.	dash

Rub the butter and flour together in a sauce pan, add the milk, stir steadily over a moderate heat until the sauce boils. Remove immediately from the fire. Add the salt and pepper.

Review the classification of plant foods in lesson VII.

General Rules for the Selection and Preparation of Vegetables

Use vegetables which are in season, selecting the medium sized or small ones. Why?

All vegetables should be washed thoroughly in cold water. All which are not crisp and firm should be soaked in cold water.

Most vegetables, except the very strong flavored ones, should be cooked in a small amount of water, so that the mineral matter which they contain will not be lost by dissolving in the water. If the water they are cooked in is good, it should be served with the vegetables or saved for soup.

Strong flavored vegetables, as cabbage and onions, should be cooked uncovered. Green vegetables keep their color better if cooked uncovered.

Vegetables should be cooked only until tender; longer cooking makes them indigestible. Cabbage is an excellent example of this fact.

LESSON XII

Mineral Matter Foods—Vegetables

COOKED SALAD DRESSING

½ t. mustard	⅙ t.
1 t. salt	⅓ t.
⅛ t. paprika	spk.
2 t. flour	½ t.
1 t. sugar	¼ t.
1 egg yolk	1 t.
¾ c. milk	¼ c.
2 t. butter	½ t.
¼ c. vinegar	1 tb.

Mix the dry ingredients, stir into them the yolk of egg, butter and milk. Cook it in the double boiler, stirring constantly, until it begins to thicken; then stir in the vinegar a little at a time.

The dressing will be improved, if cream is used instead of milk.

Use of Mineral Matter in the Diet

Some mineral matter is necessary for every process that goes on in the body and it enters into the composition of all the tissues. It is very necessary, therefore, that a sufficient amount of it be furnished by the food. Care is necessary, especially with children, to have foods rich in mineral matter. Most foods contain some mineral matter, but fruits and vegetables are especially valued for it. The outer coats of the grains are rich in mineral matter and for this reason foods made of the whole grain should be used freely. We depend largely upon vegetables and fruits, however, for the mineral matter.

USE OF VEGETABLES IN THE DIET

All vegetables are valuable for the mineral salts which they contain. Some, as potatoes, corn, peas, beans, beets and carrots, furnish a considerable amount of carbohydrate. A few, as peas and beans, are rich in protein also. All vegetables contain also a large amount of water and material which is practically indigestible, the woody part of the plant which is called cellulose. The cellulose is necessary for stimulating the intestines to action. The movement of the intestines is necessary for the proper digestion of the food and for the proper elimination of the waste material. It prevents constipation.

It is a good thing to have two vegetables besides potatoes for every dinner. It is best to have one of them uncooked. In the spring and summer months when they are plentiful, they should form a large part of our diet.

Compounds of iron and phosphorus are two of the mineral matters which are apt to be lacking in the diet and especial pains should be taken to eat foods which are rich in them. Vegetables which have the green coloring matter in them contain considerable iron. The succulent roots and tubers have quite a high per cent of both iron and phosphorus.

What other foods have you studied which contain these substances?

LESSON XIII

Mineral Matter Foods—Vegetables and Fruits

FRENCH DRESSING

3 tb. olive oil	2 t.
½ t. salt	spk.
⅛ t. paprika	spk.
1 tb. vinegar	1 t.

Stir the seasonings into the oil, add the vinegar and stir vigorously until the dressing thickens slightly.

Serve French dressing with green vegetables as lettuce, cucumbers, cabbage and string beans.

General Directions for Preparing Ingredients for Salads

Lettuce, prasley and celery should be washed very carefully in cold water, looking sharply to see that no insects cling to them; then shaken lightly to partially dry them, and then wiped with a dry cloth.

Meat should be free from bone, gristle and fat and cut in small pieces. Vegetables should be cut in small pieces also. Cooked and seasoned vegetables which have been left from a meal should be rinsed in hot water.

All ingredients for a salad should be very cold. The salad should be well seasoned and attractively garnished.

Suggestions for Salads

The following combinations may be used with cooked dressing:

1. Equal measures of diced apples and celery and one-half a measure of chopped nuts.

2. One slice of pineapple, 2 marshmallows cut in quarters, 1 or 2 English walnuts cut in small pieces. Place pineapple on a lettuce leaf, scatter marshmallows and nuts over the pineapple and put a spoonful of salad dressing in the center.

3. Equal measures shredded cabbage and cocoanut.

4. Equal measures of pineapple (or grapefruit), marshmallows and white grapes.

5. Cabbage, peas and pimentoes.

6. Equal measures diced chicken and celery. Chopped nuts and olives may be added.

Use of Salads in the Diet

Many vegetables, such as lettuce and celery, which are rich in mineral salts, should be eaten raw. Such vegetables are often used in salads.

The food value of a green salad is not high, but the salts it supplies and its refreshing appetizing qualities make it a wholesome food. Fat is furnished in an easily digested form by the oil or butter used in the dressing. The acid of the vinegar may help to digest the cellulose. A meat, fish or egg salad with a cooked or Mayonnaise dressing contains a great deal of nourishment, and, when served, should form one of the main dishes of the meal. A green or fruit salad should be served with as heavy a meal as dinner.

LESSON XIV

Mineral Matter Foods—Fruits

APPLE SAUCE

Method 1. Quarter, core and pare an apple. Cut each quarter in two. Make a syrup of ¼ c. of water and 1½ tb. of sugar and cook the apple in it until the apple is soft.

Method 2. Cook the apple in ¼ c. of water until it is soft and then add the same amount of sugar as in 1.

Which method keeps the pieces of apple whole?

Cooking of Dried Fruits

1. Look over and wash thoroughly in several waters.

2. Soak over night in sufficient water to cover them.

3. Cook in the water in which they were soaked. They should be simmered until very soft.

4. Sugar may be added, if desired, when they are done. They really do not need any, and care should be taken not to add too much. Prunes, especially, are often spoiled by making them too sweet.

Use of Fruit in the Diet

Fruits serve about the same purpose in the diet as vegetables. They contain a large per cent of water, considerable cellulose, mineral matter, and, in many cases, a fairly large amount of carbohydrate in the form of sugar.

Fruits should be used freely in the diet. They may be served frequently for dessert for dinner or supper as well as for breakfast. It is better to have fruit for dinner than to have so much pie as is served in many homes. Pie is very hard to digest. Fruits may be served either fresh or cooked. For small children the cooked fruits are best. The importance of fruits and vegetables in the child's diet cannot be overestimated. Fruits should first be given to small children in the form of juices; later stewed fruits and fresh fruits which are thoroughly fresh and ripe may be added. Sweet fruits, as dates, prunes and bananas are better with starchy foods than the acid fruits. Acid fruits should not be eaten with milk or cream.

Apples and prunes both contain some iron, the prunes having more than the apples.

DRIED FRUITS

When fruits are dried, a large part of the water is removed and, before cooking them, the water should be restored. This can be done by long soaking. Why are fruits dried? Name several of the most common ones.

Dried fruits are so often poorly prepared that they have acquired an undeserved bad reputation. When properly cooked, they are very appetizing and wholesome. Stewed prunes are quite a popular breakfast fruit. The dried fruits, when cooked, should be very soft and not too sweet.

LESSON XV

Carbohydrate Foods—Sugar

PENOCHE

2 c. brown sugar	½ c.
¾ c. water	⅓ c.
2 tb. butter	½ tb.
½ c. chopped nuts	1 tb.

Boil sugar and water to the soft ball stage, 232 degrees. Remove from the fire; add butter and nuts. Beat until creamy and thickened; pour into a greased tin, and when firm cut into squares.

PEANUT BRITTLE

2 c. sugar	⅓ c.
½ c. peanuts	1 tb.

Break peanuts in pieces or chop them. Line a greased pan with them. Put sugar in a sauce pan and heat until it becomes a thin, light brown liquid, stirring constantly. Pour over the peanuts and mark into squares. When cool, break in pieces.

SUGAR

Sugar is made for common use from sugar cane, sugar beets, and maple sap. This sugar is called "sucrose."

"Glucose" or grape sugar, is found in honey, fresh fruits, and on the skins of dried fruits, as raisins, dates, etc. It is made for commercial use from the starch of corn.

The sugar of milk is called "lactose."

Sugar made from sugar cane and sugar beets is the kind most commonly used. From the sugar cane, molasses, brown sugar, granulated sugar, cut-loaf, powdered, and confectioners sugar are made. Only white sugar is made from beets.

Use of Sugar in the Diet

Since sugar dissolves so rapidly, it is very easily digested. It is a carbohydrate, producing heat and energy in the body, and is a valuable food when taken in small quantities. The amount used is largely the result of habit. Learn to use only a small amount of it on cereals and in beverages.

Candy or other sweets should not be eaten just before meals, as they take away the appetite for more nutritious foods. A small amount may be eaten at the close of a meal as a dessert. Candy should never be given to small children.

Evil Effects of Eating Too Much Sugar

1. If sugar is left on the teeth it will ferment, causing them to decay.
2. If too much is eaten at one time, it will ferment in the stomach and interfere with the digestion of other foods.
3. It contains no mineral matter and mineral matter is very necessary for the body. If too much sugar is eaten the appetite for foods which contain mineral matter is destroyed and the body is poorly nourished.

Cooking of Sugar

Syrup, which is a solution of sugar in water, is heated to different degrees of temperature in the making of candies.

Pure water cannot be heated above 212, its boiling point. When some substance is dissolved in it the boiling point is raised and as the concentration increases the boiling point rises.

The following are some of the degrees of concentration often used in candy making:

Soft Ball, 232 degrees to 238 degrees. When a little which has been dropped in cold water can be rolled into a soft ball.

Examples:—Fondant and fudge.

Hard Ball, 254 degrees. When a little which has been dropped into cold water becomes hard.

Example:—Caramels.

The Crack, 260 degrees to 275 degrees. When a little dropped into cold water becomes brittle.

Example:—Taffies.

Find the cost of the large recipe of penoche.

Cost of Penoche

FOOD	Amount	Cost
Brown Sugar		
Butter		
Nuts		
Water		
Total		

LESSON XVI

Protein Foods—Milk

JUNKET PUDDING

1 qt. milk	1 c.
4 tb. sugar	1 tb.
1 junket tablet	½.
1 t. vanilla	¼ t.
¼ t. salt	spk.
1 tb. cold water	1 t.
Nutmeg	

Heat the milk in the double boiler until luke warm; add sugar, salt, vanilla and junket tablet which has been dissolved in the cold

water. Let it stand in a warm place undisturbed until it thickens. Then chill. Grate a little nutmeg over the top. Serve with cream or fruit.

Review the classification of foods in Lesson 1 and the method of cooking protein foods in Lesson III.

Experiments

(a) Test a little milk with iodine. Does it contain starch?

(b) Test a little milk with nitric acid. Does it contain protein? What happens to the milk besides its change of color?

(c) Warm a half a cupful of milk until luke warm; add one-eighth of a junket tablet which has been dissolved in one teaspoonful of cold water. Let stand undisturbed until cold. What happens? Stir it. What happens? The solid part, or curd, is the protein of the milk, and is called "casein." The liquid, or whey, is water with some sugar (milk sugar) dissolved in it.

(d) What rises to the top of milk when it stands for some time? This contains a good deal of fat. Fat gives heat and muscular energy to the body. What do starch and protein do for the body?

Composition of Milk and Its Use in the Body

Water	87-88%
Protein	3- 4%
Fat	3- 5%
Carbohydrate	4.5- 5%
Mineral Matter	0.7%

Milk contains a large amount of water, but contains enough of the other foodstuffs to make it a valuable food. It contains some of each one of the foodstuffs and this is to be expected since infants and small children live on it alone. The foodstuffs are not in the right proportion to make it an exclusive food for older persons. The mineral matter of the milk is especially adapted to the needs of the growing child and it should be used freely in its diet. The protein of the milk is valuable for tissue building for both old and young. Skimmed milk is just as valuable for its protein and mineral matter as whole milk since skimming removes the fat only, and it might be more extensively used than it is. If skimmed milk can be purchased it furnishes protein at a very reasonable price.

Milk is a food, and less of other food should be eaten at a meal when it is served. The stomach contains a substance called rennin which causes the milk to coagulate as the junket did. Milk should be sipped slowly. When a large amount is swallowed at one time it is coagulated in a large lump in the stomach and the digestive juices can reach only the outside of it and it is digested more slowly than when taken in small amounts.

Milk can be combined with other foods to form many palatable dishes which may be served for the main course of a meal or for dessert. Milk soups make excellent lunch dishes and custards make nutritious and easily digested desserts.

Care of Milk

Milk is more liable than almost any other food to contain disease germs. Bacteria grow very readily in milk. It quickly absorbs tastes, odors and impurities. From the time it is drawn from the cow until it is used it should be kept in clean glass, earthenware, or bright tin vessels (never in wood) in a cool, clean place. It should

be kept covered. Milk should never contain sediment. Milk sold from open cans is more likely to contain dirt than bottled milk, and to sour quickly. While milk is being drawn from the cow, the milker, the pail and all the surroundings should be absolutely clean. *

All dishes in which milk is kept should be thoroughly washed and scalded with boiling water after each use.

* Read Farmers' Bulletin No. 413, U. S. Department of Agriculture, on "The Care of Milk and Its Uses in the Home."

LESSON XVII

Protein Foods—Milk

General Directions for Making Cream of Vegetable Soups

Cook the vegetable in water until very soft. Press it through a sieve, using the cooking water to wash the pulp through. Add the pulp to the hot milk.

The butter and flour should be rubbed to a smooth paste and stirred into the hot liquid.

Onions, herbs and whole spices may be cooked in the milk or water used in the soup; other seasonings are added last.

The general proportion of ingredients used is as follows:

1 qt. liquid; 1 to 2 cups vegetable pulp; 2 tb. butter; 2 to 3 tb. flour; 1 t. salt; from a few grains to $\frac{1}{8}$ t. pepper.

Tomato Soup

1 pt. tomatoes
$\frac{1}{2}$ t. salt
1 slice onion
2 cloves
$\frac{1}{2}$ a bay leaf
1 t. parsley
$\frac{1}{4}$ t. celery salt
$\frac{1}{2}$ t. sugar
$\frac{1}{4}$ t. soda
1 pt. thin white sauce

Boil together the tomato and the seasonings for five minutes; rub through a strainer. While hot add the soda. Add this mixture to the white sauce; if the white sauce is added to the tomato it will curdle. Combine just before serving.

Pea Soup

1 pt. of peas
1 pt. of cold water
1 qt. thin white sauce

Boil the peas in the water until they are soft. Rub them through a strainer and add the water in which they were cooked. Add the peas to the white sauce and add more salt and pepper if desired.

For class work use one-fourth of the recipe for tomato soup and one-eighth of the recipe for pea soup.

Croutons

Butter a slice of bread. Cut it in small cubes, put them in a pan and brown in the oven or broiler, stirring frequently.

Cream Soups and Their Use in the Diet

Cream soups are a combination of white sauce and strained vegetable pulp.

The vegetables most commonly used are tomatoes, peas, beans, corn, celery, potatoes and asparagus. Old and tough vegetables may be used as the tough part is strained out.

Cream soups are economical, nourishing and easily digested, and might be served frequently, but are too rich to precede a heavy meal. For this reason they are better served at luncheon than at dinner.

The milk of the soup furnishes protein and the vegetable pulp which is added furnishes mineral matter and other foodstuffs which

vary with the vegetable used. What foodstuffs were added by the tomato and what by the peas?

Small children cannot eat the coarse fibre of vegetables, but do need the mineral matter which they contain and therefore when vegetable pulp is added to milk to make soup a food is obtained which is excellent for small children.

LESSON XVIII

Protein Foods—Milk

COCOA

½ tb. cocoa
½ tb. sugar
¼ c. water
½ c. milk
Speck of salt

Mix sugar and cocoa and add cold water. Boil three minutes. Add to it the scalded milk and cook in double boiler for five minutes or longer. When done, beat with the Dover egg beater to prevent the formation of scum on the top. The proportion of water and milk may be varied. Milk is a protein food. Foods made of milk do what for the body?

SANDWICHES

Bread for sandwiches should be at least one day old. It should be cut thin and even, and buttered so that two slices will fit together perfectly. To do this, lay the slices in a pile just as they come from the loaf; take the first two slices and lay them on the table, having the sides that were together uppermost; butter them, put in the filling and place them together again. Be sure that all of the slice is buttered. For all ordinary occasions the crusts should be left on. The butter, if hard, should be creamed to make it spread easily.

There are many kinds of fillings for sandwiches. Meat, cheese, egg, nuts, fresh green vegetables, and preserves are often used. Meat should be ground or chopped and may be mixed with salad dressing. Salad dressing is used in many fillings. Lettuce or young onions with salad dressing make very attractive and palatable sandwiches.

Cocoa and sandwiches are often served for an afternoon or evening lunch.

Suggestion to Teachers: Have all the cocoa which is made put in a pitcher or cocoa pot and poured at a table by one of the girls. Have other girls pass it and the sandwiches. Directions for passing dishes are given in Lesson 36.

Use of Cocoa in the Diet

Cocoa when made of milk is a beverage furnishing considerable protein, and is an excellent food for adding milk to the diet. It should not be given to very small children, but is a good beverage for older children, especially when they will not drink milk. It contains a small amount of a stimulating substance similar to that in tea and coffee, but is not considered to be injurious.

LESSON XIX

Protein Foods—Cheese

BAKED MACARONI WITH CHEESE

¾ c. macaroni	1½ tb.
2 qts. boiling water	1 pt.
1 tb. salt	½ t.
½ c. grated cheese	1 tb.
1 c. thin white sauce (Use red pepper for seasoning the white sauce.)	¼ c.
⅓ c. buttered crumbs	1 tb.

Break the macaroni in inch pieces. Boil it in the water until soft, about twenty minutes, adding salt when nearly done. Drain through a strainer, and rinse with cold water. Put a layer of the cooked macaroni in a buttered baking dish and sprinkle with cheese. Repeat until the macaroni and cheese have been used; pour the white sauce over the top and cover with buttered crumbs and bake until brown.

Buttered crumbs for scalloped dishes are prepared by mixing dried bread crumbs with melted butter, using one-eighth as much butter as crumbs.

COTTAGE CHEESE

1 qt. thick recently soured milk
2 t. butter
¼ t. salt

Cream to make as moist as desired

Heat the milk slowly in a pan set on the back of the stove or in another pan of hot water. Do not let it get too hot, as the curd will become hard and tough. When the curd is well separated from the whey, strain through a cloth. Squeeze the curd in the cloth until quite dry. Put in a bowl and mix in the butter, salt and cream. Serve lightly heaped up in a dish.

MANUFACTURE OF CHEESE

When milk sours, it separates into a thick white substance and a light yellow liquid. The thick, white part is called the "curd," and the liquid, the "whey." The sour taste is caused by an acid which is made from the milk sugar by bacteria which get into the milk from the air. Rennin, as we have seen, has the power of separating the casein from the curd in sweet milk. Cheese is made from the curd of either sweet or sour milk by subjecting it to different degrees of heat and pressure. The hard, cheap cheese is made from skim milk and the soft dairy cheese from whole milk.

Composition of Cheese

Cheese contains on the average about one third protein, one third fat and one third water. The fat varies according to the milk from which the cheese is made. Cheese contains so much nourishment in so small a bulk that it is called a concentrated food. Cottage cheese contains more water and less protein and fat than the harder cream cheese which is purchased at the store.

Use of Cheese in the Diet

Only a little cheese should be eaten at one time, but it should be more commonly used than it is for the substantial dish of the meal. Cheese may take the place of meat in the diet. Macaroni and cheese or cheese suffle may form the main dish of a meal. It is somewhat difficult to digest, and, for this reason, should not be eaten by delicate persons or small children. Cottage cheese, however, is easily digested and may be served often. It may form the substantial dish of a lunch or supper.

Cost of Cheese

A pound of cheese and a pound of round steak cost very nearly the same. The cheese has a little more than twice as much food value as the meat. Which is really the cheaper? How much cheaper?

LESSON XX

Protein Foods – Meat

BROILING MEAT

Only tender meat is good cooked in this way. The best cuts of meat for broiling are steaks cut from the loin (short, porterhouse, and sirloin). The steak should be cut from one to one and one half inches thick. A steak one inch thick should broil from seven to ten minutes, a steak one and one half inches thick from ten to fifteen minutes.

To Broil by Gas. Light the gas five or ten minutes before the time to cook the steak, so that the broiling oven will be very hot. The steak should be left in one large piece to keep the juice in. Grease the rack over the pan and then lay the meat on it, or place it in a double broiler. When the meat has been under the flame about ten seconds turn it, so that the other side will be seared. Do not pierce it with a fork when turning. Why?

When well seared on both sides turn down the gas and lower the pan if necessary. Turn several times during the cooking. Sprinkle with salt just before it is done, turning each side to the heat to cook the seasoning in. When done put it on a hot platter and spread with butter and serve immediately.

Broiling by Wood or Coal Fire. The coals should be glowing hot with no smoke or flame. Place the meat in a greased double broiler and hold it near the coals for about ten seconds and then turn the other side to the coals for the same length of time. Keep turning it occasionally until it is done. Then season and serve as previously directed.

Pan Broiling. A cast iron skillet should be used. Do not put the meat in until it becomes very hot. Grease it a very little with a piece of fat, then put the meat in the skillet and sear it on both sides. Turn the fire down and cook slowly, turning occasionally, until done. Season and serve as for the broiled steak.

HAMBURG STEAK

Meat which is a little tougher than that used for broiling may be chopped or ground fine, seasoned and made into cakes and then pan broiled.

MEAT

Meat is the flesh of animals which is used for food. The flesh of cattle, sheep and swine is called beef, mutton and pork, respectively.

The flesh of the calf is called veal, and that of the young sheep, lamb.

The flesh of wild animals and birds is called game, that of domestic fowls is called poultry.

The flesh of mature animals is more nutritious and more easily digested than that of young animals. Beef is the most nutritious meat, mutton ranks next; pork is nutritious, but is hard to digest; lamb is tender, but is not so nutritious as mutton; veal is the least nutritious and is hard to digest. It is liked for its flavor and to give variety. Good meat is firm, elastic, and of a bright uniform color when first cut; the fat is firm and light straw color.

Structure and Composition of Meat

Lean meat is muscle. All muscular tissue is made up of bundles of tube-shaped cells filled with juice. These are bound together by a white connective tissue containing tiny blood vessels and streaks of fat. The contents of the muscle fibre is a jelly-like substance made of protein, mineral matter, water and the substances which give color and flavor.

When a muscle is used a great deal the walls of the tubes become tougher and the connective tissue increases in amount and toughness. The meat from the parts of the animal where the muscles are exercised is, therefore, a great deal tougher than that from muscles which are used less. In what part of an animal are the muscles used the most? Least?

Reasons for Cooking Meat

Meat is cooked to improve its flavor and appearance; to soften the fibre and connective tissue; to kill any germs or organisms which may be present.

Cooking of Tender Meats

Since the connective tissue in tender meat is not tough, in cooking it we do not have to consider the softening of the connective tissue. The main thing to be considered is the flavor. Cooking at a high temperature in dry heat developes flavor; and the keeping of the juice in the meat improves the flavor. Dry heat hardens the connective tissue. Moist heat softens it. When the meat is exposed to a high temperature, the outside is quickly hardened and this hard coating keeps the juices in the meat. To cook tender meat, it is exposed to a high temperature in dry heat for a short time and then cooked at a low temperature until done, which requires only a short time. In this way only a small amount of the protein, that on the outside of the meat, is hardened and that on the inside, being cooked at a low temperature, is soft, juicy and easily digested. What have you learned before about the cooking of protein?

LESSON XXI

Protein Foods—Meat

DIRECTIONS FOR PREPARING A STEW

Remove the meat from the bone and cut in one and one half inch pieces; sprinkle them with salt, pepper and flour. Cut some of the fat in small pieces and try it out in the frying pan; add the meat and stir so that the surface may be quickly seared. When well browned, put it in a kettle, rinse the pan with boiling water and add it to the meat. Add also the remaining fat and the bone which has

been cut in small pieces, and then cover with boiling water. Boil about fifteen minutes and then cook at a lower temperature for several hours or until tender; this may be done in a fireless cooker. When done remove the bones and larger pieces of fat. Thicken the gravy with flour mixed with enough water to make it pour easily, using two tablespoonsful of flour for each cup of gravy. The thickening should be entirely free from lumps. To add it to the gravy, first add some of the hot gravy to the thickening and then pour the thickening into the remaining hot gravy, stirring constantly until it boils.

Stew With Rice Border

Boil some rice as in Lesson X. When it is done, make a border of it around the outside of a platter and pour the stew in the center. Serve for dinner.

Cooking of Tough Meats

Tough cuts of meat are less expensive than tender cuts. They have just as high a food value, and, if properly cooked, are just as palatable. Every housekeeper should learn how to cook them.

Tender meat is cooked to improve its flavor and appearance; tough meat, in addition to these requisites, must have its connective tissue softened. This can be done by moist heat, that is, by cooking it in hot water or in steam, and cooking it thus for a long time. It must be cooked below the boiling temperature, so that the protein will not be made hard and tough. The two most common ways of doing this are called "boiling" and "stewing."

To "boil" meat, it is plunged into boiling water and cooked at this temperature for about fifteen minutes. Why? It is then simmered until it is tender. Why simmered? Salt the meat about an hour before it is done.

To "stew" meat it is cut in small pieces, so that it will cook more quickly and so that some of the juices will be extracted for the gravy. With this exception, the method of "stewing" is practically the same as "boiling."

Just how does the method for cooking tough meat differ from the method for cooking tender meat?

Use of Meat in the Diet

Most persons do not need meat more than once a day. They do need a protein food for each of the other meals, however. Name protein foods which might be used for the other meals.

Cost of Meat

Find the cost per pound of the following cuts of meat:

Round steak	Chuck
Sirloin steak	Rump
Porterhouse steak	Shoulder
Prime rib roast	Neck

Do they all contain the same amount of solid lean meat?

LESSON XXII

Protein Foods—Meat

WARMED OVER MEAT DISHES

Appetizing meat dishes may be prepared from pieces of cooked meat which housekeepers often throw away or warm over carelessly in a frying pan.

Left-overs, properly used, may provide many a dainty and save many a dollar.

In preparing meat for warmed-over dishes, remove all bone, gristle and fat. Cut the meat in small pieces, or chop it fine. If it is tender and well cooked, reheat it only; do not recook it. If not well done, simmer it until tender.

Hash

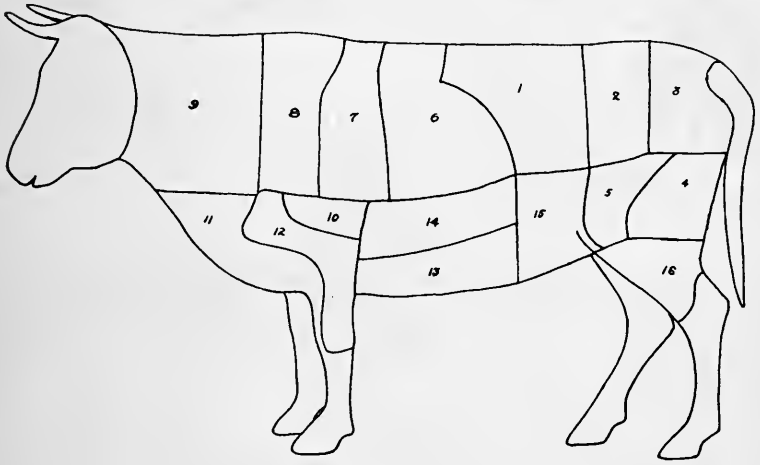
Mix and heat together equal parts of chopped cooked meat and chopped boiled potatoes. For each pint of hash add one tablespoonful of butter or drippings and three tablespoonfuls of hot water. Season with salt and pepper, adding onion, parsley or other seasoning, if desired. To brown the hash add two tablespoonsful of milk and let it cook until brown. It may be folded like an omelet.

Minced Meat on Toast

Chop fine any cold lean meat. Season and warm in gravy or white sauce sufficient in amount to moisten it. Spread it on slices of toast.

For class work, make a gravy, using two tablespoonsful of the stock in which the meat was cooked and two tablespoonsful of milk, thickening it with two-thirds tablespoonful of flour. Add one heaping tablespoonful of chopped meat. Season to taste. Spread on one slice of toast. If there is no meat stock, all milk may be used for the gravy, or water may take the place of the stock.

Diagram Showing Cuts of Beef



1. Loin
2. Sirloin
3. Rump
4. Round
5. Top Sirloin
6. Prime Ribs
7. Blade
8. Chuck
9. Neck
10. Cross Ribs
11. Brisket
12. Shoulder
13. Navel
14. Plate
15. Flank
16. Leg

Cuts of Beef

The butcher cuts a beef through the backbone into halves. Each half is then cut between the twelfth and thirteenth ribs into the hind quarter and the fore quarter.

The most of the meat of the fore quarter is of lower grade and tougher than that of the hind quarter and sells for a less price. The best meat of the beef is found just back of the middle of the back bone, decreasing in tenderness toward the extremeties. In the fore quarter the cuts from the ribs are the most tender. These are used for roasts, the first seven ribs which are cut being called the prime ribs and the others the chuck. The prime ribs are roasted in the oven in dry heat. The tougher parts of the chuck and the shoulder make excellent pot roasts and boiling pieces. They furnish lean meat at a lower price than the prime ribs. The neck is used for stews and the shank for soup.

The most tender part of the hind quarter, and, in fact, of the whole animal, lies just in front of the hip bone. This is cut into steaks called porterhouse. The bone in them is "T" shape and they are sometimes called "T" bone steaks. They are the most expensive of the steaks. Back of the porterhouse steaks are the sirloin steaks, which are not so tender, but are a little cheaper. They are classed with the tender meats and are used for broiling. The rump is back of the sirloin and is used for pot roasts. The round steaks are below the rump. The round is tougher than the porterhouse or the sirloin steak but has a good flavor. There is very little waste in the round and since it sells for a less price per pound than the porterhouse or sirloin the actual cost of the lean meat per pound is much less. The inside, or top round from a first class animal is fairly good when broiled; the outside, or bottom round is less tender and is better cooked in moist heat.

LESSON XXIII

Protein Foods—Fish

STEAMED SALMON

1 large can salmon	⅓ c.
2 eggs	½
¾ c. milk	1 tb.
¾ c. bread crumbs	½ tb.
1 tb. melted butter	1 t.
1 t. lemon juice	5 drops
1 t. chopped parsley	⅛ t.
1 t. salt	⅛ t.
⅛ t. pepper	spk.

Drain the liquor from the salmon. Remove the bones and skin, and flake with a fork. Add the crumbs, milk, butter and seasoning, and mix lightly with a fork. Then mix in the well beaten egg. Pack in a well buttered mould (china or granite, not tin,) and steam one hour. The small mould will steam in half an hour. Serve with medium white sauce to which chopped parsley has been added, or with Hollandaise sauce.

Use of Fish in the Diet

The composition of fish is very similar to that of lean meat. It should be used to give variety to the protein diet. Fish, baked or broiled, is usually served for dinner. Creamed codfish is often served for lunch or breakfast with baked potatoes. Most fish is more easily digested and less stimulating than meat. Salmon, mackerel and eel are exceptions and should not be eaten by those who have a weak digestion.

Selection of Fish

Fish spoils very quickly and, therefore, should be eaten only when fresh. In fresh fish the flesh is firm, the eyes bright and bulging and the gills bright red.

REVIEW

1. Tell how to make cottage cheese. Why should it be cooked at a low temperature? For what foodstuff is it valuable?
2. Is meat more easily digested when cooked at a high or low temperature?
3. Meat is a protein food. Why, then, is it cooked at a high temperature for a short time? Does this make the protein which is on the outside of the meat less digestible? Is it worth while to sacrifice the digestibility of this small amount of protein to improve the flavor of the meat?
4. What effect does dry heat have upon meat?
5. Tell how to make gravy.
6. Tell how to cook macaroni.
7. Name five cuts of meat and tell whether they are tough or tender and how they should be cooked.
8. For which cut do you pay the higher price per pound, round steak or rump roast? Is there any more waste in one than in the other?

LESSON XXIV

Fat

SAUTED POTATOES

Cut boiled potatoes into one fourth inch slices. Heat a frying pan; put in enough fat (half lard and half butter) to well cover the bottom of the pan, and heat until very hot. Put the potatoes in the pan, season with salt and pepper, cook until brown on one side, then turn and brown on the other side.

Sauteing

Saute means to cook in a small amount of fat. It is often called frying. Frying, however, means cooking in deep fat, that is, in enough to cover the food.

The fat for sauteing should be hot when the food is put into it. When food is put into cold fat the fat pentrates further into it and more of it is made hard to digest.

Use of Sauted and Fried Foods in the Diet

Sauted and fried foods are hard to digest and, therefore, should not be served too often. They should never be given to small children or sick persons. The digestive organs of children are not as strong as those of older persons, nor are those of the sick as strong as those of the well. The young or sick, therefore, should not eat foods which are hard to digest. Persons doing hard muscular work out of doors may eat more heartily of fried foods than those doing indoor work.

Sauted foods are harder to digest than fried foods.

Uses of Fat in the Diet

Some fat is absolutely necessary for the growth and development of the body. The most easily digested forms of fat are cream, butter and olive oil and these should be used freely in the diet. It is possible, of course, to get too much fat, but this is not apt to occur if pie, cake and fried foods are avoided. It is better to eat the fats in simple, easily digested forms than to use them in pastry and for frying.

REVIEW

Table of Foodstuffs

Carbohydrates

(a) Starch
(b) Sugar

Uses in the Body

1. Yield muscular energy and heat.
2. May be made into fatty tissue.

Proteins

(a) Albumen in egg
(b) Albumen in meat
(c) Albumen in milk
(d) Casein in milk
(e) Gluten in flour
(f) Legumen in peas and beans

Uses in the Body

1. Build tissues
2. May yield muscular energy and heat

Fats

(a) Fat of meat
(b) Butter
(c) Cream
(d) Fat in nuts
(e) Olive Oil
(f) Oil of grains

Uses in the Body

1. Yield heat and muscular energy
2. May be stored in the body as fat

Mineral Matter

Uses in the Body

1. Necessary for all vital processes
2. Enters into the composition of all tissue.

Water

Uses in the Body

1. Furnishes the fluid necessary for the body.
2. Enters into the composition of all tissues.
3. Helps regulate the temperature of the body.

Classify the foods which have been studied, as follows:
Carbohydrate Protein Fat Mineral Matter

LESSON XXV

Beverages

TEA

1 t. tea 1 c. boiling water

Put tea in a scalded teapot and pour the boiling water over it. Let it stand for five minutes where it will be hot but not boil or simmer. Tea should not be boiled, because by so doing more tannin is extracted and that makes it more injurious. It should not be allowed to stand for any length of time upon the grounds for the same reason. If it must be kept before serving, it should be poured off the grounds.

COFFEE

2 tb. coarsely ground coffee 3 tb. cold water
½ tb. beaten egg 1 c. boiling water

Put the coffee with the egg and cold water in the scalded coffeepot. Let boil. Add boiling water. Let it boil for abount one minute. Let it stand where it will keep hot, but not boil, for about five minutes. The egg may be omitted or egg shells may be used. Serve with cream or hot milk, and sugar, if desired. Coffee should not be boiled for any length of time nor allowed to stand upon the grounds for the same reason that tea should not be allowed to stand. Pour it off the grounds, if it must be kept.

General Rules

1. Keep tea and coffee in closely covered jars, otherwise they lose their flavor.
2. Do not use tin teapots or coffeepots.
3. Scald teapots and coffeepots before using.
4. Empty and thoroughly clean teapots and coffeepots after each using.
5. Use freshly boiled water in making tea and coffee.

BEVERAGES

The principal use of beverages, or drinks, is the quenching of thirst. Water, therefore, is the best of beverages, other drinks satisfying thirst only by means of the water they contain.

Drinking Water

Good drinking water is a clear, colorless, almost tasteless liquid, free from disease germs, and contains a small amount of mineral matter. Water from streams and that from wells which are so situated that water from barnyards and cesspools may drain into them is likely to contain sewage and often disease germs, especially typhoid germs. Such water should not be used for washing food and dishes, or for drinking, unless it has been boiled. Boiling water for twenty minutes kills the germs.

One should be very careful not to drink from the same cup from which other persons drink. Diseases are often carried from one person to another in this way. Most states now have laws against the use of a common drinking cup in public places. Does your state have such a law?

Use of Water in the Body

Water dissolves and helps digest the food, carries off waste products, keeps the temperature normal and enters into the composition

of all tissues. It constitutes about two thirds of the body. About three pints should be drunk each day.

Use of Tea and Coffee in the Diet

Tea and coffee contain a substance called theine, or caffeine, which is pleasantly stimulating, but is injurious, if taken in excess. Even in small amounts it is injurious to children and should never be given to them. Tea and coffee also contain a bitter substance, tannin, which interferes with digestion.

LESSON XXVI

Flour Mixtures

FLOUR

The following cereals, or grains, wheat, rye, buckwheat, rice, barley and some others, are, by the process of cleansing, grinding and sifting made into flours.

The flour made from wheat is most extensively used in this country.

The bread made from wheat flour is a very valuable food. It contains all the foodstuffs, and, while starch is present in largest amount, so that it is classified as a starchy food, there is enough protein in it to make it valuable as a tissue building food. Since we have to eat so much starch to get this protein, it is best to serve with bread some food which contains much protein and no starch, as meat and eggs. The portein in wheat when moisted is called "gluten."

Cereals contain valuable mineral matter, a large part of it being in the outer bran coats. This is taken out when white flour is made, but is left in graham and whole wheat. Would it be a good thing then to eat some bread made from graham and whole wheat flour?

Gluten is an elastic substance which is easily stretched by the expansion of any enclosed gas. Holes are thus formed, the walls of which are made of gluten, and this gluten, like other proteins, hardens when heated. In this way dough is made light. Rye flour contains the same kind of protein but the other grains do not contain an elastic protein and flour made from them will not produce a light dough.

Experiment

Mix half a cup of white flour with enough water to form a stiff dough. Knead it until it is smooth and elastic and then wash it in water until the water becomes clear. Cook the first water in which it was washed and then test for starch. Bake the residue 30 or 40 minutes. This residue is the gluten.

Flour Mixtures—Batters and Doughs

Flour combined with a liquid and some substance which produces a gas in the mixture, called a leavening agent, is made into a batter or dough which is then baked.

Batters have enough liquid in them to make a mixture which will either pour or drop from a spoon. The first are called "pour batters" and the second "drop batters." In the pour batters there are nearly equal amounts of flour and liquid; in the drop batters

there are about two measures of flour to one of liquid. When there is about three times as much flour as liquid, the mixture is stiff enough to knead and is called a "dough."

Batters usually have salt added to them to improve the flavor and some shortening (fat) to make them more tender. Sugar, spices and extracts may also be added to give flavor. Eggs are often added. When small amounts of sugar and shortening are used we call the mixture "bread;" when larger amounts are used and flavoring added, we usually call it "cake."

The breads may be divided into two classes. (1) Quick breads, and (2) Yeast breads.

The quick breads take a shorter time for preparation than the yeast breads.

REVIEW

Have a written test on the preceding lessons.

LESSON XXVII

Flour Mixtures—Quick Breads

POPOVERS

1 c. flour	¼ c.
2 eggs	½
⅞ c. milk	¼ c.
¼ t. salt	spk.

Sift flour and salt together; add milk gradually. Add the unbeaten egg and then beat two minutes with the Dover egg beater. Pour into hot buttered gem pans, filling them about two thirds full, and bake from thirty to thirty five minutes in a hot oven.

Is the popover batter a pour or a drop batter?

What makes the popovers light?

Review method of Working in Lesson II.

Success in making batters and doughs is dependent upon careful measurements, proper method of mixing, and upon baking. The baking is one of the most important factors. It is necessary, therefore that one learns to control the oven which she uses. A moderate oven will brown a piece of white paper a light brown in five minutes. A hot oven will brown it a deeper golden brown in five minutes. Test the oven in this way and also find out how hot it feels to the hand in both cases.

Gases Used to Make Batters and Doughs Light

1. **Air.** Air may be put into a batter by beating it.

Air may be put into a batter by beating it into egg first and then adding the egg to the batter.

2. **Steam.** Steam is produced in a batter while it is baking when there is more water than will combine with the flour. This process occurs in thin batters.

3. **Carbon Dioxide.** Carbon dioxide may be produced in batters and doughs in several ways. (a) by using baking soda and some substance containing acid, as sour milk or molasses. (b) by using baking powder, which is made of soda and some acid in the powder form, and (c) by using yeast.

LESSON XXVIII

Flour Mixtures—Quick Breads

GRAHAM GEMS OR MUFFINS

1 c. Graham flour	2 tb.
1 c. white flour	2 tb.
¼ c. sugar	1 t.
1 egg	1 t.
½ t. soda	1-10 t.
1 t. salt	⅛ t.
1 c. sour milk	2 tb.
1 tb. butter	½ t.

Sift the dry ingredients together. Beat the egg without separating the white and yolk and add it to the milk. Add the liquid to the dry ingredients, stirring first and then beating. Add the melted shortening and beat it into the batter. Put in greased muffin pans. Bake in a hot oven about twenty minutes. Either tin or iron pans may be used. If iron ones are used they should be heated before putting the batter in them.

Is the muffin mixture a pour or a drop batter?

Experiment

Mix soda and sour milk. Notice the bubbles which are formed. These bubbles are made by the gas, carbon dioxide, which is formed by the soda and the acid of the milk.

When soda and sour milk are put in a batter, the gas which is formed expands, when heated, and makes the batter light.

Amount of Soda to Use With Sour Milk

To one cupful of thick, recently soured milk, use one-half teaspoonful of soda.

LESSON XXIX

Flour Mixtures—Quick Breads

BAKING POWDER BISCUITS

2 c. flour	⅓ c.
4 t. baking powder	⅔ t.
1 t. salt	⅙ t.
2 tb. shortening	1 t.
¾ c. milk	1½ tb.

Sift the flour, baking powder and salt together. Cut the shortening in with knives or rub it in with the tips of the fingers, until the mixture looks like meal. Pour in the milk slowly, mixing with a fork. As soon as one portion of the dough becomes moist, push it to one side. When all is moist, put it on a floured board, sprinkle with flour, pat or roll to a thickness of three fourths of an inch. Cut with a floured cutter and place in a baking pan. Bake fifteen or twenty minutes in a hot oven. The biscuit should be light and flaky and should be a deep golden brown in color.

The baking powder biscuit mixture is a soft dough. What makes it light? What made the muffins light? What made the popovers light?

Experiment

Put a little baking powder in a test tube and add a little water. What happens? Heat it. What happens?

Amount of Baking Powder to Use

Use from one to two teaspoonsful of baking powder for one cup of flour.

YEAST

Yeast is added to bread dough to make it light. Yeast is a very small plant. Like all plants, and also like animals, it needs food, moisture, a certain amount of heat, and oxygen to grow. Yeast feeds upon sugar or starch which is changed to sugar. The sugar is made into alcohol and carbon dioxide. The carbon dioxide is the gas which makes the dough light. In what other ways may carbon dioxide be made in doughs? The yeast grows best between the temperatures of seventy five degrees and ninty five degrees Fahrenheit. A temperature of one hundred and thirty degrees kills it. It will not grow at the freezing temperature, but is not killed.

When yeast is added to dough the mixture must stand a sufficient length of time for enough gas to be produced to make the dough light. This will take several hours. During this time the dough must be kept at the right temperature for the yeast to grow.

YEAST BREAD

Three things are necessary for making bread, flour, liquid and yeast. Salt is almost always added for flavor. Some shortening is generally used to make the bread a little more tender, and sugar may also be added. Sugar hastens the growth of the yeast; salt and shortening retard its growth.

Different liquids may be used for bread. All water or all milk, or a mixture of the two, potato water, and the whey from sour milk are the most common ones.

Bread is a soft dough, three measures of flour being used for each measure of liquid.

LESSON XXX

Flour Mixtures—Yeast Bread

BREAD

½ c. liquid
¼ cake compressed yeast
1 t. sugar
½ t. salt
½ tb. shortening
1½ c. flour

There are two general methods used for making bread.

First—Sponge Method

Step 1. Put the yeast to soak in a small amount of the liquid, which should be lukewarm. Measure the sugar and lard into the

mixing bowl and add to it about one half of the flour and the soaked yeast. Beat this batter thoroughly. Set it in a warm place to rise until it is full of bubbles. (A double boiler may be used for keeping this small amount of bread warm at school.)

Step 2. When the bread is light add the salt and the remainder of the flour. Knead it on a board for about fifteen minutes, until it is smooth and elastic and does not stick. Set it in a warm place to rise until it has doubled its bulk.

Step 3. Knead again for about three minutes. Let it rise again in a warm place until double its bulk.

Step 4. Knead enough to shape into loaves, place the loaves in warm, well greased pans, let them stand in a warm place to rise until double their size.

Step 5. Bake in a moderate oven, baking a large loaf sixty minutes and a small one thirty five minutes. Remove the loaf from the pan and let it stand where air can circulate freely around it until it is cold.

Step 6. Place it, unwrapped, in a tight jar with a tightly fitting cover. The jar should be scalded several times a week.

Second—Stiff Loaf Method

The stiff loaf method differs from the sponge method in the following way: The batter is not allowed to get light, the salt and the remainder of the flour being added immediately, the dough kneaded and then placed in a warm place to rise, that is, Step 2 follows Step 1 immediately.

Dry yeast or compressed yeast may be used. When dry yeast is used the first rising takes over night. When compressed yeast is used, the first rising takes from one to three hours. A sponge will rise more quickly than a stiff loaf. The second and third risings require from one hour to one and one half hours. For school work one rising may be omitted, but the bread will not be quite so good, that is, Step 3 may be omitted.

Cost of Small Loaf of Bread

FOOD	AMOUNT	COST
Flour		
Yeast		
Sugar		
Shortening		
Salt		
TOTAL		

The small loaf should weigh about eight ounces. How much does the baker's five cent loaf weigh?

Digestibility of Bread

Bread which is twenty four hours or more old is a very nutritious, easily digested food. When warm it is hard to digest.

BREAD JUDGING

Bread Judging Score Card

Shape	5
Crust	5
Doughiness and Moisture	25
Texture and Grain	30
Flavor	30
Color	5
	100

Shape

The loaf should be uniform in size, slightly rounded on top, and not bulge over the sides of the pan. To secure this result, have a pan of the right size, knead the bread thoroughly and bake it, when it has doubled its bulk, in a moderate oven.

Crust

The crust should be a good golden brown over the entire surface. It should be crisp and about one fourth of an inch thick.

Doughiness and Moisture

Doughiness and Moisture depend upon the proportion of flour and liquid used and upon the baking. To test for doughiness and moisture, cut the loaf in two; press the cut surface lightly with the finger; if the dent springs back, it is of the proper stiffness; if it does not spring back, it has not enough flour in it or it has not been sufficiently baked. If a hard pressure is necessary to dent it, the bread has too much flour in it.

Texture and Grain

The bread should be light and have a fine even grain throughout, with no large holes in it, none larger than a grain of wheat. The bread should be uniformly light, with no heavy streaks. To secure good texture and grain, the bread should be thoroughly kneaded and should be baked, as soon as it has doubled its bulk, in a moderate oven.

Flavor

The bread should have a sweet, nutty flavor. There should be no taste of the yeast, no sourness and no musty taste. The flavor depends largely upon the temperature at which the bread is allowed to rise. If it is not warm enough, the yeast will grow too slowly and the bread will become sour.

Color

The inside of the loaf should be a good cream color.

LESSON XXXI

Flour Mixtures—Plain Cake

PLAIN CAKE

⅓ c. butter	1 tb.
1 c. sugar	2 tb.
2 eggs	½
½ c. milk	2 tb.
1½ c. flour	6 tb.
2 t. baking powder	½ t.
1 t. vanilla	6 drops

Prepare pans. Sift flour and baking powder together. Cream the butter and sugar together thoroughly. Add the yolks of the eggs to the butter and sugar and beat the mixture. Add the milk without stirring. Add the flour; stir it in and then beat well. Add the flavoring and fold in the whites of the eggs which have been beaten very stiff. Put the cake in a tin which has been well greased and floured. Bake in a moderate oven.

The oven is hot enough for butter cakes when it turns a piece of white paper a light brown in five minutes. This is called a moderate oven. A loaf cake should bake from forty five to sixty minutes. Small cakes and layer cakes bake in about twenty minutes.. The cake is done when it shrinks from the pan and springs back when touched lightly.

In baking a cake, divide the time into quarters.

1. It should begin to rise.
2. Continue rising and begin to brown.
3. Continue browning.
4. Finish baking and shrink from the pan.

A good butter cake should be smooth on top and a good golden brown all over. It should round up slightly in the middle, but not shrink from the edges and rise sharply with a crack on top. Such a cake contains too much flour or has baked too quickly. The inside of the loaf should be slightly moist but not sticky, and of fine even grain with no heavy streaks. Coarse grained cake is usually caused by lack of beating or by too cool an oven.

This plain cake recipe may be used as a foundation for a number of cakes. It may be varied by adding other flavorings, chocolate, nuts, or fruit. For chocolate cake add one ounce of melted chocolate before folding in the white of egg. Use one half a cupful of nuts or fruit. For spice cake sift with the flour one teaspoonful of cinnamon and one fourth of a teaspoonful of cloves. Spices are cheaper than extracts.

Cost of Plain Cake

FOOD	AMOUNT	COST
Butter		
Sugar		
Eggs		
Milk		
Flour		
Baking Powder		
Vanilla		
TOTAL		

LESSON XXXII

Flour Mixtures—Sponge Cake

SPONGE CAKE

4 eggs	1
1 c. sugar	3 tb.
3 tb. cold water	2 t.
1 c. flour	4 tb.
1½ t. baking powder	½ t.
¼ t. salt	spk.
1 t. lemon juice or	¼ t.
½ t. vanilla	6 drops

Beat the yolks of the eggs until thick and lemon colored; then add the sugar gradually and continue beating. Add the flavoring, the water and the flour which has been mixed and sifted with the baking powder and salt and beat until thoroughly mixed. Cut and fold in the whites of the eggs which have been beaten very stiff. Do not stir or beat after the whites are in. Put in an ungreased tin, the bottom of which has been lined with paper. Bake from thirty to forty minutes in a very moderate oven. The cake is done when it shrinks from the sides of the pan and is firm to the touch. When done, turn the pan upside down and support so that the air can get under it, until the cake is cold. Do not try to remove it from the pan while it is warm, as to do so will make it fall.

Since they have so much egg in them, they must be cooked as eggs are cooked, this is at a very low temperature. They should be baked in a very moderate oven, as a high temperature makes the protein of the egg tough. A good sponge cake depends largely upon the baking.

Classes of Cakes

There are two classes of cakes, butter cakes and cakes without butter, called sponge cakes. Sponge cakes have a great deal of egg

in them and depend mostly upon the air which is beaten into the eggs for lightness.

Digestibility of Sponge Cake

Sponge cakes are more easily digested than butter cakes.

LESSON XXXIII

Desserts

BAKED CUSTARD

1 pt. milk	½ c.
2 eggs	½
2 tb. sugar	½ tb.
⅛ t. salt	spk.
¼ t. vanilla	2 drops
Nutmeg	

Beat the eggs slightly with a fork, add the sugar, salt, milk and vanilla. Pour into cups and sprinkle a little nutmeg on the top of each. Set the cups in a pan of hot water and bake in a moderate oven. Do not let the water boil. Why? The custard is done when a knife inserted in it comes out clean. Set the cups in cold water so that they may cool quickly.

SOFT CUSTARD

2 c. milk	½ c.
3 egg yolks	1
¼ c. sugar	1 tb.
⅛ t. salt	spk.
½ t. vanilla	5 drops

Heat the milk in a double boiler. Why not heat it directly over the flame? Mix egg yolks with sugar and salt. Stir the hot milk slowly into this mixture. Return it to the double boiler and cook, stirring constantly, until the custard is thick enough to coat the spoon. Pour at once into a cold dish. When the custard is cold, stir in the vanilla. This may be served in sherbet glasses or it may be used as a sauce to pour around other puddings.

A baked custard may be made from the white of the egg and the soft custard poured around it. For the white custard, use the recipe for baked custard, using two egg whites instead of one whole egg.

DESSERTS

A dessert is the sweet dish which is served at the end of the meal. It may be very simple or elaborate. For ordinary occasions it should be simple. It should always be attractive.

The dessert should be planned with reference to the rest of the meal. If the main part of the meal is heavy the dessert should be light and vice versa. If the main part is high in protein the dessert should not contain protein and if it is high in starch the dessert should not be a starchy one.

It is difficult to classify desserts but they may roughly be divided into the following groups:

1. Fruits. These may be served either raw or cooked.
2. Doughs. Short cakes and steamed puddings. Many puddings are made from cake and bread crumbs.
3. Those thickened with starchy thickenings. Cornstarch and tapioca puddings.

4. Those made from eggs and milk. Custards.
5. Frozen Desserts. These may be made mainly of eggs and milk, or of fruit juice and water.

LESSON XXXIV

Desserts

CORNSTARCH PUDDING

1 qt. milk	1 c.
6 tb. cornstarch	1½ tb.
4 tb. sugar	1 tb.
¼ t. salt	spk.
1 t. vanilla	¼ t.

Mix the cornstarch with one fourth cup of the milk. Heat the remainder of the milk in the double boiler. When hot add the cornstarch mixture, stirring constantly. Cook directly over the heat until it begins to boil, stirring it. Then cook over hot water twenty minutes. Add salt and vanilla and turn into a mould that has been wet in cold water. Chill, serve with cream.

BREAD PUDDING

	Plain	Chocolate
Stale bread crumbs	2 c.	2 c.
Milk	1 qt.	1 qt.
Sugar	⅓ c.	⅔ c.
Melted butter	1 tb.	.....
Eggs	2	2
Salt	½ t.	½ t.
Vanilla or	1 t.	1 t.
Spice	¼ t.	.....
Chocolate	.....	1½ squares

Soak the bread in the milk. Melt the chocolate in a dish placed in or over hot water. Add to it one half the sugar and enough milk from the bread and milk to make thin enough to pour. Add this and the remaining sugar, salt, egg and vanilla to the bread and milk. Pour into buttered dish and set in hot water. Bake until set or firm. The foundation of bread pudding is baked custard. How does it differ from it?

For class use make out a recipe using one half cup of milk as the basis.

Review methods of adding starchy thickenings in Lesson X.

LESSON XXXV

Frozen Desserts

DIRECTIONS FOR FREEZING

Scald the can, dasher and cover, and chill them. Pour the mixture which is to be frozen into the can, filling it not more than three fourths full. Fit the can into the pail of the freezer, so that it will revolve properly. Put ice into a strong canvas bag and pound it until very fine. Pack ice and salt solidly in the freezer around the

can, using rock salt and ice in the proportion of one part of salt to three of ice. Turn the crank slowly at first, to permit the mixture to become thoroughly chilled, then more rapidly until the mixture is frozen. Cream frozen too rapidly is coarse grained. When the crank turns very hard the cream is frozen. Draw off the water. Wipe off the cover of the can. Remove the dasher carefully and replace the cover. Make a cork of paper and place it in the hole in the cover. Pack ice and salt solidly around the can, using only one fourth as much salt as ice this time. Cover the top tightly with paper and then throw a piece of carpet or blanket over the freezer.

LEMON MILK SHERBET

4 c. milk
1½ c. sugar
Juice of three lemons

Mix the juice and sugar, add it slowly to the milk, stirring constantly. Freeze, pack and let stand about an hour.

PHILADELPHIA ICE CREAM

1 qt. thin cream
⅔ c. sugar
2 t. vanilla

Mix the ingredients and freeze. Pack and let stand about an hour.

FRENCH ICE CREAM

2 c. scalded milk
1 t. flour
1 c. sugar
1 egg
⅛ t salt
1 qt. thin cream
1 tb. vanilla

Mix flour, sugar and salt; add egg slightly ybeaten and milk gradually. Cook in double boiler twenty minutes, stirring constantly. Let cool, and then add cream and vanilla. Freeze, pack and let stand about an hour.

Use of Frozen Desserts in the Diet

Most frozen dishes are nutritious and easily digested. They make excellent desserts for either dinner or supper at all times of the year and especially in hot weather. How does the cost compare with that of other desserts? Are they any more difficult to make?

Cost of Sherbet

FOOD	AMOUNT	COST
Milk		
Sugar		
Lemons		
TOTAL		

Cost of Ice Cream

FOOD	AMOUNT	COST
Cream		
Sugar		
Vanilla		
TOTAL		

How does the cost compare with that which you buy at the store? What are the laws in your state governing the sale of ice cream?

LESSON XXXVI

Planning and Serving of Meals

Serve a simple meal. It is suggested that the girls serve the meal to themselves, that all be seated at the table, and that some of them act as waitresses and others as host and hostess.

Food Requirements

The amount of food required by one person each day depends principally upon the age, size, climate and the amount of physical exercise taken. Men require more food than women, principally because they weigh more. More food, especially that producing heat and energy, is required in cold weather than in hot weather. Persons doing hard physical work require more food than those engaged in sedentary occupations. In order to have enough protein to keep the tissue in good condition one protein food should be served for each meal. Eggs are usually served for breakfast, meat for dinner and some dish made of milk, eggs, or cheese for lunch.

Especial care must be taken to have enough mineral matter in the diet. Fruit and vegetables must be served to furnish these. Fruit is usually served for breakfast and vegetables for dinner. The carbohydrate necessary is likely to be furnished by the bread and potatoes and the other cereal and vegetable foods. Sufficient fat is usually furnished by the butter and cream eaten.

Breakfast

A very light breakfast may consist of fruit, bread and a beverage. It is made a little heavier by adding a cereal and heavier still by adding also some protein dish.

The bread is often made into toast. When the bread is served with a cooked cereal it is especially good in the form of toast, as the crispness of the toast contrasts well with the softness of the cereal. Quick breads are often served for breakfast. Eggs make an excellent breakfast protein dish, especially for growing children, and are very extensively used. Milk and cocoa are the best beverages for young persons.

Lunch

A very simple lunch may consist of one substantial dish (preferably hot) bread and butter and a beverage. To make it a little heavier a simple dessert may be added. For a still heavier one another substantial dish may be added. If only one substantial dish is served it should be a portein dish. What might be served for this?

Dinner

The ordinary dinner is made up of meat, potatoes, one other cooked vegetable, a green vegetable, bread and butter and a dessert. A thin soup may precede the main course. The soup helps to put the stomach in good condition to digest the food. The dessert may be omitted.

The amount and composition of foods are not the only things to be considered in planning meals. Pleasing combinations must be served and the food must be attractive and appetizing. There should be variety from day to day but a great variety for any one meal is not necessary.

The cost of the food for one person for one day will average from twenty five to thirty cents. An elaborate menu will cost considerable more, but it is possible to plan one which will yield the required amount of food for a little less.

Cost of the Meal Served

FOOD	AMOUNT	COST
TOTAL		

Duties of the Hostess

When a family entertains, the mother of the family is called the "hostess," and the father of the family, the "host."

The hostess should tell her guests where to sit, if there are no place cards.

She should be the first to sit down.

She should be the first to unfold her napkin, and this should be done soon after being seated.

She should be the first to begin to eat.

She should be the first to rise from the table when the meal is finished.

She should see that an interesting conversation is carried on during the meal. This is also a duty of the host.

She should see that the waitress does not neglect her duties, and, if there is no waitress, she should see that the food is passed and that all guests are properly served.

She should eat as long as her guests eat.

ETIQUETTE OF EATING

Sit up straight.

Do not play with the silver on the table.

Do not eat too rapidly, nor so slowly that you keep other guests waiting for you to finish.

Do not eat "noisily."

Do not use the elbow as a lever.

Do not blow on the food to cool it.

Do not leave the spoon in the cup.

Ask some one person, by name, to pass whatever you wish.

When passing the plate for a second helping, place the knife and fork across the center of the plate and send it to the server, asking for whatever you wish by name. When you have finished eating, place the knife and fork across the center of the plate, so that they will not fall off when the plate is removed by the waitress.

Do not spread a whole slice of bread and bite into it. Break off small pieces.

Put bread, salt, celery, etc., on the plate, not on the tablecloth.

Do not talk with food in the mouth.

If you are to return for the next meal, fold your napkin. When you are a guest for one meal only, or when at a hotel, lay your napkin, unfolded, on the table.

SETTING THE TABLE

Use clean, well laundered linen. Have the cloth long enough and wide enough to hang well around the table. Under the linen cloth have a silence cloth, either table felting or some other soft and heavy material.

Place the center of the tablecloth in the center of the table, having the folds straight with the edge of the table. Place in the center of the table a small plant, a vase of flowers, or a dish of fruit.

The plates, silverware, napkin and glass placed for each person at the beginning of the meal are called "the cover." Place a plate right side up for each person, all being arranged symmetrically

around the table. At the right of the plate, and near it, place the knife with sharp edge toward the plate. Place fork at left side with tines up. Place spoons at right of knives, bowls up. Place napkin at left of forks. The silverware, plate and napkin should be set one half inch from the edge of the table. Place tumbler at point of the knife. Place the butter dish, or bread and butter plate, at the left at the end of the fork.

Place salt, pepper, vinegar, oil, jelly, etc., inside the line of plates.

Place dishes containing food which is to be served directly in front of the server.

Arrange chairs at sufficient distance from the table, so that they will not break the line of the cloth.

Rules for Serving

In passing a dish from which a person is to help himself, always pass to the left side, so that the food may be taken with the right hand. Hold the dish low enough and in such a position that the person can reach the food easily.

When passing individual dishes, such as coffee, etc., set them down carefully from the right side, at the right of the cover.

When passing a dish, keep thumbs and fingers as much out of sight as possible. Do not keep the handkerchief in the hand while serving. Do not put the fingers in the mouth or around the face, while serving or setting the table.

Cold food should be served on cold dishes, hot food on hot dishes.

When one course is finished, remove all dishes belonging to that course. Remove all dishes containing food first, then the individual dishes. Stand at the right side of the person and remove with the right hand, never piling the dishes on top of each other. One dish may be carried in each hand, or several may be placed on a tray.

Fill the glasses before every course and oftener if necessary.

Before the dessert is served, remove crumbs from the tablecloth with a brush, crumb knife or napkin.

The father of the family serves the meat and the vegetables which are to be placed on the plate with the meat.

The mother of the family serves the beverage, the dessert, and the vegetables which are placed in individual dishes.

Rules for Cleaning Room and Table After a Meal

Brush up the crumbs from the floor. Arrange the chairs in their places.

Remove all dishes from the table.

Pile all dishes of one kind together.

Never set any food away on dishes used for serving.

Brush the crumbs from the cloth and fold it carefully in the creases.

APPENDIX I

SUPPLEMENTARY LESSONS

These lessons may be given in addition to those suggested in the main course or all or a part of them may be substituted.

LESSON A

Flour Mixtures—Ginger Cake

GINGER CAKE

½ c. sugar	1 tb.
⅓ c. shortening	¾ tb.
½ c. molasses	1 tb.
½ c. sour milk	1 tb.
1 egg	2 t.
¾ t. soda	1-10 t.
1½ t. ginger	3-16 t.
1 t. cinnamon	⅛ t.
¼ t. cloves	1-32 t.
1⅞ c. flour	4 tb.
½ t. salt	spk.

Sift together flour, soda, salt and spices. Cream together the shortening and sugar. Add the unbeaten eggs and beat well; then add the molasses, the milk and the flour and beat again. Pour into a pan lined with greased paper and bake about forty minutes in a moderate oven. Cakes with molasses in them burn easily and care must be taken, therefore, not to have the oven too hot.

What kind of a batter is the ginger cake mixture? What makes it light? What other things have been used to make batters and doughs light?

Ginger cake is often called ginger bread and classed with the quick breads. It is more often used in our meals, however, as cake than as bread.

Experiment

Put a little soda in a dish and add a little molasses. What happens? Heat it. What happens?

In batters and doughs use one teaspoonful of soda for each cup of molasses. How much soda is used for each cup of sour milk? When using baking powder use from one to two teaspoonsful for each cupful of flour.

LESSON B

FAT—BUTTER

When milk stands for some time the fat which it contains rises to the top and may be skimmed off, or the fat may be separated from the milk by a patent "separator" as soon as the milk is drawn. In either case some of the milk is left in with the fat and the mixture is called cream. The fat may be separated from the cream by churning it, churning being a motion which causes the fat particles to be freed from the milk. This fat is called butter. Butter may be made from either sweet or sour cream. Sour cream is most often used and is prefered by most people.

To secure good butter the milk and cream must be handled under the most sanitary conditions. All the dishes must be perfectly sweet and clean, and to have them so they must be thoroughly scalded each time they are used. The milk and cream must be kept in an absolutely clean place, free from odors, for milk absorbs odors very quickly and these affect the flavor of the butter. The cream must not be kept too long before churning or the butter will have a strong disagreeable flavor. For churning, the cream should be cold, about 50 degrees in summer and 60 degrees in winter. When the fat has collected into masses of butter about the size of peas the churning should be stopped. The butter is then removed from the buttermilk to a butter bowl and clean, cold water added to it. The butter is then worked with a paddle for a short time in this water to wash out the buttermilk. This water is then turned off and fresh water and salt added, using two tablespoonsful of salt for one pound of butter. The butter is then worked again for a short time and the water then squeezed out until the butter assumes a waxy appearance. If worked too long it assumes a salvy appearance like lard.

Good butter should not taste strong, rancid or musty or have any absorbed flavors. It should not taste too strongly of salt nor should there be so little salt in it that it will taste flat. When the butter is cut it should look firm and fine grained; very little moisture should be visible but it should not be dry enough to crumble. There should be no salt crystals, nor should it be mottled in appearance. The ideal color is a good cream color, and when butter coloring is used it should give this and not be too deep a yellow and it should be uniform throughout.

The ideal package of butter is a firm, smooth block wrapped in oiled paper. In some states there is a law requiring all butter to be so packed and labeled with the maker's name before it can be sold. Would you consider such a law a good one? Why?

LESSON C

CHICKEN

Selection. It is important to know whether a chicken is young or old before cooking it, because an old chicken is tough and requires longer cooking than a young one. If the breat bone is pliable the chicken is young. Long, sharp spurs and long hairs are indications of an old chicken, while pin feathers indicate a young one.

The skin should be smooth and whole. The flesh should be firm, giving evenly when pressed, and there should be a good amount of fat under the skin.

Dressing. Poultry should be dressed as soon as killed. The feathers may be removed quite easily while it is still warm if they are stripped off toward the head. If the chicken is plunged into water which is just below the boiling point the feathers will come off more easily. Remove the pin feathers and singe the hairs over a blazing paper or over a gas flame. Cut off the head and the feet. Cut out the oil bag on the tail. Make an incision through the skin just below the breast bone large enough to admit the hand. Loósen the fat and all entrails from the body so that they may be pulled out easily and not ruptured. Care must be taken not to break the gall bladder which is attached to the liver. Cut the end of the entrails loose from the body. Remove the lungs and kidneys which are found in the hollows of the backbone. If the crop and windpipe have not been withdrawn with the entrails, insert the first two fingers under the skin close to the neck and remove them. Wash the chicken thor-

ougly both inside and out. Cut the gizzard, heart and liver, which are called giblets, from the entrails. Separate the gall bladder from the liver, cutting off any of the liver which has a greenish tinge. To prepare the gizzard for cooking, cut through the muscle covering at its thickest part, being careful not to break its inner lining, and peel the covering off slowly.

Cutting Up a Chicken. If the chicken is to be cut up the legs and wings may be removed before it is drawn. To remove the leg cut through the skin between the leg and the body close to the body, bend the leg back, cut through the flesh and separate at the joint. Separate the upper part of the leg from the lower by cutting through the flesh at the joint and severing the joint. Remove the wing by cutting through the skin and the flesh around the wing next to the body and severing the joint. Cut a horizontal slit below the breast bone, extending it down on each side along the ribs to the back. Hold the breast of the chicken with the left hand and with the right bend back the rump until the joint in the back breaks. Remove the entrails, cutting them from the body at the end. Separate the back at the broken joint. Cut through the ribs along the line of the breast bone to the joint between the wishbone and the back and separate the two at this joint. Cut off the neck close to the back. The breast may be cut into two or three pieces if desired.

The composition of chicken is about the same as that of meat and the principles of cooking are the same. The white meat is more easily digested than the dark meat.

Fried Chicken

Roll the pieces of chicken in flour which has been seasoned with salt and pepper and put them in a frying pan which has hot fat in it. The fat may be all lard or part lard and part butter. When it has commenced to brown pour in a little water, cover the pan and let it cook slowly. When it is well browned turn it and brown it on the other side, cooking until it is tender. A little water may be added occasionally. Allow from 45 to 60 minutes for the cooking.

Roast Chicken

Rub the surface of the chicken inside and out with salt. Fill the body cavity with dressing and sew the edges together. Fasten the wings and legs to the body with skewers. Spread a little butter over the breast and legs and dredge with flour. Place in a roasting pan. Put a little water in the pan. Place the pan in a hot oven, and when the flour is browned reduce the heat. Baste (pour liquid over) the chicken frequently with the liquid in the pan. The chicken is done when the breast meat is tender.

DRESSING

3 cups stale bread crumbs
¾ teaspoonful salt
1 teaspoonful powdered sage
1-16 teaspoonful of pepper
2 tb. of melted butter
¾ c. cold water

Mix the ingredients in the order given. More seasoning may be added if desired.

Stewed Chicken

Cut the chicken in pieces as directed. Put in a kettle with enough boiling water to cover it. Let it boil for about five minutes and then simmer until tender, adding one half tablespoonful of salt and one eighth teaspoonful of pepper when it is about half cooked. When it is done remove it from the liquid and make the liquid into gravy as directed in the recipe for meat stew. The gravy will be improved if some milk is added to it.

LESSON D

CANNING FRUIT

In the lesson on bread it was learned that yeast, which is a living plant, feeds upon sugar, changing it into alcohol and carbonic acid gas, if the conditions of heat and moisture are right.

Fruits contain sugar. Yeast is found in the air. Yeast, therefore, gets into fruit and changes its sugar into alcohol and carbonic acid, causing it as we usually express it, to "spoil."

Yeast is killed by boiling the mixture which contains it. To keep fruit from spoiling, therefore, it is boiled and then sealed immediately in air tight jars where no new yeast can get into it. Sugar is usually cooked with the fruit to improve its flavor.

The general directions for canning fruit are as follows:

Step 1. Test the jars.
Step 2. Sterilize the jars.
Step 3. Prepare and cook the fruit.
Step 4. Put the cooked fruit into the jars.

Testing the Jars

It is necessary to test the jars before using them to be sure that they are air tight. To do this fill the clean jars about one fourth full of water. Place the rubbers and covers on them, screwing the covers down as tightly as possible. Invert the jars and let them stand for fifteen or twenty minutes. They are air tight if no water runs out. If one is not air tight, try new covers and rubbers, and press the edge of the cover down tightly and invert again.

Sterilizing the Jars

Place the tested jars in cold water and heat them until the water has boiled about fifteen minutes. Dip the covers and rubbers in the boiling water before putting them on the jars of fruit.

Preparing and Cooking the Fruit

The methods for preparing and cooking various fruits differ so that no general method can be given. Do not cook fruit in a tin dish; use an enameled or aluminum one. Do not use a tin spoon for stirring.

Filling the Jars

Place the hot jar on a plate. Place the rubber on it. Dip into it, slowly at first, the boiling hot fruit, filling it to overflowing. Force out the air bubbles by running a silver knife between the fruit and the jar. Place the cover on and screw it down as tightly as possible. A funnel placed in the jar aids in filling it.

Preserving and Jelly Making

Yeast will not grow in a concentrated solution of sugar. Enough sugar may be added, therefore, to fruit to keep it from spoiling without sealing it in air tight jars. This is done in making preserves, marmalade and jelly. To make preserves the whole fruit is cooked with the sugar. The pulp of the fruit is used for marmalade and only the juice for jelly.

LESSON E

BREAD GRIDDLE CAKES

1 c. stale bread crumbs	1 tb.
1½ c. scalded milk	¼ c.
1 tb. butter (melted)	½ t.
2 eggs	1 tb.
½ c. flour	2 tb.
½ t. salt	1-16 t.
3 t. baking powder	¼ t.
1 tb. sugar	½ t.

Soak the crumbs in the milk. To the soaked crumbs add the butter, salt, sugar, flour—sifted with baking powder—and beaten egg, in the order given. Put two or three tablespoonsful of the batter on a hot griddle. Let it bake until full of bubbles, turn and bake several minutes longer. Turn once only. Serve hot, right side up on a hot plate.

The batter for griddle cakes is a pour batter and this recipe might be used as an example of it instead of popovers.

Use of Griddle Cakes in the Diet

Griddle cakes are often hard to digest for three reasons: (1) they are cooked in grease, (2) they are cooked so short a time that the starch of the flour is not thoroughly cooked, and (3) they are served hot.

The first objection may be overcome by using a griddle that does not need greasing, as aluminum or soapstone. The second may be partially overcome by using bread crumbs for a part of the flour. The third cannot be overcome. They should not, therefore, be used too freely in the diet. Should they be given to children and sick persons?

APPENDIX II

Hygiene

HYGIENE OF EATING

In order to have a sound body, and therefore a sound mind, it is necessary for each person to have the right kind and amount of food and to have it properly cooked and served in an appetizing and attractive way. It is also essential that the food be eaten in the proper way. The following rules are important ones to observe:

1. Eat at regular times and do not eat between meals. The digestive organs need time to rest between meals.
2. Masticate the food thoroughly. This involves eating slowly and will usually prevent over eating. Food must be thoroughly mixed with the saliva to be well digested and this can be done only by thorough chewing.
3. Do not eat when tired.
4. Do not take vigorous exercise immediately after eating. Rest but do not sleep.
5. Do not bathe immediately after eating.
6. Food should always be eaten under pleasant conditions. Fear, worry, grief and anger hinder digestion. A pleasant conversation should be carried on during the meal.
7. Drink plenty of water, but do not use it to wash the food down, thus making it take the place of mastication.

General Hygiene

There are many things which affect the health of the body in addition to its nourishment. The following are some of the most important ones:

Rest and Sleep. A girl of school age should have from nine to ten hours of sleep each night. This should be taken as regularly as possible. The evenings should be spent quietly at home with very little excitement. The time should be filled with interesting occupations but not with ones which excite the nervous system.

Exercise and Recreation. Some vigorous muscular exercise should be taken each day. This should usually come immediately after school. It is best taken in the form of some game which involves recreation as well as exercise. Some housework during the day is excellent exercise.

Fresh Air. We should live in well ventilated rooms at all times. Sleeping rooms should be thoroughly ventilated all night. This is best accomplished by opening one window at the bottom and another on a different side of the room at the top.

Personal Cleanliness. The whole body should be kept clean by frequent bathing, a warm bath being taken once or twice a week and cold ones oftener. The clothing should be clean also. The teeth should be thoroughly brushed after each meal.

Clothing. The clothing should be loose and comfortable, allowing perfect freedom of motion. It should be of sufficient weight to keep the body warm but not too heavy. It is dangerous to expose very much of the body in cold weather. Very low necks and very short sleeves and low shoes should not be worn in winter. Shoes with low, broad heels, large enough so that they do not pinch or cramp the foot in any way should be worn.

SOCIAL HYGIENE

In addition to the above things which pertain to personal hygiene alone there are others which affect the individual and at the same time one or more other persons and involve the spreading of disease. To avoid contracting and spreading an infectious disease observe the following rules:

1. Keep the nails and hands clean and do not touch the face or mouth without washing the hands both before and after.
2. Do not use towels, soap, combs, brushes, clothing or bedding which other people have used. Do not carry the handkerchief in the hand or leave it lying around.
3. Do not put things in the mouth.

4. Do not wet the fingers to turn leaves.
5. Have your own drinking cup.
6. Cover the mouth when coughing or sneezing.
7. Do not spit on the floor, sidewalk or ground. Use a handkerchief or something which can be burned.
8. Wash all dishes thoroughly, sterilizing them with washing soda or boiling water.
9. Do not buy or eat food which is exposed in the store, unless it is to be cooked after you get it.
10. Do not handle food without first washing the hands.

APPENDIX III

SUGGESTIONS FOR RURAL SCHOOL WORK

The advantages for teaching cooking in the rural schools are exceptionally good for a number of reasons.

The time for the lesson may just precede the noon recess so that the noon lunch of the pupils may be made the basis for the work. This makes it possible to use large recipes instead of the individual ones and the pupils also have an excellent opportunity to learn more about the planning and serving of meals. Some of the cooking for the lunch may be done at home by the pupils. Foods which require long cooking may easily be started before school in the morning or if there is a fireless cooker they may be placed in that the night before.

The rural school is especially fortunate in being able to include the boys in the cooking classes. The instruction in regard to the use of foods in the body is just as necessary for them as for the girls. They may help with the actual cooking or their practical work may be confined to the building and care of the fire, the carrying of fuel and water and disposing of the garbage.

In carrying on the work it is advised that the lessons of the book be used in much the same order that they are presented that the sequence of thought may be preserved. Some variations would be advisable, however. The lesson on the canning of fruit might be given first since it is easy to get a variety of inexpensive fruits in the early fall, and also since they may be used during the winter for lunches. The lesson on sandwiches might also be given early in the course since they so often form a part of the school lunch.

The food cooked at school should be used to supplement the lunch which is brought from home. This is done with best results when the whole lunch is planned at school. At first all of the lunch should be brought from home except the one food which is to be cooked for the day's lesson. Later, several foods may be cooked at school, those from the first lesson being given as review work.

The lunches should be so planned that they will furnish a well balanced and easily digested diet. Until the pupils have learned the classification of foods and the uses of the various foodstuffs in the body, the planning of the lunches should be done by the teacher, who should discuss with them the reasons for serving the foods chosen.

A simple lunch would consist of one or two hot dishes, bread in some form, a hot or cold beverage, a relish, and sometimes a dessert.

It is necessary, of course, that the teacher have the co-operation of the mothers of the community to successfully carry on this work.

The following menus are given as suggestions:

1

Creamed Eggs — Baked Potatoes
Bread and Butter — Jelly

2

Boiled Rice With Tomato Sauce
Meat Sandwiches — Fresh Fruit

3

Macaroni and Cheese
Lettuce Sandwiches — Apples

4

Cream of Wheat with Dates
Toast — Marmalade — Baked Custard — Cookies

5

Potato Soup — Wafers
Peanut Sandwiches — Lettuce Salad

6

Creamed Potatoes — Graham Muffins
Pickles — Fresh Fruit

7

Hash — Bread and Butter — Milk
Baked Apples and Cream

8

Poached Egg on Toast — Milk
Apple Sauce — Ginger Bread

9

Tomato Soup — Croutons
Potato Salad — Lettuce Sandwiches

10

Oat Meal — Toast — Cocoa
Canned Fruit — Sponge Cake

Serving the Lunch

Plan the lunches for a week at time so that the pupils shall know what they are to bring each day.

Have the work so planned that each pupil shall have something to do and shall know exactly what it is and when it is to be done.

Use the desks for tables, having each pupil set his own, using a paper napkin for a tablecloth and placing the knife, fork, spoon and glass in the correct position.

Make the meal time a pleasant social hour.

At the close of the meal each pupil should clear his own table.

ADDITIONAL RECIPES FOR LUNCH DISHES

Cheese Souffle

2 tb. butter
3 tb. flour
½ c. milk
½ t. salt
½ c. grated cheese
3 eggs
Dash of Cayenne pepper

Make a white sauce of the butter, flour, milk and seasonings. Add the cheese and the well beaten egg yolks. Cool the mixture and then fold in the well beaten whites of eggs. Pour it into a buttered baking dish and bake about twenty five minutes in a slow oven. Serve at once.

Meat Souffle

Follow the recipe for cheese souffle, using chopped meat instead of the cheese.

Welsh Rarebit

2 tb. flour
2 tb. butter
1 c. milk
½ t. salt
Dash of Cayenne pepper
1-16 t. soda
⅛ t. mustard
½ c. grated cheese
1 egg yolk

Make a white sauce of the butter, flour, milk and seasonings. Add the cheese and the beaten egg yolk. Reheat it and serve it on crisp crackers or toast.

Tapioca Pudding

1 pint milk
2 eggs
¼ c. tapioca
¼ c. sugar
½ c. water
1 t. vanilla
¼ t. salt

Soak the tapioca in the water for an hour. Add the milk and cook in double boiler until the tapioca is soft. Add sugar and beaten yolks of eggs which have been mixed together. Cook, stirring it until it thickens. Add the salt and flavoring and fold in the beaten whites of eggs. Serve cold.

Rice Pudding

4 c. milk
⅓ c. rice
½ t. salt
⅓ c. sugar
⅛ t. cinnamon

Wash the rice. Mix the ingredients and pour the mixture into a buttered pudding dish. Bake about three hours in a very slow oven, stirring occasionally. Serve cold.

Books and Bulletins for Reference

The following bulletins may be obtained free from the U. S. Department of Agriculture, Washington, D. C.:

No. 142—Food, Principles of Nutrition and Nutritive Value of.
No. 34—Meats: Composition and Cooking.
No. 391—Meat: Economic Value of in the Home.
No. 182—Poultry as Food.
No. 85—Fish as Food.
No. 526—Mutton and Its Value in the Diet.
No. 121—Beans, Peas and Other Legumes as Food.
No. 128—Eggs: Their Uses as Food.
No. 413—Milk, Care and Use of in the Home.
No. 363—Milk, Use of as Food.
No. 332—Nuts and Their Uses as Food.
No. 348—Bacteria in Milk.
No. 241—Butter Making on the Farm.
No. 166—Cheese Making on the Farm.
No. 487—Cheese and Its Economical Use in the Diet.
No. 203—Canned Fruits, Preserves and Jellies.
No. 175—Home Manufacture and Use of Unfermented Grape Juice
No. 293—Fruit as Food.
No. 93—Sugar as Food.
No. 521—Canning Tomatoes at Home and in Club Work.
No. 256—Preparation of Vegetables for the Table.

No. 359—Canning of Vegetables at Home.
No. 295—Potatoes and Other Root Crops as Food.
No. 249—Cereal Breakfast Foods.
No. 298—Food Value of Corn and Corn Products.
No. 389—Bread Making.
No. 375—Care of Food in the Home.
No. 270—Modern Conveniences for the Farm Home.

Books for Reference

How the World Is Fed.—Carpenter.
Bacteria, Yeasts and Molds in the Home.—Conn. (Ginn & Co.)
Food and Its Functions.—Knight. (Scribner.)
Foods and Household Management.—Kinne and Cooley. (Macmillan.)
Domestic Science, Principles and Application.—Bailey. (Webb.)
Foods and Sanitation.—Forster and Weigley. (Row, Peterson & Co.)
Principles of Cooking.—Conley. (Am. Book Co.)