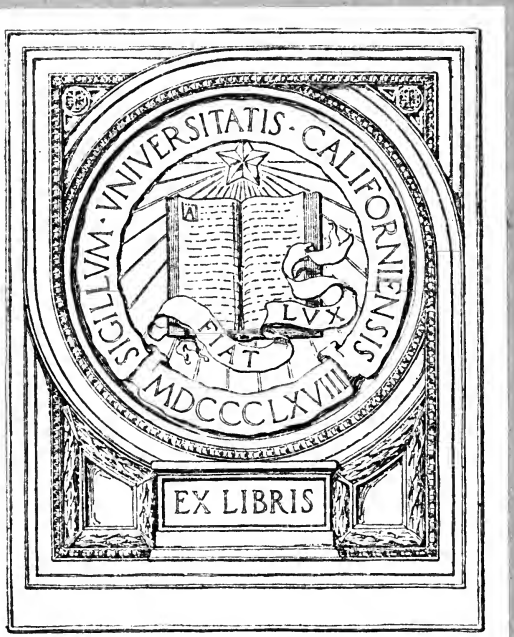
FOOD PROBLEMS

FARMER AND HUNTINGTON


SIGILLVM · VNIVERSITATIS · CALIFORNIENSIS
LVX
FIAT
MDCCCLXVIII
EX LIBRIS

THE WORLD HAS NEVER DEALT OR THOUGHT IN FIGURES SO BIG

1. HOW MUCH IS A BILLION? HOW MANY CENTURIES WOULD IT TAKE TO MAKE A BILLION MINUTES? A BILLION MINUTES FROM THE BIRTH OF CHRIST WOULD TAKE US TO WHAT DATE?

2. SEE IF YOU CAN FIND HOW MUCH SPACE A BILLION SILVER DOLLARS WOULD OCCUPY OR HOW MANY TIMES AROUND THE WORLD A BILLION DOLLAR BILLS PLACED END TO END WOULD REACH.

3. FIND FROM THE TAX ASSESSOR THE VALUE OF ALL THE PROPERTY IN YOUR TOWN OR CITY. WHAT PART OF A BILLION DOLLARS IS IT? IS YOUR STATE WORTH AS MUCH AS THE WAR HAS COST?

Redrawn from *The Chicago Examiner*

FOOD PROBLEMS

TO ILLUSTRATE THE MEANING OF FOOD WASTE AND WHAT MAY BE ACCOMPLISHED BY ECONOMY AND INTELLIGENT SUBSTITUTION

WHAT WE WASTE
ITS MONEY VALUE
HOW WE WASTE IT
HOW WE MAY SAVE FOOD
HOW YOU AND I CAN HELP

BY

A. N. FARMER

SUPERINTENDENT OF SCHOOLS, EVANSTON, ILLINOIS

AND

JANET RANKIN HUNTINGTON

STATE DEPARTMENT OF PUBLIC INSTRUCTION, WISCONSIN

GINN AND COMPANY

BOSTON · NEW YORK · CHICAGO · LONDON
ATLANTA · DALLAS · COLUMBUS · SAN FRANCISCO

218.2

The Athenæum Press
GINN AND COMPANY · PROPRIETORS · BOSTON · U.S.A.

PREFACE

Just before the opening of the public schools in September, 1917, Mr. Farmer was called to Washington by Mr. Hoover, Federal Food Administrator of the United States, to help with the work of that department. This book is the result of the stimulation and inspiration which came from six weeks' intimate contact with the work of the United States Food Administration.

Mr. Hoover is an intensely practical man, but he is also an idealist. In formulating his plans for food administration he insisted that in a democracy autocratic control of the food supply should be avoided; that arbitrary methods should be employed only as a last resort; that the American people would respond loyally and unanimously when they realized the facts and appreciated the needs of the food situation.

A CAMPAIGN OF EDUCATION

This meant that a great campaign of education must be carried on to teach the nation the essential facts regarding the world food situation and the obligation of America to come with her great abundance of surplus foodstuffs to the rescue of a world facing starvation. As under present conditions even the normal surplus would not be sufficient, it is necessary to impress every citizen of the United States with the vital necessity of releasing more of the essential foodstuffs by lessening consumption of them through substitution and by the elimination of waste.

THE SCHOOL'S OPPORTUNITY

In this campaign of education it was recognized that the schools of the United States could play a most important part. The schools, one great department of our government, have here an unprecedented opportunity and obligation to coöperate with other departments of government.

Instruction in food conservation provides an opportunity for training in citizenship through actual participation by pupils in the solution of one of the major problems before our government to-day. Every department of school work can be vitalized and motivated through this study. Every child in attendance can be stimulated to a sense of personal responsibility to conserve food.

MOTIVATION THAT IS GENUINE

The modern teacher is convinced of the desirability of using actual problems growing out of pupil activities and interests as a basis for school work. Nothing is more desirable than this in theory, and nothing has proved so difficult in practice.

The great war touches the life of every child in the United States. It is an interest so stupendous and far reaching as to be beyond the comprehension of even the greatest minds in the country. It is an interest so keen as to affect the dullest pupil in the poorest schoolroom. No subject which can be imagined forms a better basis for genuine motivation coupled with genuine patriotic service.

Arithmetic is fighting the war. It is only through arithmetic that the officials of the United States Food Administration know how much food there is, how much food needs to be saved, and how much is being saved. Through the use of arithmetic in solving these problems children will be impressed as they could not be in any other way with the immense and fundamental character of the food-conservation campaign.

CORRELATION

Arithmetic is by no means the only school subject which may be used in teaching food conservation. As indicated in the suggestions to teachers, this campaign provides material for work in English, geography, civics, drawing, composition, and history. In the discussions of the various problems concrete means for practicing correlation in the classroom are suggested.

CHARACTER AND THRIFT

An aspect of food-conservation instruction not less important than its motivation of the various school subjects is its use in promoting character development among pupils. The economic importance of inculcating far-reaching habits of thrift cannot be overestimated at this time. Such habits formed through the study of food conservation will persist and will permeate the adult life of the pupil. The wise use of this material will result in developing in pupils not only arithmetical skill but also such character-making qualities as consideration for others, devotion to an ideal, the spirit of coöperation, self-control, and a sense of responsibility. It will teach the lesson of our interdependence and the obligation of the strong to help the weak.

SCHOOL AND HOME

The value of all instruction, and more particularly of instruction of the character of these problems, depends upon the extent to which it modifies practice outside the schoolroom. The possibilities of these problems cannot be realized unless the children take them home, talk them over with their parents, work them out within the family circle, and extend their influence beyond the home into the community. How this may be done is outlined in the suggestions to teachers.

PRICES

Prices are changing daily and will not be found the same in any two sections of the country. The prices quoted in these problems are those current in Chicago during the first part of the year 1918.

The variation in prices gives opportunity to the teacher to vitalize this work still farther by having the pupils make comparisons of local prices and calculate the extent to which this affects problem results. A full discussion of this phase of the work will be found in the suggestions to teachers.

THE PUBLISHERS' CONTRIBUTION

The publishers of this book realize that its purpose differs from that of the ordinary textbook. They see in it an opportunity to coöperate with the United States Food Administration. They have therefore fixed a low price to insure the widest possible distribution.

OUR COLLABORATORS

Acknowledgment is here made of the valuable assistance in formulating this book which has been freely given by officials of the United States Food Administration, the United States Department of Agriculture, various war departments, the extension divisions of state and other colleges of agriculture, as well as a number of individuals throughout the country. Especial mention should be made of the services of the teachers and pupils of the public schools of Evanston, Illinois. Through their use of the original manuscript of this book, they have demonstrated its value in vitalizing school work and in carrying the practice of food conservation into the home and the community.

THE AUTHORS

CONTENTS

To the boys and girls in our schools:

President Wilson has called upon the great army of twenty-three million boys and girls in the United States to do their part in winning the World War.

It may seem strange to think of yourself as a soldier, but the boys and girls in the schools make up the biggest army in the world, and every one of this army can serve the nation nobly. This book is made to show you one way to help win the war.

ARITHMETIC AND THE WAR

The people in Washington who are trying to lead the United States to victory and peace are using arithmetic every minute.

They are finding out how much fuel, how much food, how many guns, we have in this country.

They are calculating how long it will take to produce larger supplies or how best the supplies we have may be conserved.

They are fighting the war by arithmetic.

You can do the same thing. Through your solution of these problems you can learn the bigness of this war and the way in which you can help to win it.

FOOD CONSERVATION

It is our duty to share our food with the Allies. By reading the following pages you will see how much they need a part of our food. You will see that it is possible for us to save enough so that all may have what they need. You will learn a number of ways by which this saving can be accomplished.

Will you do your part in seeing that every possible food saving is put into practice in your home? Will you accept appointment as Mr. Hoover's deputy to see to it that our food supply is put to the best use? By doing this you will prove yourself a good soldier doing a big part in winning the war.

Sincerely yours,

A. N. Farmer

SUGGESTIONS TO TEACHERS

THE REAL MEANING OF THESE PROBLEMS

THE purpose of these problems is not to teach arithmetic; it is to use arithmetic to teach the meaning, necessity, and practice of food conservation.

The arithmetic solution is but a step toward the accomplishment of the purpose to be achieved. Discuss with the children the real meaning of each problem; make sure they learn the larger implication of each, and drive it home in such a way that it will stir the imagination, stimulate the emotions, and result in action.

For example, these problems should show that no waste is little when it occurs in many thousands of homes.

A waste of the hundredth part of a cent, a sum so small that we can scarcely imagine it, if it occurred in every one of the 20 million homes in the country would make a total waste of $2000 daily, or $720,000 per year.

Make it plain that if the 23 million school children all over the country really save even the least bit in money value, the saving the country over will be enormous.

Lead the children to see that what seems a little waste in one home is a big waste if it happens in many homes.

Bring out all the avenues of money waste which the children can suggest, and discuss means for overcoming them.

CHILDREN ARE SOLDIERS

These problems should also show that children as well as grown men can fight the war, for the food war is as important in the long run as the war on the firing line.

Germany has said that if she can starve England, she can win. Every one must fight the food war, which is to use food intelligently and save certain foods.

Each child should think of himself as a deputy food administrator to save food and to suggest means of saving in each home.

The children are soldiers in the food war. In so far as they know the facts, realize the need, and are stirred to action, they are good soldiers.

Let us see to it that all are enlisted.

STIMULATE CURIOSITY

Lead the pupils to be curious about the solution of the problem as you assign each one.

For example (Problem 120), "What does your mother pay for milk? Is any wasted? Do you ever leave any in your glass? Is milk thrown away when it sours? About how much milk do you think your home wastes a day? Suppose every home wasted just a tiny bit of milk every day, how much do you think would be wasted in the whole country?"

And then, after the problem has been solved, "What are the ways in which we may save milk? Ask your mother (or cook) how she uses sour milk. Let's make a list of all its uses."

Compare prices and conditions with those stated in the problem, and suggest related problems, *e.g.* (Problem 108): "How many tons of garbage are collected in this city (or in the largest city of this county) every day? Can any one find out? From

whom can you find out? (Commissioner of Streets.) Let's see how many pounds of fat we throw away every day. How do we waste fat besides throwing it in the garbage? (Pouring down sink, burning, etc.) How can we use the fats that are now wasted?"

CORRELATE WITH OTHER SUBJECTS

Parts of this book, such as "Europe Faces Starvation," will be valuable for reading and discussion by the class.

In addition, much of the material can be used as a basis for oral and written composition. Pupils should be asked to write on topics such as "The Real Meaning of Problem 7." They should be encouraged to report all of the ways in which these problems appeal to them, to raise many pertinent questions regarding the facts involved, to use these facts as a basis for problems of their own, and to express their judgment regarding the best ways and means for dealing with the various conditions and situations described.

Teachers are cautioned to be patient and not expect too much from pupils at first. ***Encourage them in every way to give their own viewpoint and judgment.***

The writing of letters asking for a copy of the various bulletins listed in the bibliography on page 85 will give to pupils the best possible training in letter writing. The letters should state specifically just what use is to be made of the bulletins. When the pupils have written the letters, they should be compared, the best features selected, and it may be wise to use these in the letter finally sent. These bulletins, as a rule, may be had without cost; the supply, however, is usually limited, and only one should be asked for. One bulletin of a kind for a building should be enough.

Suggestions for using these problems in teaching civics and geography are made in connection with the various problems themselves. ***The ingenious teacher will see numberless other aspects for discussion and study.***

EACH PROBLEM HAS A MEANING

There is not a single problem in this book which has not been introduced with a definite aim and purpose.

Some of the problems may be somewhat difficult. It will pay to take time to get at the facts and to obtain an appreciation of the conditions involved. In some cases it will be profitable to spend several days, if necessary, on a group of problems to solve them and to gain an understanding of their larger implication.

Always go over problems carefully to determine the proper number for the advance lessons. In making assignments, discuss the problems with the pupils to insure an understanding of the facts and conditions involved.

ENCOURAGING PUPILS TO ILLUSTRATE PROBLEMS

No war service will have a greater educational value in stimulating pupil initiative, originality, and resourcefulness than making concrete the significance of these problems through jingles, slogans, illustrations, and posters.

Freehand sketches or cartoons may be made by pupils to illustrate some interesting aspect of the various problems. Children will often show surprising ability at this work. Those who are not skillful should be encouraged, at first at least, to cut out pictures from magazines and newspapers to illustrate their problems. Later they will become able to do original work.

The making of posters is an especially valuable project. The posters of the United States Food Administration as well as other government posters are suggestive. An exhibit of the children's work will arouse great interest in food conservation and will also lead to closer relation between the school and the community.

Originality and resourcefulness will also be developed in the writing of slogans and jingles to be used on posters to drive home the appeal or thought desired to express. It will be a great stimulation to children to feel that they can help teach the great lessons which the war is bringing to us and that what they draw or write will help the nation to accomplish its aims. Can the schools do anything more worth while at this time?

PICTURE RESULTS

Closely related to the use of illustrations as described above is the picturing of results by means of graphs. The use of the graph is becoming more and more general. Nowhere can it be of greater value than in the schoolroom when used for purposes of comparison, or as an aid in showing the significance of conditions or results.

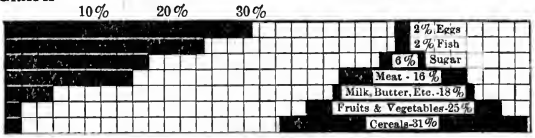
In making graphs, it is convenient to use "squared paper" [1] as shown on page xvii. Each square or a number of squares is made to represent a certain unit of measure. For example, in the graph on page 7, three squares represent 100 million bushels of wheat. In every case it is necessary to fit the graph to the page; the unit of measure or scale should be determined accordingly. The teacher will discuss with pupils the scale that should be used.

[1] This paper may be obtained from any school supply or stationery company by asking for "squared" or "quadrille ruled" paper.

GRAPH TYPES ILLUSTRATING WHAT THE AVERAGE AMERICAN FAMILY EATS

I
Bar Graph

Cereals	31%
Fruits & Vegetables	25%
Milk, Butter, Etc.	18%
Meat	16%
Sugar	6%
Fish	2%
Eggs	2%

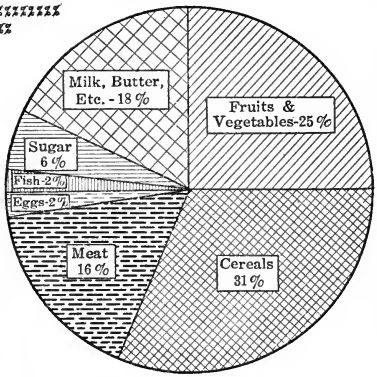


II
Pyramid Graph

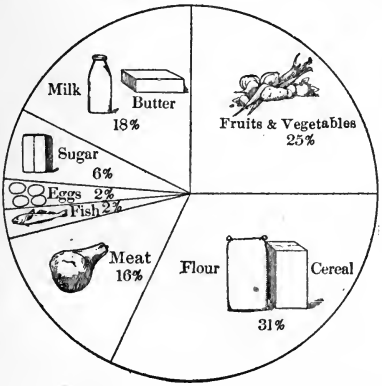
III
Symbol Graph

Cereals	31	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Fruits & Vegetables	25	xxxxxxxxxxxxxxxxxxxxxxxxx
Milk, Butter, Etc.	18	xxxxxxxxxxxxxxxxxx
Meat	16	xxxxxxxxxxxxxxxx
Sugar	6	xxxxxx
Fish	2	xx
Eggs	2	xx

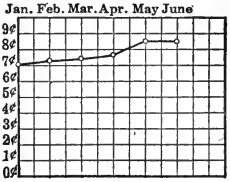
IV
Circle Graph



V
Picture Graph
(may be used with any type)



VI
Curve Graph
Cost of Bread-1917-Shown by Months



On page xvii are shown a few of the different forms that may be used for graphic illustration. Children should be encouraged to experiment to find out the method which most clearly illustrates the material at hand. Here again children will exercise inventiveness and originality.

LET THE CHILDREN DO THE WORK

Where questions are asked concerning which pupils have any first-hand information, this should be exhausted before sending the pupils to reference books and bulletins. These problems will have little permanent value unless they capitalize every bit of the child's knowledge and experience.

Encourage the children to suggest ways of saving which will apply to their own homes, and receive reports each week on the savings accomplished. Reports of children on savings and food substitutions in their homes will frequently be taken by pupils to other homes and the suggestions used. The real purpose of this work with the children will not be realized if it does not lead to intelligent coöperation in carrying out the program of the United States Food Administration in the homes of the children. This can be insured only as pupils understand and discuss the questions involved with their parents.

Every table in the Appendix may be made the basis for additional problems to be composed by the pupils themselves. Table XV, page 81, for example, contains the raw material for innumerable real problems which grammar grade pupils can formulate. Figures of population for cities and states are easily available. The number of families may be estimated by dividing the total population by 5.

Bulletins listed in the bibliography have been numbered serially and note references to them are made by numbers in-

stead of by name. These note references should be looked up wherever bulletins are available and additional related information secured. Through the use of these bulletins children should learn of the great number of bulletins on almost every subject that are issued by the United States government, colleges, universities, and other organizations. Teach them the value of these. Stimulate them to use the library in their search for needed information.

PRICES MAY VARY

The prices included in problems in this book are correct with reference to Chicago, in the first part of the year 1918. They also take into account fixed prices for foods set by the Food Administration. It is not probable, however, that they will be true for a large percentage of communities, or for any one community permanently. It is doubly advisable, therefore, to ***look up and use local prices***. Comparison and study of prices will greatly stimulate and increase the interest of pupils.

Problems made up by the pupils should always take into account local prices and conditions. Local prices should invariably be compared with the prices set by the United States Food Administration. Keep price bulletins posted in the classroom. Encourage children to investigate whether local dealers are maintaining government prices.

GRADING AND ORDER OF WORK

Experience shows that children in the sixth grade are able to perform nearly all of these problems without serious difficulty. At first the large numbers are troublesome, but pupils soon become accustomed to them and handle them easily.

Problems have been grouped by subjects. Whenever a prob-

lem is too difficult for any particular grade, very often an adaptation may be made to fit the problem to the class. For example, percentages may be changed to fractional parts, figures may be altered to read in "round numbers," etc.

The grouping of the problems by subjects is for convenience only. It is not at all necessary for pupils to solve all the problems in one section before taking some of those in another. The teacher should exercise judgment in determining the order in which the problems shall be solved.

USE DIRECT METHODS

In the solution of problems, use the most direct methods possible. Eliminate all unnecessary steps. Permit pupils to work out original methods of solution. Teachers sometimes make the mistake of emphasizing method of procedure as if it were the end sought instead of the means of obtaining the result.

In problems which involve millions and billions it is not necessary to use the sequence of zeros to express the amount. Lead pupils to use "millions" and "billions" as they would "bushels." 1,900,000,000 may be read or written as 1900 million. Two and one-half times 6 million probably means more to a child as 15 million than as 15,000,000.

In all cases require pupils to estimate the probable result. The wise use of approximations stimulates careful thinking by pupils and results in the exercise of good judgment. Too often figures are mere symbols or characters without meaning. Approximations help to avoid this difficulty.

Do not require children to follow out a problem to a large fractional or decimal result, where this is not essential to the clear understanding of the problem. Small fractions must be

retained when they are to be multiplied by some large number, in which case a small change in the fraction makes a large difference in the result.

PARENT COÖPERATION

Teachers will find that parents will become greatly interested in the problems. In Evanston many parents have requested that they be allowed to discuss and solve the problems with their children. This has resulted in giving children a great deal of interesting information which otherwise they would not have had. It has stimulated parent interest in the work of the school, and brought school and home much closer together. One parent writes: "**These problems carry food conservation work right into the home. Our consciences prick as we work these sums with John.**"

It is suggested that in many cases parents will be willing to meet with the class and help them with many of the questions involved. Lawyers and business men will be glad to explain the income tax and excess-profits tax. Other parents will be able to make contributions to other phases of the work. Whenever this can be done, it will add to the interest and will help in other ways.

FOOD PROBLEMS

CHAPTER I

EUROPE FACES STARVATION

In Poland, Belgium, Serbia, Armenia, people are starving.

In France, England, Italy, people must soon starve unless we send them food. The same is true of Norway, Sweden, Denmark, Holland, and Switzerland.

WHY THE WORLD LACKS FOOD

Because millions of men have gone from the farms into the trenches. Over 50 millions are now fighting or training for war. Men at war do not produce; they destroy.

Because the able-bodied men from the farms have gone to war, and their places must be taken by women, children, old men, and others not strong enough to fight. This reduces the amount of grain and other foods produced.

Because other millions of men and women have been taken to factories to manufacture munitions of war. From 30 to 40 millions are now engaged in making guns, cannon, powder, and other materials and machines used in war.

Because there have been partial or complete crop failures in some parts of the world.

Because hundreds of thousands of tons of food have been sunk by the submarines.

Because millions of tons of shipping have been destroyed by submarine warfare so that it has been impossible to find enough freight boats to carry foodstuffs from lands of plenty to lands of want.

Because hundreds of millions of bushels of wheat and other grains grown in Russia which formerly went to countries whose people are starving cannot now be shipped through the Dardanelles.

Because much farm land has been laid waste by the war.

Because fertilizers for fields are scarce and high priced.

Because fighters who suffer all sorts of hardships and exposure must have more food than the same men would use in times of peace.

AMERICA HAS PLENTY FOR HERSELF

To feed ourselves only we have more than enough.

But shall we desert our Allies, who have been fighting for us, and cause their sure defeat?

Or shall we send them what they must have to keep them from starvation?

There is but one answer. We must keep for ourselves only what food is most necessary. We must send to our Allies what they need and must have.

WE CAN SEND ENOUGH

If we are not wasteful;

If we make the best use of the foods we have;

If we choose intelligently and wisely, using less of certain foods and more of others;

If we produce more food;

If every one *helps*.

LET US REMEMBER

That we are the most wasteful nation in the world.

That a French, a Belgian, a Polish, or a Serbian family could live on what many an American family throws away.

That if the little children and older people who are now dying of starvation could get the crusts of bread, the milk, the meat, and other foods which we now waste, their lives would be saved.

WHAT FOODS WE MUST SEND

Foods which keep. It would be folly to send vegetables or fruits, although we have plenty, for they would spoil in shipping.

Foods which nourish and take up little space. A shipload of wheat has much more food value than a shipload of potatoes or fish.

Foods which our Allies know how to use. We have, for example, a large crop of corn, but as the United States Food Administration says,[1] "They cannot take corn instead, seeing they have neither mills to grind corn nor ovens to bake it in." Corn bread cannot well be distributed from bakeries, even if bakers had the machinery with which to bake it.

The foods which can best be sent are

Wheat
Meat and Meat Fats
Sugar
Condensed Milk, Butter, and Cheese

[1] Bulletin No. 75. (See Appendix, page 87.)

HOW MUCH WE MUST SAVE

A tiny saving by each of us means enough for all.

When the bee returns from her trip to the flowers, she brings only the least bit of honey. Many trips by many bees produce tons of honey.

Crumbs become loaves when multiplied by 100 millions, — and there are more than that number of people in this country now.

There is enough for all if each person in the United States saves daily:

Half a slice of meat
2 teaspoonfuls of butter or fat
2 tablespoonfuls of sugar
2 slices of white bread

HOW WE CAN SAVE THIS

There are two great ways:

1. By not wasting any food.
2. By using other foods instead of those which must be sent to our Allies.

WILL YOU DO YOUR PART?

CHAPTER II

GENERAL PROBLEMS IN FOOD CONSERVATION

Problem 1. Mr. Hoover asks each of the 100 million people in the United States to save 1 ounce of meat each day, 1 ounce of sugar each day, 2 ounces of fats each week, and 1 pound of wheat flour each week. If we all do this,

a. How many tons of meat

b. How many tons of sugar

c. How many tons of fats

d. How many 196-pound barrels of flour will be saved for the nation each week? How many a year?

Discussion.[1] How much is an ounce? Can you bring to class 1 ounce of meat, 1 ounce of flour, etc.? How much is a pound?

Is it easier to save 1 ounce each day or 7 ounces all at one time? Remember that saving does not always mean going without. It may mean substituting other food. Would you rather have meat seven meals a week and eat 1 ounce less every time, or have macaroni and cheese, nut loaf, cottage cheese, or some other meat substitute for two meals in place of meat, and thus save the whole amount?

Will meatless days save enough meat for the Allies? Look in the Appendix to find out how much meat we use, and see if a saving of $\frac{1}{7}$ would amount to an ounce a day.

[1] These discussions are suggestive rather than exhaustive and aim to illustrate what should be done with every problem. The resourceful teacher will find little difficulty in supplementing what is given, and in working out questions and topics for discussion in connection with all problems.

Make a tentative list of ways to save these foods. Then look at Table XIV, page 78, to find other ways of saving. Keep each list to add to later.

Send for the bulletin numbered 74 in the bibliography and read on page 7, Mr. Hoover's appeal to us to save.

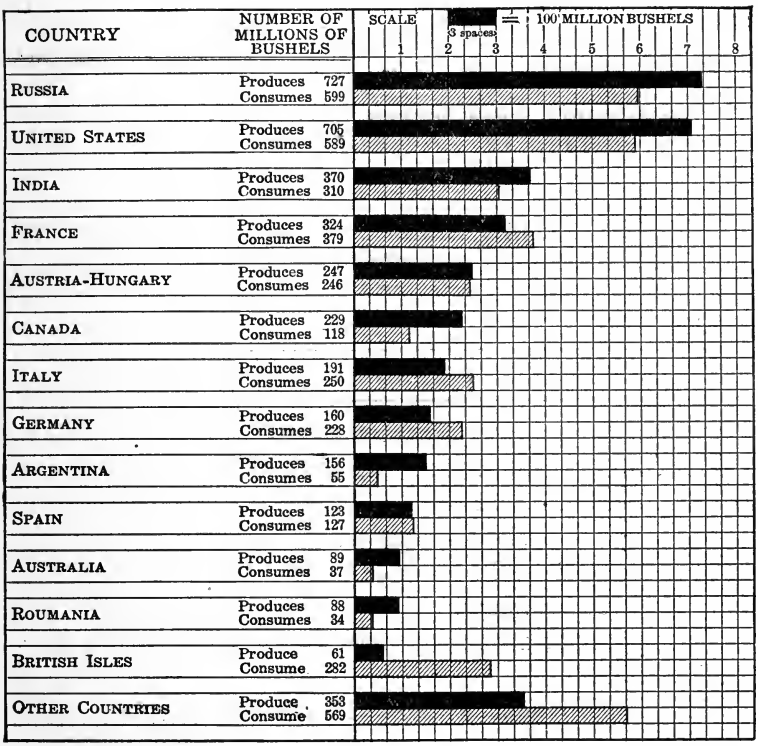
MANY A MICKLE MAKES A MUCKLE

2. Following are the annual production and use of wheat before the war in the leading nations of the world, in millions of bushels.

	Production of Wheat in Millions of Bushels	Use of Wheat in Millions of Bushels	Difference in Millions of Bushels
Russia	727	599	
United States	705	589	
India	370	310	
France	324	379	
Austria-Hungary	247	246	
Canada	229	118	
Italy	191	250	
Germany	160	228	
Argentina	156	55	
Spain	123	127	
Australia	89	37	
Roumania	88	34	
British Isles	61	282	
Other Countries	353	569	
Total	3823	3823	

a. Place in the column marked "Difference" the difference between production and use, marking it + if production is greater than use, and − if production is less than use.

WORLD WHEAT PRODUCTION AND CONSUMPTION



b. Draw bars on construction paper to represent the production and use of wheat in the various countries. Allow 20 million bushels to a space and place the two bars for each country together, as shown by the graph above.

Discussion. Let us try to find a way to imagine 4 billion bushels of wheat. How many tons is it? (One bushel of wheat weighs 60 pounds.) If a freight car can carry 60 thousand pounds, how many would it take to move this amount of wheat?

What five states led in wheat production last year? What part of the entire yield in the United States did these states produce? Where does your state rank in wheat production? Why so high or low?

How many people are there in the world? (See your geography.) How much wheat is produced for each person? Color a map to show the countries which produce most wheat, or which produce more wheat than they use. Which countries do not use much wheat? What do they use instead?

Where do we send wheat now? This table shows conditions before the war. Which countries must be producing less wheat now? Why?

If there is a library in your school or city, look up facts on wheat production in reference books, and make more problems based on what you find.

OUR ALLIES DEPEND ON US FOR WHEAT

3. According to United States statistics, the United States and Canada have sent to the Allies 400 million bushels less wheat than they need this year.

a. How many bushels a year would each of the 100 million people in the United States have to save to supply 125 million bushels from this country?

b. What part of a barrel of flour, if $4\frac{1}{2}$ bushels make a 196-pound barrel?

c. How many pounds a year? How many pounds a week?

d. If it takes $\frac{3}{4}$ of a pound of flour to make 1 loaf of bread, how many loaves must we save each week?

Discussion. How much wheat do the United States and Canada normally produce (see problem 2)? How much surplus is there in normal times? If 400 million more bushels are taken, how much does this leave for home use?

Read bulletins 74 and 75 (Appendix, page 87) and see that enough food will be kept in this country to provide for our needs. There is plenty of food if we save by substitution and cutting out waste.

What other uses for wheat flour are there besides its use in white bread? Make a list of all you can think of. Then take them up one by one and discuss how waste may be eliminated and how other substances may be substituted.

IT IS THE LITTLE SAVINGS THAT COUNT

4. Last year there were many boys' and girls' corn clubs in the country. They raised 523 thousand bushels of corn at a cost of $143,000.

a. What was the approximate cost per bushel?

b. They sold the corn at 81 cents a bushel. What was the profit per bushel?

c. What was the total profit?

5. In 1916, 7903 boys and girls belonged to canning clubs, which canned 201,300 quarts of food.

a. How many quarts was the average for each member?

b. The total cost was $28,126.61. How much per quart? Compare this with the cost to you of canned corn, peas, tomatoes, and other vegetables and fruits.

WE CAN ALL HELP FIGHT THE FOOD WAR

6. The boys and girls enrolled to serve in food production in 1916 produced food worth an average of $20.96 each.

a. If one half of the 23 million school boys and girls in the United States should do as well in 1918, what would be the value of the food produced?

b. If the profit of each boy or girl was 60 per cent of the selling price, what would be the money profit for $11\frac{1}{2}$ million children?

Discussion (*problems 4, 5, and 6*). Find out from the county superintendent of schools about boys' and girls' club work in your county. Who is the state leader of this work? The United States Department of Agriculture has nation-wide control of this movement. From this department, or from your state leader, you can get information concerning the work in your state. Has your school done any gardening or canning work? If so, write an account of the results and send it to the county and state leaders.

Discuss ways of earning money through producing or preserving food.

CONQUERING WASTE IS WINNING THE WAR

7. The United States Department of Agriculture states that 700 million dollars has been wasted in homes in this country every year by throwing away food which might be used. There are 20 million families in the United States. What is the average waste for each family per year? Per month? Per day?

WILLFUL WASTE MAKES WOEFUL WANT

8. If the average family contains five persons, how much is the average waste for each person each day?

9. How many Liberty Loan Bonds at $100 apiece could be bought with the yearly food waste of the American people? What part of a two billion dollar issue is it? What per cent?

10. If the amount of the yearly food waste of the United States ($700,000,000) were invested in $100 Liberty Loan Bonds at $3\frac{1}{2}$ per cent interest, what would be the yearly income? How many aeroplanes at $8000 each could be bought with the amount wasted on food annually by the American people?

Discussion (*problems 7, 8, 9, and 10*). Do you waste as much as problem 8 states, each day? Make a list of the different ways in which you waste food during one day. **Refer to Tables XIV and XV**

in the Appendix for examples of wastes. Do you think you waste more or less than the average?

Think of some other ways of trying to understand what is meant by a food waste of 700 million dollars. How many schoolhouses like yours could be built with it? How many boys or girls would it send through college, at $500 a year? Write an essay to show in other ways what may be done with 700 million dollars.

Can all this food waste be eliminated? Can you name any food waste in your home which can't be helped? (See Table XIV, Appendix.)

SAVE AND HAVE

11. The average food waste of the American people is estimated by the Government to be $7\frac{1}{2}$ per cent of the total amount spent for food in each family. If the average family wastes $35 per year, what is the amount spent for food per year in the average family? In the 78,000 families in Newark?

If the 78,000 Newark homes each saved $35 yearly in food, how much would be saved altogether?

What would be saved in your city or state if every family saved $35 each year on food?

Discussion. Get some estimate of the amount your family spends in a year for food. If $7\frac{1}{2}$ per cent of this is waste, how much is wasted? Where does it go? Do you think your family wastes more or less than this amount?

Make a report showing how your home is making its food waste less, and how it can do still more. Don't try to go too much into detail. This will be done in following problems. Good bulletins to read in this connection are Nos. 75 and 76.

12. There are about 2000 soldiers in a regiment [1] and each soldier's food costs the Government about 40 cents a day. How

[1] The number varies. This is approximately correct for February, 1918.

long would the 700 million dollars lost each year through waste of foods in the United States feed one regiment of soldiers? Answer in days. In years.

Discussion. About how much does the food for each member of your family cost per month? Does your food cost more or less than a soldier's? If you waste 2 cents a day in food (see problem 8) what part of the cost of the food you eat is wasted?

CAN WE EACH SAVE TWO CENTS A DAY IN FOOD?

13. If each of the 100 million persons in the United States should save 2 cents a day in food, what saving would it mean to the nation each day? Each month? Each year?

Discussion. Can each of us save 2 cents a day in food? The University of California has estimated that $582 a year is the least amount on which food can be bought and health maintained in a family of five. Many families are spending far less than this each year. Can they save in money? Should these be expected to save? Why not?

14. *a.* The war in Europe cost 1 billion dollars per month during the first two years. The population of the warring nations was 450 million. Find the amount every citizen must save monthly to save as much as the war cost.

b. Before the war, 300 million dollars were on deposit in the Bank of England alone. After one year of war, there were 900 million dollars of deposits. What saving does this represent for each of the 36 million inhabitants of England during the first year of war? What saving per month (approximate)?

Discussion. What is the Bank of England? Look it up in an encyclopedia or the World Almanac, and see how it is different from our banks.

A newspaper article estimates that nearly 84 billions of dollars have been borrowed already (to November, 1917), by the countries at

war, besides money raised by taxation. How many months has the war gone on, up to January, 1918? Has the war cost more or less than a billion dollars a month?

Our loans from June, 1917, to January, 1918, were 5800 million dollars. How much is this for every person in the country? At this rate, how much a year for each person? Write on the topic: "What Our Country is Spending for Me." Then discuss "Should I Help My Country? Why and How?"

15. In 1916[1] the following amounts were spent in the United States:

	Millions of Dollars
For patent medicines	300
For tobacco	600
For jewelry	200
For wines and liquors	1669

a. If all these amounts were saved, how much would be the total saving?

b. At the rate of one billion dollars per month for the war, for how long would the total saving finance the war?

AMONG OUR ENEMIES — LUXURIES AND BAD HABITS

16. In the last 30 years our population increased 75 per cent, while our production of women's clothes and millinery increased as follows:

	1884	1914	Increase	Percentage Increase
Millinery	$ 9,580,000	$114,160,000		
Women's Clothes	32,000,000	473,880,000		

[1] Bulletin No. 73. (See Appendix, page 87.)

If the production of these two items had increased only as much as the population, how much would have been spent in 1914? How much would thus have been saved in 1914?

Discussion (*problems 15 and 16*). Name some other ways of unnecessary spending which could be done away with or lessened. Discuss these to see how much of the money spent for them is really necessary.

Why do you think the cost of millinery has increased so much in 30 years? Ask your mother or grandmother to tell you the cost of millinery and women's dress 10 or 20 years ago. Did people buy as much at stores? Did styles change as often? What other differences were there which would make expenditures much lower then?

How much is spent in America for chewing gum? Is the chewing of gum a necessity? Is it right to use so much money for these purposes in times like these? How much sugar is used in gum? What other materials are used?

Name the prohibition states. Do you know of any laws against tobacco or patent medicines? (Ask a lawyer.) How has the war helped prohibition here? In Russia? In England?

SAVE TO SERVE

17. The United States Food Administration permits hotels to serve no more than 2 ounces of bread to any one person at a meal. If $\frac{1}{2}$ ounce of bread is saved by this means for each meal eaten in hotels and restaurants, how much bread will be saved for each 1000 meals eaten? How much flour, allowing $\frac{3}{4}$ of the weight of the bread saved to be flour?

18. Find the actual increase and approximate percentage increase from July, 1914, to June, 1917, in the wholesale prices for these commodities:

Article	Unit of Measure	Price July, 1914[1]	Price June, 1917[1]	Price To-day	Increase 1914–1917	Percentage Increase 1914–1917
Fresh Beef	Pound	$0.13	$ 0.16			
Bacon	Pound	.14	.24			
Lard	Pound	.10	.21			
Wheat	Bushel	.90	2.69			
Flour	Barrel	4.59	13.89			
Corn meal	Pound	.015	.039			
White Potatoes	Bushel	1.21	2.95			
Sugar	Pound	.042	.075			

19. Find the actual increase and the percentage increase of the retail price of the following articles:

Article	Unit of Measure	Price July, 1914[1]	Price June, 1917[1]	Price To-day	Increase 1914–1917	Approximate Percentage Increase 1914–1917
Sirloin Steak	Pound	$0.27	$0.33			
Pork Chops	Pound	.22	.31			
Bacon	Pound	.27	.425			
Lard	Pound	.15	.28			
Eggs	Dozen	.30	.416			
Butter	Pound	.34	.47			
Milk	Quart	.09	.11			
Bread	Loaf	.055	.085			
Flour	⅛ Barrel	.79	1.97			
Corn meal	Pound	.03	.055			
Potatoes	Peck	.405	.96			
Sugar	Pound	.05	.09			

20. Counting 5 per cent to a square, draw bars representing the percentage increases in problems 18 and 19. (For method, see page xvi.) How do wholesale and retail prices compare, in amount and in increase?

[1] Bulletin No. 98. (See Appendix, page 88.)

Discussion (*problems 18–20*). Notice the difference between wholesale and retail prices. On which articles do people make the greatest percentage of profit? Are the prices in your locality to-day higher or lower than those of June, 1917? Higher for which articles? Lower for which?

You know that it takes $4\frac{1}{2}$ bushels of wheat to make a barrel of flour. If wheat is \$2.69 a bushel and flour \$13.89 a barrel (problem 18), how do wheat and flour compare in expense?

Make up ten problems based on the facts in problems 18 and 19. Write a composition on some connected topic, like "From Wheat to Flour."

Find out from your grandparents or a soldier of the Civil War what prices for these foods were during that war. If possible prepare a table comparing Civil War prices with those of to-day. Devise a way for showing the difference by using graphs. (See page xvii.)

From newspapers and magazines obtain present prices in European countries and compare them with prices in America.

WE MUST HAVE WHEAT TO SEND TO FRANCE

21. In France the supply of meat and wheat has decreased as follows:[1]

	1913	1916	Loss
Native Wheat .	330,000,000 bushels	213,000,000 bushels	
Cattle	14,790,000 head	12,340,000 head	
Sheep	16,140,000 head	10,845,000 head	
Pigs	7,035,000 head	4,360,000 head	

Draw bars to represent the former and present supply letting 1 square = 1,000,000. If the 1913 supply of wheat was just enough to feed France, what per cent of the amount needed does she grow now?

[1] Bulletin No. 98. (See Appendix, page 88.)

TO WIN — PRODUCE MORE, EAT LESS

22. Nineteen million acres of spring wheat were sown in 1917. The average yield per acre for the last ten years was 13.2 bushels.

a. How much will be produced at this rate?

b. In 1915 the average yield was 18.4 bushels per acre. How much would be produced at this rate?

c. How much more would be produced at the 1915 rate?

Discussion. Bulletin 64 (page 87) gives an idea of yields in various years. What do you think happens to prices (1) when the yield is poor, (2) when the yield is good, (3) when there is a war? Why?

Find statistics showing yield for your state by writing the state college of agriculture. Does your state produce much wheat? What is the average yield per acre?

Color a map to show the states which produce most wheat.

23. Exports from the United States to Europe of the necessary foods have increased as follows:[1]

	Exported before the War	Estimated Exports 1917
Dairy (butter, cheese, milk)	26,028,000 lbs.	346,028,000 lbs.
Meat	493,848,000 lbs.	1,833,284,000 lbs.
Wheat	120,000,000 bu.	577,000,000 bu.

Find the number of tons and percentage increase in tons exported. Allowing 10,000 tons to a space, draw bars representing exports before the war and now.

[1] Bulletin No. 98. (See Appendix, page 88.)

CHAPTER III

WHEAT PROBLEMS

24. In 1917 the wheat crop of the United States was 656 million bushels and that of Canada 250 million bushels, while their combined reserve from the previous year was 100 million bushels. The United States and Canada needed 550 million bushels of wheat for flour. They also needed 90 million bushels for seed, 10 million bushels for other industries, and 50 million bushels to carry over to 1918. How many bushels were left for export?

BREAD WILL HELP TO WIN THE WAR

Discussion. Compare these crop figures, secured from bulletin No. 69 (see Appendix, page 87), with those given in your school geography. Bulletin No. 64 also gives figures for wheat crops. Is our 1917 crop above or below normal? Compare figures with those given in problem 2, page 6.

What " other industries " need wheat, besides flour mills? Why do we need a surplus of wheat to " carry over " to the next year?

In old times when the grain crop failed in any one country, there was a famine. Is this true now? Why? Compare " crop failure " with a " coal famine " or " sugar famine." Do these terms mean that there is not enough of these articles, or simply that there is not enough in some one place?

Read in Bulletin No. 69 how much wheat we need to export. Read Bulletin No. 75 to find why we cannot send corn instead.

25. In 1917, 6 bushels of wheat per person were consumed for flour, seed, etc., in the United States and $2\frac{1}{3}$ bushels per person were exported.

a. How many bushels did we raise for each person?

b. In 1918 we need to export 4 bushels per person. How many bushels of wheat does this leave for each person in this country?

c. How much less is this than was used in this country by each person in 1917? (Assume that this year's crop is the same as last year's.)

Discussion. How can we estimate the amount of wheat used in our homes? In what forms do we buy wheat? Make a list of these.

Can you estimate the amount of flour used in your home each week? Can you suggest substitutes for some of these items to reduce the amount of wheat used in your family? How much or what part do you think might be saved by using these substitutes?

26. Wisconsin sows 101 thousand acres of winter wheat. The average yield per acre is about 15 bushels.

a. About how much winter wheat can be expected?

b. The nation asks that Wisconsin sow 29 thousand more acres. How much will this increase the wheat crop?

c. If pure bred grain is used for seed, an acre may yield as much as 40 bushels of winter wheat. If better farming methods raised the average of wheat in Wisconsin to 25 bushels per acre, how much more wheat would this produce on 101 thousand acres? On 130 thousand acres?

Discussion. Can you find the average yield of wheat per acre in Canada? In France? In Germany? How does it compare with the yield in this country? Why is there so much difference?

What are some of the ways of improving the yield of wheat on a farm?

What are some of the reasons why a crop may be poor? When you have given all you can think of, refer to Table XV, page 81, for others.

27. The cost of turning 4.5 bushels of wheat into a 196-pound barrel of flour and marketing the barrel of flour should be about $1.80, according to the United States Food Administration. Wheat last year cost $1.60 a bushel on the average.

a. What should flour have cost a barrel?

b. The average price of flour in 1917 was $14 a barrel. How much more than the cost of production and marketing as shown in (*a*)?

c. 10 million barrels of flour are marketed each month. How much profit was made each month by manufacturers, wholesalers, and other flour distributors?

Discussion. What are the processes from wheat on the farm to flour in the pantry? Where does most of the $1.80 expense enter? What has been done to stop the making of too high profits?

Flour cost about $1.50 for a sack containing $\frac{1}{8}$ of a barrel in Chicago in January, 1918. How does this compare with the 1917 price? Look up present prices of wheat and of flour, and see whether there is reason to believe that too much "excess profit" is being made.

AMERICAN WHEAT MUST FEED THE ALLIES

28. There are (January, 1918) 300 million bushels of wheat in Australia awaiting shipment to the Allies.

a. If there are 60 pounds of wheat to a bushel, how many tons of wheat are there in Australia?

b. The average freight car has a carrying capacity of 80,000 pounds of wheat. How many tons of wheat will each car carry?

c. How many cars of this size will be necessary to transport the 300 million bushels of wheat mentioned above?

d. How many ships with an average carrying capacity of 1600 tons?

THE WORLD IS SHORT OF SHIPS

29. *a.* It takes freight about 30 days to go between Australia and England. How many boats of 1600 tons carrying capacity would it take to transport 9 million tons of wheat within 6 months?

b. It takes about 10 days from New York to England. How many boats would be needed to transport the same amount of wheat? Do you see why Australia's wheat cannot be used to feed the Allies?

Discussion (***problems 28, 29***). What is "tonnage"? How does the United States rank among the nations in "tonnage"? Has this rank changed since the beginning of the war?

If 6 bushels of wheat are needed for each person, how far would Australia's wheat supply go to feed the population of England?

Discuss the reasons why "the world is short of ships."

Show why England is unable to ship wheat from Australia, Russia, and India to relieve her present need.

IS EVERY OUNCE OF FLOUR WORTH SAVING?

30. Let us suppose that the average waste of wheat flour per family in the United States is 1 ounce per week (enough to make $1\frac{1}{2}$ slices of bread).

a. How many pounds would be wasted in one week by the 20 million families in this country?

b. How many pounds per year?

c. About how many barrels in a year? (Allow 196 pounds to the barrel.)

31. It takes $4\frac{1}{2}$ bushels of wheat to make 1 barrel of flour. How many bushels of wheat would it take to supply the yearly waste described in problem 30?

WASTE NOT — WANT NOT

32. About 15 bushels of wheat are grown to the acre. How many acres of land would it take to supply a yearly waste of 1,491,000 bushels of wheat?

33. There are 7.5 square miles in a certain city and 640 acres to the square mile. About how many cities this size would it take to supply ground enough to produce wheat for a yearly waste as described in problem 32?

Discussion (***problems 32, 33***). What is the area of the city or county in which you live? Compare this with the amount of land found in problem 32. How many 100-acre farms would it take? What part of the total area of your state? Make a square to represent the land which would be needed on an outline map of your state, and color the square. Give the map the title of "What an ounce a week waste means," or some original title. Put an explanation below the title.

34. John Smith uses 5.3 bushels of wheat in the form of flour each year. If it takes 4.5 bushels of wheat to make a 196-pound barrel of flour, how many pounds of flour does he use each year? (Give answer correct to nearest pound.)

WAR BREAD IS GOOD TO EAT
WAR BREAD SAVES THE WHEAT

35. It takes about three fourths of a pound of wheat flour to make 1 loaf of bread. How many loaves represent a yearly use of 237 pounds of flour?

36. In making war bread, Mrs. Smith uses 9 ounces of wheat flour and 3 ounces of other flour for each loaf. In a year the Smith family uses 720 loaves of bread. How much wheat flour do they use if only war bread is eaten? How much wheat flour do they save by using war bread?

THERE IS NO LITTLE ENEMY

37. The average use of wheat flour in this country is about 4.9 pounds per person each week.

a. If on wheatless days no wheat flour is eaten, and normal amounts are used on other days, what will be the average saving in flour by each person each week?

b. For a city of 30 thousand people?

c. For the whole nation of 100 million people?

d. About how many 196-pound barrels will be saved by the nation weekly?

Discussion. Can you estimate how much flour is used in your home? Is it more or less than 4.9 pounds per week? Is your use of flour less than it was a year ago? What substitutes do you use?

38. Suppose every one of the 100,000 people in a certain city decided to use war bread, in which 25 per cent of the wheat flour is replaced by some other flour. The average consumption of flour is about five pounds weekly per person.

a. How many pounds of flour each week could be saved for the nation in this city alone?

b. How many pounds could be saved each week in the city or county in which you live?

Discussion. What flours are used in making war bread? Find from the bulletins listed in the Appendix as many different recipes

for war bread as you can. Will you try at least one of them? What ones have you already tried?

OBSERVE WHEATLESS DAY

39. Mrs. Lee finds from the government bulletins that she must reduce her use of wheat flour 25 per cent to do her part in saving food. By observing wheatless day she saves $\frac{1}{7}$ of the 21 pounds of flour she formerly used. On the other 6 days she saves 6 ounces per day by serving more vegetables so as to use less bread.

a. How much flour does she save weekly?

b. Is she saving enough, too little, or more than enough?

c. If every one of the 20 million families in the country saved as much, how many 196-pound barrels could be sent every week to feed our Allies (approximate)?

USE ALL THE WHEAT GRAIN FOR FOOD

40. Only 72 per cent of the wheat grain is used in making white flour. Whole wheat flour contains 85 per cent of the grain. It is also more healthful than white flour. Why?

a. How many pounds of whole wheat flour could be made from the wheat used to make a 196-pound barrel of white flour?

b. Suppose the people in a city together use 3600 barrels of white flour yearly. How many barrels would they save if whole wheat flour were used? How many pounds? (196 pounds make 1 barrel.)

41. One hundred pounds of wheat when ground into whole wheat flour supply 70.96 pounds of digestible food material, as against 57.00 pounds when ground into white flour. What per cent more food for human beings could be supplied if all wheat were made into whole wheat flour?

42. A flour manufacturer who has been milling only white flour, using 72 per cent of the grain, decides to grind one fourth of his wheat into graham flour, which uses 90 per cent of the grain. In a year he buys 1 million bushels of wheat.

a. Find the number of bushels of waste under the old plan.

b. Find the amount saved by making both white flour and graham flour.

WASTE NO WHEAT
HELP WIN THE WAR

43. Mrs. Gray throws away stale bread amounting to a slice a day.

a. If bread cost 10 cents for a loaf of 12 slices, how much money is she throwing away daily?

b. If every one of the families in your city or county [1] wastes a slice of bread a day, how much money is wasted each day? Each month? Each year?

c. At the same rate, what would be the yearly waste for the 20 million families in the United States?

Discussion. What are the uses of stale bread? Of bread crumbs? Show how crumbs can be substituted for flour in cakes and desserts. Which contain more nourishment, bread crumbs or flour? Why?

The United States Food Administration suggests that bread be cut at the table as needed, and King George of England does this. Why is this advisable? What waste is there in cutting bread? Can this waste be stopped?

44. By not eating the crusts of her bread, Mary wastes an average of $\frac{2}{3}$ of a slice of bread a day.

[1] To find the number of families, divide the total population by 5, the size of the average family.

a. How many slices does she waste in a year of 360 days? How many loaves? (12 slices to the loaf.)

b. What is the cost of the bread wasted at 10 cents a loaf?

c. Calculate the waste in bread and money if each of the school children in your school wasted $\frac{2}{3}$ of a slice of bread daily by throwing away the crusts of bread.

MUCH FOOD IS WASTED BY SERVING MORE THAN IS NEEDED

45. Mrs. Grant cuts and serves a loaf containing 12 slices of bread each day for dinner, of which only 10 slices are eaten. She uses about half the stale pieces and throws the rest away.

a. In how many days does Mrs. Grant waste a 10-cent loaf?

b. What is the money waste per year?

c. There are $1\frac{1}{2}$ million families in the State of Illinois. If each home wastes as much bread yearly as Mrs. Grant does, how much is the total money waste during the year?

46. A baker has been baking about 1000 loaves of bread daily. Some days he has not enough and runs out of bread before night. Some days he has too much. On an average, 48 loaves of bread per day are left over. He uses about half the stale bread for other purposes.

a. How much flour does he waste each day ($\frac{3}{4}$ pound per loaf)?

b. How much money, if he loses 4.5 cents on each loaf not sold?

c. The baker decides to ask his customers to order bread 24 hours before they need it, so he can know how much to bake. Now he wastes an average of only 2 loaves a day. How much flour does he save? How much money?

PROPER MACHINERY SAVES
TIME
LABOR
MONEY
MATERIALS

47. Mrs. Gray bought a meat grinder for $2.40 to use in grinding stale bread to use in place of flour, leftover meats to use in hash, croquettes, etc. Through using the grinder, she is able to save weekly one fourth of a 10-cent loaf of bread and half a pound of meat, average value 27 cents a pound. How long will it be before she will save enough to pay for the grinder? What will be her net saving in a year?

USE STALE BREAD FOR COOKING

48. John and Alice decide to save stale bread crumbs to use in cooking. They save bread scraps, dry them, and put them through the grinder to make crumbs. In a week they have two cups of crumbs, which their mother uses in place of 2 cups ($\frac{1}{2}$ pound) of flour in cooking. She agrees to let them have all the money they save in this way.

a. If flour is 6 cents per pound, how much do they save in a week? In a year?

b. If each of the children in your schoolroom did as well, how much flour could they save in a week? In a year?

c. How much money, if flour is 6 cents a pound?

49. Mrs. Black saves stale bread, but throws away cold breakfast muffins amounting to about 1 a day. Mrs. Lee saves muffins which are left and splits and toasts them for breakfast. If each muffin contains one half ounce of flour, how much flour does Mrs. Black waste in a year which is saved by Mrs. Lee?

50. One family wasted one fourth of a loaf of bread a week because of mold. If through proper care all the bread could have been saved, how much bread could be saved in a year? What value at 10 cents a loaf?

USE OTHER FOODS IN PLACE OF WHEAT

51. The average consumption of potatoes in the United States is 2.6 bushels for each person each year. Before the war Germany consumed 9.4 bushels per person, England 8.3 bushels, and France 7.7 bushels. Compare the amount used per person in the United States with the amount used by each person in Germany, France, England. How many times as much is used by each person in Germany, England, France, as is used in the United States? Illustrate these facts by graphs.

COULD WE USE MORE POTATOES?
SHOULD WE DO SO? WHY?

52. Our potato harvest this year has increased from 285 million bushels to 462 million bushels.

a. What is the per cent of increase?

b. How many bushels have we available for food per person per year?

c. How many pounds per person per month? Per day? (60 lbs. = 1 bu. potatoes.)

Discussion (***problems 51, 52***). Mr. P. G. Holden of the International Harvester Company suggests that we use war bread made from small potatoes, using one third potatoes and two thirds wheat flour.

On the next page is a tested recipe for potato war bread. Try it.

How to make Potato War Bread

$\frac{2}{3}$ cup sweet milk	1 teaspoon salt
1 cup potato	1 teaspoon sugar
2 cups flour	$\frac{1}{2}$ yeast cake

These measurements make one loaf. Increase ingredients according to number of loaves you wish to make. One yeast cake will make 3 or 4 loaves.

Heat milk to boiling point, then cool to lukewarm. Bake or boil potatoes, then mash or put through ricer. Dissolve yeast cake in the milk. Make a sponge as follows: mix milk, yeast cake, salt, sugar, all the mashed or riced potatoes, and $\frac{1}{3}$ of the flour. Beat well, let stand over night to rise. In the morning add balance of flour — let rise again until double in bulk, then mold into a loaf; let rise again to double in bulk, then bake 40 minutes in a moderate oven. A little more flour will be required if potatoes are not mealy.

EAT POTATOES; SAVE WHEAT

53. Dorothy's mother pays 40 cents a peck for potatoes, containing 50 potatoes to the peck. She decides to serve one extra potato each day to each of the four members of her family, in place of 2 slices of bread apiece. A loaf of bread containing 12 slices costs 10 cents.

a. Does Dorothy's mother save or lose money by substituting potato for part of the bread used?

b. How much does she save or lose each day? Each month? Each year?

POTATOES SAVED IRELAND FROM FAMINE
POTATOES CAN HELP SAVE US FROM DEFEAT

54. One medium-sized baked potato is equal in food value to 2 slices of bread. A slice of bread contains about $\frac{3}{4}$ ounce

of flour. If every one of the 340 thousand people living in Seattle used a potato instead of two slices of bread each day, how much flour would be saved daily? Each month? Each year?

55. *a.* What would be the saving of flour if each of the 7 million persons in the State of Illinois saved $1\frac{1}{2}$ ounces of flour daily by substituting a baked potato for two slices of bread? What would be saved per year?

b. How many 196-pound barrels of flour per year?

VICTORY ABROAD IS BEING WEIGHED UPON GROCERS' SCALES AT HOME

56. Mrs. Harris has been serving prepared wheat to her family for breakfast food. She uses two 15-cent packages a week. She learns that a 12-cent package of rolled oats will last a week, and that it contains 4 times as much nourishment as a package of prepared wheat, so she decides to use oatmeal.

a. How much money does she save per week? Per year?

b. Compare the nourishment in 2 packages of prepared wheat and 1 package of rolled oats.

EAT TO LIVE, NOT LIVE TO EAT

57. The cook in the Ames' home makes muffins for breakfast, using 2 cups of white flour. In order to save wheat, she uses only $1\frac{1}{4}$ cups of white flour and for the rest uses cornmeal, oatmeal, buckwheat, rye, barley, rice, or potatoes to make muffins.

a. What per cent of the flour formerly used does she save?

b. How many cups will she save in a year? How many pounds? (4 cups = 1 pound.) About what part of a 196-pound barrel?

58. According to a bulletin issued by the Nebraska College of Agriculture (Bulletin 2, Appendix) the cost of a loaf of bread made with flour and with various wheat substitutes is shown below.

	Cost for Each Loaf	Total Amount Wheat Flour Used
White bread	9.56 cents	3 cups
Whole wheat bread	8.08 cents	$2\frac{3}{4}$ cups
Graham bread	9.86 cents	$2\frac{1}{4}$ cups
Home ground wheat flour bread	5.54 cents	$2\frac{1}{4}$ cups
Oatmeal bread (rolled oats)	6.38 cents	2 cups
Oatmeal bread (steel cut oats)	8.07 cents	2 cups
Rye bread	7.03 cents	$\frac{3}{4}$ cup
Corn meal bread	6.64 cents	2 cups
Corn flour bread	8.72 cents	$2\frac{1}{2}$ cups
Rice bread	8.80 cents	$1\frac{1}{2}$ cups

Using white bread as a standard, find the gain or loss by using other flours, in cost, and amount of wheat flour used.

Draw bars on construction paper to represent the cost of these breads, allowing 1 cent to a space. Also draw bars to represent the amount of wheat flour used, allowing $\frac{1}{4}$ cup to a space.

MORE CORN — LESS WHEAT
KEEPS THE ALLIES FROM DEFEAT

59. We produce about 2750 million bushels of corn in a year. We export (in peace times) about 5 per cent. We use for human food about 8 per cent. The rest is used for animal food.

a. Find the amounts used for export, for human food, and for animal food.

b. This year we have a corn crop 25 per cent higher than usual, and fewer meat animals to be fed. Allowing 10 per cent of this year's crop for export, and 70 per cent for animal food, how many bushels will be left for human food?

c. How many times as much corn should we eat this year as formerly?

60. Mrs. Foster decides to use more cornmeal, as it saves the wheat and is cheaper and more nourishing than wheat flour. She has been making 12 loaves of white bread weekly, using $\frac{3}{4}$ pound of flour per loaf, and has used 6 pounds of flour otherwise. She substitutes cornmeal for one fourth of the flour in the bread she makes. If she now uses 5 pounds of flour weekly for other purposes, how much of the wheat flour formerly used does she save?

61. Cornmeal gives a certain amount of nourishment for 2.8 cents, while the cost of white flour to give the same amount is 4.8 cents. If Mrs. Cook buys 28 pounds of cornmeal at $6\frac{1}{2}$ cents a pound, find how much she would have to pay for white flour to obtain the same amount of nutriment. How much does she save by buying cornmeal?

62. Alice and Hugh refuse to eat corn bread instead of wheat bread, although neither of them has ever tasted it. They each use 5 pounds of wheat flour a week, costing about 7 cents a pound. What would be the saving in wheat flour and in money if they would substitute for $1\frac{1}{2}$ pounds of wheat flour, $1\frac{1}{2}$ pounds of cornmeal at $6\frac{1}{2}$ cents a pound? Answer for 1 week. For a year.

CHAPTER IV

MEAT PROBLEMS

63. We need to export one billion pounds of meat more than usual to our Allies this year.

a. To make this possible, how many pounds should be saved in each of our 20 million homes during the year?

b. How many pounds a week? (Count 50 weeks to the year.)

c. If the average family contains 5 persons, what part of a pound per person per week?

Discussion. How much is an ounce of meat? About how many ounces do you eat at dinner? Which way would you save more, by eating an ounce less a day for a week, or by observing meatless day and eating the usual amount on other days?

Who can find out the amount of meat doctors consider necessary for the average girl or boy? How do you find it compares with the amount you eat? Remember that you are not expected to deprive yourself of necessary food, but to avoid waste and whenever possible to use substitutes. What meat substitutes do you use?

What is a soldier's daily ration of meat? (See Table XII, Appendix.) About how much meat does your family save on each meatless day? How many meatless days must you observe to save enough meat to supply a soldier for a week? How many members in your family? If your family observes meatless day for one year (50 weeks) how many days could a soldier be served with meat from the equivalent of the amount you have saved?

64. In 1900, 248.2 pounds of meat per person were produced in the United States. In 1915, only 219.6 pounds were pro-

duced. In 1915, the average number of pounds used by each person was 193.5 pounds.

a. What was the total amount of meat produced in the United States in 1900? In 1915?

b. How much was used up in 1915?

c. How much was left for export in 1915? (Population of United States in 1900 — 76 million; in 1915 — 100 million.)

Discussion. From your geography, find which three states lead in the production of beef. Pork. Mutton. Of which of these three does your state produce the most? Where does your state rank in the production of these? What reasons can you give for this?

PORK IS THE FIRST MEAT TO SAVE

65. In 1915, the average meat consumption for each person was [1]

Beef	82.7 pounds
Mutton	7.0 "
Pork	103.5 "
Other	0.3 "
Total	193.5 "

What per cent of the total amount used was beef, mutton, pork, other meats?

Discussion. Why must we export more meat to our Allies? What is affecting their meat production? Why cannot they go without meat? What kinds of meat must we send to our Allies? What kinds of meat cannot be sent? Why?

66. The per capita consumption of meat in the United States in 1915 was 193.5 pounds. How much per day? (One year = 360 days.) Make your answer correct to 4 decimals.

[1] Data secured by correspondence with Bureau of Crop Estimates, U. S. Dept. of Agriculture, Washington, D. C.

Discussion. The per capita consumption of meat in England is much smaller than in this country, and in France is smaller still. Can you give some reasons for this? How many pounds of meat does your family use in a month? How much is this for each person per day? Is this more or less than the average amount each day?

A TEMPERATE DIET FREES FROM DISEASE
Poor Richard's Almanac

67. In 1915 the average amount of meat consumed by each person in the United States was 193.5 pounds a year. Experiments show that the adult man does best on $\frac{1}{4}$ pound of meat a day. How many pounds more than he needs does he consume per year?

THE WHEAT AND MEAT WE DO NOT EAT
WILL HELP TO SAVE US FROM DEFEAT

68. In 1907 the population of the United States was 78 million. To-day the population is about 100 million. What increase in population has occurred during the past ten years? What percentage increase?

69. Our exports of pork and pork products have increased from a pre-war average of 500 million pounds to $1\frac{1}{2}$ billion pounds last year. What is the percentage of increase in the export of pork?

Discussion (***problems 68 and 69***). To-day we have 12 million fewer sheep and 11 million fewer cattle than we had 15 years ago. Give five or more reasons for the increased cost of meat. Give reasons for the decrease in meat production.

What products other than food are made scarcer by the decrease in the number of sheep and cattle?

Why do our Allies ask for more pork than beef? Give several reasons.

70. One third of the total amount spent on food in the United States is spent on meat. Our eating would be more healthful if $\frac{1}{8}$ instead of $\frac{1}{3}$ were spent this way.

a. If by observing meatless day $\frac{1}{6}$ of the meat formerly used is saved, how much more must we save to reduce our use of meat to $\frac{1}{8}$ of the total food used?

b. The average number of pounds of meat used by each person in the United States is 193.5 pounds. How many pounds less should each person use per year?

MOST PEOPLE EAT TOO MUCH MEAT

71. Athletes in training are allowed only $\frac{1}{6}$ as much meat as formerly.

a. If the 100 million persons in the United States should reduce the amount of meat used to $\frac{4}{5}$ of what it was in 1915 (193.5 pounds per person per year) through the observance of meatless day, how many pounds of meat would be saved?

b. At 25 cents a pound, what would be the total value of the meat saved in a year?

72. Assume that 1 ounce of meat is wasted each day in each of the 20 million homes in the United States.

a. How many pounds? How many pounds per year (360 days)?

b. If the average dressed weight of cattle is about 525 pounds, how many cattle would it take to supply this annual waste?

73. Sirloin steak contains 59 per cent lean, 32 per cent fat, 9 per cent bone. The shank stew of beef contains no bone, 83 per cent lean, and 17 per cent fat. Find from your butcher the price of each of these cuts per pound. About how many

ounces of lean are purchased in 1 pound of each? What saving is there in buying the shank stew cut of beef?

LEARN TO USE CHEAP AND NUTRITIOUS CUTS OF MEAT

74. Mrs. Black bought $2\frac{1}{2}$ pounds of round steak at 26 cents per pound. Instead of cooking it so as to soften the tough tissues, she fries it. The result is that $\frac{2}{5}$ of the steak is so tough it cannot be eaten. Instead of grinding the leftover part for hash, she throws it away.

a. What is the money waste?

b. Suppose this happens once a week in each of the 8000 families in Cedar Rapids. What is the loss per week? Per year?

c. Figure the waste for all the families represented in your schoolroom.

NEVER SERVE MEAT MORE THAN ONCE A DAY

75. Mrs. Brown makes up leftover meat into croquettes. She makes the croquettes too large, so that each of the five members of her family leaves $\frac{1}{3}$ of a croquette, which is wasted. If the materials and cooking of the 5 croquettes cost her 18 cents, what is the money waste? If each croquette weighs 6 ounces and is half meat, how much meat is wasted?

76. Mary and her brother David go out to a party. Though they do not like the meat which is served, they each take a portion and eat about $\frac{1}{10}$ of it. If the portions cost 8 cents apiece, and weigh 4 ounces, how much money and meat are wasted by taking food which is not wanted?

77. A lamb stew costing about 30 cents was placed on a dinner table and after the meal one third of the stew remained.

The dish was carelessly left in a place where insects and flies got at it and because of its condition was later thrown away.

a. What was the value in money which was wasted?

b. If every one of the 20 million families of the United States wasted an equal amount per week, what would be the value in money wasted per month?

SOLDIERS MUST HAVE MEAT

78. Each soldier in the training camps is allowed $1\frac{1}{4}$ pounds of meat daily. Suppose that by observing meatless day each of the 500,000 families in Chicago saves $1\frac{1}{2}$ pounds of meat.

a. How many pounds of meat would be saved?

b. For how many days would the saving made by one meatless day in Chicago feed a regiment of 2000 soldiers?

c. At the same rate, what would the $1\frac{1}{2}$ million families in Illinois save? In your state?

d. For how many days would this saving feed a regiment of soldiers, containing 2000 men?

USE ALL MEAT BONES TO MAKE SOUP

79. Mrs. Smith has never used leftovers of meat. Now she decides to save all scraps for hash, croquettes, or other dishes. She finds that on the average she saves 18 ounces of meat a week, or 9 per cent of the total amount her family formerly ate during one week.

a. Find the amount they now eat during one week.

b. Through observing meatless day, they plan to save $2\frac{1}{2}$ pounds more weekly. How much meat does Mrs. Smith save altogether?

NONE PREACHES BETTER THAN THE ANT;
AND SHE SAYS NOTHING
Poor Richard's Almanac

80. John ate $\frac{1}{3}$ pound of meat every day. Since we must save meat to give our Allies what they need, he plans to eat $\frac{1}{8}$ pound less each day. What part of a pound will John then eat each day? How many pounds will he save in 360 days?

USE MEAT SUBSTITUTES

81. Mrs. Grant serves codfish balls once a week in place of 2 pounds of meat. She uses $\frac{1}{2}$ pound of salt codfish at 28 cents a pound, 1 egg at 60 cents a dozen, and .5 ounce of oleomargarine at 32 cents a pound. Formerly she had used 2 pounds of meat at 32 cents per pound. Does she save or lose in money, and how much? How many pounds of meat does she save in a year?

82. Beans are \$9 a bushel. It takes $\frac{1}{2}$ bushel to seed an acre. The average yield is 11 bushels per acre.

a. If the labor expense is \$25 per acre, what will be the profit on 10 acres with an average yield?

b. With care, a yield of 20 bushels per acre is possible. How much more profit from 10 acres of beans than with an average yield, if the labor cost is now \$40 per acre?

CULTIVATE A TASTE FOR SIMPLE FOODS

83. Many people are using fish, eggs, or vegetables in place of meat 2 days every week. How many pounds of meat could be saved by the pupils of your school in 6 weeks if each pupil

observed 2 meatless days a week and so saved .4 pound of meat twice each week? For how many days would the meat saved feed a soldier who eats 1.25 pounds of meat daily?

SAVE MEAT BY EATING FISH

84. The price of salted codfish is 35 per cent less than that of the fresh fish. How many pounds of salt fish will $10 buy, and how many pounds of fresh fish, if the fresh fish is 35 cents a pound?

Discussion. In addition to being cheaper, salt fish has much more food value per pound than fresh fish. Mackerel, for instance, contains about 22 per cent of protein when salted and 18 per cent when fresh. Why is this so?

Does your family ever use salt or smoked fish? If not, do you know why? On request, the United States Bureau of Fisheries (see bulletin No. 102, Appendix, page 88) will send you splendid collections of recipes and directions for using fish. Do you ever have "creamed salt fish in pepper cases," or 'salt fish omelet," or "mock caviar" at your home? Many people find these dishes delicious, and they are good foods.

EAT MORE FISH

85. In 1913 there were canned on the Pacific coast about 387 million pounds of salmon. The value of this "pack" was $38\frac{1}{2}$ million dollars.

a. How much money value for each pound of fish?

b. How many pounds of canned salmon alone does this allow to be consumed by each person in the United States?

c. Compare the price of a 16-ounce can of salmon with that of a pound of beefsteak. The food value is about the same. How do prices compare?

86. Mrs. Long decides to double her use of fish, in order to save the meat and to give variety to the meals she serves. She uses salt or smoked fish twice a week, and fresh fish twice a week. In all, she saves $1\frac{1}{2}$ pounds of meat weekly for each of the five members of her family.

a. How much does she save in all?

b. If the fish costs 7 cents a pound less than meat on the average, how much money does she save weekly?

Discussion. Why cannot our soldiers use fish in place of meat to a very great extent? What varieties of food fish do you know? Make a list. Take some one, such as salmon, and find in how many ways it may be prepared for the table.

AN EXPENSIVE FOOD IS OFTEN A POOR FOOD
AN INEXPENSIVE FOOD IS OFTEN A GOOD FOOD

87. Mrs. Stuyvesant is determined to have the best of everything. She pays an average of 35 cents a pound for the 14 pounds of meat that her family eats each week. Mrs. Gray gets as much food value in a more healthful form by buying

4 pounds meat, average 30 cents a pound
1 dozen eggs @ 75 cents a dozen
8 quarts milk @ 12 cents
2 pounds cottage cheese @ 15 cents
1 pound salt codfish @ 35 cents
1 pound cheese @ 35 cents
1 can salmon @ 30 cents

a. How much do Mrs. Gray and Mrs. Stuyvesant each spend?

b. How much less does Mrs. Gray's food cost her?

c. At this rate, how much less will food of this sort cost Mrs. Gray than it costs Mrs. Stuyvesant in a year?

88. Cottage cheese made from skim milk is recommended by the United States Department of Agriculture [1] as a substitute for meat. For supplying nourishment to the body, one pound of cottage cheese equals: [2]

1.27 pounds sirloin steak
1.09 pounds round steak
1.52 pounds chicken, duck, goose or turkey
1.46 pounds fresh ham
1.44 pounds smoked ham
1.58 pounds loin pork chop
1.31 pounds hind leg of lamb
1.37 pounds breast of veal

Find from your butcher the market cost per pound of each of the meats listed. Then fill out the following table, showing how much saving there is in using one pound of cottage cheese over using equivalent amounts of the meats listed.

Meat	Amount Equivalent to 1 Lb. Cottage Cheese	Cost 1 Lb. Cottage Cheese	Cost 1 Lb. Meat	Cost Equivalent Amount of Meat	Difference in Cost between Meat and Cottage Cheese
Sirloin Steak . . .	1.27 lbs.	18 cents	42 cents	53 cents	35 cents
Sirloin Steak . . .	1.27 lbs.				
Round Steak . . .	1.09 lbs.				
Fowl	1.52 lbs.				
Fresh Ham	1.46 lbs.				
Smoked Ham . . .	1.44 lbs.				
Loin Pork Chop . .	1.58 lbs.				
Leg of Lamb . . .	1.31 lbs.				
Breast of Veal . . .	1.37 lbs.				

[1] Bulletin No. 77. (See Appendix.)
[2] Bulletin No. 29. (See Appendix.)

LEARN TO ENJOY EVERY WHOLESOME FOOD
DON'T BE FINICKY

89. The average use of milk for each person in this country is about $\frac{1}{2}$ pint daily.

a. How many quarts, on an average, are used daily by all the people in your city or county?

b. If the amount used is doubled and half a pound of meat can be saved for each additional quart of milk used, how many pounds of meat can be saved in your city or county alone? Would this be a good plan? Why?

Discussion (***problems 88 and 89***). Why are these problems included under "meat" rather than milk? Does your mother ever make cottage cheese? How is it made?

CHAPTER V

PROBLEMS ON BUTTER AND OTHER FATS

90. The daily consumption of fats per person before the war was[1]

United States	3.42 ounces
England	3.11 ounces
Germany	2.3 ounces
Austria-Hungary	1.1 ounces
France	1.5 ounces
Italy	1.81 ounces
Russia	.91 ounce
Japan	.85 ounce

a. Taking 2 ounces daily as a standard, what per cent more or less is used in each of the countries listed?

b. How does our use of fat compare in percentage with that of France? With Japan?

Discussion. How do we use fat? Name the ways in which we use fats in a pure form and ways in which we use fat mixed with other elements. (See Tables VIII, X, pages 75, 76.)

Are there any foods which contain no fat?

91. If every person in the United States ate no more than 2 ounces of fats daily, instead of 3.42 ounces, how much would be saved by the 100 million people? Give your answer in tons per day. Per year.

[1] Bulletin No. 70. (See Appendix, p. 87.)

FATS ARE FUEL FOR FIGHTERS

92. If each of our 20 million families wastes $\frac{1}{4}$ ounce of butter daily, find how many pounds are wasted each day. How many tons each year?

Discussion. At local prices, how much money would be wasted? How is butter wasted in the home? Make a list of the ways. How may this waste be avoided?

93. If it takes the cream from $2\frac{1}{3}$ gallons of milk to make 1 pound of butter, how many gallons of milk will it take to provide for a yearly waste as determined in problem 89?

94. If a cow gives 570 gallons of milk a year, how many cows will it take to produce 262,200,000 gallons of milk?

95. A pound of butter is divided into 64 pats. If a family scrapes enough butter to equal a pat into the garbage can each day, what part of a pound will be lost in a month? How many pounds in a year?

96. If each of the 75,000 families in New Orleans wastes $\frac{1}{3}$ of a pat a day, how many pounds will be wasted in a day? In a month? In a year?

Discussion (***problems 95 and 96***). How many pounds of butter does your family use each week? Is this more or less than formerly? Why?

DO YOU EAT MORE BUTTER THAN IS ALLOWED A SOLDIER?

97. A soldier is given one half ounce of butter a day. How many men can be supplied for one day with the butter wasted by 6000 families in that time if the waste per family is one pat, or $\frac{1}{4}$ ounce, each day?

98. *a.* A pound of butter costs about 48 cents. If a family of five uses $\frac{1}{4}$ pound daily, what is the cost daily? Monthly? Yearly? How much butter is used in a year?

b. If this family goes on army rations ($\frac{1}{2}$ ounce daily for each person) how much butter will be saved during a year? How much money?

99. Each one of a family of 8 wasted $\frac{1}{2}$ ounce of fat daily by leaving fat meat on their plates. If this fat were saved, how many pounds of fat for soap could be collected in 1 month? In 1 year?

Discussion. What kinds of meat furnish the most fat? Do you know of any uses for fats besides the use for food? List all you can think of.

100. Suppose each one of the 38,000 families in Toledo were able to save 2 ounces of fat for soap daily. How much fat would they all save in a year? Answer in ounces; in pounds; in tons.

Discussion. How many 8-ounce bars of soap could be made from the waste of fats in the city where you live? How many different kinds of laundry soap can you name? What kind do you use? How many bars weekly? Where is it made? Why should you take the wrappers off and put the soap in a dry place? Explain how the use of borax and ammonia for laundry purposes would lessen the amount of soap used.

BOIL, BROIL, AND BAKE MORE; FRY LESS

101. In July, 1917, fats for cooking were worth $4.50 a pound in Germany. If each family represented in your classroom wastes 1 ounce of fat daily, how much money is wasted according to German prices?

102. By using boiled, broiled, and baked food but no fried food, a family saved 6 ounces of lard per week. If lard was

worth 28 cents a pound, how many dollars did this family save in lard in a year by not frying meats?

DON'T BE FINICKY

103. Mr. Layton will eat no food that is prepared with anything but butter. The result is that the Layton family uses 6 ounces of butter a day, where they need only $3\frac{1}{2}$ ounces. A soldier's ration of butter is .5 ounce a day. For how many days could a soldier be supplied with butter from the amount used needlessly in the Layton home in one week?

Discussion. How must fathers and children coöperate with mothers in promoting food saving? If every father were like Mr. Layton and refused to eat fats other than butter, or demanded white bread, meat every day, and so forth, how far would food conservation get? Are you finicky about eating war foods, vegetables, and other foods that we must eat to make it possible for us to send our Allies the foods they must have?

Is a father like Mr. Layton loyal and patriotic? Are you, if you refuse to eat war food or vegetables?

104. Suppose each of the 260,000 people in Denver decided to eat one butterless slice of bread every day. If each slice of bread takes .25 ounce of butter, how many pounds of butter could be saved in 1 day?

105. Lard is 100 per cent fat. Butter is 85 per cent fat. How much more fat is contained in 30 pounds of lard than in 30 pounds of butter?

Discussion. Compare Table VIII, page 75, and see what foods contain the most fat. Name some other foods which contain much fat.

106. Through using meat fats in cooking, Mrs. Adams is able to cut her butter ration from $2\frac{1}{2}$ to $1\frac{1}{2}$ pounds weekly. She also

saves $\frac{1}{2}$ pound of lard each week. What does she save each week, at present prices for lard and butter?

107. Hotels have learned that there is the least waste in serving $\frac{1}{3}$ ounce pieces of butter. How many pieces to the pound if cut in $\frac{1}{3}$ ounce, $\frac{1}{4}$ ounce, $\frac{1}{6}$ ounce, $\frac{1}{5}$ ounce pieces?

108. Garbage contains about 40 pounds of fats to the ton. In Germany, fats for cooking now sell at $4.50 per pound. At this rate, what is the value of the fats in one ton of garbage if not wasted?

Discussion. Why are fats so high in Germany? How do we know that garbage contains so much fat? Is garbage worth anything? Is anything ever made from it, or from parts of it?

USE FATS FROM SCRAPS

109. Mrs. Brown throws away fat amounting to 1 ounce per pound of an 8-pound boiling piece. How much fat does she waste? If the meat costs 22 cents a pound, what is the money waste?

110. Lard is 29 cents a pound. If the 92,000 families living in Los Angeles each wastes one ounce of meat fat daily and uses lard in its place for cooking, find the money value of the lard which might have been saved by using meat fat instead.

SAVE ALL MEAT FATS

111. Mrs. White insists on getting all "trimmings" with the meat she buys, instead of letting the butcher cut them off. With the bones she makes soup. She fries out the fats and once a year she makes soap. In a year she can collect fat enough to make 150 8-ounce bars of soap, at a cost of $1.10

for lye, borax, etc., used in soap making. The soap she makes lasts her all year for use in kitchen and laundry. What is her net saving over purchasing an equal number of 8-ounce bars of laundry soap at 6 cents per bar?

112. Oleomargarine is not a complete substitute for butter, since it does not contain the " vitamines " or substances necessary for life, which are to be found in butter. For cooking, however, margarine is as good as butter and far less expensive. Mrs. Smith pays an average price of 45 cents a pound for butter, and buys during the year 78 pounds. She decides to use margarine in place of $\frac{1}{3}$ the butter formerly purchased. In one year, how much butter will she save? How much money at 33 cents a pound for margarine?

Discussion. Bulletins Nos. 17, 19, 70, and 98 (see Appendix, page 85) give much material on butter and the vitamines it contains.

Why do we color butter substitutes? Compare price of substitutes with price of butter. How many thrift stamps could you buy with the money thus saved if butter substitutes were used in your home in place of half the butter now used?

Would you be willing to eat one *butterless* piece of bread daily? Can you think of anything to put on your bread which you would prefer to butter?

113. Mrs. Lee makes a " butter allowance " for her family of $\frac{1}{2}$ ounce daily for each member. There are four members in her family.

a. How many ounces will be allowed per week? How long will one pound of butter last the Lee family?

b. Before going on a butter allowance basis, the Lee family used 2 ounces butter daily for each member. How much butter per day? How many pounds a week?

c. Figure the butter saving each day, each week, and each year in the Lee household, when using $\frac{1}{2}$ ounce daily per person instead of 4 ounces.

d. After the " butter ration " is used up, the Lee family must use margarine. They use in this way 50 pounds yearly. Is the Lee family cutting down its use of table fats, and if so, how much?

114. Mrs. Stone has been using butter for cakes and decides to use oleomargarine instead of half the butter formerly used. If butter costs twice as much as oleomargarine what per cent or what part of the fat cost in cake-making does she save?

115. Marjorie's mother decides to use butter substitutes in all cooking. She now uses lard for pies, oleomargarine for cakes, and makes suet pudding once a week. She finds that in place of 2 pounds of butter each week she now uses 1 pound of oleomargarine, $\frac{1}{2}$ pound of lard, and $\frac{1}{2}$ pound of suet. Find out how much she saved, at local prices.

CHAPTER VI

MILK PROBLEMS

116. Each person in this country uses on the average about $\frac{1}{2}$ pint of milk daily, and the United States Department of Agriculture suggests that we increase the use of milk, as it is both economical and nourishing.

a. What is the present use of milk for all of the 100 million people, in quarts? In gallons?

b. What would be the number of gallons of milk used if the use per person should increase $\frac{1}{4}$ pint each?

Discussion. Do you like milk to drink by itself, or as a part of soups, custards, puddings, etc.? Make a list of all the ways in which milk can be used in the home. Do you think that the average use of milk is low? Can you tell any reasons why it is so small?

How much milk is used in your home every day? How much for each member of your family? Is your use more or less than the average?

What things which you buy are made out of milk or cream?

Why is milk an economical food? What is meant by an economical food? Is it cheap food? Give examples of cheap foods which are not economical.

In what forms is milk shipped to Europe? Why cannot whole milk be shipped?

117. The food value of 1 quart of milk is about the same as that of 9 ounces of round steak or 8 eggs. Look up prices and

see which is the most economical food, and what per cent more expensive than milk the other two are.

BUY MILK, NOT CREAM

118. A quart of milk costs the same as half a pint of cream.

	1 Quart Milk Contains	½ Pint Cream Contains	1 Quart Skim Milk Contains
Protein (muscle-building material)	$1\frac{1}{8}$ oz.	$\frac{1}{5}$ oz.	$1\frac{1}{5}$ oz.
Sugar	$1\frac{2}{3}$ oz.	$\frac{1}{3}$ oz.	$1\frac{1}{4}$ oz.
Minerals	$\frac{1}{4}$ oz.	$\frac{1}{20}$ oz.	$\frac{1}{4}$ oz.
Fat	$1\frac{1}{3}$ oz.	$1\frac{1}{2}$ oz.	$\frac{1}{10}$ oz.
Water	$29\frac{3}{4}$ oz.	?	?
Total Weight	?	?	?

a. How does a quart of whole milk compare with $\frac{1}{2}$ pint cream at the same price as to muscle-building material, sugar, minerals, and fats?

b. How does a quart of skim milk compare with the same amount of whole milk?

Discussion. What per cent of milk is protein, sugar, minerals, etc.? Get the per cent of these for cream and skim milk. Make graphs to show the composition of these foods, coloring the different elements. Make a graph in the shape of a straight cup and show what parts of the cup will be water, protein, sugar, etc.

119. In energy value one quart of milk equals

3 pounds fresh fish
8 eggs
3 pints oysters
$\frac{1}{3}$ pound full cream cheese
$\frac{7}{10}$ pound round steak
1 pound chicken

At local prices, how much cheaper is it to use milk than each of these?

Discussion. Which of the above milk equivalents can be shipped to our Allies?

If Americans follow the advice of the Department of Agriculture and use more milk, how could the increased demand be met?

Give the reasons for the decrease of the supply of milk in Europe. What substitutes must we send to take the place of that milk?

USE ALL THE MILK

120. If each of our 20 million homes should waste $\frac{1}{8}$ cup of milk daily, how many quarts would be wasted every day? Every year? (4 cups = 1 quart.)

THE GOVERNMENT URGES THAT WE USE MORE MILK
BECAUSE
MILK IS A MOST NOURISHING FOOD
IT IS CHEAP FOR THE NUTRIMENT IT GIVES

121. A cow gives on the average 2280 quarts of milk yearly. How many cows would it take to supply a yearly waste of 57 million gallons?

122. If one person can care for 8 cows, how many people will it take to care for the number of cows found by solving problem 113?

123. A survey made by the Connecticut Agricultural College found that in 1916–1917 it cost 5.53 cents per quart to produce milk. (This cost does not include the cost of distribution.)

a. What would be the cost to produce a daily waste of 600 thousand quarts?

b. At the same rate, what would be the value of the milk wasted in a year?

HOW WE CAN USE SOUR MILK

124. Mrs. White wastes a cup of sour milk each week by throwing it away. Milk costs 12 cents a quart in the city where she lives.

a. How much money is wasted yearly in the White home by throwing away milk?

b. Compute the waste if this happened in each home in your city, your state, or the nation.

c. What would be the total value of the milk wasted in the United States at 10 cents a quart? At 8 cents a quart? At 6 cents a quart?

Discussion. Ask your mother to tell you five ways of using sour milk. If she did not have sour milk when preparing these foods, what would she be obliged to use instead? Which is cheaper?

Do you like buttermilk? It has a high food value and is well recommended. What is the cost of a quart of it at your local dairy? For what purposes does your mother use buttermilk? Give as many other uses as you can.

What is the difference between evaporated milk and condensed milk? Could you find out the process of preparing either? Do you know in which form it is being shipped to our soldiers abroad and our Allies? You might be interested to find out how many pounds of milk are used to produce a pound of condensed milk ready for shipment. What is the advantage commercially? What use do the soldiers make of the tin cans?

125. The maid in clearing the table pours out milk left in glasses which amounts to about $\frac{1}{2}$ cup daily. At 12 cents a quart, how much money is wasted during one month by serving more milk than is needed? (2 cups make 1 pint.)

CHAPTER VII

SUGAR PROBLEMS

126. Each person in the United States consumes on the average 90 pounds of sugar each year.[1] He needs only $\frac{4}{5}$ pound a week.

a. How much is consumed each year that is not needed? How much could be saved if the average use of sugar by each of the 100 million persons in this country were reduced to what is needed?

b. Our Allies need 2,700,000 tons of sugar. What per cent of this could be secured through the above saving?

Discussion. Why must soldiers have sugar?

What has caused a shortage of sugar in Europe since the war began?

Is there a sugar shortage in this country? What is the cause?

From what is sugar made? What countries lead in the production of sugar? How much is produced in the United States? What part of the total sugar production in the world?

Who can make the longest list of food ready for the table which contains sugar? Take this list and find in how many cases substitutes for the sugar could be used, or the amount of sugar used reduced.

No doubt your mother is trying to save sugar by using substitutes and in some cases, reducing the amount of sugar used. At first you may not like the food so prepared. How is this an opportunity for you to do your bit?

[1] Bulletin No. 70. (See Appendix, page 87).

WASTE NOT — WANT NOT

127. Suppose each of the 20 million homes in the United States wastes 1 ounce of sugar per month. How many pounds are wasted per year? At 9 cents a pound, what is the money value of this waste?

Discussion. Have you weighed an ounce of sugar to see how much it is? Suppose that you save a teaspoonful of sugar at each meal for a month, how many cupfuls have you saved? How many pounds? (See Table II, page 73.) If your family did the same how many pounds would be saved?

Do you ever find when you have finished drinking your cocoa that there is sugar left in the bottom of the cup? About how much sugar have you wasted?

Perhaps you would be interested in Stephen's experiments. He found he had been putting too much sugar into his cocoa. He decided to stop that waste. Each day he used a smaller portion of sugar. By doing this he soon learned to enjoy his cocoa with only half the former amount of sugar in it. Should you like to try this plan?

SACRIFICE UNNECESSARY SWEETS

128. The average use of sugar per person in the United States is about 90 pounds yearly. How many ounces per person per day? How many tablespoonfuls per day?

WE CANNOT PRESERVE FREEDOM UNLESS
WE CONSERVE FOOD

129. Soldiers are allowed 3.2 ounces of sugar daily.[1] If each person on the average uses 4 ounces daily, how much more does he use than a soldier gets? What per cent more?

[1] Correspondence, Quartermaster General, Washington, D.C.

130. If every person in the United States ate on the average 3.2 ounces of sugar per day, instead of 4 ounces, how many pounds of sugar would be saved daily by the 100 million persons in this country? How many tons?

FOOD IS AMMUNITION
DON'T WASTE IT

131. Mrs. Green had been told to use equal amounts of sugar and fruit in making jelly. She makes grape jelly, using a pint of sugar to a pint of juice. The jelly is too syrupy to stand alone, and is sweeter than necessary. Later she finds that $\frac{3}{4}$ of a pint of sugar to a pint of juice should have been used.

a. How much sugar did she need for 12 pints of juice?

b. How many pints did she use unnecessarily? How many pounds? (1 pint = $\frac{2}{3}$ pound.)

c. How much money if sugar is 9 cents per pound?

CLEAR CONSCIENCE
CLEAN PLATE

132. Mrs. Baldwin buys jam at 30 cents a jar. John and Alice are apt to take more jam that they need and leave it on their plates, so that about 15 per cent of the jam is wasted. If in a year Mrs. Baldwin uses up 20 jars, how much is wasted? What did it cost?

133. The soldiers at Fort Sheridan are allowed 3.2 ounces of sugar daily. Walter each day eats four ounces of sugar in his cereal, candy, cocoa, cakes, etc. If Walter uses only a soldier's ration daily, how much will he save in a year, if sugar is 9 cents a pound?

WHEN THE WELL'S DRY WE KNOW THE WORTH OF WATER
Poor Richard's Almanac

134. In England, no cake must contain more than 15 per cent sugar. Find out what per cent of sugar the following recipe calls for.

$\frac{1}{2}$ cup fat	2 cups = 1 lb.
1 cup milk	(allow 2 ounces)
$2\frac{1}{2}$ cups sugar	2 cups sugar = 1 lb.
3 cups flour	4 cups flour = 1 lb.
3 eggs	9 eggs = 1 lb.

$\frac{2}{3}$ ounce of other materials

135. A cafeteria decides to save sugar by not placing sugar bowls on tables but requiring guests to go to a sugar counter. The result is that $\frac{3}{4}$ the amount formerly used on tables is saved. If this use of sugar was 16 pounds daily, how much is now saved each day? How much each year of 360 days?

Discussion. Why does this method save sugar? Is it saving of sugar to eat in restaurants? Why, or why not?

136. There are about 80 lumps in a pound of lump sugar, which sells at 14 cents a pound.

a. How long will a pound last in the Brown family if Mr. and Mrs. Brown each drink 3 cups of coffee daily, using 3 lumps to a cup?

b. How long would a pound last if Mr. and Mrs. Brown each used 1 lump per cup?

c. Calculate the amount of sugar consumed yearly in the Brown home if Mr. and Mrs. Brown each use 3 lumps in 3 cups of coffee daily. If they each use 1 lump. How much sugar would be saved in a year if each use 1 lump per cup of coffee?

Discussion. Perhaps you know that in buying lump sugar you can get large or small lumps, about 40 lumps of the former, 80 of the latter in a pound. With which kind can you practice greater economy? Why?

137. If every one of the 750,000 persons in Boston saved 1 lump of sugar each day, how many tons of sugar could be saved in a year? How many tons if each of the 100 million persons in the United States saved 1 lump daily? (There are 80 lumps to the pound.)

138. *a.* Margaret wastes two lumps of sugar daily by eating more than she needs. If a lump weighs $\frac{1}{5}$ ounce, how much does she waste in a year?

b. A soldier's ration is $3\frac{1}{5}$ ounces of sugar a day. For how long would what Margaret wastes in 1 year supply 1 soldier?

139. *a.* Alice has a cup of cocoa for breakfast and supper, and uses 3 lumps of sugar in each cup. If in addition she eats sugar amounting to 2.8 ounces daily, how much sugar does she use per day? Per week? (5 lumps = 1 ounce.)

b. If she needs 1.25 of a pound weekly, how much more does she use than she needs?

140. Mary has been using 2 level tablespoonfuls, or 1 ounce of sugar on her oatmeal every morning. Her mother decides to cook the oatmeal with dates, figs, or prunes, so as to need no sugar. How many pounds of sugar will Mary save in a month? In a year?

141. Mary spends her pennies on candy which she doesn't need. She buys caramels, chocolates, and hard candy from the pushcart man, and from all the candy she gets 4 ounces of sugar each week.

a. If the sugar she gets from candy is not needed, how many more pounds of sugar than she needs is she getting each year?

b. If all the children in your classroom used as much, what would be the waste of sugar each year?

c. If all the children in your school wasted as much, what would be the waste?

d. What would be wasted if 800,000 school children in New York used as much sugar needlessly? How many tons?

e. How many tons if all the 23 million school children in the United States wasted like amounts?

Discussion. For a well-balanced diet a proportion of sugar is necessary. Candy is a pleasant way to get that sugar. Can any one find out what physicians have decided is a reasonable amount for children? Are you eating more or less than that amount?

Which kinds of candy are the most healthful? Why ought younger children to be directed in the selection of candy? Why have we been asked to eat less candy during this war?

EAT LESS CANDY

142. Alice and Mabel usually use 2 pounds of sugar in making Christmas candies. They plan this year to make corn syrup taffy and Parisian sweets, and so will use only $\frac{1}{4}$ pound of sugar. How many pounds will they save? If half of the 450,000 school children in Wisconsin should have a " sugarless Christmas " and save as much, how much sugar would be saved for the Allies?

SUGARLESS CANDY IS WAR CANDY

143. There is $\frac{3}{4}$ of an ounce of sugar in one glass of lemonade or soda water. Suppose each child in this school should drink an average of one glass of lemonade or soda water a day during the summer. How many pounds of sugar would they all together use in sweet drinks during the months of June, July, and August?

Discussion. Can you think of any good substitutes for lemonade and soda water? Which are the least expensive and most healthful?

144. Every time she makes fudge, Alice uses 2 cups or 1 pound of sugar. She makes fudge every other week.

a. How much sugar does she use each year in this way?

b. She decides to stop making fudge, and make candies needing only $\frac{1}{4}$ cup of sugar. How much sugar will she save in a year?

145. Clara makes sugarless candy, using dates, nuts, cocoanut, syrups, popcorn, and honey, but no sugar. She finds that she can thus save 2 pounds of sugar each week. If all the children in your school save as much, how much sugar will be saved?

EAT WAR CANDY

146. Find out how much candy you eat during one week and allow $\frac{3}{4}$ of its weight to be sugar. If every one of the 23 million school children in the United States eats as much, how much sugar is used by them each week for candy alone? If they save half of this, how many pounds will be saved? How many tons?

Discussion. Following are a few tested recipes for sugarless candy. Won't you try at least one of these? Will you furnish another recipe for sugarless candy? Will you put all of these together and make a sugarless candy recipe book? Will you use your influence to get people to substitute sugarless candy for the kind they have been eating?

The last five of these recipes are published by the United States Food Administration.

Peanut Brittle.

One cup sorghum or corn syrup, cook until it forms hard ball in water and add one half cup peanuts (or puffed rice or puffed wheat).

Pop Corn Balls.

One half cup corn syrup, one tablespoon oleo or butter, one eighth tablespoon salt. Cook corn syrup until it forms a firm ball; add oleo and salt; then pour over two cups of popcorn (or puffed rice or puffed wheat).

Chocolate Dainties.

Put through the meat chopper one half cup each of dates, figs, and nut meats. Add one tablespoon orange juice, a little grated orange peel, and one square of melted unsweetened chocolate. Mold into balls and roll in chopped nuts or granulated sugar. This mixture may be packed in an oiled tin, put under a weight until firm, then cut in any shape desired.

Old Fashioned Molasses Candy.

2 cupfuls (1 pint) molasses
1 tablespoonful vinegar
2 tablespoonfuls (1 ounce) butter substitute
½ level teaspoonful baking powder
1 teaspoonful vanilla or ginger extract

Put molasses, vinegar, and butter into a sauce-pan. Bring to a boiling point, and boil, stirring all the time until the mixture is brittle when dropped into cold water. Stir in baking powder and extract and pour into a buttered tin. When nearly cold pull until glossy. Cut into small pieces and lay on a buttered plate or wrap in waxed paper. Sufficient for one pound of candy.

Pop Corn Candy.

1 cup syrup
1 tablespoonful vinegar
2 or 3 quarts of popped corn

Boil together the syrup and vinegar until syrup hardens when dropped in cold water. Pour over freshly popped corn and mold into balls or fancy shapes. Little popcorn men will please the children. Mark the features and outlines with melted chocolate. Use honey, maple syrup, molasses or white cane or corn syrup.

CHAPTER VIII

MISCELLANEOUS PROBLEMS

147. There are 20 million families in the United States. Calculate the money loss per week if each family wastes

a. an ounce of butter weekly (butter 56 cents a pound.)

b. Half a cup of milk weekly (milk 12 cents a quart of 4 cups.)

c. $1\frac{1}{2}$ slices of bread weekly (bread 10 cents a loaf of 12 slices.)

d. 1 ounce of meat each day (average 28 cents a pound.)

148. *a.* The average American family eats in the following proportion:

	Per Cent
Meat	16
Fish	2
Eggs	2
Milk, butter, etc.	18
Fruits and vegetables	25
Cereals	31
Sugar, etc.	6
	100

Allowing 1 square to 2 per cent, draw on construction paper bars to represent the percentage of foods of various sorts which are eaten:

b. The soldier eats in the following proportion:

	Per Cent
Meat	28
Fish	2
Eggs	0
Milk, butter, etc.	2
Fruits and vegetables	34
Cereals	26
Sugar, etc.	8
	100

Draw bars representing these proportions, and notice the difference between these bars and those in (*a*).

149. Charlotte wishes to help her mother economize heat in cooking and so she makes a fireless cooker. She needs a large box with a heavy top, and this she buys from the grocer for 10 cents. She buys hinges for the cover for 10 cents. For filling she uses old newspapers which she has saved. Enough asbestos to line the "nest" for the kettle costs her 22 cents. She also needs strong cardboard to line the container, which she gets from a box in which goods were delivered to her home. She needs material for a denim cushion to go over the kettle, and for this she buys 2 yards of denim at 18 cents a yard. Her mother already has a large kettle for the fireless cooker, and Charlotte buys some smaller ones for 60 cents. How much does the fireless cooker cost in all?

Discussion. Tell what you know of the fireless cooker — its advantages and disadvantages, if any.

See Bulletin 77, No. 4 (page 87) for full directions for making a fireless cooker.

150. Charlotte's mother finds that through the use of the fireless cooker she reduces her gas bills as follows:

1916 Gas Bills (without fireless cooker)		1917 Gas Bills (with fireless cooker)
$2.43	August	$1.65
2.12	September	2.04
2.97	October	2.12
2.95	November	1.98
3.08	December	2.24

How much does she save on gas in the five months listed? Draw curves on construction paper to show how much she spends each month, showing the curve for 1916 just above the one for 1917 (see page xvii).

MAKE SAVING FASHIONABLE

151. Mrs. Fuller made a fireless cooker according to instructions of the United States Department of Agriculture. It cost her 75 cents. She found that her bills for gas used in cooking averaged 40 cents less each month than before. What was the net saving in a year?

COÖPERATION IS ONE OF THE MARKS OF CIVILIZATION

152. In a town there are 6 groceries. Each has maintained a delivery wagon, horse, and boy, at an average cost of $50 per month apiece. The merchants decide to maintain a joint delivery service for all the stores. They find they will need 2 horses, 2 wagons, and 2 boys. The total cost will be $90 per month, How much will they each save each month on deliveries?

Discussion. What do you think of the Cash and Carry System? Discuss fully: *a.* What would be the effect of closing all stores three days a week? *b.* Would it benefit housewives in leading to wiser purchases? *c.* Would it reduce the cost of deliveries? Why?

LET US JOIN THE CASH-CARRY CLUB

153. Mary makes a cake costing 35 cents for materials, and leaves $\frac{1}{7}$ of the batter in the mixing bowl instead of scraping the dish clean. If she does this once a week, how much money value does she waste in a year?

Discussion. What is your best and cheapest cake recipe? Would you use frosting? If so, what kind of frosting would you use? Calculate the cost for material of a cake you have made or eaten recently.

154. Mrs. Brown decides to preserve eggs to use during the winter months when eggs are high. She buys 50 dozen at 35 cents and pays 45 cents for preserving materials. What is her net saving if the average cost of storage eggs that winter is 50 cents?

Discussion. What is the best way to preserve eggs? How many eggs a week does your family use? What do they cost? Should we be saving in our use of eggs? Are they included in a soldier's rations? Why?

PRACTICE THE GOSPEL OF THE CLEAN PLATE

155. Twice a week Mrs. Gray has a "poor man's dinner" in which she uses up all the leftovers. One week she uses the following to make a dish of scalloped corn.

Article	Price	Quantity Saved	Amount Saved
Butter	48 cents a pound	2 ounces	. . . . .
Stale bread	10 cents a loaf	$\frac{1}{2}$ loaf	. . . . .
Dried cheese . . .	38 cents a pound	$\frac{1}{4}$ pound	. . . . .

Find out how much money was saved by using these materials.

Discussion. Bring in "leftover" recipes (with cost of articles used) that you have tried and would recommend. On what days of the week would it seem most reasonable to expect a "leftover" dinner?

156. To see what a little saving means, Mrs. Gray figures what the saving would be if every one of the $1\frac{1}{2}$ million homes in Illinois saved 15 cents a week. What does she find would be saved each week? Each year?

Discussion. What part of your allowance or of the money you earn ought you to save? How much can you save in a year? Give examples of wise as well as patriotic investments of savings. Have you saved anything during the past week? How many Thrift Stamps have you bought?

NO SAVING IS LITTLE

157. Mrs. Brown used a 15 cent can of tomato soup for two people. One half of the soup was unused and placed on the pantry shelf and covered in such a way as to be forgotten for three days. At the end of this time the soup had grown moldy and had to be thrown away. What was the per cent waste? What was the money waste?

158. At Mary's home the cheese was allowed to grow dry and hard and was thrown away as useless. About $\frac{1}{4}$ pound a week was thus wasted. The mother of Mary's playmate used up all the dry cheese by grating it and using it in scalloped dishes. How many pounds of cheese did the mother of Mary's playmate save in a year by not being wasteful? How much money was gained by careful methods? (Price of cheese, 38 cents a pound.)

USE LOCAL PRODUCE

159. In his war garden, Peter raised tomatoes. His mother gave him 2 cents each for all she used during the summer and he canned the rest for winter use. His expenses were

Plants	$ .20
Fertilizer, insect powder, etc.	.10
Cans	1.00
Total	$

Peter sold 75 tomatoes to his mother and canned 20 quart cans, which he sold at 18 cents each. What was his net profit?

Discussion. Do you like to watch things grow? Did you ever have a garden? How would a well-kept garden help to reduce the family grocery bill? How would it help in the big campaign of food conservation? How can the surplus vegetables, fruits, etc. be preserved for later use? Describe the "Cold Pack" method of canning (see Bibliography). Tell how vegetables and other food stuffs may be dried? Describe the various "dehydrators" that are used for this purpose.

160. *a.* Mr. Brown works hard all summer on a home garden and raises 10 bushels of potatoes (60 pounds in a bushel) and of carrots, besides other garden truck. He stores the potatoes and carrots in the basement. But during the winter the heat of the furnace dries and wilts the food supply so that $\frac{1}{5}$ of the total is lost. How many pounds of each commodity was lost?

b. If, in putting the vegetables in the basement, Mr. Brown had packed them in cool dry sand, $\frac{1}{20}$ of the material would have been lost. How much material could have been saved by proper packing and storage?

AMONG OUR WORST ENEMIES ARE RATS, MICE, INSECTS, MOLD, ROT
HOW SHALL WE OVERCOME THEM?

161. Mrs. Jones bought a 15-pound sack of cornmeal and used 7 pounds. Because she did not protect what was left of it, insects got into it and she was obliged to throw all the rest away. If she paid 95 cents for the sack, how much money did she waste?

162. Mrs. Gray bought 3 pounds of cheese at 38 cents a pound. Because she left it uncovered in a warm unventilated

cupboard, $\frac{3}{7}$ of it was lost by molding. How much money waste was there?

163. Mrs. Brown bought 9 bushels of potatoes in the fall for winter use, paying $2.25 per bushel. One potato out of every ten rotted and an additional 5 per cent were spoiled by rats. What money loss is there?

164. If rats, mice, ants, and insects cause a loss amounting to 1 cent daily for every one of the 20 million families in the United States, what is the total loss weekly? Yearly?

Discussion (*problems 161, 162, 163, 164*). Study ways and means of overcoming the enemies mentioned, each one separately. Emphasize the element of cleanliness.

DO WE WASTE BY CARELESS COOKING?

165. The cook in the Tyler household uses $\frac{3}{4}$ cup of cereal which costs 22 cents a quart package for breakfast food daily. On an average of once a week she lets the cereal burn so that half of it has to be thrown out. How much money waste in a year? (There are four cups to the quart.)

Discussion. Name as many cereals as you can. Which do you like best? Can you prepare it? What would be the advantage of a double boiler? Have you tried a fireless cooker for preparing cereals like oatmeal which requires long cooking?

FOOD IS WASTED IF INEDIBLE BECAUSE
IT IS BURNED
IT IS POORLY FLAVORED
IT IS SOGGY IT IS TOUGH

166. In the Smith home, the water used for boiling meats and vegetables is thrown away, instead of being used for soup,

gravies, etc. Mrs. Smith buys during the year 7 cans of consomme at 12 cents each, 6 cans of soup stock at 2 for a quarter, and a dozen cans of vegetable soups at $1.25 a dozen. She would not need any of this if she used the water she throws away. How much does she waste in a year by throwing away materials which she might use?

Discussion. What does the water used for boiling meats and vegetables contain that is valuable in the preparation of soup? Of what particular value is the water that potatoes have been boiled in?

LET US EAT WHAT WE CAN, AND CAN THE REST

167. Mrs. Jones's war garden produced in a season 150 tomatoes worth about 2 cents each. Mrs. Jones used $\frac{2}{5}$ of them, and gave away $\frac{3}{10}$ of them. The remainder, instead of being canned, were left to rot on the vines. How much money waste was there?

Discussion. The canning of vegetables in the home is a comparatively new industry. Discuss the possibility of raising enough vegetables in a war garden to provide for winter use.

168. Walter raised a pig that he bought from his father for $5.50. The pig's feed cost Walter $15.25. When the pig weighed 250 pounds, Walter sold it at 18 cents a pound. How many dollars did Walter clear?

SERVE NO MORE THAN IS NEEDED

169. When company comes, the Miller family serves potatoes and three other vegetables in addition to meat, extra sweets, and relishes. Ten per cent of the food prepared is wasted by being

left on plates, and $\frac{1}{3}$ of what is eaten is wasted because it is not needed for nutriment. If a dinner served by Mr. and Mrs. Miller for themselves and 6 guests costs $5.60, calculate the cost per person, the waste per person, and the total waste.

WASTEFUL COOKS ARE POOR PATRIOTS

170. A wasteful cook makes a cake containing 4 eggs (54 cents a dozen); 1 cup butter (48 cents per pound of 2 cups); 1 cup milk (12 cents a quart); $2\frac{1}{2}$ cups sugar (10 cents per pound of 2 cups); and 4 cents' worth of other materials. The cake is burned and she throws it all out. How much money is she wasting?

Discussion. Can you submit a war cake recipe and figure out approximately how much it would cost? Compare it with the cost of the cake recipe in problem 170.

MEAT IS SWEETEST NEAREST THE BONE
THE BEST OF THE POTATO IS NEAREST THE SKIN

171. In paring potatoes, Mrs. Wood cuts thick peelings, so that 20 per cent of the edible portion is wasted. Potatoes are 40 cents a peck, and the Wood family eats a peck every 6 days. How much does Mrs. Wood waste in a year through her method of paring potatoes? Suppose this happens in each of the families in your state. What is the loss per year?

BOIL POTATOES WITH THEIR JACKETS ON

172. Careless paring of potatoes wastes on an average 20 per cent of the edible portion. If your cook, in preparing the

potatoes for boiling, wastes as much good material as the above average, what will be the loss in pounds on a bushel of potatoes used? (There are 60 lbs. of potatoes to the bushel.) How much value in money will be saved if these potatoes are boiled in their jackets? (Find the price of potatoes from your grocer.)

Discussion (***problems 171, 172***). Why is it a good thing to eat the skins of baked potatoes, and to cook potatoes with the skins on for creaming, frying, escalloping, etc.?

PREPARE FOOD SO AS TO SAVE ALL EDIBLE PORTIONS

173. Mrs. Smith buys $1\frac{1}{2}$ pecks of spinach a week at 18 cents a peck, instead of using the greens from beets and other vegetables which she buys. What would she save during the 12 summer weeks if she bought no spinach but used the vegetable greens which she now throws away?

APPENDIX

USEFUL INFORMATION RELATING TO FOOD CONSERVATION

I. PERCENTAGE OF WHEAT USED IN MAKING FLOUR[1]

White flour	72 per cent
Whole wheat flour	85 per cent
Graham flour	95 per cent
Home ground flour	100 per cent

II. TABLE OF EQUIVALENTS

3 teaspoons	= 1 tablespoon
16 level tablespoons	= 1 cup
2 cups	= 1 pint
4 cups	= 1 quart
4 cups flour	= 1 pound
2 cups butter	= 1 pound
2 cups sugar	= 1 pound
60 pounds potatoes	= 1 bushel
196 pounds flour	= 1 barrel
$4\frac{1}{2}$ bushels wheat make 1 barrel of white flour	
1 quart milk	= about 2 pounds

III. USE OF SOME FOODS PER PERSON PER YEAR IN THE UNITED STATES[2]

Wheat (Seed)	.7 bushel
Wheat (Food)	5.3 bushels
Total	6.0 bushels

[1] Bulletin No. 2. (See Appendix, page 85.)

[2] Correspondence U. S. Bureau of Agriculture, also bulletins Nos. 31, 70, 74, 98.

Meat (Beef)	82.7 pounds	
Meat (Mutton)	7.0 pounds	
Meat (Pork)	103.5 pounds	
Meat (Other)	0.3 pound	
Total	193.5 pounds	
Sugar	90.0 pounds	
Potatoes	2.6 bushels	
Fats	77.0 pounds	
Fish	21.2 pounds	(1908)
Milk (daily)	.5 pint	

IV. POPULATIONS (IN ROUND NUMBERS)

United States — Total	100,000,000
Number of families in United States	20,000,000
Number of school children in the United States	23,000,000
Your state — Total	———
Number of families in your state	———[1]
Your city or county — Total	———
Number of families in your city or county	———[1]

V. USE COTTAGE CHEESE[2]

For supplying protein, one pound of cottage cheese equals:	On the basis of energy supplied, one pound of cottage cheese equals:
1.27 pounds sirloin steak	8.33 ounces sirloin steak
1.09 pounds round steak	11.25 ounces round steak
1.37 pounds chuck rib beef	11.25 ounces chuck rib beef
1.52 pounds fowl	10.75 ounces fowl
1.46 pounds fresh ham	5.25 ounces fresh ham
1.44 pounds smoked ham	5.0 ounces smoked ham
1.58 pounds loin pork chop	6.0 ounces loin pork chop
1.31 pounds hind leg of lamb	7.33 ounces hind leg of lamb
1.37 pounds breast of veal	12.75 ounces breast of veal

[1] To find the number of families, divide the total population by five. The average family consists of 5 persons.

[2] Bulletin No. 29. (See Appendix, page 85.)

VI. LIST OF WHEAT SUBSTITUTES

Flours		Vegetables and Fruits	
Rye	Oatmeal	Potatoes	Corn
Barley	Potato	Bananas	Peas
Cornmeal	Rice	Beets	Beans

VII. LIST OF MEAT SUBSTITUTES

Fish	Beans	Fowls	Local game (rabbits, etc.)
Cheese	Nuts	Eggs	Peas (dried)
Milk			

VIII. LIST OF FOODS RICH IN FATS[1]

100 Per Cent Fat	80 to 100 Per Cent Fat
Commercial shortening or cooking fats	Lard, 92 to 100 per cent
Cottonseed oil	Fat salt pork, 86 per cent
Peanut oil	Butter, 85 per cent
Olive oil	Oleomargarine, 83 per cent
Sesame oil	Suet, 81 per cent
Corn oil	Drippings, Goose oil, Chicken fat — Per cent depends on methods of clarifying

40 to 70 Per Cent Fat	20 to 40 Per Cent Fat
Nuts (meats), 70 to 54 per cent	American cheese, 36 per cent
Bacon, 64 to 59 per cent	Cream cheese, 33 per cent
Coconut, 57 per cent	Egg yolk, 33 per cent
Chocolate, 48 per cent	Cocoa, 28 per cent
Whipping cream, 40 per cent	Olives, 20 per cent

IX. SUMMARY OF USES OF EASILY OBTAINABLE FATS[2]

Kinds of Fat	Flavor	Uses
Olive oil	Strong	Uncooked salad dressings
Cottonseed oil	Slight	Deep-fat frying, salad dressings, shortening except cakes
Corn oil	Fairly strong	Deep-fat frying

[1] Bulletin No. 70. (See Appendix, page 87.)
[2] Bulletin No. 17. (See Appendix, page 85.)

Kinds of Fat	Flavor	Uses
Chicken, duck, or goose fat	Mild	Shortening, especially cakes and pie crust
Butter	Mild	Shortening, except of plain pastry
Lard	Mild	Shortening, especially of plain pastry
Lard substitute	Slight	Sautéing, deep-fat frying, shortening
Suet	Strong	Sautéing
Bacon fat	Very strong	Sautéing
Oleomargarine	Mild	Same as butter

X. GROUPS OF FOODS FOR A BALANCED DIET[1]

SEE THAT FOOD FROM EACH GROUP IS EATEN EVERY DAY

Group 1. Fruits and Vegetables

[Foods depended on for mineral matters, vegetable acids, and body-regulating substances.]

Apples, pears, etc.
Berries
Oranges, lemons, etc.
Bananas
Melons, etc.
Salads (lettuce, celery, etc.)
Green peas, beans, etc.
Tomatoes, squash, etc.
Potherbs or "greens"
Potatoes and root vegetables

Group 2. Meat and Meat Substitutes

[Foods depended on for protein.]

Milk, skim milk, cheese, etc.
Poultry
Eggs
Meat
Fish
Dried peas, beans, cowpeas, etc.
Nuts

Group 3. Foods Rich in Starch

Cereal grains, meals, flours, etc.
Cereal breakfast foods
Bread
Crackers
Cakes, cookies, starchy puddings, etc.
Potatoes and other starchy vegetables

[1] Based on Bulletin 77, No. 5. (See Appendix, page 87.)

Group 4. Sugar

Sugar	Candies
Molasses	Sweet cakes and desserts
Syrups	Fruits preserved in sugar, jellies, and dried fruits
Honey	

Group 5. Foods Very Rich in Fat

Butter and cream	Salt pork and bacon
Lard, suet and other cooking fats	Table and salad oils

XI. PROPORTIONS OF VARIOUS FOODS EATEN BY THE AVERAGE AMERICAN FAMILY AND THE SOLDIER [1]

The American Family		The Soldier	
Meat	16	Meat	28
Fish	2	Fish	2
Eggs	2	Eggs	0
Milk, butter, etc.	18	Milk, butter, etc.	2
Cereals	31	Cereals	26
Fruits and vegetables	25	Fruits and vegetables	34
Sugar, etc.	6	Sugar, etc.	8
Total	100	Total	100

XII. A SOLDIER'S DAILY RATION [2]

			Permitted Substitutes
Meat, fresh	20.0	ounces	Salt, canned or dried meat, or fish, or turkey on Christmas and Thanksgiving
Flour	18.0	ounces	Bread, cornmeal, or hominy
Baking powder	0.08	ounce	
Beans	2.4	ounces	Rice or hominy
Potatoes or vegetables	20.0	ounces	

[1] Bulletin No. 98. (See Appendix, page 88.)

[2] Data secured by correspondence with the Quartermaster General of the U. S. Army, Washington, D. C.

			Permitted Substitutes
Prunes	1.28	ounces	Dried apples, peaches, or jam
Coffee	1.12	ounces	Tea
Sugar	3.2	ounces	
Milk, evaporated, unsweetened	0.5	ounce	
Vinegar	0.16	gill	Pickles
Salt	0.64	ounce	
Pepper, black	0.04	ounce	
Spice	0.014	ounce	
Lard	0.64	ounce	Lard substitute
Butter	0.5	ounce	Oleomargarine
Syrup	0.32	gill	
Flavoring extract	0.014	ounce	

XIII. FOODS TO EAT AND FOODS TO SAVE

Eat but Don't Waste			*Save*	
Vegetables	Cheese	Honey	Butter	Pork
Syrups	Milk	Nuts	Wheat	Mutton
Fish	Cereals (except wheat)		Beef	Sugar

XIV. HOW YOU CAN SAVE FOOD

Bread

Have at least one wheatless meal a day.

Use corn, oats, barley, or mixed cereal rolls, muffins, and breads in place of white bread.

Eat less cake and pastry.

Order bread from the baker a day in advance.

Cut the loaf on the table and only as required.

Use stale bread for toast and cooking.

Meat

Do not use either beef, mutton, or pork more than once daily.

Serve smaller portions.

Use all leftover meat — cold or in made dishes.

Use more poultry, rabbits, and especially fish and sea food.

Use soups more freely.
Use beans — they have nearly the same food value as meat.
Use no young meat (lamb, veal, etc.).
Use milk, eggs, and cheese instead of meat.

Milk

Use all of the milk; waste no part of it.
The children must have whole milk. Use less cream.
Use all skim milk and sour milk.
Use buttermilk and cheese freely.

Fats

Use butter on the table as usual, especially for children.
Use as little as possible in cooking.
Reduce the use of fried foods.
Use vegetable oils, such as cottonseed and olive oil.
Save daily one third of animal fat.
Make soap at home.
Have the butcher give you the scraps and trimmings of meat which you buy, to use for fat.

Vegetables and Fruits

Double your use of vegetables.
Use potatoes abundantly.
Store potatoes and roots properly.
Use fruits generously.
Cook vegetables, especially potatoes, with the skins on.

General Suggestions

Buy less. Cook no more than necessary. Serve smaller portions.
Use local and seasonable supplies; lessen the need of transportation.
Preach and practice the gospel of the clean plate.
Eat plenty, but wisely and without waste.
Do not eat between meals.
Watch out for the wastes in the community.
Eat everything which you take on your plate.
Learn to like everything.

Do not overeat.
Use leftovers to make palatable dishes.
When using canned goods, be sure that all food is removed from the can.
Save all the bottles for fruit juices, catsup, etc.
Use perishable foodstuffs before any part has an opportunity to spoil.
Can, dry, or pickle all surplus foods.
Use a fireless cooker for foods requiring long cooking.
Use accurate measurements when following a recipe.
Keep chickens to eat the unavoidable waste in food.
Save all paper; sort, tie in packages, and sell.
Save all clean rags to sell.
Eat a variety of foods.
Eat simple, plain foods.
Eat slowly and masticate thoroughly.
Stop eating before you feel "stuffed."

Good Food is Wasted

If it gets into the garbage pail
If it is allowed to spoil
If it is ruined by careless cooking
If it is served in larger amounts than are eaten
If more is eaten than is needed

Do Not Put into the Garbage Pail but Use to Fertilize the War Garden

Egg shells — after being used to clear coffee
Potato skins — after having been cooked on the potato. Fifteen per cent to 40 per cent of the potato is wasted in paring
Bones — after having been boiled in the soup kettle
Coffee grounds — after every meal
Tea leaves — after every meal
Asparagus butts — after being cooked and drained for soup
Spinach — decayed leaves and dirty roots. Use all the rest for a vegetable or for soup
Bacon rind — after melting out the fat
Ham bone — after cooking with split peas or fresh beans to give flavor
Celery leaves — after they have been dried and used to flavor soup

Keep Out of the Garbage Pail

Bread — Even half a slice can be used for toast. Stale bread can be used for stuffing fish, for crumbs on croquettes, and on top of scalloped dishes, or for bread and raisin puddings.

Crumbs — of different kinds of bread may be crushed, dried, and eaten like cereal.

Fats — of all kinds may be melted and strained, some to be used in place of lard or butter in cooking. Those of too strong flavor, as ham or mutton fat, should be used for making soap at home.

Sandwich crusts — Cuttings, from meat or egg sandwiches, should be soaked in milk until soft, and with a beaten egg added for each cup of crusts, well seasoned, baked in a ramekin and served as a luncheon dish.

XV. HOW FOOD IS WASTED[1]

1. Wastes in the Producer's Hands

A. ***On the Farm — Grains, Fruits,*** **etc.**

a. Bad weather conditions
b. Insect pests or plant diseases
c. Lack of fertilizer
d. Lack of intelligent care
e. Too much or too little rain at harvesting season
f. Shortage of labor
g. Too long storage before shipping
h. Poor storage
i. Harvesting too early or too late (frosts, etc.)
j. Poor packing due to
  Ignorant labor
  Lack of labor
  Poor containers
  Poor grading by size, color, etc. (pears, oranges, peaches, etc.)
  Rough handling of packages
k. Overloading of freight car
l. Poor packing in freight car

[1] Based in part on page 142, Bulletin No. 98. (See Appendix, page 88.) Discuss when each topic applies, and to what foods and localities each does not apply. Give several examples of each avenue of waste.

B. ***On the Farm — Live Stock***

a. Selecting poor breeding-stock
b Diseases
c. Wrong feeding
d. Marketing when too young
e. Keeping "boarder" cows
f. Keeping food products too long before marketing (eggs)
g. Poor care in shipping

C. ***From Woods and Waters (Fish and Game)***

a. Catching fish or game when too young
b. Too long storage under poor conditions
c. Poor packing
d. Failure to ice properly

D. ***In Factory (Canning, Meat Packing,*** **etc.)**

a. Spoilage from insanitary conditions
b. Spoilage due to ignorant workers
c. Spoilage due to lack of workers
d. Too few or poorly devised containers
e. By-products not used (particularly meat)

2. Wastes in Transit

(In hands of transportation companies)

A. ***At Shipping Point***

a. Shortage of cars
b. Poorly designed or improper cars
c. Overloading transit trucks
d. Poor packing of car

B. ***In Handling Trains***

a. Trains skipping icing stations
b. Refrigeration poor or lacking
c. Cars not frost proof
d. Delays due to
Poor management, causing tie-ups
Strikes
Floods and storms

C. ***After Arrival***

a. Congestion at terminals due to
- Shortage of tracks
- Insufficient facilities for unloading
- Strikes or other labor troubles
- Lack of storage place for goods

b. Holding of cars to profit by market changes

c. Thrown away by receiver of goods because
- Wholly unsound
- Partly unsound but not worth overhauling
- Partly unsound but no facilities for overhauling
- Sound, but not favorable

d. Poor handling.

3. In Distribution

(From the transportation company to the consumer)

A. ***Wholesale***

a. Failure to remove goods from terminal promptly
b. Poor transit facilities
c. Goods held too long by wholesaler
d. Poor storage facilities
e. Goods stored in poor condition
f. Overstocking
g. Damage by rats, insects, etc.

B. ***Retail***

a. Food thrown away through carelessness or inefficiency
b. Through fancies of customers
c. Due to use of food for trimming and display
d. Overstocking
e. Exposure to dust and insects
f. Failure to sell at cut-rates where food is partly deteriorated

4. In the Kitchen

A. ***Hotel or Restaurant***

a. Stale bread and leftovers thrown away
b. Slack business methods

c. Portions too large and too many free "side orders"
d. Too much variety in dishes or single items
e. Overstocking
f. Influence of custom (serving sugar on the table, etc.)
g. Improper disposal of waste (burning garbage, etc.)

B. ***Private Family*** [1]

a. Throwing away good food
b. Poor storage (insects, mold, etc.)
c. Waste in preparation
d. Poor cooking
e. Serving too much
f. Serving an unbalanced ration
g. Overeating

XVI. HOW MONEY IS WASTED ON FOOD[1]

1. Food itself is wasted as shown in Table XV
2. Food passes through too many hands
3. Speculators raise prices
4. Not enough terminal or city markets
5. Too many small stores
6. Food is bought out of season
7. Transportation is expensive
8. Retail delivery costs are high
9. Charge accounts are used too often
10. Extravagance in service and display is required of food sellers
11. Home goods are not bought

[1] All these wastes are illustrated in problems. See if you can find the problems on these topics.

LIST OF FREE BULLETINS FOR WHICH SCHOOLS MAY WRITE[1]

NOTE. Bulletins which are marked * are especially good. If your state college is not in this list, write and ask for any bulletins bearing on food conservation which have been published there. This list is not complete for all states.

EXTENSION SERVICE, COLLEGE OF AGRICULTURE, UNIVERSITY OF NEBRASKA, LINCOLN, NEBRASKA

*1. Economy in the Use of Fats
*2. Substitutes for White Flour in Bread Making
*3. How to Substitute Other Foods for Meat
*4. Prevention of Food Waste
5. Whole Wheat Flour

EXTENSION SERVICE, OREGON AGRICULTURAL COLLEGE, CORVALLIS, OREGON

6. Preservation of Fruits and Vegetables
7. The Use of Dried Fruits and Vegetables
8. War Breads and Cakes
9. Substitutes for Meat
10. Food for the Family

COLLEGE OF AGRICULTURE, UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS

*11. Experiments in Teaching Food Values
12. The Principles of Jelly-making
13. Home Canning by the Cold-Pack Method
14. Some Points to be Considered in the Planning of a Rational Diet
*15. War Bread Recipes
*16. Corn and Corn Products Used as Food
17. Fats and Oils in Cookery

[1] Do not write for more than one copy.

EXTENSION DIVISION, MICHIGAN AGRICULTURAL COLLEGE, LANSING, MICHIGAN

18. Rules for Planning the Family Dietary
19. Food Values
20. War Breads
21. Market Classes and Grades of Meat
*22. Milk
23. Vegetable Foods
24. Eggs

EXTENSION SERVICE, CONNECTICUT AGRICULTURAL COLLEGE, STORRS, CONNECTICUT

25. Peaches: Their Use and Conservation
26. Pickles — Chow-Chow — Chili Sauce — Sauerkraut, etc.
27. Jellies, Jams, and Marmalades
28. Eat Less Wheat — Try Wheatless Meals
29. Home Cheese Making
*30. Wheat Substitutes
*31. Potatoes in the Diet
*32. Meat Substitutes
*33. Milk
*34. Eat Less Meat
*35. Cutting the Meat Bills with Milk
*36. Save the Sugar for the Soldiers

EXTENSION SERVICE, MASSACHUSETTS AGRICULTURAL COLLEGE, AMHERST, MASSACHUSETTS

37. Hogs on Every Farm in 1917
38. Preparation Wastes
39. Table Wastes
40. How to Save Wheat Flour
41. Storage Wastes
42. Community Canning and Evaporating
43. Methods of Saving Fats
44. The Importance of the Dairy Cow

AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN

45. Cold Pack Canning
46. How to Cook Soy Beans

47. Preserve Eggs for Winter Use
48. Dry Surplus Fruits and Vegetables
49. Other Kinds of Bread
50. Help Fill the Nation's Flour Barrel
51. Twelve Ways to Cook Carp
52. Grow Beans

EXTENSION DEPARTMENT, IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS, AMES, IOWA

53. Corn and Its Uses
54. Wheat Saving Suggestions
55. Home Storage of Vegetables
56. Emergency Meals at Low Cost
57. Uses of Sour Milk
58. Left-over Foods
59. Plain Patterns in Cookery

COMMITTEE ON PUBLIC INFORMATION, WASHINGTON, D. C.

*60. National Service Handbook

NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY, ITHACA, NEW YORK

*61. Short Cuts for the Home Dietitian
62. Milk: A Cheap Food
63. Waste of Meat in the Home
*64. Crop Yields and Prices, and Our Future Food Supply

UNITED STATES FOOD ADMINISTRATION, WASHINGTON, D. C.

*65. Home Card
*66. Bulletin No. 1
*67. Bulletin No. 2
*68. The Present Campaign
*69. Grain and Live Stock
*70. Ten Lessons on Food Conservation
*71. Graphic Exhibits on Food Conservation
72. Commodity Licensing
*73. A Few Food Problems
*74. Creation of United States Food Administration (Bulletin 6)
*75. War Economy in Food (includes recipes and suggestions)

UNITED STATES DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

*76. Wastes — The Leaks in a Nation's Strength
*77. Food Thrift Series — Nos. 1 to 8
*78. Care of Food in the Home
*79. How to Select Foods — I, II, III
80. Food for Young Children
*81. Economical Use of Meat in the Home
82. Mutton and Its Value in the Diet
*83. Sugar and Its Value as a Food
84. Honey and Its Uses in the Home
85. Use of Corn, Kafir, and Cowpeas in the Home
*86. Preparation of Vegetables for the Table
87. Fresh Fruits and Vegetables as Conservers of Other Staple Foods
88. Preservation of Vegetables by Fermentation and Salting
89. Drying Fruits and Vegetables in the Home
90. Home Canning by the One-Period Cold-Pack Method
*91. The Use of Milk as Food
92. The Care of Milk and Its Use in the Home
93. Bread and Bread Making in the Home
94. Partial Substitutes for Wheat in Bread Making
*95. Corn Meal as a Food and Ways of Using It
*96. Use of Fruit as Food

MAYOR MITCHELL'S FOOD COMMITTEE, CITY HALL, NEW YORK CITY

*97. Hints to Housewives

THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, CONCORD, NEW HAMPSHIRE

*98. The World's Food (Price $1.00)

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF CALIFORNIA

99. Living Expenses
100. Food Standards
101. Bulletins of the Committee on Resources and Food Supply of the State Council of Defense

U. S. BUREAU OF FISHERIES, WASHINGTON, D. C.

*102. Pamphlets on the Use of Fish as Food

SOURCES OF PROBLEM MATERIAL

Problem	Bulletin
1	74, p. 7
2	98, p. 9
3	74, p. 18
4	98, p. 153
5	97, p. 153
6	97, p. 148
7	77, No. 1, p. 2
11	77, No. 5, p. 6
12	Correspondence
14	From "Problems about War," p. 6. Carnegie Endowment for International Peace, 407 W 117th St., New York City
15	73, pp. 10–11
16	73, p. 10
17	Current newspapers
18	98, p. 225
19	98, p. 226
21	98, p. 86
22	64
23	98, pp. 1–33
24	69, pp. 6–7
25	Poster, Kansas State Council of Defense
26	50, also correspondence
27	66, p. 21
28	73, p. 7
37	Correspondence — United States Bureau of Agriculture, Washington, D. C.
40	2, p. 1
41	5, pp. 1–2
51	31, p. 2
52	Crop Report, United States Department of Agriculture, September, 1917
54	31, p. 2
56	30, p. 2
58	2, p. 5
59	Crop Report, United States Department of Agriculture, September, 1917
61	16, p. 3
63	69
64	34; correspondence United States Bureau of Agriculture
65	Correspondence United States Bureau of Agriculture
67	34
68	73, p. 7
69	74, p. 25
70	21, p. 6
71	34
72	76
73	21, p. 5
78	Correspondence — Quartermaster General, Washington, D. C.
82	52, also correspondence Dept. of Agriculture, University of Wisconsin, Madison, Wis.

[1] The number refers to the bulletins as numbered in the bibliography, pages 85–88.

Problem	Bulletin
84–5–6	102
88	77, No. 1, p. 3
89	29, p. 4
90	70, p. 31
98	Correspondence — Quartermaster General, Washington, D. C.
101	71, p. 33
105	70, p. 33
107	71, p. 31
108	71, p. 33
112	17, 19, 70, 98
116	77, No. 1, p. 2
117	77, No. 1, p. 3
118	77, No. 2, p. 2, also correspondence
119	44
121	76
123	"Studies from the Survey on the Cost of Market Milk Production," Connecticut Agriculture College, Storrs, Conn., p. 4
126	70, p. 29, also 74, p. 27
129	Correspondence — Quartermaster General, Washington, D. C.
131	12
134	"Food Economy in War Time," Cambridge Press, Cambridge, England
148	98, p. 116, also correspondence Quartermaster General, Washington, D. C.
149	77, No. 4, p. 6
171–2	77, No. 2

SAVE FOOD

BUY
WAR-SAVINGS
STAMPS